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Wind Loads on Heliostats and Parabolic Dish Collectors

Final Subcontract Report

.

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FOREWORD

The research and development described in this document was conducted within the U.S. Department of Energy's Solar Thermal Technology Program. The goal of this program is to advance the engineering and scientific understanding of solar thermal technology and to establish the technology base from which private industry can develop solar thermal power production options for introduction into the competitive energy market.

Solar thermal technology concentrates the solar flux using tracking mirrors or lenses onto a receiver where the solar energy is absorbed as heat and converted into electricity or incorporated into products as process heat. The two primary solar thermal technologies, central receivers and distributed receivers, employ various point- and line-focus optics to concentrate sun-Current central receiver systems use fields of heliostats (two-axes light. tracking mirrors) to focus the sun's radiant energy onto a single, towermounted receiver. Point-focus concentrators up to 17 meters in diameter track the sun in two axes and use parabolic dish mirrors or Fresnel lenses to focus radiant energy onto a receiver. Troughs and bowls are line-focus tracking reflectors that concentrate sunlight onto receiver tubes along their focal lines. Concentrating collector modules can be used alone or in a multimodule The concentrated radiant energy absorbed by the solar thermal system. receiver is transported to the conversion process by a circulating working fluid. Receiver temperatures range from 100°C in low-temperature troughs to over 1500⁰C in dish and central receiver systems.

The Solar Thermal Technology Program is directing efforts to advance and improve each system concept through solar thermal materials, components, and subsystems research and development and by testing and evaluation. These efforts are carried out with the technical direction of DOE and its network of field laboratories that works with private industry. Together they have established a comprehensive, goal-directed program to improve performance and provide technically proven options for eventual incorporation into the Nation's energy supply.

To successfully contribute to an adequate energy supply at reasonable cost, solar thermal energy must be economically competitive with a variety of other energy sources. The Solar Thermal Technology Program has developed components and system-level performance targets as quantitative program goals. These targets are used in planning research and development activities, measuring progress, assessing alternative technology options, and developing optimal components. These targets will be pursued vigorously to ensure a successful program.

This report presents the results of wind-tunnel tests supported through the Solar Energy Research Institute (SERI) by the Office of Solar Thermal Technology of the U.S. Department of Energy as part of the SERI research effort on innovative concentrators. As gravity loads on drive mechanisms are reduced through stretched-membrane technology, the wind-load contribution of the required drive capacity increases in percentage. Reduction of wind loads can provide economy in support structure and collector drive. Wind-tunnel tests have been directed at finding methods to reduce wind loads on parabolic dish The work reported here was monitored by L. M. Murphy and A. Lewandowski of SERI.

A. Lewandowski Thermal Systems Research Branch

Approved for

SOLAR ENERGY RESEARCH INSTITUTE

Murphy, Manager

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SUMMARY

The purpose of this study was to define mean and peak wind loads on parabolic dish solar collectors. Loads on isolated collectors and on collectors within a field of collectors were obtained. A major intent of the study was to define wind load reduction factors for collectors within a field resulting from protection offered by upwind collectors, wind protective fences, or other blockage elements. The reason for finding methods to reduce wind loads is to improve the economy of parabolic collector support structures and drive These mechanisms will become more sensitive to wind loads as mechanisms. gravity loads decrease through innovative technology. The method used in this study was to generalize wind load data obtained during tests on model collectors placed in a modeled atmospheric wind in a boundary-layer wind A second objective of the study was to confirm and document a tunnel. sensitivity in load to level of turbulence, or gustiness, in the approaching wind.

Previous wind-tunnel test results had shown that mean and peak wind load decreases on flat square or round heliostats caused by upwind blockage from nearby heliostats or wind-protective fences could be accounted for with a simple 'generalized blockage area' concept. In this study, the same approach was applied to parabolic dish collectors. Wind loads were measured on an isolated collector and the largest load selected for each load component. Wind loads were then measured on collectors in a field environment searching for the largest loads at each position in the field. Field density and wind-protective fences were varied across the range expected for a full-scale field. Ratios of maximum in-field to maximum isolated load were recorded to document load reductions.

A key finding of the study was that wind load reduction factors for forces (horizontal and vertical) were roughly similar to those for flat heliostats, with some forces significantly less than those for flat shapes. However, load reductions for moments (elevation axis at a hinge point at the collector mid point and azimuth moment about a vertical axis) showed a smaller load reduction, particularly for the azimuth moment. The lack of load reduction could be attributed to collector shape, but specific flow features responsible and methods to induce a load reduction were not explored.

Previous wind-tunnel studies had determined that the wind load on flat heliostats were highly sensitive to the level of turbulence in the approach wind over the range of turbulence expected in various open country environments. The tests varying turbulence had not been obtained in a single test series, but were obtained over several years. In this study a series of tests varying turbulence were made on isolated flat heliostat and parabolic dish collectors. The high sensitivity of loads to turbulence intensity were confirmed for both flat and parabolic collectors. All load components were affected by turbulence with the largest effects on force with the collector oriented with maximum area to the wind.

Previous studies had shown that data obtained on flat plates or heliostats in a uniform, non-turbulent flow could not be used to predict loads on heliostats in a wind. In this study, that conclusion was extended to parabolic dish collectors.

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The following conclusions were drawn from the study:

- The influence of upwind blockage of parabolic dishes or wind fences can be accounted for by defining the same generalized blockage area (GBA) as was defined for use with flat heliostats
- Mean and peak wind loads decrease significantly with increasing magnitude of GBA with the exceptions of very small values of GBA and of the azimuth moment which remains close to the isolated dish load for GBA values typical of those anticipated for full-scale fields.
- Parabolic dish collectors do not have symmetric wind loads on the front side and the back side (front side or back side load refers to the case of wind impinging on the front mirrored or back side of the collector) as is the case for the flat plates. The front side loads are usually higher than the back side loads.
- The mean and peak values of front side loads (except the lift force) on parabolic dish collectors are similar to those for a flat plate.
- Wind drag and lift on isolated heliostats and parabolic collectors have shown a surprising sensitivity to turbulence intensity in the wind for open-country environments. The increase of mean and peak wind loads with turbulence intensity has been defined in the range of surface roughness from open water to suburban area.

The following recommendations for future study were made:

- The moment loads (especially azimuth moment) on parabolic dishes in field environments should receive additional study to find methods to reduce load magnitudes.
- Local pressure distributions on parabolic dish collectors should be measured for both single unit and field studies to determine the extent of non-uniformity of wind loading.
- The influence of porosity in parabolic dish collectors needs investigation, since current commercial geometries have significant porosity.

ACKNOWLEDGEMENTS

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NOMENCLATURE

<u>Symbol</u>	Definition
10.5S, 10.5R, 10.5Pa, 8.5S	model abbreviations (Table 1-1)
Α	1) actual surface area, and 2) constant
AB	area of blockage elements projected onto a plane perpendicular to approach wind direction
A _F	field area containing blocking elements used for A_{B}
Afence	fence solid area
A Bref	reference area for force and moment coefficients constant
BL	boundary layer
C	constant
C _{Fx,y,z} (HCL)	force coefficient, $\frac{Fx,y,z}{(q(HCL))(A)}$
C _{Mx,y,z,Hx,Hy} (HCL,H)	moment coefficient, $\frac{Mx, y, z, Hx, Hy}{(q(HCL))(A)(H)}$
CBL1, SBL1, SBL2, SBL3, SBL4	velocity profile abbreviations (Table 1-2)
D and a second sec	distance between EF and heliostats at the first row
E	hot-wire output voltage
EF	external fence
f, freq	frequency, Hz
F .	load component coefficient
F _{x,y,z}	measured force along axis x, y, z
FORCT, FORPT, FORDL, FORCL, SETRF	programs (Appendix B.2)
GBA	generalized blockage area
Gu,x,y	power spectral density
Н	heliostat chord or parabolic dish diameter

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<u>Symbol</u>	Definition
Hf	height of external fence
H _o	heliostat unit under consideration
Hx,Hy,z	coordinate system at the hinge
HCL	height of heliostat centerline (heliostat center)
IF	internal fence
К	constant
L ₁	distance between heliostats in the EF direction
L ₂	distance between heliostats across EF direction
L _X	integral length scale for turbulent flow
L _{ref}	reference length
^M x,y,z,Hx,Hy	measured moment about axis x, y, z, Hx and Hy
n	exponent of velocity profile
Ρ	porosity of fences, fraction of total area which is open
q(HCL)	dynamic pressure of wind at height HCL, $\frac{1}{2} \rho U^2$ (HCL)
Tu, T.I.	turbulence intensity, percent; (V_{rms}/V) x 100
U	mean wind velocity
UH v	Reynolds number
U(HCL)	wind velocity at height HCL
U(z)	wind velocity at height z above ground
U _{ref}	wind velocity at reference height
U rms	root-mean-square of velocity about U
U _*	surface friction velocity
x,y,z	coordinate system at the base
Z	height above ground
Z _o	roughness length

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<u>Symbol</u>	Definition
α	elevation angle
β	wind direction
^γ Fx,Fz,MHy,Mz	ratio of field load to isolated load for force or moment component
δ	boundary-layer thickness
ρ	density of air
ν	kinematic viscosity
Symbol <u>Subscript</u>	Definition
mean	mean value
peak	peak value
rms	root-mean-square about mean
ref	reference

SECTION 1.0

INTRODUCTION AND EXPERIMENTAL CONFIGURATION

1.1 INTRODUCTION

The research and development described in this document was conducted within the U. S. Department of Energy's Solar Thermal Technology Program. The goal of this program is to advance the engineering and scientific understanding of solar thermal technology and to establish the technology base from which private industry can develop solar thermal power production options for introduction into the competitive energy market.

Solar energy remained a dream for the most of this century. But now it is widely believed that given reasonable incentives, solar energy could provide between a fifth and a quarter of the nation's energy requirements by the turn of this century (ref. 43). Solar energy is becoming more and more a serious alternative source of energy.

Solar thermal technology concentrates the solar flux using tracking mirrors or concentrators onto a receiver where the solar energy is absorbed as heat and converted into electricity or is incorporated into products as process heat. The two primary solar thermal technologies, central receivers and distributed receivers, employ various point and line-focus optics to concentrate sunlight. Current central receiver systems use fields of heliostats (two-axis tracking mirrors) spaced to focus radiant energy onto a receiver. Troughs and dishes are line-focus or point-focus tracking reflectors that concentrate sunlight onto receiver tubes at their focal points. Concentrating collector modules can be used alone or in a multimodule system. The concentrated radiant energy absorbed by the solar thermal receiver is transported to the conversion process by a circulating working fluid. Receiver temperatures range from 100°C in low-temperature troughs to over 1500°C in dish and central receiver systems.

To successfully contribute to an adequate energy supply at reasonable cost, solar thermal energy must be economically competitive with a variety of other energy sources. The cost of the heliostats, or tracking mirrors, is a major element in central receiver economics, for at present, the mirror system accounts for up to two thirds of the overall plant cost (ref. 43). An important knowledge base needed for the design and development of fields of tracking solar collectors is an understanding of mean and peak wind loads which act on individual units within the field. This input can provide a basis for systems studies aimed at optimizing energy production per unit cost. Thus, the effects of collector size, component strength for resisting wind loads, field density, and protective wind fences can be traded during field design to produce the most economical field.

Wind loads for current heliostat or dish designs which support the collector at a single point are particularly critical since the tracking drive system must support both the gravity and applied wind loads. Thus, the magnitudes of forces and moments at the drive/support location are important.

Previous studies [44] of heliostats in a simulated wind environment concentrated on the mean and peak wind loads for flat heliostats. In that

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study, the wind load formulation for fields of flat heliostats was conducted to permit meaningful systems studies and preliminary field designs. A set of load coefficient reductions were discovered, which can be applied to a flat heliostat anywhere within a field and which predict the reduction in wind load which is expected to occur due to protection of surrounding heliostats and protective wind fences. Previous studies [44] also revealed an unexpected sensitivity to turbulence intensity in the range of typical atmospheric turbulence for drag and lift forces and suggest the need for additional study.

The effort in the current study is directed at the wind loads on parabolic dish collectors and the influence of turbulence on both flat and parabolic collectors. Earlier wind-tunnel studies of parabolic collectors, summarized in [44], showed that almost all tests were conducted in uniform, low-turbulence flow and were not suitable for prediction of collector wind loads in a real-world environment.

In this report, the mean and peak wind loads on a single parabolic reflector and a parabolic reflector in a field of similar structures were investigated. The intent was to determine methods for decreasing the wind loads on parabolic reflectors below those values for an isolated parabolic reflector. Both mean and peak loads were measured in a boundary layer wind tunnel capable of modeling the atmospheric boundary layer winds. No inertial response of the reflectors was assumed in this study. Six load components (three forces and three moments) are presented in non-dimensional coefficient forms: C_{FX} , C_{FY} , C_{FZ} , C_{MHX} , C_{MHY} and C_{MZ} . The turbulence intensity effects were studied on four different models, both flat and parabolic, and the results were presented in the same non-dimensional forms.

Wind loads on a heliostat or parabolic collector in a field are a function of collector orientation, field density, wind direction, and the presence of wind blockage elements other than the collectors themselves. The wind load on a collector fluctuates about a mean value due to gusting in the approach winds, due to turbulence generated by upwind collectors or fences and due to turbulence generated in the wake of the collector itself. For a structure which has little resonant response to the fluctuating wind load, peak design stresses will result from the peaks in the fluctuating wind load acting as a quasi-static load assuming that the bulk of the wind energy is at frequencies below the collector natural frequency. For a collector can be subjected will be larger than those induced by a quasi-static wind load since inertially driven stresses are present. For those cases, analysis beyond that presented herein would be necessary.

1.2 A REVIEW OF PREVIOUS WORK

The study of wind loads on ground based solar collectors has been extensive during recent years, [references 1 to 14]. These studies include: heliostats [references 1 and 2], photovoltaic collectors [references 3, 5 to 7, and 10 to 14] and parabolic trough collectors [references 4, 8 and 9]. Some other related studies have investigated roof mounted collectors [references 15 to 18] and dish antennas [references 19 to 21, and 40 to 42]. Reviews of some previous wind load studies are given in references [22, 39 and 44]. A study was performed by Peterka et al. [23] in 1985 in which mean wind loads on heliostats within a field were compared to those for an isolated heliostat to determine load reductions within the field. In order to avoid explicitly analyzing the large number of dependent variables (heliostat azimuth and elevation angles, field layout geometry, protective wind fence geometry, and wind direction), a generalized blockage area (GBA) was defined to account for all upwind blockage in a single variable. While not all possible geometries were explored, the concept of a generalized blockage area appeared to work well for mean loads.

The most recent study [44] expanded upon and extended the work by Peterka et al. [23]. Additional mean load cases were studied for several different kinds of heliostats (square flat plate, circular flat plate and edge-porous flat plate) to expand the range of conditions for which the GBA concept is valid and to cover the peak loads which were measured directly. The GBA concept was made more complete and consistent than before. Also the sensitivity of forces and moments to turbulence intensity in the range of typical atmospheric turbulence level was discovered.

The previous work suggested two tasks for further investigation, both of which were studied in the current effort. One was to extend the analysis of mean and peak wind loads from flat reflectors to parabolic dishes. The second was to better document the influence of turbulence in the approach wind.

1.3 DEFINITION OF THE GENERALIZED BLOCKAGE AREA (GBA)

The generalized blockage is defined as follows:

- $GBA = A_B/A_F$ When the test array is deeper into the field than the second row or when an external fence is in place.
- A_B = solid blockage area of a representative set of upwind collectors added to the area of protective wind fences or other blockage elements projected onto a plane normal to the approach wind direction (see Figure 1-1).
- A_F = the ground area occupied by the upwind blockage arrays included in the calculation of A_B .

Special cases are:

- GBA = 0.01 When the test array is in the first row with no external fence.
- GBA = 0.02 When the test array is in the second row with no external fence.

Because the generalized blockage area does not work strictly for the first two rows without fence, values of 0.01 and 0.02 were selected arbitrarily. These values provided a convenient method of representing these two rows in relation to the interior rows. Some details of the calculation of GBA are discussed below and example calculations are shown in Appendix A.



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Figure 1-1. Definition of Generalized Blockage Area (GBA)

The definition of GBA can be simplified for the case when the external fence is not constructed (see Figure 1-2):

- (a) Without internal fence,
 - A_B = the projection of the collector on to the normal to the approach wind direction.
 - A_F = the field area surrounding the arrays under consideration (see Figure 1-2).
- (b) With internal fence,
 - A_B = the projection of the collectors and the internal fence.
 - A_F = field area containing two collectors and an internal fence (see Figure 1-2).



Without External or Internal Fence With Internal Fence

Figure 1-2. GBA Calculation Without External Fence

A special case arises for the case of a collector in the first or second row with an external fence. In that event, the calculation of GBA is performed as shown in Figure 1-3.

All the data in this report was calculated according to above GBA definition. This calculation is sometimes time-consuming. In order to provide designers of collector fields with a simple calculation procedure, another definition is presented as follows:

The GBA is calculated as a sum of blockages due to collectors (heliostats or dishes), internal fences, and external fences. Calculation of the GBA is shown in Figure 1-4. In the figure, AH is the actual surface area of the collector (chord times width for a heliostat and planar area within the circular rim of a parabolic dish), AF is the representative field area occupied by the collector, and AS is the solid area of fences within AF. A value of GBA = 0.02 (0.01) was arbitrarily set for heliostats in the second (first) row of the field when no external fence was presented to account for the possibility of direct impingement. Note that GBA is a function of load component. This is due to pre-selection of the collector orientation for maximum loading. The factor F in Figure 1-4 represents the fraction of collector area AH presented to the wind at the orientation of maximum loading. Other values of F may be calculated if GBA is desired for non-peak loading orientations.





1.4 EXPERIMENTAL APPARATUS AND MODELS

1.4.1 The Wind Tunnel and Force Balance

This study was performed at the Fluid Dynamics and Diffusion Laboratory of the Engineering Research Center at Colorado State University. All the data was collected in the Industrial Wind Tunnel, Figure 1-5.

The closed circuit Industrial Wind Tunnel is powered by a 56 kw electric induction motor connected to a sixteen blade propeller. The useful mean flow velocity may be varied from 0.3 to 25 m/s. A flexible roof permits a boundary layer flow to be developed with a zero pressure gradient to approximate the zero pressure gradient in atmospheric flows. The option for putting one of the several different kinds of roughness elements on the wind tunnel floor and four spires at the entrance to the working section develops a variety of velocity profiles comparable to that found in the full-scale environments.

The force balance is a strain sensing apparatus mounted on the test section turntable, Figures 1-6. The lower strain gauges, Figure 1-6, are mounted in the base of the force balance and the upper gauges are mounted to the collector support post. Each set of gauges measures fluctuating moments about two horizontal and perpendicular axes through the gauge location. Differences in the moments at two elevations permit the forces to be obtained. Placing the upper gauges on the collector support post permits a more precise measurement of the hinge moment than can be obtained if both sets of gauges

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Heliostat Under Consideration

AF Representative Field Ground Area

📕 🛛 AH Solid Heliostat Area in A

- AS Solid Area of Fence in A

F Load Component Coefficient

$$GBA = \frac{(F)(AH) + AS}{AF}$$

Calculation for rows 6, 7, ... is the same as for 5.

For row 2 with no external fence, use GBA = 0.02. For row 1 with no external fence, use GBA = 0.01.

Component	F
F _X	1.0
Fz	0.5
MHV	0.5
M ₇	0.5

Figure 1-4. Simplified Definition of Generalized Blockage Area (GBA)

are below floor level. The vertical position of the plate centerline is given in this report as HCL. This centerline height represents about 6 m if the model scale is taken as 1:40.

In this study the turntable and balance maintained a constant orientation to the stationary wind tunnel. Variations in wind direction were achieved by rotating the heliostat on the fixed support post. Thus the coordinate system used was wind-fixed, not body-fixed. Prior to presentation, the data was rotated to a body-fixed coordinate system.







Figure 1-6. Force and Moment Balance

A pitot-static tube was mounted upwind of the heliostat models to record the approach wind speed. The velocity was measured at the HCL height, the parabolic collector or heliostat center height. This velocity was used in the calculation of wind load coefficients (see Section 1.5.3).

1.4.2 The Models

Four models were used during the wind tunnel study, see Figures 1-7 to 1-11, and the necessary information about the models is shown in Table 1-1. The basic shapes of the models are as follows: a square solid plate, a round solid plate and a parabolic dish. The parabolic dish was made of aluminum; all the rest were made of plywood. The parabolic dish was used in both the single and in-field studies and is the most important model in this report.

The round plate was only used for a comparison with the single, square plate results. The vertical post in all cases was aluminum (with strain gauges mounted near the top) and this was attached, via a standard clamp, to a mounting bracket at the back of each model.

Internal (within-field) and external (edge-of-field) fences (IF and EF) were made of the same material: a steel mesh with a porosity of approximately 50% (see Figure 1-11). A 20% change in the porosity of the fence gives a change of about 8% maximum in GBA value for heliostats in the 3rd row or deeper in the field. The internal fence height usually was around 0.50 to 0.60 of the reference length (H), and the external fence height was around 0.80 to 0.90 of the reference length (H).



Figure 1-7. Square Model (10.5S)





Round Model (10.5R)





Figure 1-9. Parabolic Model (10.5Pa)



Figure 1-11. Internal Fence and External Fence

 Abbre- viation (Figure No.)	Material	Shape	Surface Thick- ness (in)	Dimen- sions (in)	Ref. Length (in) ^L ref	Ref. Area (in ²) A _{ref}
 10.5S (1-7)	Plywood	Square	1/8	10.5x10.5	10.5	110.3
10.5R (1-8)	Plywood	Circle	1/8	D = 10.5	10.5	86.7
10.5Pa (1-9)	Aluminum	Parabolic	1/8	D = 10.5	10.5	86.5
 8.5S (1-10)	Plywood	Square	1/8	8.5x8.5	8.5	72.3

Table 1-1. Model Configurations

 $\{ f_{ij} \}$

1.5 PREPARATION BEFORE TEST

1.5.1 Profiles

Five boundary layers were used in the wind tunnel as shown in Table 1-2 and from Figures 1-12 to 1-16.

Table 1-2.	Velocity	Profiles	Used i	n the	Wind-Tunnel	Studies
	rerocrey	11011103	0300 1	n one		Judics

Name		Purpose of Study	Profile	
CBL1 (Conventional		Turbulence Effect Boundary Layer)	Figure	1-12
SBL1		Single & Field Parabolic Collector	Figure	1-13
SBL2		Turbulence Effect	Figure	1-14
SBL3		Turbulence Effect	Figure	1-15
SBL4		Turbulence Effect	Figure	1-16
Note:	The four boundar	r profiles labeled S were y layers.	stimula	ated

The CBL1, SBL1 and SBL2 profiles were developed by placing plywood sheets on the wind-tunnel floor with 1/2 inch cubes well arranged on top of them. SBL3 and SBL4 profiles were achieved using 2 inch cubes. The stimulated boundary layers were generated by setting one or two barrier(s) far upstream of the

12

model at the proper position(s) to get the required boundary layer. The purpose of the stimulated boundary layers was to increase turbulence intensity with only small changes in mean velocity.

The reference velocity measurement was obtained by the pitot-static tube at the height of the center of the parabolic plate which is called HCL (more discussion appears in Appendix B.1.). The location where velocity was obtained for the single parabolic dish study was different from that for the in-field parabolic dish study. The upstream rows (up to three rows plus the external fence) of parabolic dishes disturbed the flow at the single collector measurement point just upwind of the collector. The field study required the sensor to be moved upwind in front of the field. The distance between the two locations in this experiment was 3.5 m. Both velocity profiles were taken in order to determine how much difference the mean velocities had at the height of the center line (HCL), Figure 1-17. A square of the ratio of velocities (0.68/0.72) gave a correction factor of 0.892 to the force and moment coefficients (see definitions in Section 1.5.3) in the field study. The data (from the data appendices) were corrected before presentation in Figures 2-9 to 2-16.

1.5.2 Test Plan

The test program can be divided into two general areas:

- 1. Wind loads on an isolated heliostat or parabolic dish.
- Wind loads on a dish collector as part of a field of similar structures.



Figure 1-12. Velocity and Local Turbulence Intensity Profiles (CBL1)



1.10

i.

Figure 1-13. Velocity and Local Turbulence Intensity Profiles (SBL1)



Figure 1-14.

Velocity and Local Turbulence Intensity Profiles (SBL2)



Figure 1-15. Velocity and Local Turbulence Intensity Profiles (SBL3)



Figure 1-16. Velocity and Local Turbulence Intensity Profiles (SBL4)



Figure 1-17. Profiles for Isolated and Field Locations of Pitot-Static Tube

A set of generic field geometries were selected as shown in Figure 1-18. These field geometries were selected on the basis of previous experience in order to locate conditions yielding the largest loads on field collectors. There were two row arrangements relative to the external fence used in this The O° case gives the results when the wind approaches study; 0 and 45°. perpendicular to the rows of arrays while the other case is taken at 45° to the array rows (see Figure 1-18). These two directions were selected on the basis of previous results to define the largest loads which are likely to act on a parabolic dish in the field. The field layout geometry was generically similar to that used by Peterka et al. [23] which used the "Solar One field" Barstow with variations in density of that field. These two row at arrangements have roughly the same GBA values and exactly the same field densities.

The field arrangement in the wind tunnel for the test plan is shown in Figure 1-19.

The fields were modified by changing the following variables:

1. Generalized Blockage Area (GBA)

GBA is a function of the physical parameters listed below. Calculation of GBA is shown in Section 1.3.





Wind Tunnel Field Arrangement





2. Field density without fences.

Field densities ranged from very open to densities typical of the Barstow heliostat field [23]. When there is no fence present the GBA may be calculated using the method shown in Section 1.3. The GBA varies with heliostat location within the field, and with wind direction. In this report only one density was studied for the case with collectors vertical ($\alpha = 90^{\circ}$) and perpendicular to the wind ($\beta = 0, 180^{\circ}$), which gave GBA = 0.139. α and β are defined in Figure 1-20.

3. Wind direction (β) .

Several wind directions were used in this study, 0, 20, 45, 65 degrees, etc. Refer to Figure 1-20 for definition of β .

4. Tilt angle or elevation angle (α) .

Refer to Figure 1-20 for definition of the elevation angle α .

5. Number of rows upstream.

For a field with constant density, loads do not change significantly past the fourth row into the field. Hence, only rows 1-4 were tested here. For rows 1 and 2 without the external fence, the GBA is not effective and values of 0.01 and 0.02 were used.

6. External fence (EF).

The external fence was always placed at a distance two times the heliostat chord H from the first row.

7. Internal fence (IF).

The internal fences were located at the even row numbers only; that is rows two, four, six, etc.

Figure 1-18 shows the entire test plan for this study including both the isolated and in-field heliostats. Wind loads on the first, second, third and fourth rows were measured with and without external fences. The third and fourth rows were tested with and without the internal and external fences. In the third and fourth row studies there were always four runs due to the combinations of internal and external fencing.

Photographs of the models in the wind tunnel are shown in Figures 1-21 to 1-26.



Figure 1-20. Definition of Coordinate System

1.5.3 Force and Moment Measurements

Data acquisition and analysis produced six force and moment coefficients: C_{Fx} , C_{Fy} , C_{Fz} , C_{Mx} or C_{MHx} , C_{My} or C_{MHy} , and C_{Mz} . The coefficients are defined as follows:

The coefficient of the force along the x-axis,

$$C_{FX} = \frac{F_{X}}{\frac{1}{2} \rho \ U^{2} A_{ref}} .$$
 (1.1)

The coefficient of the force along the y-axis,

$$C_{Fy} = \frac{F_{y}}{\frac{1}{2} \rho U^{2} A_{ref}} .$$
 (1.2)



Figure 1.21. In-field Study of Parabolic Dishes with Both Internal and External Fences



Figure 1-22. In-Field Study of Parabolic Dishes (Back View)



Figure 1-23. In-Field Study of Parabolic Dishes (Front View)



Figure 1-24. Second-Row Study of Parabolic Dishes With External Fence


Figure 1-25. First-Row Study of Parabolic Dishes with External Fence



Figure 1-26. Test Section of the Industrial Wind Tunnel with Parabolic Dishes

The coefficient of the force along the z-axis,

$$C_{FZ} = \frac{F_Z}{\frac{1}{2} \rho U^2 A_{ref}}$$
 (1.3)

The coefficient of the moment about the z-axis,

$$C_{MZ} = \frac{M_Z}{\frac{1}{2} \rho U^2 A_{ref} L_{ref}} . \qquad (1.4)$$

The coefficient of the moment about the x-axis at the hinge,

$$C_{MHx} = \frac{M_{Hx}}{\frac{1}{2} \rho U^2 A_{ref} L_{ref}} . \qquad (1.5)$$

The coefficient of the moment about the y-axis at the hinge,

$$C_{MHy} = \frac{M_{Hy}}{\frac{1}{2} \rho U^2 A_{ref} L_{ref}} . \qquad (1.6)$$

The coefficient of the moment about the x-axis at the ground,

$$C_{MX} = \frac{M_{X}}{\frac{1}{2} \rho U^{2} A_{ref} HCL} .$$
 (1.7)

The coefficient of the moment about the y-axis at the ground,

$$C_{My} = \frac{M_y}{\frac{1}{2} \rho U^2 A_{ref} HCL}$$
 (1.8)

Where,

U = reference mean velocity at hinge level (HCL) [m/s]. ρ = air density [kg/m³].

 A_{ref} = surface area of heliostat (Table 1-1) [m²].

L_{ref} = reference length (chord) (Table 1-1) [m].

HCL = height of hinge = centerline of collector (Figure 1-20) [m]

 F_X, F_Y, F_Z = measured forces along given axes.

 $M_Z, M_{HX}, M_{Hy}, M_X, M_y$ = measured moments about given axes.

All the moments conform to the right hand rule and the base moments may be derived from the hinge moments in the following manner. The relationship between C_{MV} and C_{MHV} is:

$$C_{My} = C_{MHy} \left(\frac{H}{HCL}\right) + C_{Fx}$$
 (1.9)

The recorded data includes the gust and peak factors. The gust factor is the peak recorded value divided by the mean. The peak factor is the difference between the peak and the mean divided by the measured rms (the number of standard deviations from the mean). Thus the reported information given in each file is, in coefficient form:

mean = time average,

rms = root-mean-square of the fluctuating values about the mean,

peak = largest and smallest values recorded during each 40 second
 run,

Gust factor = peak divided by the mean, and

Peak factor = (peak-mean)/rms.

These factors relate to the way peak loads are often specified in code formulations and may be useful for later analysis related to codified formats of data presentation.

1.5.4 Accuracy of the Data

The following three areas affect the accuracy of the test results:

- 1. Modeling of the wind environment.
- 2. Accuracy of the instruments.
- 3. Precise modeling of the heliostat and fence geometry.

Simulations of many different situations of wind environment were used, which ranged from a uniform low turbulent flow to a extremely high-turbulence flow. The change in boundary layer demonstrated a sensitivity to the level of turbulence intensity over the range of turbulence expected in the full scale. This sensitivity was discovered in Peterka et al. [44] and is discussed more thoroughly in Section 2.3.

The accuracy of the instruments could be affected by calibration variation and temperature changes. The accuracy of the measurement is believed to be within about 5% of a representative maximum load measurement on any channel.

The parabolic dish and heliostat dimensions are representative of those currently under design. Current designs are virtually solid with no large gaps. The thicknesses of the models were too large (3.2 mm model = 127 mm full scale at 1:40 scale) for flat glass heliostats in order to maintain adequate model stiffness. However, since the ratio of thickness T to chord H

is small (T/H = 0.012), the thickness is not expected to have an influence on measured loads. Fence porosity was set at 50 percent, which provides good protection with minimum materials. Previous work [23] showed that a berm could be effectively treated as a fence with no porosity for calculation of GBA.

SECTION 2.0

RESULTS AND DISCUSSION

2.1 THE SINGLE PARABOLIC DISH

The parabolic dish study was conducted in the wind environment of SBL1 (Table 1-2). This is a stimulated boundary layer with a turbulence intensity of 15 percent. It was shown in earlier work [44] that the influence of level of turbulence intensity in the boundary layer on collector wind loads is more important than was previously known. Turbulence intensity as a percent is defined as

$$Tu = \frac{U_{rms}(z)}{U(z)} \times 100$$

where $U_{rms}(z)$ is the root-mean-square of the fluctuating part of the wind in the direction of flow at height z, and U(z) is the mean velocity at the same location. Tu is a measure of gustiness in the wind flow and increases with increasing roughness of the ground surface. Table 2-1 shows several measures of the characteristics of the wind including turbulence intensity. Equations B-3 and B-4 in Appendix B show how these measures are reflected in the mean velocity variation with height. Table 2-1 shows that Tu at 10 m elevation varies from about 10 percent for wind flow over water to over 20 percent for a typical suburban area.

Stimulated boundary layer SBL1 (Tu = 15 percent) has a turbulence level typical of an open country site, and is close to the turbulence level of 18 percent measured in the boundary layer used in previous work, reference [44]. These two velocity profiles were intended to be essentially similar. Data to be presented in Section 2.3 shows that measurable differences in load may be expected from even this difference of 3 percentage points in turbulence.

Wind-load data obtained on the isolated dish collector during the current test series are shown in Figures 2-1 to 2-8. The data presented are horizontal force coefficients for flow approaching the concave side of the disk (called front or frontside loads), Figure 2-1; and convex side (called back or backside loads), Figure 2-2; vertical force coefficients for frontside, Figure 2-3; and backside, Figure 2-4, loads; elevation moment coefficients, Figures 2-5 and 2-6; and azimuth moment coefficients, Figures 2-7 and 2-8. Data presented in each figure for the dishes are the mean values plus maximum and minimum peak values. Also included in each figure as a solid line is the mean coefficient expected from a parabolic dish in a uniform (no mean velocity shear), very-low-turbulence flow, reference [39]. For the frontside loads, the variation of load coefficient with elevation angle (or wind direction for azimuth moments) was sufficiently similar to those for flat heliostats that mean and peak data from [44] for isolated heliostats were plotted as dashed lines on the figures for comparison.

The data for frontside loads on the parabolic dish varies with elevation or azimuth angle with the same general tendencies as for the flat heliostats. However, the overall magnitudes are reduced for all but lift force. It will

z _o (m)	Repre- sentative Value of z (m)	o Terrain	α	Turbulence Intensity, % at 10 m*
0.5-1.5	0.7	Center of large towns, cities, forests	0.35	34
		Dense forests of relatively non-uniform height	0.27-0.30**	34
		Dense forests of relatively uniform height	0.23-0.25**	34
0.15-0.5	0.3	Small towns, suburban area	0.24	26
0.05-0.15	0.1	Wooded country villages, outskirts of small towns, farmland	0.20	21
0.015-0.05	0.03	Open country with isolated trees and buildings	0.17	17
0.007-0.015	5 0.01	Grass, very few trees	0.15	14
0.0015-0.00	0.003	RUNWAY AREAS (Average) Surface covered with snow, rough sea in storm	0.13	13
<0.0015	0.001	Calm open sea, lakes, snow covered flat terrain. Flat desert	0.11	. 11

Table 2-1. Estimated Values of the Surface Roughness and Wind Flow Characteristics

* Turbulence intensities calculated from information in Simiu et al. [32]

 z_{0} = effective surface roughness

 α = power law exponent for mean velocity variation with elevation

** All roughness entries in table except these are from ESDU [45]

be illustrated in Section 2.3 that the variation in load with turbulence intensity is large in the 10 to 20 percent range. Applying a correction for turbulence to the parabolic dish data of Figures 2-1, 2-3, 2-5 and 2-7 for comparison with heliostat data would increase the peak loads by about 30 percent and mean loads by about 14 percent. The largest parabolic CFx compares quite well with heliostat data with this correction. This is likely



Figure 2-1. Front Drag Force Coefficient Variation with α



Figure 2-2. Back Drag Force Coefficient Variation with α



Figure 2-3. Front Lift Force Coefficient Variation with α



Figure 2-4. Back Lift Force Coefficient Variation with α







Figure 2-6. Back Hinge Moment Coefficient Variation with α



Figure 2-7. Front Azimuth Moment Coefficient Variation with β at α = 90°



Figure 2-8. Back Azimuth Moment Coefficient Variation with β at α = 90°

due to the relative unimportance of the curvature at α = 90 degrees with the wind blowing directly into the dish. The parabolic CFz is significantly larger than that of the heliostat with or without the turbulence correction and is likely due to the curvature of the dish (peak loads occur at $\alpha = 30$ degrees where the concave side is up enhancing the downward force). For both elevation and azimuth moment coefficients, dish loads are significantly less than heliostat values for frontside loads even with turbulence corrections. The likely reason is that the concave upward curvature at α = 30 degrees causes an area for wind impingement whose contribution to the moment should counteract the moment generated at the dish leading edge. Definitive explanations of the observed differences in wind loads would require measurements of local pressure and possibly local velocity distributions. The dish frontside loads appear to be explainable in comparison to flat heliostat loads, at least in a qualitative sense.

Comparison of front side parabolic dish mean loads of Figures 2-1, 2-3, 2-5 and 2-7 with loads from uniform low-turbulence flow (plotted as solid lines) shows that the current wind-tunnel results are significantly larger for CFx and CFz, and slightly larger for CMHY and CMz. The reason for the larger wind-tunnel loads can be attributed to the presence of turbulence in the atmospheric boundary layer. Since wind loads on parabolic dish collectors in the atmosphere will always occur in the presence of turbulence, use of uniform flow results such as those of reference [39] or the 1961 ASCE Wind Forces on Structures paper [36] are inappropriate and unconservative.

Backside loads shown in Figures 2-2, 2-4, 2-6 and 2-8 have a different character than the frontside loads discussed above. For CFx and CFz the shape of the coefficient variation with elevation angle is similar, but the magnitude of the load is significantly reduced. For CFx, the reduction is probably caused by the streamlining of the body shape due to dish curvature. The reduction for CFz is more difficult to explain, but likely occurs due to the increased angle of attack of the leading edge as compared to angle α of the dish as a whole. Peak lift for a heliostat occurs at an elevation angle of 30 degrees and is due in part to leading edge effects. When the overall body is at the optimum lift position of about 30 degrees, the leading edge lift does not augment lift as much as occurs on a flat heliostat. Comparison with uniform flow results again shows that uniform flow cannot correctly predict loads.

For backside loads CMHy and CMz, Figures 2-6 and 2-8, the wind-tunnel measurements show a more uniform variation of peak loads with elevation or azimuth angle than occurred for frontside loads. The largest magnitudes were close to those at critical angles for frontside loads, indicating a wider range of angles at which design loads apply. The reason for this situation is not clear, but may be related to a tendency for flow over the curved surface to remain attached to the surface. Uniform flow results are not able to predict wind-tunnel results, for the moment loads.

During the single parabolic dish study, wind loads were also measured on a square heliostat (10.5S) so that comparison may be made with that data, if desired. This data have not been used in the current analysis, but are printed in Appendix D, data file SCPT2.

2.2 THE PARABOLIC DISH AS PART OF A FIELD

The parabolic dish field study was conducted using the same method as for the flat plate as part of a field [ref. 44]. Two forces (Fx and Fz) and two moments (MHy and Mz) were studied. The results for both the mean and peak Figures 2-9 and 2-10 for the mean and peak loads are presented as follows: drag force coefficients, Figures 2-11 and 2-12 for the mean and peak lift, Figures 2-13 and 2-14 for the mean and peak hinge moment, and Figures 2-15 and 2-16 for the mean and peak azimuth moment are presented. The x-axis represents the generalized blockage area and the y-axis is the ratio of each component value (mean and peak) to the maximum value of that component found in the corresponding single parabolic dish study (Section 2.1). All the single and in-field parabolic dish studies were performed in the velocity profile SBL1 (Section 1.5.1). There are usually two bounding curves on each The solid line indicates the wind load reduction curve for the figure. parabolic dish study, while the dotted line indicates the curve from the heliostat study [ref. 44].

The result shows that the parabolic dish upper-bound load reduction lines for forces are below the heliostat bounding lines for forces, but the bounding lines for the parabolic dish moments are larger than those for the flat This indicates that a given value of GBA is more effective in plate. reducing moments from the isolated value for heliostats than for parabolic This is a major difference between the performance of the flat plate dishes. and parabolic dish inside the field. These results mean that it is easier to protect the parabolic dishes from forces by increasing the upstream blockage area than it is for the flat plate. For moments, it is the other This must be explained as a result of the curvature of the wav around. parabolic dish because this phenomenon does not happen for the circular flat plate [ref. 44].

The reasons for the variation in parabolic dish load reduction with GBA from those observed for heliostats are veiled in the highly turbulent flow environment in which the field units reside. The possible explanations given below must be considered highly speculative without the large body of additional information (local pressure distributions and flow measurements) which would be needed to resolve the issues definitively. Several dish load cases have a faster load reduction with increasing GBA than occurred for the heliostat: Figures 2-9 to 2-12 and 2-14. It might be speculated that the turbulence hitting the concave face of the dish within the field is deflected into the separated shear layer at the edge of the dish in a different way than occurs for the flat heliostat and that this turbulence inhibits high curvature in the shear layer. High curvature in the separated shear layer has been conjectured as the cause of higher loading due to turbulence.

For the azimuth moment cases, Figures 2-15 and 2-16, where the parabolic load falloff with GBA is slower than for the heliostat, it is conjectured that wind flow at the critical approach direction remains attached to the rear convex curved side of the dish instead of cleanly separating as happens for the heliostat. The effect of this would be to decrease wake size and decrease the effective are of the dish for producing blockage. In effect the GBA of the field is reduced. If this conjecture is correct, then the effective GBA might be increased by disturbing the flow near the dish rim



Figure 2-9. Mean Drag Force Ratio for Parabolic Dish





Figure 2-11. Mean Lift Force Ratio for Parabolic Dish

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Figure 2-13. Mean Hinge Moment Ratio for Parabolic Dish







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forcing an immediate separation at that point and causing the flow to become more like the flat heliostat case.

2.3 THE EFFECTS OF TURBULENCE ON WIND LOADS

In reference [44], a variation in wind load magnitude with turbulence intensity was shown whose magnitude was larger than expected. Within the range of turbulence intensities from 10 to 20 percent representing the reasonable range of open-country environments, the variation of both mean and peak loads increased much faster than had been predicted from earlier measurements [38] in the range of turbulence intensity up to 10 percent. Because the measurements used to demonstrate this turbulence effect spanned almost a decade and were quite limited for peak loads, a more comprehensive measurement set was obtained during the current study to evaluate this effect in more detail.

The study approach was to generate a series of boundary layers whose mean velocity profiles did not change but whose turbulence level did change. The profiles developed for this study were presented in Section 1.5.1 and were labeled CBL1, SBL2, SBL3, SBL4. The procedure to develop the 'S' boundary layers was to install a barrier upwind in the wind tunnel to stimulate the flow. At the collector measurement position, the mean velocity had recovered to nearly the desired open-country profile, but the turbulence intensity remained at a higher level to give the elevated turbulence intensity sought.

Figure 2-17 shows the variation of mean Fx coefficient with turbulence intensity specified at height HCL for wind approaching perpendicular to the



Figure 2-17. Mean Drag Coefficient Variation with Turbulence Intensity on Square Heliostat Models

square heliostat models in the current study, and in the studies [1], [23], [38] and [44]. Figure 2-18 shows a similar trend for peak drag coefficients. The sharp increase in drag coefficient with turbulence intensities above 10 percent measured in the current study compare well to previous data.

All the heliostat data used in Figures 2-17 and 2-18 are listed in Table 2-2, giving the reference, the turbulence intensity at HCL, and the mean and peak values of Fx coefficient.

Source	Model Number	Turbulence Intensity (%)	Fx (mean)	Fx (peak)
Bearman, 1971 [38] Bearman, 1971 [38] CSU, 1978 [1] CSU, 1978 [1] CSU, 1986 [23] CSU, 1987 [44] CSU, (current) CSU, (current) CSU, (current) CSU, (current) CSU, (current) CSU, (current) CSU, (current) CSU, (current) CSU, (current)	(10.5S) (8.5S) (10.5S) (8.5S) (10.5S) (8.5S) (10.5S) (8.5S)	1 8.3 1 12 14 18 12.5 12.5 20.2 20.2 20.2 21.0 21.0 23.0 23.0	1.120 1.260 1.170 1.330 1.804 2.000 1.505 1.511 1.769 1.841 1.790 1.728 1.908 1.990	3.665 4.318 2.339 2.293 4.178 4.000 3.655 3.471 4.112 4.971

Table 2-2.Data for Fx Coefficient Variation with TurbulenceIntensity for Square Heliostat Models

The circular model (10.5R) and the parabolic model (10.5Pa) were tested under the same turbulence environments, Figures 2-19 and 2-20. A similar trend for both mean and peak is shown. Both of these models were tested with their front face perpendicular to the approaching wind.

Table 2-3 provides data on the influence of turbulence on four models (10.5S, 10.5R, 10.5Pa and 8.5S) for three components (Fx, Fz and Mz). The data for maximum Fz component were measured at $\alpha = 30^{\circ}$, $\beta = 0^{\circ}$; the maximum Mz occurred roughly at $\alpha = 90^{\circ}$, $\beta = 60^{\circ}$. Both mean and peak values are given.

Data presented in Figures 2-21 through 2-24 show that the lift force and the azimuth moment are also affected by the turbulence intensity. This infers that every component of wind load is sensitive to turbulence. The variation in load with turbulence intensity for these two components appears similar to that for other load components.



Figure 2-18. Peak Drag Coefficient Variation with Turbulence Intensity on Square Heliostat Models

T. I.	Mode1	F:	x	F	z	M	Z
(%)		(mean)	(peak)	(mean)	(peak)	(mean)	(peak)
12.5	10.5S	1.505	2.339	-1.288	-1.896	.179	.292
20.2	10.5S	1.769	4.178	-1.550	-3.099	.216	.588
21.0	10.5S	1.79	3.655	-1.392	-2.646	.196	.463
23.0	10.5S	1.908	4.112	-1.578	-3.301	.209	.496
12.5	10.5R	1.564	2.342	-1.386	-2.021	.157	.232
20.2	10.5R	1.857	4.182	-1.637	-3.183	.205	.530
21.0	10.5R	1.814	3.479	-1.474	-2.910	.207	.479
23.0	10.5R	1.873	4.023	-1.447	-3.164	.220	.570
12.5	8.5S	1.511	2.293	-1.391	-2.176	.209	.328
20.2	8.5S	1.841	4.000	-1.587	-3.706	.253	.575
21.0	8.5S	1.728	3.471	-1.472	-3.119	.240	.640
23.0	8.5S	1.990	4.971	-1.610	-3.493	.229	.534
12.5	10.5Pa	1.612	2.328	-1.802	-2.519	.180	.301
20.2	10.5Pa	2.048	4.738	-2.025	-4.126	.205	.565
21.0	10.5Pa	1.846	3.728	-1.650	-3.127	.196	.448
23.0	10.5Pa	2.122	4.798	-2.018	-3.803	.198	.539

Table 2-3. Turbulence Effects on Different Models



Figure 2-19. Mean Drag Coefficient Variation with Turbulence Intensity on Models 10.5R and 10.5Pa



Figure 2-20. Peak Drag Coefficient Variation with Turbulence Intensity on Models 10.5R and 10.5Pa



Figure 2-21. Mean Lift Coefficient Variation with Turbulence Intensity



Turbulence Intensity







Figure 2-24. Peak Azimuth Moment Coefficient Variation with Turbulence Intensity

Figure 2-25 shows the data of Figures 2-17 through 2-24 plotted together. Scales of loads were adjusted to cause the data to fall nearly on a common curve. The purpose was to illustrate the similarity in the increase of load with turbulence intensity. These curves represent the increase in load at the collector orientation giving the largest loads. Two conclusions are evident. First solar collectors are quite sensitive to turbulence intensity and hence to the surface roughness upwind of the site. Second, uniform flow results in which turbulence intensity is less than 1 percent such as those presented in the 1961 ASCE wind load document [36] or summarized in [39] are inappropriate for solar collector design.



Figure 2-25. Variation of CFx, CFz and CMz with Turbulence Intensity

SECTION 3.0

CONCLUSIONS AND RECOMMENDATIONS

In this study, fluctuating wind loads on parabolic dish solar collectors were obtained in a boundary layer wind tunnel capable of simulating wind flows at model scale. Based on data presented, the following conclusions can be drawn:

- The influence of upwind blockage of parabolic dishes or wind fences can be accounted for by defining the same generalized blockage area (GBA) as was defined for use with flat heliostats except for azimuth moment effects.
- Mean and peak wind loads decrease significantly with increasing magnitude of GBA with the exceptions of very small values of GBA and of the azimuth moment which remains close to the isolated dish load for GBA values typical of those anticipated for full-scale fields.
- Parabolic dish collectors do not have symmetric wind loads for frontside and backside (frontside or backside load refers to the case of wind impinging on the front concave mirrored or back convex side of the collector) as is the case for the flat plates. The frontside loads are higher than the backside loads with the exception of elevation and azimuth moments.
- The mean and peak values of frontside loads (except the lift force) on parabolic dish collectors are roughly similar to or less than those for a flat plate.
- Wind drag and lift on isolated heliostats and parabolic dish collectors have shown a surprising sensitivity to turbulence intensity in the wind for open-country environments. The increase of mean and peak wind loads with turbulence intensity has been defined in the range of surface roughness from open water to suburban area.

On the basis of the data and the conclusions presented herein, the following recommendations for further work are set forth:

- The azimuth moment loads on parabolic dishes in field environments should receive additional study to find methods to reduce load magnitudes with increasing GBA.
- Local pressure distributions have not been measured on parabolic dish collectors. These should be measured for both single unit and field studies to determine the extent of non-uniformity of wind loading over the collector surface.
- The influence of porosity in parabolic dish collectors has not been investigated. If commercial geometries will have significant porosity, this topic should receive attention.

REFERENCES

- 1. Cermak, J. E., J. A. Peterka and A. Kareem, "Heliostat Field-Array Wind Tunnel Test," Technical Report for McDonnell Douglas Astronautics Company, Huntington Beach, California, Report No. CER78-79JEC-JAP-AK2, July 1978, 55 pages.
- 2. Ewald, R. L., J. A. Peterka and J. E. Cermak, "Heliostat-Array Wind Tunnel Study," Technical Report for Martin Marietta Aerospace, Report No. CER78-79RLE-JAP-JEC31, January 1979.
- 3. Peterka, J. A., J. J. Lou and J. E. Cermak, "Wind-Tunnel Test of a Photovoltaic Concentrator Array," Technical Report for Martin Marietta, Denver, Colorado, Report No. CER78-79JAP-JJL-JEC62, June 1979, 34 pages.
- 4. Peterka, J. A., J. M. Sinou and J. E. Cermak, "Mean Wind Forces on Parabolic-Trough Solar Collectors," Technical Report for Sandia Laboratories, Albuquerque, New Mexico, Report No. CER79-80JAP-JMS-JEC4, July 1979, 109 pages.
- 5. Franklin, H. A., "Wind Design of Flat-Panel Photovoltaic Array Structures -- Final Report," Report No. SAND 79-7057, 83 pages.
- Miller, R. and D. Zimmerman, "Wind Loads on Flat Plate Photovoltaic Array Fields, Phase II: Final Report," Report No. DOE/JPL 954833-79/2, September 1979, 111 pages.
- Poreh, M., J. A. Peterka and J. E. Cermak, "Wind-Tunnel Study of Wind Loads on Photovoltaic Structures," Technical Report for Bechtel National, San Francisco, California, Report No. CER79-80MP-JAP-JEC11, September 1979, 83 pages.
- 8. Peterka, J. A., J. M. Sinou and J. E. Cermak, "Mean Wind Forces on Parabolic-Trough Solar Collectors," Sandia Laboratories, Albuquerque, New Mexico, Report No. SAND 80-7023, May 1980, 109 pages.
- 9. Randall, D. E., D. D. McBride and R. E. Tate, "Steady-State Wind Loading on Parabolic-Trough Solar Collectors," Report No. SAND 79-2134, August 1980, 21 pages.
- 10. Hosoya, N., J. A. Peterka, M. Poreh and J. E. Cermak, "Wind Pressures and Forces on Flat-Plate Photovoltaic Solar Arrays," Technical Report for Boeing Eng., Seattle, Washington, Report No. CER80-81NH-JAP-MP-JEC13, September 1980, 81 pages.
- 11. Hosoya, N., J. A. Peterka, M. Poreh and J. E. Cermak, "Wind Pressures and Forces on Flat-Plate Photovoltaic Solar Arrays Data Supplement: Appendix," Technical Report for Boeing Eng., Seattle, Washington, Report No. CER80-81NH-JAP-MP-JEC13a, September 1980, 182 pages.
- 12. Miller, R. D. and D. K. Zimmerman, "Wind Loads on Flat Plate Photovoltaic Array Fields, Phase III, Final Report," Report No. DOE/JPL 954833-81/3, April 1981, 250 pages.

- 13. Hosoya, N., J. A. Peterka and J. E. Cermak, "Wind Pressures and Forces on Flat-Plate Photovoltaic Solar Arrays - Cross-Spectral Analysis," Technical Report for Boeing Eng., Seattle, Washington, Report No. CER80-81NH-JAP-JEC57, June 1981, 47 pages.
- 14. Miller, R. D. and D. K. Zimmerman, "Wind Loads on Flat Plate Photovoltaic Array Fields (Nonsteady Winds)," Report No. DOE/JPL 954833-81/4, August 1981, 100 pages.
- Tieleman, H. W., P. R. Sparks and R. E. Akins, "Wind Loads on Flat Plate Solar Collectors," Preprint No. 3632, ASCE Convention and Exposition, Atlanta, Georgia, 23-25 October 1979, 21 pages.
- Tieleman, H. W., R. E. Akins and P. R. Sparks, "An Investigation of Wind Loads on Solar Collectors," Report No. VPI-E-80-1, January 1980, 155 pages.
- 17. Tieleman, H. W., R. E. Akins and P. R. Sparks, "An Investigation of Wind Loads on Solar Collectors, Appendix I - Data Listing for Top and Bottom of Collector," Report No. VPI-E-80-1, January 1980, 307 pages.
- Tieleman, H. W., R. E. Akins and P. R. Sparks, "An Investigation of Wind Loads on Solar Collectors, Appendix II - Net Pressure Coefficients," Report No. VPI-E-80-1, January 1980, 165 pages.
- 19. Mar, J. W. and H. Liebowitz (ed.), <u>Structures Technology for Large Radio</u> <u>and Radar Telescope Systems</u>, The MIT Press, 1969.
- Cohen, E. (ed.), <u>Large Steerable Radio Antennas Climatological and Aerodynamic Considerations</u>, Annals of the New York Academy of Science, Vol. 116, October 1964, pp. 1-355.
- 21. Jet Propulsion Laboratory, "Wind Loads on Dish Antenna," Technical Report CP-6 (unpublished).
- 22. Murphy L. M., "An Assessment of Existing Studies of Wind Loading on Solar Collectors," Report No. SERI/TR-632-812, February 1981, 43 pages.
- 23. Peterka, J. A., N. Hosoya, B. Bienkiewicz and J. E. Cermak, "Wind Load Reduction for Heliostats," Solar Energy Research Institute Report, SERI/STR-253-2859, May 1986.
- 24. Čochran, L. S., J. A. Peterka and J. E. Cermak, "Influence of Porosity on the Mean and Peak Wind Loads for Three Concentrator Photovoltaic Arrays," Technical Report prepared for Sandia National Laboratories, Albuquerque, New Mexico, September 1986, CER86-87LC-JAP-JEC6.
- Raine, J. K. and D. C. Stevenson, "Wind Protection by Model Fences in a Simulated Atmospheric Boundary Layer, <u>J. Indust. Aero.</u>, Vol. 2, 1977, pp. 159-180.
- 26. Perara, M.D.A.E.S., "Shelter Behind Two-Dimensional Solid and Porous Fences," J. Wind Eng. and Indust. Aero., Vol. 8, 1981, pp. 93-104.

 Bradley, E. F. and P. J. Mulhearn, "Development of Velocity and Shear Stress Distributions in the Wake of a Porous Shelter Fence," <u>J. Wind</u> <u>Eng. and Indust. Aero.</u>, Vol. 15, 1983, pp. 145-156.

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- 28. Cermak, J. E., "Laboratory Simulation of the Atmospheric Boundary Layer," <u>AIAA J1</u>., Vol. 9, 1971.
- Cermak, J. E., "Applications of Fluid Mechanics to Wind Engineering," A Freeman Scholar Lecture, <u>ASME Jl. of Fluids Engineering</u>, Vol. 97, No. 1, 1975.
- 30. Cermak, J. E., "Aerodynamics of Buildings," <u>Annual Review of Fluid</u> <u>Mech.</u>, Vol. 8, 1976, pp. 75-106.
- 31. Green, H. J., letter with data addressed to Clay Mavis, Sandia National Laboratories, Livermore, California, 23 April 1985.
- 32. Simiu, E. and R. H. Scanlan, <u>Wind Effects on Structures</u>, 2nd Edition, John Wiley and Sons, New York, 1986.
- 33. Simiu, E., "Wind Spectra and Dynamic Along Wind Response," ASCE, Jl. of the Structural Division, Vol. 100, NO. ST9, September 1974.
- 34. Harris, R. I., "On the Spectrum and Auto-correlation Function of Gustiness in High Winds," British Electrical Research Association, Report No. 5273, October 1968.
- 35. Davenport, A. G., "The Relationship of Wind Structure to Wind Loading," Proc. of Conference on Wind Effects on Structures, NLP, HMSO, 1965.
- 36. ASCE, "Wind Forces on Structures," Final Report of the Task Committee on Wind Forces of the Committee on Loads and Stresses of the Structural Division, Paper No. 3269, reprinted from <u>Transactions</u>, Vol. 126, Part II, 1961, p. 1124.
- 37. Peglow, S. G., "Wind Tunnel Test of a Full-Scale Heliostat," Prepared by Sandia Laboratories, Albuquerque, New Mexico, 87115 and Livermore, California 94550 for the U.S. Department of Energy under Contract DE-AC04-760P00789, printed June 1979.
- Bearman, P. W., "An Investigation of the Forces on Flat Plates Normal to a Turbulent Flow," <u>Jl. of Fluid Mech.</u>, Vol. 46, Part 1, 1971, pp. 177-198.
- 39. Roschke, E. J., "Wind Loadings on Solar Concentrators: Some General Considerations," Jet Propulsion Laboratory, Pasadena, California, Technical Report DOE/JPL-1060-66 (DE85000337), 1984.
- 40. Blaylock, R. B., Dayman B. and Fox, N. L., "Wind Tunnel Testing of Antenna Models," <u>Annals New York Academy of Sciences</u>, Vol. 116, pp. 239-272, 1964.

- 41. Cohen, E. and Vellozzi, J., "Calculation of Wind Forces and Pressures on Antennas," <u>Annals New York Academy of Sciences</u>, Vol. 116, pp. 161-121, 1964.
- 42. Thoroddsen, S. T., J. A. Peterka and J. E. Cermak, "Wind-Tunnel Study of Wind Loads on LaJet Solar Collector Module," Fluid Mechanics and Wind Engineering Program, Colorado State University, Technical Report CER85-86SST-JAP-JEC12, 1985.
- 43. "Energy Future Report of the Energy Project at the Harvard Business School", Edited by Robert Stobaugh and Daniel Yergin, Random House, New York, 1979.
- 44. Peterka, J. A., Z. Tan, B. Bienkiewicz and J. E. Cermak, "Mean and Peak Wind Load Reduction on Heliostats," Technical Report for Solar Energy Institute, Golden, CO, Report SERI/STR-253-3212, (DE87012281), September 1987, CER86-87JAP-ZT-BB-JEC12.
- 45. ESDU, "Strong Winds in the Atmospheric Boundary Layer: Part 1: Meanhourly Wind Speeds," Item No. 82026, ESDU International Ltd., London, 1982.

APPENDIX A

Test Interpretation

<u>Section</u>

- A.1 Calculation of GBA
- A.2 Test Plan
- A.3 Parabolic Dish Field-Study Data as a Function of GBA Values

A.1 CALCULATION OF GBA FOR WIND-TUNNEL FIELD (ref. to Figures 1-1 to 1-3)

1. Row Arrangement 0° (wind perpendicular to rows)

1. First Row, with EF

$$GBA = \frac{0.5 \times 0.9H}{2.14H} = 0.2103 \qquad (0.5 is solidity of fence)$$

2. Second Row, with EF

$$GBA = \frac{2.34H \times 0.9H \times 0.5 + H^2 \sin \alpha \cos \beta}{2.34H (3.07H + 2.14H)}$$

$$=\frac{1.053 + \sin\alpha \cos\beta}{12.1914}$$

3. Third Row, no fence

$$GBA = \frac{H^2 \sin \alpha \cos \beta}{3.07H \times 2.34H} = \frac{\sin \alpha \cos \beta}{7.1838}$$

With IF, but no EF

$$GBA = \frac{1.34H \times 0.6H \times 0.5 + 2H^2 \sin \alpha \cos \beta}{2 \times 3.07H \times 2.34H}$$

$$=\frac{0.402+2\sin\alpha\,\cos\beta}{14.3676}$$

With EF, but no IF

$$GBA = \frac{2.34H \times 0.9H \times 0.5 + 3H^2 \sin \alpha \cos \beta}{2.34H \times (2 \times 3.07H + 2.14H)}$$
$$= \frac{1.053 + 3 \sin \alpha \cos \beta}{19.3752}$$

With both EF and IF

$$GBA = \frac{2.34H \times 0.9H \times 0.5 + 1.34H \times 0.6H \times 0.5 + 3H^2 \sin \alpha \cos \beta}{2.34H \times (2 \times 3.07H + 2.14H)}$$

$$= \frac{1.455 + 3\sin \alpha \cos \beta}{19.3752}$$

4. Fourth row, no fence

 $\mathsf{GBA} = \frac{\sin \alpha \cos \beta}{7.1838}$

With IF, but no EF

 $\mathsf{GBA} = \frac{0.402 + 2\sin\alpha\,\cos\beta}{14.3676}$

With EF, but no IF

 $GBA = \frac{2.34H \times 0.9H \times 0.5 + 4H^2 \sin \alpha \cos \beta}{2.34H \times (3 \times 3.07H + 2.14H)}$

 $=\frac{1.053+4\sin\alpha\cos\beta}{26.5590}$

With both EF and IF

 $GBA = \frac{1.34H \times 0.6H \times 0.5 \times 2 + 2.34H \times 0.9H \times 0.5 + 4H^2 \sin \alpha \cos \beta}{2.34H \times (3 \times 3.07H + 2.14H)}$

 $=\frac{1.857+4\sin\alpha\cos\beta}{26.5590}$

2. Row Arrangement 45° (wind at 45° to rows)

1st and 2nd Rows work the same way as Row Arrangement 0°. So are 3rd and 4th Rows for no fence case and with IF, but no EF case.

1. Third row, with EF, but no IF

 $GBA = \frac{6.857H \times 0.9H \times 0.5 + 10H^2 \sin \alpha \cos \beta}{6.857H \times 11.74H}$

 $=\frac{3.086+10\sin\alpha\,\cos\beta}{80.48}$

 $GBA = \frac{6.857H \times 0.9H \times 0.5 + 4 \times 1.34H \times 0.6H \times 0.5}{6.857H \times 11.74H}$

$$= \frac{4.694 + 10 \sin \alpha \cos \beta}{80.48}$$

2. Fourth Row, with EF, but no IF

 $GBA = \frac{6.857H \times 0.9H \times 0.5 + 14H^2 \sin \alpha \cos \beta}{16.15H + 6.857H}$

$$= \frac{3.086 + 14 \sin \alpha \cos \beta}{110.74}$$

With both EF and IF

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 $GBA = \frac{6.857H + 0.9H \times 0.5 + 6 \times 1.34H \times 0.6H \times 0.5 + 14H^2 \sin \alpha \cos \beta}{16.15H \times 6.857H}$

 $= \frac{5.498 + 14 \sin \alpha \cos \beta}{110.74}$

Row Arr.	Row No.	W/O	EF	IF	Both	a	β
0	1	0.01	0.2103				
0	2	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	0.1684 0.1274 0.1274 0.1260 0.1217 0.1572 0.1550 0.1479	 		90F 90F 30F 30F 30F 60B 60B 60B	0 60 15 30 0 15 30
0	3	0.1392 0.0696 0.0696 0.0672 0.0603 0.1206 0.1165 0.1044	0.2092 0.1318 0.1318 0.1291 0.1214 0.1884 0.1839 0.1705	0.1672 0.0976 0.0976 0.0952 0.0883 0.1485 0.1444 0.1324	0.2299 0.1525 0.1525 0.1498 0.1421 0.2091 0.2046 0.1912	90F 90F 30F 30F 30F 60B 60B 60B	0 60 15 30 0 15 30
0	4	0.1392 0.0696 0.0696 0.0672 0.0603 0.1206 0.1165 0.1044	0.1903 0.1150 0.1150 0.1124 0.1049 0.1701 0.1656 0.1526	0.1672 0.0976 0.0976 0.0952 0.0883 0.1485 0.1444 0.1324	0.2206 0.1453 0.1453 0.1427 0.1352 0.2004 0.1959 0.1829	90F 90F 30F 30F 30F 60B 60B 60B	0 60 15 30 0 15 30
45 45	1 2	The s	ame as O	° Row Arr.			
45	3	0.1392 0.0696 0.0696 0.0672 0.0603 0.1206 0.1165 0.1044	0.1626 0.1005 0.0984 0.0921 0.1460 0.1423 0.1315	0.1672 0.0976 0.0976 0.0952 0.0883 0.1485 0.1444 0.1324	0.1826 0.1205 0.1205 0.1184 0.1121 0.1660 0.1623 0.1515	90F 90F 30F 30F 30F 60B 60B 60B	0 60 15 30 0 15 30
45	4	0.1392 0.0696 0.0696 0.0672 0.0603 0.1206 0.1165 0.1044	0.1543 0.0911 0.0911 0.0889 0.0826 0.1374 0.1336 0.1227	0.1672 0.0976 0.0976 0.0952 0.0883 0.1485 0.1444 0.1324	0.1761 0.1129 0.1129 0.1107 0.1044 0.1592 0.1554 0.1445	90F 90F 30F 30F 30F 60B 60B 60B	0 60 15 30 0 15 30

Table A-1. GBA Values

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A.2 TEST PLAN

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Data	File:	SCPT	(Turbulence	Study)
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Run No.	Terrain	Dist	Area	β	α
No. 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 9 20 21 22 23 24 26 30 31 32 34 35 37 38 9 41 42 43 44	.5"CB .5"CB	INF INF INF INF INF INF INF INF INF INF	S10.5 S10.5 S10.5 S10.5 S10.5 S10.5 S10.5 S10.5 S10.5 S10.5 R10.5 R10.5 R10.5 R10.5 R10.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S8.5 S10.5 P10.5	$\begin{smallmatrix} 0 \\ 0 \\ 0 \\ 55 \\ 60 \\ 65 \\ 75 \\ 75 \\ 75 \\ 75 \\ 75 \\ 75 \\ 75$	90 35 30 25 90 90 90 90 90 90 90 90 90 90 90 90 90
45 46 48 49 50	.5"CB .5"CB .5"CB .5"CB .5"CB	INF INF 9 9 9	P10.5 P10.5 S10.5 S10.5 S10.5	0 0 0 0	5 10 90 35 30

Table A-2 (cont.). Test Plan

Data File: SCPT (Turbulence Study)

Run No.	Terrain	Dist	Area	β	α
51 52 53 54 55 57 59 60 162 63 69 70 72 73 75 77 78 90 81 23 88 88 88 90 91 92 94 96	.5"CB .5"CB	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	S10.5 S10.5 S10.5 S10.5 S10.5 S10.5 R10.5 R10.5 R10.5 R10.5 R10.5 R10.5 R10.5 R10.5 P	$\begin{smallmatrix} 0 \\ 0 \\ 65 \\ 70 \\ 60 \\ 0 \\ 0 \\ 0 \\ 55 \\ 60 \\ 50 \\ 65 \\ 70 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ $	$\begin{array}{c} 25\\ 90\\ 90\\ 90\\ 90\\ 90\\ 90\\ 90\\ 90\\ 90\\ 90$
97 98	.5"CB .5"CB	7.2 7.2	S10.5 S10.5	0 0	35 30

n
Table A-2 (cont.). Test Plan

Data	File:	SCPT	(Turbulence	Study)
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Run No.	Terrain	Dist	Area	β	α
Run No. 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122	Terrain .5"CB	Dist 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2	Area S10.5 S10.5 S10.5 S8.5 S10.5 S10.5 R10.5 R10.5 R10.5	β 0 65 70 60 0 0 65 70 60 65 70 60 65 0 0 0 65 0 0 65 0 0 65 65 65 60	α 25 90 90 90 90 35 30 40 90 90 90 90 90 90 90 90 90 90 90 90 90
122 123 124 125 126 127 128 129 130 131 132 133 135 136 137 138 139 140 141 142 143 144	.5"CB .5"CB	7.9 7.9 7.9 7.9 7.9 5.8 5.8 5.8 5.8 5.8 5.8 5.8 5.8 5.8 5.8	R10.5 R10.5 P10.5 P10.5 S10.5 S10.5 S10.5 S8.5 S8.5 R10.5 R10.5 R10.5 R10.5 R10.5 P10.5 P10.5 P10.5 P10.5	0 0 0 50 0 60 60 0 0 65 60 55 0 0 55 55 45	90 30 90 90 90 30 90 30 90 30 90 90 90 90 90 90 90 90 90 90 90

58

Table A-2 (cont.). Test Plan

Data File: SCPT (Turbulence Study)

Run No.	Terrain	Dist	Area	β	α
$\begin{array}{c} 145\\ 146\\ 148\\ 149\\ 150\\ 152\\ 153\\ 154\\ 155\\ 156\\ 157\\ 158\\ 159\\ 160\\ 161\\ 162\\ 163\\ 164\\ 165\\ 166\\ 167\\ 172\\ 173\\ 174\\ 175\\ 176\\ 177\\ 178\\ 179\\ 180\\ 181\\ 182\\ 183\\ 184\\ 185\\ 186\\ 187\\ 188\\ 189\\ 190\\ 190\\ 100\\ 100\\ 100\\ 100\\ 100\\ 10$.5"CB .5"CB	5.8 5.8 7.9 9 9 9 7.28 9 5.7.77777775555.88 5.88 5.2999999999999999999999999999999999999	P10.5 P10.5 S10.5	$\begin{array}{c} 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ $	$\begin{array}{c} 35\\ 30\\ 25\\ 20\\ 15\\ 35\\ 90\\ 90\\ 20\\ 25\\ 20\\ 15\\ 20\\ 25\\ 25\\ 20\\ 20\\ 25\\ 20\\ 25\\ 20\\ 25\\ 20\\ 25\\ 20\\ 25\\ 20\\ 25\\ 20\\ 25\\ 20\\ 25\\ 20\\ 20\\ 25\\ 20\\ 25\\ 20\\ 20\\ 20\\ 25\\ 20\\ 20\\ 25\\ 20\\ 20\\ 25\\ 20\\ 20\\ 20\\ 20\\ 20\\ 20\\ 20\\ 20\\ 20\\ 20$
195 196 198	.5"CB .5"CB .5"CB	9 9 9	P10.5 P10.5 P10.5	0 0 0	25 20 35

2

Table A-2 (cont.). Test Plan

Run No.	Terrain	Dist	Area	β	α
No. 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223	2"CB 2"CB 2"CB 2"CB 2"CB 2"CB 2"CB 2"CB	7+5 7+5 7+5 7+5 7+5 7+5 7+5 7+5 7+5 7+5	S10.5 S10.5 S10.5 S10.5 S10.5 S10.5 S8.5 S8.5 S8.5 R10.5 R10.5 P10.5 P10.5 P10.5 P10.5 P10.5 R10.5 R10.5 S10.5 S10.5	0 0 0 65 65 0 0 0 65 0 0 0 50 0 0 0 50 0 0 0	20 0 90 90 30 90 90 30 30 90 90 90 90 90 90 90 90 90 90 90 90 90
223 224 225 226	2"CB 2"CB 2"CB 2"CB 2"CB	9 9 9 9	\$10.5 \$10.5 \$8.5 \$8.5 \$8.5	65 65 0 0	90 90 90 30

Data File: SCPT (Turbulence Study)

Table A-3. Test Plan

Data File: SCPT1 (Parabolic Single Study)

Run No.	α	β	Run No.	α	β	Run No.	α	β
1	Test	Lift	44	30F	10	87	90B	0
2	Test	Lift	45	0	10	88	80B	0
3	90F	0	46	90F	20	89	70B	0
4	80F	0	47	60F	20	90	60B	0
5	70F	0	48	30F	20	91	50B	0
6	60F	0	49	0	20	92	45B	0
7	50F	0	50	90F	30	04	400	0
8	451	0	51	005	30	94	40B	0
9	40F	0	52	90F	40	95	30D	0
10	351	0	53 E <i>1</i>	00F	40	90	25B	0
11	30F 255	0	54	30F 0	40	97	20B	0
12	20F 20F	0	55		40	90	10B	0
1.5	10F	0	57	45F	45	100	80B	60
15	101	0	58	60F	45	101	70B	60
16	80F	60	59	30F	45	102	60B	60
17	75F	60	60	0	45	103	50B	60
18	70F	60	61	90F	50	104	40B	60
19	65F	60	62	60F	50	105	30B	60
20	60F	60	63	30F	50	106	20B	60
21	55F	60	64	0	50	107	10B	60
22	50F	60	65	90F	55	108	80B	30
23	45F	60				109	70B	30
24	40F	60	67	60F	55	110	60B	30
25	35F	60	68	30F	55		45B	30
26	30F	60	69	U	55	112	30B	20
27	20F	60	71	005	60	113	150	30
28		6U 20	71	90r	60	114	60B	90
29	80F 70E	30	72		65	115	000	50
30	60F	30	74	60F	65			
32	50F	30	75	30F	65	118	45B	90
33	40F	30	76	0	65	119	30B	90
34	30F	30	77	90F	70	120	15B	90
35	20F	30	78	60F	70	121	90B	10
36	10F	30	79	30F	70	122	60B	10
37	75F	90	80	0	70	123	30B	10
38	60F	90	81	90F	80	124	90B	20
39	45F	90	82	60F	80	125	60B	20
40	30F	90	83	30F	80	126	30B	20
41	15F	90	84	0	80	127	90B	30
42	90F	10	85	90F	90	128	90B	40
43	60F	10	86	U	90	129	ana	40

Table A-3 (cont.). Test Plan

Data File: SCPT1 (Parabolic Single Study)

Run No.	α	β	Run No.	۵	β	Run No.	α	β
130 131 132 133 134 135 136 137 138 139 140 141	30B 90B 60B 30B 90B 60B 30B 90B 60B 30B 90B	40 50 50 60 70 70 70 80 80 80 80 90	173 174 175 176 177 178 179	70B 80B 80B 80B 80B 80B	40 40 50 60 70 80 10			
142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164	90F 90F 90F 90F 90F 90F 90F 90F 90F 90F	0 10 20 30 40 50 60 70 80 55 0 10 20 30 40 50 60 70 85 90 60	187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207	80F 25F 25F 10B 10B 10B 10B 10B 10B 20B 20B 20B 20B 20B 20B 50B 50B 40B	10 20 10 20 30 40 50 60 70 80 15 30 45 60 75 10 20 20 10			
165 166 167 168 169 170 171 172	75F 75F 60F 70B 70B 70B 70B	70 80 45 55 80 70 60 50	208 209	50F 50F	10 20			

Table A-3b. Test Plan

Run No.	α	β	Run No.	α.	β
$1\\2\\3\\4\\5\\6\\7\\8\\9\\0\\1\\1\\2\\3\\4\\5\\6\\7\\8\\9\\0\\1\\2\\2\\3\\4\\5\\6\\7\\8\\9\\0\\1\\2\\2\\3\\4\\5\\6\\7\\8\\9\\0\\1\\2\\2\\3\\4\\5\\6\\7\\8\\9\\0\\1\\2\\3\\3\\1\\2\\3\\3\\1\\2\\3\\3\\1\\2\\3\\3\\1\\2\\3\\3\\1\\2\\3\\3\\1\\2\\3\\3\\1\\2\\3\\3\\1\\2\\3\\3\\1\\2\\3\\3\\3\\3$	90F 80 70 60 50 40 20 10 80 65 15 60 50 50 50 80 80 50 50 80 80 50 80 80 80 80 80 80 80 80 80 80 80 80 80	$\begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	44 45 46 47 48 49 50 51 52 53	90 90 90 90 90 90 90	20 30 40 50 60 65 70 75 80 85

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Data File: SCPT2 (Single Heliostat)

Table A-4. Test Plan

Data File:	SCPT3	(Parabolic	Field	Study)
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Run No.	Row Arr.	Row No.	۵	β	EF	IF	GBA
1	0	4	90F	0	W/0	W/0	.1392
2	0	4	90F	60	W/O	W/O	.0696
3	0	4	30F	0	W/O	W/O	.0696
4	0	4	60B	0	W/O	W/O	.1206
5	0	4	60B	15	W/0	W/0	.1165
6	0	4	60B	30	W/0	W/0	.1044
/	0	4	301	15	W/0	W/O	.06/2
8	0	4	30F	30	W/O	W/O	.0603
9	U	4	30F	30	W	W/O	.1049
10	U	4	30F	15	W	W/U	.1124
11	0	4	30F	0	W	W/O	.1150
12	0	4	90F	0	W	W/U	.1903
13	0	4	90F	60	W	W/O	.1150
14	0	4 A	60B	15	W LJ	W/U	.1/01
15	0	4 л	00D 60P	15	W	W/U	.1000
10	0	4 Л	60B	20	W	w/0	.1020
17	0	4	60B	30	W 1./	W 1.1	.1029
10	0	4	60B	15	P1 M	W NI	2004
20	0	4	00B 00F	0	W	W M	2206
20	0	4	901 00F	60	w W	44 1.1	1/53
21	0	4	30F	00	W 1.1	vv 1./	1/52
23	0	т Л	30F	15	W W	vv 1./	1427
24	ů N	4	30F	30	W	W	1352
25	ő	4	60R	0	น	W	2004
26	Ő	4	60B	15	W	W	1959
27	õ	۰ ۵	60B	15	w./o	Ŵ	1444
28	Õ	4	60B	30	W/O	Ŵ	1324
29	õ	4	60B	0	W/0	Ŵ	1485
30	Õ	4	90F	õ	W/0	Ŵ	1672
31	õ	4	90F	60	W/0	Ŵ	.0976
32	õ	4	30F	Õ	W/0	Ŵ	.0976
33	õ	4	30F	15	W/0	Ŵ	.0952
34	Õ	3	30F	15	W/0	W/0	.0672
35	õ	3	30F	30	W/O	W/O	.0603
36	Õ	3	30F	0	W/O	W/O	.0696
37	Õ	3	90F	Ō	W/O	W/O	.1392
38	Ō	3	90F	60	W/O	W/O	.0696
39	Ō	3	60B	0	W/O	Ŵ/O	.1206
40	Ō	3	60B	15	W/O	W/O	.1165
41	Ō	3	60B	30	Ŵ/O	W/O	.1044
42	Ō	3	60B	30	Ŵ	W/O	.1705
43	0	3	60B	0	W	W/O	.1884

Table A-4 (cont.). Test Plan

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Data File: SCPT3 (Parabolic Field Study)

Run No.	Row Arr.	Row No.	a	β	EF	IF	GBA
44	0	3	90F	0	W	W/0	.2092
45	0	3	30F	0	W	W/0	.1318
46	0	3	90F	60	W	W/0	.1318
47	0	3	90F	60	W	W	.1525
48	0	3	90F	0	W	W	.2299
49	0	3	30F	0	W	W	.1525
50	0	3	60B	0	W	W	.2091
51	0	3	60B	0	W/O	W	.1485
52	0	3	90F	0	W/O	W	.1672
53	0	3	30F	0	W/O	W	.0976
54	0	3	90F	60	W/O	W	.0976
55	0	2	90F	60	W/O		.0200
56	0	2	90F	0	W/O		.0200
57	0	2	30F	0	W/O		.0200
58	0	2	60B	0	W/O		.0200
59	0	2	60B	0	W		.1572
60	0	2	30F	0	W		.1274
61	0	2	90F	0	W		.1684
62	0	2	90F	60	W		.1274
63	0	1	90F	60	W/0		.0100
64	0	1	90F	0	W/O		.0100
65	0	1	30F	0	W/O		.0100
66	0	1	60B	0	W/O		.0100
67	0	1	60B	0	W		.2103
68	0	1	30F	0	W		.2103
69	0	1	90F	0	W		.2103
70	0	1	90F	60	W		.2103
71	45	4	90F	0	W	W/O	.1543
72	45	4	90F	60	W	W/0	.0911
73	45	4	30F	0	W	W/0	.0911
74	45	4	30F	15	W	W/O	.0889
75	45	4	30F	30	W	W/O	.0826
76	45	4	60B	0	W	W/O	.1374
77	45	4	60B	15	W	W/O	.1336
78	45	4	60B	30	W	W/O	.1227
79	45	4	60B	30	W	W	.1445
80	45	4	60B	15	W	W	.1554
81	45	4	60B	0	W	W	.1592
82	45	4	30F	0	W	W	.1129
83	45	4	30F	15	W	W	.1107
84	45	4	30F	30	W	W	.1044
85	45	4	90F	0	W	W	.1761
86	45	4	90F	60	W	W	.1129

Table A-4 (cont.). Test Plan

Data File: SCPT3 (Parabolic Field Study)

Run No.	Row Arr.	Row No.	α	β	EF	IF	GBA
87	45	4	90F	60	W/0	W	.0976
88	45	4	90F	0	W/O	W	.1672
89	45	4	30F	0	W/0	W	.0976
90	45	4	30F	15	W/O	W	.0952
91	45	4	30F	30	W/O	W	.0883
92	45	4	60 B	0	W/O	W.	.1485
93	45	4	60B	15	W/O	W	.1444
94	45	4	60B	30	W/O	W	.1324
95	45	4	60B	30	W/O	W/O	.1044
96	45	4	60B	15	W/O	W/O	.1165
97	45	4	60B	0	W/O	W/O	.1206
98	45	4	30F	0	W/0	W/O	.0696
99	45	4	30F	15	W/O	W/O	.0672
100	45	4	30F	30	W/O	W/O	.0603
101	45	4	90F	0	W/O	W/O	.1392
102	45	4	90F	60	W/O	W/O	.0696
103	45	3	90F	60	W	W	.1205
104	45	3	90F	0	W	W	.1826
105	45	3	30F	0	W	W	.1205
106	45	3	30F	15	W	W	.1184
107	45	3	30F	30	W	W	.1121
109	45	3	60B	0	W	W	.1660
110	45	3	60B	15	W	W	.1623
111	45	3	60B	30	W	W	.1515
112	45	3	60B	30	W	W	.1324
113	45	3	60B	15	W/O	W	.1444
114	45	3	60B	0	W/0	W	.1485
115	45	3	30F	0	W/0	W	.0976
116	45	3	30F	15	W/0	W	.0952
117	45	3	30F	30	W/0	W	.0883
118	45	3	90F	0	W/0	W	.1672
1 19	45	3	90F	60	W/O	W	.0976
120	45	3	90F	60	W/O ·	W/O	.0696
121	45	3	90F	0	W/0	W/O	.1392
122	45	3	30F	0	W/0	W/O	.0696
123	45	3	30F	15	W/O	W/O	.0672
124	45	3	30F	30	W/O	W/O	.0603
125	45	3	60B	0	W/O	W/O	.1206
126	45	3	60B	15	W/0	W/0	.1165
127	45	3	60B	30	W/O	W/0	.1044
128	45	3	60B	30	W	W/O	.1315
129	45	3	60B	15	W	W/0	.1423

Table A-4 (cont.). Test Plan

Data	File:	SCPT3	(Parabolic	Field	Study)
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Run No.	Row Arr.	Row No.	α	β	EF	IF	GBA
130	45	3	60B	0	W	W/0	.1460
131	45	3	30F	0	W	W/0	.1005
132	45	3	30F	15	W	W/0	.0984
133	45	3	30F	30	W	W/O	.0921
134	45	3	90F	0	W	W/0	.1626
135	45	3	90F	60	W	W/O	.1005
136	45	2	90F	60	W/O		.0200
137	45	2	90F	0	W/O		.0200
138	45	2	30F	0	W/O		.0200
139	45	2	30F	15	W/O		.0200
140	45	2	30F	30	W/O		.0200
141	45	2	60B	0	W/O		.0200
142	45	2	60B	15	W/O		.0200
143	45	2	60B	30	W/O		.0200
144	45	2	60B	30	W		.1479
145	45	2	60B	15	W		.1550
146	45	2	60B	0	W		.1572
147	45	2	30F	0	W		.1274
148	45	2	30F	15	W		.1260
149	45	2	30F	30	W		.1217
150	45	2	90F	0	W		.1684
151	45	2	90F	60	W		.1274
152	45	1	90F	60	W/O		.0100
153	45	1	90F	0	W/O		.0100
154	45	1	30F	0	W/O		.0100
155	45	1	60B	0	W/O		.0100
156	45	1	60B	0	Ŵ		.2103
157	45	1	30F	0	W		.2103
158	45	4	90F	0	W		.2103
159	45	1	90F	60	W		.2103

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A.3 PARABOLIC DISH FIELD-STUDY DATA AS A FUNCTION OF GBA VALUES

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Row Arr.	Row No.	α	β	EF	IF	GBA
0	4	90F	0	W/0	W/0	.1392
0	4	90F	60	W/O	W/0	.0696
0	4	30F	0	W/O	W/0	.0696
0	4	60B	0	W/U	W/U	.1206
U	4	60B	15	W/U	W/U	.1105
0	4	60B	30	W/U	W/U	.1044
0	4	30F	15	W/U	W/U	.0072
0	4	30F	30	W/U	W/U	.0003
0	4	30F	30	W W	W/U	.1049
Ŭ	4	30F	15	W W	W/O	.1124
0	4 1	30F 00E	0	w W	w/0 W/0	1003
0	4	901 00F	60	W 14	W/O	1150
0	4	60B	00	W	W/0	1701
0	4	60B	15	W	W/0	1656
0	4	60B	30	Ŵ	W/0	.1526
0	4	60B	30	Ŵ	Ŵ	.1829
0 0	4	60B	15	Ŵ	W	.1959
Ő	4	60B	0	ŵ	Ŵ	.2004
Õ	4	90F	õ	Ŵ	Ŵ	.2206
õ	4	90F	60	Ŵ	Ŵ	.1453
õ	4	30F	0	Ŵ	Ŵ	.1453
õ	4	30F	15	Ŵ	Ŵ	.1427
Õ	4	30F	30	W	W	.1352
Õ	4	60B	0	W	W	.2004
Õ	4	60B	15	W	W	.1959
Ó	4	60B	15	W/O	W	.1444
0	4	60B	30	W/O	W	.1324
0	4	60B	0	W/O	W	.1485
0	4	90F	0	W/O	W	.1672
0	4	90F	60	W/O	W	.0976
0	4	30F	0	W/O	W	.0976
0	4	30F	15	W/O	W	.0952
0	3	30F	15	W/O	W/O	.0672
0	3	30F	30	W/O	W/O	.0603
0	3	30F	0	W/O	W/O	.0696
0	3	90F	0	W/O	W/O	.1392
0	3	90F	60	W/O	W/O	.0696
0	3	60B	0	W/O	W/0	.1206
0	3	60B	15	W/O	W/O	.1165
0	3	60B	30	W/O	W/O	.1044
0	3	60B	30	W	W/O	.1705
0	3	60B	0	W	W/0	.1884

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Table A-5.GBA Values for In-Field Study for the
Parabolic Dish

Row Arr.	Row No.	α	β	EF	IF	GBA
0	3	90F	0	W	W/0	. 2092
0	3	30F	0	W	W/O	.1318
0	3	90F	60	W	W/O	.1318
0	3	90F	60	W	W	.1525
0	3	90F	0	. W	W	.2299
0	3	30F	0	W	W	.1525
0	3	60B	0	W	W	:2091
0	3	60B	0	W/O	W	.1485
0	3	90F	0	W/O	W	.1672
0	3	30F	0	W/O	W	.0976
0	3	90F	60	W/O	W	.0976
0	2	90F	60	W/O		.0200
0	2	90F	0	W/O		.0200
0	2	30F	0	W/O		.0200
0	2	60B	0	W/O		.0200
0	2	60B	0	W		.1572
0	2	30F	0	W		.1274
0	2	90F	0	W		.1684
0	2	90F	60	W		.1274
0	1	90F	60	W/O		.0100
0	1	90F	0	W/O		.0100
0	1	30F	0	W/O		.0100
0	1	60B	0	W/O		.0100
0	1	60B	0	W		.2103
0	1	30F	0	W		.2103
0	1	90F	0	W		.2103
0	1	90F	60	W		.2103
45	4	90F	0	W	W/O	.1543
45	4	90F	60	W	W/O	.0911
45	4	30F	0	W	W/O	.0911
45	4	30F	15	W	W/O	.0889
45	- 4	30F	30	W	W/O	.0826
45	4	60B	.0	W	W/O	.1374
45	4	60B	15	W	W/0	.1336
45	4	60B	30	W	W/O	.1227
45	4	60B	30	W	W	.1445
45	4	60B	15	W	W	.1554
45	4	60B	0	W	W	.1592
45	4	30F	0	W	W	.1129
45	4.	30F	15	W	W	.1107
45	4	30F	30	W	W	.1044
45	4	90F	0	W	W	.1761
45	4	90F	60	W	W	1129

Table A-5 (cont.). GBA Values for In-Field Study for the Parabolic Dish

Row Arr.	Row No.	α	β	EF	IF	GBA
45	4	90F	60	W/0	W	.0976
45	4	90F	0	W/O	W	.1672
45	4	30F	0	W/O	W	.0976
45	4	30F	15	W/O	W	.0952
45	4	30F	30	W/O	W	.0883
45	4	60B	0	W/O	W	.1485
45	4	60B	15	W/O	W	.1444
45	4	60B	30	W/O	W	.1324
45	4	60B	30	W/O	W/0	.1044
45	4	60B	15	W/O	W/O	.1165
45	4	60B	0	W/O	W/O	.1206
45	4	30F	Ō	W/O	W/O	.0696
45	4	30F	15	W/O	W/O	.0672
45	4	30F	30	W/O	W/0	.0603
45	4	90F	0	W/0	W/0	.1392
45	4	90F	60	W/0	W/0	.0696
45	3	90F	60	W	W	1205
45	3	90F	0	Ŵ	W	1826
45	3	30F	Õ	W	W	1205
45	3	305	15	W	W	1184
45	3	205	30	W	W	1121
45	3	SOF	30	W 1./	W W	1660
45	<u>э</u>	60B	15	W 1.1	W 1./	1623
45	3	COD	10	W	W 1.1	. 1023
45	3	60B	30	W	W LJ	.1010
45	3	60B	30	W	W U	.1324
45	3	60B	15	W/U	W	.1444
45	3	60B	U	W/U	W	.1485
45	3	30F	0	W/0	W	.0976
45	3	30F	15	W/U	W	.0952
45	3	30F	30	W/0	W	.0883
45	3	90F	0	W/0	W	.16/2
45	3	90F	60	W/0	W	.0976
45	3	90F	60	W/O	W/0	.0696
45	3	90F	0	W/O	W/0	. 1392
45	3	30F	0	W/O	W/O	.0696
45	3	30F	15	W/0	W/0	.0672
45	3	30F	30	W/O	W/0	.0603
45	3	60B	0	W/O	W/0	.1206
45	3	60B	15	W/0	W/O	.1165
45	3	60B	30	W/O	W/O	.1044
45	3	60B	30	Ŵ	W/0	.1315
45	3	60B	15	W	W/0	.1423

Table A-5 (cont.).GBA Values for In-Field Study for the
Parabolic Dish

Row Arr.	Row No.	œ		β	EF	IF	GBA
45	3	60B		0	W	W/O	.1460
45	3	30F		0	W	W/0	.1005
45	3	30F		15	W	W/O	.0984
45	3	30F	5. 1	30	W	W/O	.0921
45	3	90F	ang Ang Ang	0		W/0	.1626
45	3	90F	Marina da Santa Kabupatén da Santa	60	s a c w a ay	W/0	.1005
45	2	90F		60	W/0	i i se i	:0200
45	2	90F		0	W/O		.0200
45	2	30F		0	W/O		.0200
45	2	30F		15	W/O		.0200
45	2	30F		30	W/O		.0200
45	2	60B	an Anna ann an A	0	W/0		.0200
45	2	60B	网络哈	15	W/0		.0200
45	2	60B		30	W/O		.0200
45	2	60B		30	W	~ ~ ~	.1479
45	2	60B	and the second	15	W		.1550
45	2	60B		0	W		.1572
45	2	30F		0			.1274
45	2	30F		15	. W	,	.1260
45	2	30F		30	W		.1217
45	2	90F		0	W		.1684
45	2	90F		60	W		.1274
45	1	90F		60	W/0		.0100
45	1	90F		0	W/0		.0100
45	1	30F		0	W/0		.0100
45	1	60B	± 4 (0	W/0		.0100
45	1	60B		0	W		.2103
45	1	30F		0	W		.2103
45	1	90F		0	W		.2103
45	1	90F		60	W		. 2103

Table A-5 (cont.). GBA Values for In-Field Study for the Parabolic Dish

Fx mean = 1	.745 Fừ j	peak = 3.513	Fz mean	= 1.744	Fz peak = 3.10	2		
MHy mean = (0.177 MHy	peak = 0.441	Mz mean	= 0.175	Mz peak = 0.42	7		
$\gamma_{\sf Fx\ mean}$	^γ Fx peak	γ _{Fz mean}	γ _{Fz peak}	γ _{MHy mean}	γ _{MHy peak}	γ _{Mz mean}	γ _{Mz peak}	GBA
.6435	.9358	.0623	.1023	.5238	1.1611	.3070	.8302	.1392
.2953	.4099	.0117	.0848	.3095	.5048	.4130	.8983	.0696
.2871	.2787	.6241	.6932	.4497	.5069	.0795	.1934	.0696
.4902	. 5488	.1859	.2312	.7639	.7879	.2566	.3598	.1206
.4793	.4918	.1912	.2329	.7432	.8117	.4510	.5382	.1165
.4361	.4802	.1916	.2251	.7115	.7496	.5631	.5827	.1044
.3150	.3579	. 5958	.8228	.4377	.4629	.1471	.2119	.0672
.2504	.2619	.5800	.6510	. 4099	.4902	.2400	.3067	.0603
.2171	.3802	.4691	.9955	.3040	.6735	.2967	.4218	.1049
.2226	.3117	.4768	.8470	.2934	.5619	.1347	.2871	.1124
.2625	.3997	. 5322	.9151	.2753	. 5526	.0955	.2374	.1150
.4895	.8030	.0811	.0960	.4160	.8541	.3023	.6003	.1903
.2233	.4843	.0080	.0620	.2399	.4106	.5390	1.0234	.1150
.3194	.4619	.1250	.2100	.5222	.7839	.1943	.3271	.1701
.3126	.4396	.1191	.2107	.5143	.6811	.3926	.4501	.1656
.2648	.4238	.1355	.2007	.4740	.7899	.4204	.4468	.1526
.2847	.4393	.1293	.2069	.5134	.8337	.5033	.6528	. 1829
.3244	.5253	.1249	.2350	.5671	.77.68	.4249	.4784	.1959
.3239	.4409	.1251	.2330	.5638	.7570	.2557	.3733	.2004
.4368	.7598	.0496	.0752	.4018	.7301	.2513	.4676	.2206
.1819	.3487	.0054	.0873	.1885	.3929	.5099	.8990	.1453
.2165	.3358	.3943	.7508	.1352	.4271	.1672	.2564	.1453
.2220	.3552	.4417	.8472	.1930	.5644	.2065	.3358	.1427
.2113	.3183	.4229	.7901	.2143	.6570	.2843	.4376	.1352
.3451	.4324	.1070	.2139	.5619	.6853	.3100	.3918	.2004

Table A-6. Current parabolic dish data according to GBA.

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Note: Data in this table have <u>not</u> been corrected by the velocity ratio discussed in Section 1.5.1.

$\gamma_{Fx mean}$	γ _{Fx peảk}	γ _{Fz mean}	γ _{Fz peak}	^γ MHy mean	γ _{MHy peak}	γ _{Mz mean}	γ _{Mz peak_}	GBA
.3310	.4571	.1235	.2142	.5368	.6912	.3975	.4485	.1959
.4339	.5388	.1765	.2455	.7106	.8205	.4939	.5299	.1444
.3829	.4375	.1716	.2237	.6619	.7954	.6477	.6108	.1324
.4406	.5690	.1658	.2382	.7261	.8489	.2574	.3459	.1485
.4670	.6887	.0285	.0579	.3981	.7821	.2165	. 5688	.1672
.2315	.4598	.0225	.1181	.2611	.5749	.2211	1.0439	.0976
.2446	.2730	.4759	.6453	.2539	.3728	.1179	.1953	.0976
.2151	.2689	.4453	.6689	.2226	.3344	.1709	.2346	.0952
.3885	.3416	.8198	.8933	.6010	.6684	.1906	.2872	.0672
.3062	.2985	.7345	.8365	.5550	.6867	.3066	.3476	.0603
.4205	.3938	.8589	.9372	.5907	.6872	.1187	.2569	.0696
.7710	.9779	.0695	.1093	.6376	1.0604	.3531	.6348	.1392
.3929	.4691	.0310	.0902	.3605	.4360	.7182	.9546	.0696
. 5486	.6217	.2335	.2608	.8835	.9106	.2972	.3481	.1206
.5290	.5296	.2403	.2486	.8502	.9261	.4764	.4588	.1165
.5174	. 5985	.2331	.2982	.7892	.9282	.6555	.6263	.1044
.2377	.3987	.0720	.1909	.4017	.6894	.4185	.4691	.1705
.2628	.3794	.0734	.1490	.4230	.7203	.2127	.4306	.1884
.3872	.7905	.0316	.0857	.3766	.7697	.2389	.9766	.2092
.2461	.3744	.4472	.8013	.1827	.5521	.1232	.2787	.1318
.1157	.2793	.0089	.0920	.1535	.3660	.3143	.7441	.1318
.1110	. 2387	.0015	.1005	.1448	.3485	.2414	.7144	.1525
.3081	.5816	.0267	.0620	.3401	.7256	.1751	.5278	.2299
.2023	.3900	.4021	.8657	.1589	.5799	.1371	.2606	.1525
.2194	.4218	.0651	.1565	.3894	.8205	.2531	.3918	.2091
.3610	.4857	.1163	.1774	.6642	.9790	.2857	.4299	.1485
.5285	.9283	.0167	.0565	.6373	1.0306	.3064	.7169	.1672
.3610	.3644	.7348	.8759	.4214	.5715	.0811	.2737	.0976
.2102	.2651	.0229	.0768	.2496	.3466	.2065	.5467	.0976
. 3859	.3753	.0598	.0980	.3503	.3500	.8472	.9433	.0200

Table A-6 (cont.). Current parabolic dish data according to GBA.

Note: Data in this table have <u>not</u> been corrected by the velocity ratio discussed in Section 1.5.1.

γ_{Fx} mean	γ _{Fx peak}	γ _{Fz mean}	γ _{Fz peak}	$\gamma_{\rm MHy\ mean}$	γ _{MHy peak}	γ _{Mz mean}	γ _{Mz peak}	GBA
1.0794	1.1377	.0643	.0919	.7993	1,1885	.4635	.7430	.0200
.7076	.5828	1.3726	1,2933	.8373	.8620	.0838	.2521	.0200
.6426	. 5894	.3281	.3233	1.0425	.8878	.3843	.3742	.0200
.1859	.3241	.0793	.1878	.3449	.6068	.1554	.3306	.1572
.1465	.3008	.2701	.6237	.0555	.3861	.0426	.1731	.1274
.3148	.5004	.0081	.0477	.3218	.5609	.1983	.5531	.1684
.0759	.1591	.0152	.0923	.1072	.2481	.1855	.3837	.1274
.4072	.4769	.1125	.1640	.4051	.4312	1.0961	1.2288	.0100
1.3688	1.3213	.0224	.0507	.9497	.8692	.5900	.5700	.0100
.6578	.6414	1.2577	1.4175	.9686	.8887	.0627	.2079	.0100
.7707	.6716	.4054	.3680	1.1945	.9680	.4551	.4701	.0100
.1052	.2179	.0506	.0922	.1308	.4578	.1045	.1785	.2103
.0363	.1354	.0524	.2296	.0211	.4149	.0723	.1040	.2103
.2127	.2896	.0166	.0504	.0955	.3890	.1352	.1797	.2103
.0396	.0969	.0024	.0620	.0304	.1451	.1738	.1677	.2103
.6640	.8623	.0622	.1130	.5461	.8324	.2729	.6345	.1543
.3513	.4764	.0405	.1027	.3958	.5127	.8094	1.1151	.0911
.2741	.4092	.5358	.8978	.3441	.6160	.1344	.2908	.0911
.3028	.3796	.5462	.7918	.3820	.5259	.1629	.3925	.0889
.2643	.3334	.5157	.8665	.3652	.5738	.3150	.4595	.0826
.4945	.5342	.1852	.2330	.7692	.8694	.2596	.3982	.1374
.4393	.5164	.1909	.2429	.6750	.8610	.3343	.5944	.1336
.4236	.5374	.1956	.2612	.6547	.8311	.5590	.5611	.1227
.4146	.4600	.1738	.2390	.6379	.7705	.7146	.6778	.1445
.4186	.5032	.1671	.2161	.6533	.8368	.4083	.5189	.1554
.4237	. 5384	.1670	.2388	.6815	.8306	.3165	.5608	.1592
.2409	.2949	.4432	.6424	.2662	.4249	.0662	.2279	.1129
.2206	.2839	.4128	.6425	.2588	.4406	.1594	.3282	.1107
.1914	.3107	.3760	.7479	.2006	.5289	.2993	.4966	.1044
.6654	.8093	.0361	.0756	.5203	.8274	.3347	.6205	.1761

Table A-6 (cont.). Current parabolic dish data according to GBA.

Note: Data in this table have <u>not</u> been corrected by the velocity ratio discussed in Section 1.5.1.

γ _{Fx mean}	γ _{Fx peak}	γ _{Fz mean}	γ_{Fz} peak	γ _{MHy mean}	γ _{MHy} peak	γ _{Mz mean}	γ _{Mz peak}	GBA
.3098	.3952	.0031	.0725	.2814	. 4231	.8789	1.0545	.1129
.2799	.3453	.0010	.0693	.2439	.3995	.6194	.9730	.0976
.5871	.9469	.0392	.0681	.4757	.8515	.3201	.7267	.1672
.1728	.2438	.3351	.5552	.1712	.3850	.1236	.2069	.0976
.1690	.2597	.3217	.6214	.1857	.3862	.1859	.2339	.0952
.1699	.2185	.3264	.5035	.1889	.3412	.2420	.3260	.0883
.3940	.4629	.1726	.2133	.6779	.8225	.3660	.4852	.1485
.3936	.6022	.1813	.2692	.6209	.8345	.4680	.4827	.1444
.3810	.4134	.1899	.2371	.6394	.6558	.6134	.5918	.1324
.4280	.4929	.1992	.2458	.7328	.8034	.6519	.6864	.1044
.4321	.5015	.1863	.2572	.7386	.8179	.5288	.5057	.1165
.4380	.5601	.1665	.2110	.7190	.9067	.3235	.4111	.1206
.2773	.2936	.5378	.6880	.3897	.5038	.1548	.2442	.0696
.2892	.3042	.5678	.7324	.4190	. 5383	.3070	.2960	.0672
.2640	.2592	.5480	. 5974	.4125	.4394	.3137	.3642	.0603
.6986	1.0663	.0886	.1253	.5522	1.0603	.3916	.6388	.1392
.3547	.4261	.0191	.0740	.3829	.4893	.6107	.9222	.0696
.2881	.4329	.0098	.0760	.2838	.5158	.7039	.9190	.1205
.5656	.8548	.0483	.0775	.4802	.7987	.2120	.6370	.1826
.2559	.3872	.4952	.7853	.2684	.4953	.0452	.2269	.1205
.2167	.2952	.4382	.7648	.2513	.5257	.1548	.2984	.1184
.1906	.2520	.4163	.6841	.2172	.4564	.2120	.3605	.1121
.3726	.4592	.1245	.1780	.5678	.6761	.2093	.3392	.1660
.3746	.4420	.1279	.1868	.5588	.7841	.3416	.4806	.1623
.3660	.5134	.1589	.2195	.6007	.8691	.4616	.5057	.1515
.3669	. 4393	.1524	.2058	.6277	.7556	.4939	.5321	.1324
.4043	.4870	.1537	.1850	.7232	.8352	.4187	.4335	.1444
.3865	.4430	.1305	.1855	.6515	.7525	.2164	.4563	.1485
.2620	.2936	.4945	.6165	.3094	.4627	.1439	.2476	.0976
.2538	.2600	.4942	. 5997	.3076	.4280	.2594	.3057	.0952

Table A-6 (cont.). Current parabolic dish data according to GBA.

Note: Data in this table have not been corrected by the velocity ratio discussed in Section 1.5.1.

$\gamma_{\sf Fx\ \sf mean}$	γ_{Fx} peak	$\gamma_{Fz\ mean}$	γ_{Fz} peak	γ _{MHy mean}	γ _{MHy peak}	$\gamma_{Mz mean}$	γ _{Mz peak}	GBA
2092	.2490	4488	6030	2909	4026	.2687	.3029	.0883
5321	.7579	.0210	.0645	5307	.8071	.2779	.6028	.1672
.2807	.4069	.0369	.1117	.3098	.4779	.3774	.9611	.0976
.3601	.4571	.0559	.1427	.3733	.5895	.5059	1.0923	.0696
.6395	.8194	.0330	.0684	.5117	.7666	.3336	.6400	.1392
.3393	.3385	.6669	.7647	.4600	.5361	.0821	.2215	.0696
.4348	.4354	.7285	.8053	.4825	.6814	.2287	.3161	.0672
.3757	.3853	.7066	.8423	.5320	.5182	.3558	.4252	.0603
.4546	.5353	.2014	.2736	.7623	.7675	.2956	.4458	.1206
.4756	.5469	.1983	.2573	.7584	.8635	.5202	.5432	.1165
.4575	.5276	.2250	.2621	.7407	.7955	.7038	.7446	.1044
.3518	.4287	.1751	.2429	.5551	.6982	.5001	.5892	.1315
.4219	.5046	.1795	.2389	.6275	.7706	.3033	.3995	.1423
.4474	.5807	.1539	.2222	.6501	1.0256	.1850	.4532	.1460
.3409	.4289	.5654	.8404	.3010	.5107	.0810	.3208	.1005
.3197	.3878	.5431	.8052	.3127	.5095	.2367	.4864	.0984
.2303°	.3159	.4706	.7616	.2740	.5114	.2956	.3819	.0921
.6040	.8604	.0587	.0891	.4649	.9847	.2794	.6642	.1626
.3303	.4776	.0272	.0888	.3516	.4954	.8371	1.0150	.1005
. 5230	.5129	.0584	.0929	.5219	.4981	1.1774	1.0791	.0200
.8294	1.0285	.0852	.1264	.5512	1.3631	.4203	.8304	.0200
.5355	.5770	.9051	1.1837	.6075	.8227	.2387	.4092	.0200
.5546	.5547	.9400	1.1083	.6116	.9066	.4214	.5419	.0200
.5309	.5242	.9317	1.0490	.6646	.9297	.5505	.5075	.0200
.5422	.5937	.2168	.2785	.8755	.8517	.2840	.4157	.0200
. 5884	.5719	.2256	.2457	.8807	.7945	.6387	.6307	.0200
.5860	. 5288	.2104	.2135	.9085	.7372	.6401	.5704	.0200
.3563	.5419	.1252	. 2023	.5522	.8059	.3444	.4922	.1479
.3508	.4517	.1186	.2006	.5275	.8030	.2742	.4233	.1550
.3499	.4868	.1040	.2017	.5478	.6773	.1757	.3229	.1572

Table A-6 (cont.). Current parabolic dish data according to GBA.

Note: Data in this table have not been corrected by the velocity ratio discussed in Section 1.5.1.

γ _{Fx mean}	γ _{Fx peak}	$\gamma_{Fz mean}$	γ _{Fz peak}	γ _{MHy mean}	γ _{MHy peak}	γ _{Mz mean}	γ _{Mz peak}	GBA
.2403	.3140	.4638	.7712	.2554	. 4899	.0066	.3069	.1274
.2604	.3267	.4909	.7851	.2765	.4757	.2008	.3277	.1260
.2213	.2814	.4425	.7181	.2641	.5476	.2027	.3897	.1217
.5179	.7163	.0410	.0780	.4321	.7404	.2505	.5102	.1684
.2701	.3764	.0137	.0868	.2831	.4693	.6349	.8336	.1274
.5614	.5402	.0260	.0625	.4409	.4590	1.3191	1.1536	.0100
1.1563	.9962	.0996	.1030	.7528	.7497	.5490	.5217	.0100
.6692	.5982	1.2573	1.2563	.9787	.8261	.0511	.2267	.0100
.7618	.6658	.3095	.2952	1.1453	.9221	.3512	.3827	.0100
.2871	.3256	.0969	.1356	.4601	.5706	.1918	.2582	.2103
.2232	.2642	.3870	.5380	.1668	.3145	.0191	.1785	.2103
.4445	.4475	.0632	.0744	.3142	.4897	.2085	.2336	.2103
.1898	.2678	.0020	.0495	.1409	.3213	.4492	.4529	.2103

Table A-6 (cont.). Current parabolic dish data according to GBA.

Note: Data in this table have <u>not</u> been corrected by the velocity ratio discussed in Section 1.5.1.

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APPENDIX B

Data Acquisition

<u>Section</u>

- B.1 Hardware
- B.2 Software Routines
- B.3 Velocity Measurements
- B.4 Calibration and Spectrum
- B.5 Simulation of Wind Loads in the Tunnel

APPENDIX B

DATA ACQUISITION

B.1 HARDWARE

Data collection was performed by an IBM personal computer fitted with a Data Translation analog to digital converter. The six signals from the high frequency force balance passed through six Accudata 118 amplifiers and Wavetek hi/lo filters (model number 852) to the IBM personal computer via the analog to digital converter. The low-pass filters cut out the natural resonance of the system described in Appendix B.4. Each channel recorded 4096 samples over a period of 35 seconds at a rate of about 128 Hz. From this record, mean, rms, peak maximum and peak minimum values on each channel were obtained. This data acquisition procedure has been shown, Cochran [24], to provide an adequate definition of the mean, rms and peak loads for a heliostat which is not in resonant response to the applied fluctuating load.

B.2 SOFTWARE ROUTINES

"FORCT" is the data collection routine which receives signals from the force balance, via the electronic equipment described in Appendix B.1, and then converts the voltages to force or moment coefficients (Section 1.5.3) at a prescribed position on the structure. These dimensionless coefficients are stored in binary data files for later inspection.

"SETRF" is a routine that was primarily used in the calibration process. When a static, known load is applied the computer reads the voltage difference produced across the strain gauge bridges. Thus a plot of force or moment can be developed as a function of voltage. The slope of these straight lines is then used in the load matrix of "FORCT".

"FORPT" is the plotting program which gives a user three options as follows:

- 1) It can read the input from the keyboard and produce a plot on the screen and/or plotter.
- 2) It can read the data from an ASCII file which may contain up to nine arrays of data and plot two at a time. It can give multiple plots (up to seven) on one figure.
- 3) It can retrieve data directly from the binary data file created by "FORCA" or "FORCT" and plot the data.

"FORDL" is a routine that was used to delete a binary data record which was either bad or useless.

"FORCL" is the routine that completely displays the data file either on screen or printer. It makes it possible to edit the data in the binary data file.

B.3 VELOCITY MEASUREMENTS

The velocity and turbulence measurements were obtained using a hot-film anemometer mounted on a traverse mechanism. Calibration of the hot-film anemometer was achieved using a hot-wire calibrator. The resulting data was fit to the King's law relationship:

$$E^2 = A + BU^C \quad . \tag{B.1}$$

In Equation (B.1) E is the hot-wire output voltage, U is the wind velocity and A, B and C are curve fitting coefficients. During tests, the mean velocity was obtained from Equation B.1 using measured voltage and previously calculated calibration coefficients. The fluctuating velocity was obtained from:

$$U_{\rm rms} = \frac{2 \ E \ E_{\rm rms}}{B \ C \ U^{\rm C-1}} \tag{B.2}$$

in which rms means root-mean-square about the mean.

The mean velocity profile in the simulated atmospheric wind can be described as a power law:

$$\frac{U(z)}{U_{ref}} = \left[\frac{z}{z_{ref}}\right]^n$$
(B.3)

or as a logarithmic law:

$$U(z) = \frac{1}{K} U_* \ln \left(\frac{z}{z_0}\right) . \tag{B.4}$$

In Equation (B.3) U_{ref} was the velocity at a height of $z_{ref} = 1$ m in the boundary layer (40 m full scale, assuming a 1:40 scale). The constant n describes the upwind roughness; n = 0.14 is typical of an open-country site. In Equation (B.4), K is a constant (= 0.4), z_0 is a roughness length dependent on upwind surface roughness and u_* is a surface friction velocity related to the upstream roughness and ambient wind speed. The log law can be rewritten to relate velocities at one elevation to those at a reference elevation as:

$$\frac{U(z)}{U_{ref}} = \frac{\ln(z/z_0)}{\ln(z_{ref}/z_0)} .$$
(B.5)

The turbulence intensity as a percent is defined as:

$$Tu = \frac{U_{rms}(z)}{U(z)} \times 100$$
 (B.6)

The mean velocity and turbulence profiles used in this study are referred to in Section 1.5.1. The solid lines in the turbulence intensity plot in Figures 1-12 to 1-16 are typical values of turbulence obtained from field measurements for a range of open-country environments ($z_0 = 0.01 - 0.1$ meters). Since most previous data were obtained at lower turbulence levels and since the influence of turbulence was expected to be small, a large amount of data was obtained at the high turbulence level, which reveals a large and unexpected increase in the drag force on the heliostát with the increase in turbulence intensity.

The lower turbulence intensity profiles were naturally developed boundary layers and can be shown to correctly model an open country site at a scale of about 1:300. The higher turbulence intensity profiles were generated by installing one or two passive turbulence generator(s) well upstream from the model. The generator was experimentally tuned to obtain the appropriate turbulence level (refer to Section 1.5.1).

B.4 CALIBRATION AND SPECTRUM

The six electronic signals coming from the balance during testing were directed to an on-line data acquisition system. The balance was calibrated with standard loads prior to any experimental studies. The interaction between channels was small (<2%) and linear. The channel interactions were small enough to ignore. The calibration coefficients were subsequently used in the data collection program. The necessary load coefficients were calculated using measured loads and wind velocity in a computer program installed in an IBM PC-XT (and later changed to IBM PC-AT) based data acquisition system. The software packages are discussed in more detail in Appendix B.2 (software).

Two kinds of spectra were calculated in this study:

- 1) The wind power spectrum.
- 2) The structural response spectrum.

The hot-wire technique may be used to record an extensive time series of the fluctuating velocities from which the mean is subtracted. This time series may be reduced, by fast Fourier transformations, to the energy content of a frequency increment. The resulting 'wind power spectrum' shows the energy distribution associated with various eddy sizes. The dominant eddy size may be estimated by using a correlation analysis to get the time scale for a typical eddy. Multiplication by the mean velocity produces the 'integral length scale' of the longitudinal turbulence which typifies the mean eddy size.

A typical velocity spectrum from the modeled atmospheric wind with no model present is compared, in Figure B-1, with atmospheric spectra measured by Harris [34], Davenport [35] and Simiu [32]. The data, in this case, fits most closely to the function developed by Simiu.

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The wind spectrums and integral length scales for the velocity profiles are shown in Table B-1 and from Figures B-2 to B-6.

Profile	Spectrum	Integral Length Scale (m)
CBL1	Figure B-2	.390
SBL1	Figure B-3	.571
SBL2	Figure B-4	.569
SBL3	Figure B-5	.506
SBL4	Figure B-6	.515

Table B-1. Wind Power Spectrum and Integral Length Scale



Figure B-1. Comparison Between the Wind Tunnel and Atmospheric Spectra

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Figure B-2. Wind Power Spectrum for CBL1 (Table B-1)



Figure B-3. Wind Power Spectrum for SBL1 (Table B-1)



Figure B-4. Wind Power Spectrum for SBL2 (Table B-1)



Figure B-5. Wind Power Spectrum for SBL3 (Table B-1)



Figure B-6. Wind Power Spectrum for SBL4 (Table B-1)

The model response spectrum obtained without the low-pass filter in place reflects the energy distribution associated with various frequencies and permits the natural frequency of the model to be found by identifying a resonant peak in the spectrum. Wind load spectra with and without a low-pass filter are shown in Figures B-7 to B-13. In order to have a high model frequency response to ensure a close simulation of the response spectrum in both the model and prototype, low-pass filters were used to cut out the resonant peak and still retain almost all of the energy transmitted to the model from the flow. The cut-off frequencies were carefully set on the filters during the whole study in order to retain the maximum energy. The natural and cut-off frequencies of every model are shown in the Table (refer to Section 1.4.2 for model abbreviation information).

Mode1	Spectrum	Natural Freq.	Cut-off Freq.
10.5S	Figure B-7	41	30
10.5R	Figure B-8	-50	35
10.5Pa	Figure B-9	40	25
8.5S	Figure B-10	61	40

Table B-2. Spectrum of the Structural Response



Figure B-7. Base Moment Wind Load Spectra for Model 10.5S



×.,.,

(b) Filtered





(b) Filtered

Figure B-9. Base Moment Wind Load Spectra for Model 10.5Pa



Figure B-10. Base Moment Wind Load Spectra for Model 8.5S

Modeling of the aerodynamic loading on a structure requires special consideration of flow conditions in order to obtain similitude between model and prototype. In general, the requirements are that the model and prototype be geometrically similar, that the approach mean velocity have a vertical profile shape similar to the full-scale flow, that the turbulence characteristics of the flows be similar, and that the Reynolds number for the model and prototype be equal.

These criteria are satisfied by constructing a scale model of the structure and its surroundings and performing the wind tests in a wind tunnel specifically designed to model atmospheric boundary-layer flows.

Reynolds number similarity requires that the quantity UD/ν be similar for model and prototype. Since ν , the kinematic viscosity of air, is identical for both, Reynolds numbers cannot be made precisely equal with reasonable wind velocities. To accomplish this the air velocity in the wind tunnel would have to be as large as the model scale factor times the prototype wind velocity, a velocity which would introduce unacceptable compressibility effects. However, for sufficiently high Reynolds numbers (>2x10⁴) the pressure coefficient at any location on the structure will be essentially constant for a large range of Reynolds numbers. Typical values encountered are 10^7-10^8 for the full-scale and 10^5-10^6 for the wind-tunnel model. In this range acceptable flow similarity is achieved without precise Reynolds number equality.

The independence of the parabolic dish load coefficients to variations in Reynolds number is shown in Figure B-11. The Reynolds number independence assumption is valid over the tested range from 11.4×10^4 to 34.1×10^4 . Thus the testing velocities were kept within the range of 6 to 18 m/s which corresponds to this range.



Reynolds Number x 10^4



APPENDIX C

Data for File SCPT - Turbulence Study

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Run # 3	Wind .0	Elev 90.0	Vel 12.2			
Comp : Mean :	Fx 1.505	Fy .081	Fz 082	Мх .006	Му .124	Mz .000
Max : Min : Rms :	2.339 .865 .234	.013	027 146 .017	.001	.234 .043 .026	.000 .000 .000
Gfac : Pfac :	1.554 3.572		1.779 3.829		.000 .000	.000 .000
Run # 4	Wind .0	Elev 35.0	Vel 12.1			
Comp : Mean :	Fx .941	Fy 109	Fz -1.256	Mx .011	Му 056	Mz .000
Max : Min : Rms :	1.371 .646 .118	.014	873 -1.806 .152	.004	006 119 .019	.000 .000 .000
Gfac : Pfac :	1.458 3.658		1.438 3.607		.000 .000	.000 .000
Run # 5	Wind .0	Elev 30.0	Vel 12.1			
Run # 5 Comp : Mean :	Wind .0 Fx .830	Elev 30.0 Fy .122	Vel 12.1 Fz -1.288	Mx .014	Му 107	Mz .000
Run # 5 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .830 1.236 .563 .103	Elev 30.0 Fy .122 .015	Vel 12.1 Fz -1.288 869 -1.896 .156	Mx .014 .003	My 107 056 159 .022	Mz .000 .000 .000 .000
Run # 5 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .830 1.236 .563 .103 1.489 3.939	Elev 30.0 Fy .122 .015	Vel 12.1 Fz -1.288 869 -1.896 .156 1.472 3.898	Mx .014 .003	My 107 056 159 .022 .000 .000	Mz .000 .000 .000 .000 .000
Run # 5 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 6	Wind .0 Fx .830 1.236 .563 .103 1.489 3.939 Wind .0	Elev 30.0 Fy .122 .015 Elev 25.0	Vel 12.1 Fz -1.288 869 -1.896 .156 1.472 3.898 Vel 12.1	Mx .014 .003	My 107 056 159 .022 .000 .000	Mz .000 .000 .000 .000 .000
Run # 5 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 6 Comp : Mean :	Wind .0 Fx .830 1.236 .563 .103 1.489 3.939 Wind .0 Fx .596	Elev 30.0 Fy .122 .015 Elev 25.0 Fy .080	Vel 12.1 Fz -1.288 869 -1.896 .156 1.472 3.898 Vel 12.1 Fz -1.183	Mx .014 .003 Mx .005	My 107 056 159 .022 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # Comp : Mean : Min : Rms : Gfac : Pfac : Run # 6 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .830 1.236 .563 .103 1.489 3.939 Wind .0 Fx .596 .857 .389 .081	Elev 30.0 Fy .122 .015 Elev 25.0 Fy .080 .011	Vel 12.1 Fz -1.288 869 -1.896 .156 1.472 3.898 Vel 12.1 Fz -1.183 745 -1.714 .161	Mx .014 .003 .003 .005	My 107 056 159 .022 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 7	Wind 55.0	Elev 90.0	Vel 12.2			
Comp : Mean :	Fx 1.159	Fy .060	Fz .038	Мх 002	Му .101	Mz .000
Max : Min : Rms :	1.771 .635 .160	.008	.100 019 .018	.000	.167 .039 .018	.000 .000 .000
Gfac : Pfac :	1.528 3.824		2.632 3.470		.000 .000	.000 .000
Run # 8	Wind 60.0	Elev 90.0	Vel 12.2			
Comp : Mean :	Fx 1.169	Fy .076	Fz .065	Mx .001	Му .091	Mz .000
Max : Min : Rms :	1.715 .649 .165	.011	.127 .008 .018	.000	.163 .021 .018	.000 .000 .000
Gfac : Pfac :	1.467 3.304		1.967 3.437		.000 .000	.000 .000
Run # 9	Wind 65.0	Elev 90.0	Vel 12.0			
Run # 9 Comp : Mean :	Wind 65.0 Fx 1.104	Elev 90.0 Fy .048	Vel 12.0 Fz .072	Mx 004	Му .092	Mz .000
Run # 9 Comp : Mean : Max : Min : Rms :	Wind 65.0 Fx 1.104 1.667 .567 .164	Elev 90.0 Fy .048	Vel 12.0 Fz .072 .142 .007 .022	Mx 004 .001	My .092 .156 .024 .019	Mz .000 .000 .000 .000
Run # 9 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 65.0 Fx 1.104 1.667 .567 .164 1.510 3.424	Elev 90.0 Fy .048	Vel 12.0 Fz .072 .142 .007 .022 1.971 3.236	Mx 004 .001	My .092 .156 .024 .019 .000 .000	Mz .000 .000 .000 .000 .000
Run # 9 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 10	Wind 65.0 Fx 1.104 1.667 .567 .164 1.510 3.424 Wind 70.0	Elev 90.0 Fy .048 .007	Vel 12.0 Fz .072 .142 .007 .022 1.971 3.236 Vel 12.2	Mx 004 .001	My .092 .156 .024 .019 .000 .000	Mz .000 .000 .000 .000 .000
Run # 9 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 10 Comp : Mean :	Wind 65.0 Fx 1.104 1.667 .567 .164 1.510 3.424 Wind 70.0 Fx .886	Elev 90.0 .048 .007 Elev 90.0 Fy .049	Vel 12.0 Fz .072 .142 .007 .022 1.971 3.236 Vel 12.2 Fz .050	Mx 004 .001 .001	My .092 .156 .024 .019 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 9 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 10 Comp : Mean : Max : Min : Rms :	Wind 65.0 Fx 1.104 1.667 .567 .164 1.510 3.424 Wind 70.0 Fx .886 1.413 .406 .147	Elev 90.0 .048 .007 Elev 90.0 Fy .049 .008	Vel 12.0 Fz .072 .142 .007 .022 1.971 3.236 Vel 12.2 Fz .050 .130 020 .023	Mx 004 .001 .001 	My .092 .156 .024 .019 .000 .000 .000 .000 .000 .000 .005 .155 .019 .018	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 11	Wind 75.0	Elev 90.0	Vel 12.1		gente a	
Comp : Mean :	Fx .701	Fy .066	Fz .041	Мх 005	Му .070	Mz .000
Max : Min : Rms :	1.257 .305 .141	.013	.119 027 .024	.001	.143 .009 .019	.000 .000 .000
Gfac : Pfac :	1.793 3.950		2.913 3.210	•	.000 .000	.000 .000
Run # 12	Wind 75.0	Elev 90.0	Vel 12.3			
Comp : Mean :	Fx .665	Fy .064	Fz .039	Mx .000	My .071	Mz .000
Max : Min : Rms :	1.241 .234 .137	.013	.125 025 .021	.000	.145 006 .019	.000 .000 .000
Gfac : Pfac :	1.865 4.187		3.186 4.129		.000	.000 .000
Run # 13	Wind 70.0	Elev 90.0	Vel 12.2			
Comp : Mean :	Fx 1.013	Fy .078	Fz .079	Мх 007	Му .098	Mz .000
Max : Min : Rms :	1.537 .461 .166	.013	.174 018 .029	.001	.159 .041 .019	.000 .000 .000
Gfac : Pfac :	1.517 3.148		2.197 3.288		.000 .000	.000
Run # 14	Wind 65.0	Elev 90.0	Vel 12.2			
Comp : Mean :	Fx 1.187	Fy .087	Fz .041	Mx .001	Му .107	Mz .000
Max : Min : Rms :	1.835 .617 .174	.013	.119 023 .024	.000	.172 .040 .019	.000 .000 .000
Gfac : Pfac :	1.547		2.947 3.347		.000	.000

Run # 15	Wind .0	Elev 90.0	Vel 12.0			
Comp : Mean :	Fx 1.564	Fy .087	Fz 128	Mx .007	My .123	Mz .000
Max : Min : Rms :	2.342 .877 .234	.013	047 195 .025	.001	.228 .054 .027	.000 .000 .000
Gfac : Pfac :	1.498 3.330		1.523 2.715		.000 .000	.000 .000
Run # 16	Wind .0	Elev 35.0	Vel 12.2			
Comp : Mean :	.Fx .941	Fy .141	Fz -1.326	Mx 004	My 047	Mz .000
Max : Min : Rms :	1.368 .584 .122	.018	833 -1.842 .164	.002	.023 113 .020	.000 .000 .000
Gfac : Pfac :	1.454 3.491		1.390 3.146		.000 .000	.000 .000
Run # 17	Wind .0	Elev 30.0	Vel 12.1			
Run # 17 Comp : Mean :	Wind .0 Fx .909	Elev 30.0 Fy .147	Vel 12.1 Fz -1.386	Mx 002	Му 075	Mz .000
Run # 17 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .909 1.352 .549 .123	Elev 30.0 Fy .147	Vel 12.1 -1.386 854 -2.021 .183	Mx 002 .000	My 075 021 146 .021	Mz .000 .000 .000 .000
Run # 17 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .909 1.352 .549 .123 1.487 3.610	Elev 30.0 Fy .147 .020	Vel 12.1 -1.386 854 -2.021 .183 1.458 3.476	Mx 002 .000	My 075 021 146 .021 .000 .000	Mz .000 .000 .000 .000 .000
Run # 17 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 18	Wind .0 Fx .909 1.352 .549 .123 1.487 3.610 Wind .0	Elev 30.0 Fy .147 .020 Elev 25.0	Vel 12.1 -1.386 854 -2.021 .183 1.458 3.476 Vel 12.2	Mx 002 .000	My 075 021 146 .021 .000 .000	Mz .000 .000 .000 .000 .000
Run # 17 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 18 Comp : Mean :	Wind .0 Fx .909 1.352 .549 .123 1.487 3.610 Wind .0 Fx .667	Elev 30.0 Fy .147 .020 Elev 25.0 Fy .136	Vel 12.1 Fz -1.386 854 -2.021 .183 1.458 3.476 Vel 12.2 Fz -1.258	Mx 002 .000 .000 Mx .004	My 075 021 146 .021 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 17 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 18 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .909 1.352 .549 .123 1.487 3.610 Wind .0 Fx .667 .990 .381 .095	Elev 30.0 Fy .147 .020 Elev 25.0 Fy .136 .019	Vel 12.1 Fz -1.386 854 -2.021 .183 1.458 3.476 Vel 12.2 Fz -1.258 745 -1.906 .184	Mx 002 .000 .000 Mx .004	My 075 021 146 .021 .000 .000 .000 .000 139 078 216 .025	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 19	Wind .0	Elev 90.0	Vel 12.3			
Comp : Mean :	Fx 1.511	Fy .102	Fz 106	Мх .006	Му .142	Mz .000
Max : Min : Rms :	2.293 .825 .235	.016	030 180 .025	.001	.266 .034 .033	.000 .000 .000
Gfac : Pfac :	1.518 3.326		1.700 2.948	ч 1	.000 .000	.000 .000
Run # 20	Wind 65.0	Elev 90.0	Vel 12.2			•
Comp : Mean :	Fx 1.131	Fy 073	Fz .071	Мх 000	Му .120	Mz .000
Max : Min : Rms :	1.864 .539 .180	.012	.187 021 .033	.000	.225 .024 .025	.000 .000 .000
Gfac : Pfac :	1.649 4.088		2.637 3.506		.000	.000 .000
Run # 21	Wind 70.0	Elev 90.0	Vel 12.1			
Run # 21 Comp : Mean :	Wind 70.0 Fx .913	Elev 90.0 Fy .078	Vel 12.1 Fz .023	Mx 000	Му .102	Mz .000
Run # 21 Comp : Mean : Max : Min : Rms :	Wind 70.0 Fx .913 1.546 .363 .172	Elev 90.0 Fy .078	Vel 12.1 Fz .023 .118 067 .031	Mx 000	My .102 .217 .005 .026	Mz .000 .000 .000 .000
Run # 21 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 70.0 Fx .913 1.546 .363 .172 1.692 3.685	Elev 90.0 Fy .078	Vel 12.1 Fz .023 .118 067 .031 5.015 3.002	Mx 000 .000	My .102 .217 .005 .026 .000 .000	Mz .000 .000 .000 .000 .000
Run # 21 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 22	Wind 70.0 Fx .913 1.546 .363 .172 1.692 3.685 Wind 60.0	Elev 90.0 Fy .078 .015 Elev 90.0	Vel 12.1 Fz .023 .118 067 .031 5.015 3.002 Vel 12.1	Mx 000 .000	My .102 .217 .005 .026 .000 .000	Mz .000 .000 .000 .000 .000
Run # 21 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 22 Comp : Mean :	Wind 70.0 Fx .913 1.546 .363 .172 1.692 3.685 Wind 60.0 Fx 1.345	Elev 90.0 .078 .015 Elev 90.0 Fy .111	Vel 12.1 Fz .023 .118 067 .031 5.015 3.002 Vel 12.1 Fz .036	Mx 000 .000 Mx 003	My .102 .217 .005 .026 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 21 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 22 Comp : Mean : Max : Min : Rms :	Wind 70.0 Fx .913 1.546 .363 .172 1.692 3.685 Wind 60.0 Fx 1.345 2.017 .754 .203	Elev 90.0 .078 .015 Elev 90.0 .111 .017	Vel 12.1 Fz .023 .118 067 .031 5.015 3.002 Vel 12.1 Fz .036 .123 052 .027	Mx 000 .000 .000 Mx 003	My .102 .217 .005 .026 .000 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 23	Wind 55.0	Elev 90.0	Vel 12.1			
Comp : Mean :	Fx 1.371	Fy .071	Fz .006	Mx 008.	Му .138	Mz .000
Max : Min : Rms :	2.055 .717 .200	.010	.077 067 .021	.001	.240 .044 .026	.000 .000 .000
Gfac : Pfac :	1.499 3.425		12.028 3.352		.000 .000	.000 .000
Run # 24	Wind .0	Elev 35.0	Vel 12.1			
Comp : Mean :	Fx .985	Fy .139	Fz -1.391	Mx .010	My 063	Mz .000
Max : Min : Rms :	1.561 .607 .134	.019	882 -2.176 .180	.004	.002 147 .025	.000 .000 .000
Gfac : Pfac :	1.585 4.297		1.564 4.353		.000 .000	.000 .000
Run #	Wind	Elev	Ve]			
25	.0	30.0	12.1			
25 Comp : Mean :	.0 Fx .837	30.0 Fy .118	12.1 Fz -1.370	Mx .009	Му 114	Mz .000
25 Comp : Mean : Max : Min : Rms :	.0 Fx .837 1.319 .493 .127	30.0 Fy .118 .018	Fz -1.370 874 -2.204 .203	Mx .009 .002	My 114 041 210 .029	Mz .000 .000 .000 .000
25 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	.0 Fx .837 1.319 .493 .127 1.576 3.798	30.0 Fy .118 .018	Fz -1.370 874 -2.204 .203 1.609 4.119	Mx .009 .002	My 114 041 210 .029 .000 .000	Mz .000 .000 .000 .000 .000
25 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 26	.0 Fx .837 1.319 .493 .127 1.576 3.798 Wind .0	30.0 Fy .118 .018 Elev 40.0	12.1 Fz -1.370 874 -2.204 .203 1.609 4.119 Vel 12.2	Mx .009 .002	My 114 041 210 .029 .000 .000	Mz .000 .000 .000 .000 .000
25 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 26 Comp : Mean :	.0 Fx .837 1.319 .493 .127 1.576 3.798 Wind .0 Fx 1.019	30.0 Fy .118 .018 Elev 40.0 Fy .118	12.1 Fz -1.370 874 -2.204 .203 1.609 4.119 Vel 12.2 Fz -1.223	Mx .009 .002 Mx .005	My 114 041 210 .029 .000 .000	Mz .000 .000 .000 .000 .000 .000
25 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 26 Comp : Mean : Mean : Min : Rms :	.0 Fx .837 1.319 .493 .127 1.576 3.798 Wind .0 Fx 1.019 1.564 .539 .144	30.0 Fy .118 .018 Elev 40.0 Fy .118 .017	12.1 Fz -1.370 874 -2.204 .203 1.609 4.119 Vel 12.2 Fz -1.223 720 -1.879 .167	Mx .009 .002 .002 .005	My 114 041 210 .029 .000 .000 .000 .000 .000 .000 .00	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 30	Wind 70.0	Elev 90.0	Vel 12.2				
Comp : Mean :	Fx .959	Fy .011	Fz .102	Мх .004	Му .110	Mz .000	
Max : Min : Rms :	1.603 .433 .171	.002	.209 .002 .028	.001	.192 .017 .025	.000 .000 .000	
Gfac : Pfac :	1.670 3.761		2.042 3.785		.000 .000	.000 .000	
Run # 31	Wind 65.0	Elev 90.0	Vel 12.1			•	
Comp : Mean :	Fx 1.295	Fy 014	Fz .109	Mx .003	Му .163	Mz .000	
Max : Min : Rms :	1.939 .647 .204	.002	.214 .021 .032	.001	.263 .059 .030	.000 .000 .000	
Gfac : Pfac :	1.497 3.149		1.972 3.334		.000 .000	.000 .000	
Run # 32	Wind 60.0	Elev 90.0	Vel 12.1				
Comp : Mean :	Fx 1.492	Fy 021	Fz .102	Мх .008	Му .157	Mz .000	
Max : Min : Rms :	2.283 .728 .234	.003	.209 .006 .031	.001	.256 .060 .029	.000 .000 .000	
Gfac : Pfac :	1.530 3.382		2.056 3.421		.000 .000	.000	
Run # 33	Wind 55.0	Elev 90.0	Vel 12.2				
Comp : Mean :	Fx 1.473	Fy .108	Fz 007	Mx .004	My .139	Mz .000	
Max : Min : Rms :	2.245 .712 .215	.016	.083 085 .029	.001	.219 .045 .023	.000 .000 .000	
Gfac : Pfac :	1.524 3.596		11.874 2.675		.000 .000	.000 .000	

Run # 34	Wind 80.0	Elev 90.0	Vel 12.1				
Comp : Mean :	Fx .576	Fy .104	Fz .031	Mx 003	Му .069	Mz .000	
Max : Min : Rms :	1.095 .144 .137	.025	.136 064 .031	.001	.159 .001 .021	.000 .000 .000	
Gfac : Pfac :	1.902 3.798		4.363 3.428		.000 .000	.000 .000	
Run # 35	Wind 85.0	Elev 90.0	Vel 12.2				
Comp : Mean :	Fx .280	Fy .111	Fz 055	Mx 005	My .042	Mz .000	
Max : Min : Rms :	.649 084 .102	.040	.039 143 .030	.002	.103 020 .017	.000 .000 .000	
Gfac : Pfac :	2.315 3.614		2.603 2.965		.000 .000	.000	
Run # 36	Wind 90.0	Elev 90.0	Vel 12.1				
Run # 36 Comp : Mean :	Wind 90.0 Fx .133	Elev 90.0 Fy .126	Vel 12.1 Fz 027	Mx 010	Му .022	Mz .000	
Run # 36 Comp : Mean : Max : Min : Rms :	Wind 90.0 Fx .133 .530 199 .073	Elev 90.0 Fy .126 .069	Vel 12.1 Fz 027 .057 114 .024	Mx 010 .006	My .022 .084 034 .014	Mz .000 .000 .000 .000	
Run # 36 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 90.0 Fx .133 .530 199 .073 3.984 5.475	Elev 90.0 Fy .126 .069	Vel 12.1 Fz 027 .057 114 .024 4.150 3.609	Mx 010 .006	My .022 .084 034 .014 .000 .000	Mz .000 .000 .000 .000 .000 .000	
Run # 36 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 37	Wind 90.0 Fx .133 .530 199 .073 3.984 5.475 Wind .0	Elev 90.0 Fy .126 .069 Elev 90.0	Vel 12.1 Fz 027 .057 114 .024 4.150 3.609 Vel 12.2	Mx 010 .006	My .022 .084 034 .014 .000 .000	Mz .000 .000 .000 .000 .000	
Run # 36 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 37 Comp : Mean :	Wind 90.0 Fx .133 .530 199 .073 3.984 5.475 Wind .0 Fx 1.612	Elev 90.0 Fy .126 .069 Elev 90.0 Fy .073	Vel 12.1 Fz 027 .057 114 .024 4.150 3.609 Vel 12.2 Fz 105	Mx 010 .006 Mx .007	My .022 .084 034 .014 .000 .000	Mz .000 .000 .000 .000 .000 .000	
Run # 36 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 37 Comp : Mean : Mean : Max : Min : Rms :	Wind 90.0 Fx .133 .530 199 .073 3.984 5.475 Wind .0 Fx 1.612 2.328 .941 .240	Elev 90.0 Fy .126 .069 Elev 90.0 Fy .073 .011	Vel 12.1 Fz 027 .057 114 .024 4.150 3.609 Vel 12.2 Fz 105 034 184 .022	Mx 010 .006 Mx .007 .002	My .022 .084 034 .014 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0	

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Run # 38	Wind .0	Elev 25.0	Vel 12.2			
Comp : Mean :	Fx .442	Fy .128	Fz -1.284	Мх .004	Му 080	Mz .000
Max : Min : Rms :	.651 .248 .071	.021	751 -1.920 .195	.002	.000 162 .033	.000 .000 .000
Gfac : Pfac :	1.474 2.953		1.495 3.263		.000 .000	.000 .000
Run # 39	Wind .0	Elev 30.0	Vel 12.2			с
Comp : Mean :	Fx .729	Fy .164	Fz -1.609	Мх .004	Му 132	Mz .000
Max : Min : Rms :	1.067 .433 .105	.024	989 -2.321 .229	.001	056 233 .035	.000 .000 .000
Gfac : Pfac :	1.463 3.211		1.443 3.108		.000 .000	.000 .000
Run #	Wind	Flov	Vol			
41	.0	35.0	12.3			
41 Comp : Mean :	.0 Fx .984	35.0 Fy .183	12.3 Fz -1.767	Мх .006	Му 133	Mz .000
41 Comp : Mean : Max : Min : Rms :	.0 Fx .984 1.338 .606 .134	35.0 Fy .183	Fz -1.767 -1.082 -2.385 .233	Mx .006 .001	My 133 070 204 .029	Mz .000 .000 .000 .000
41 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	.0 Fx .984 1.338 .606 .134 1.360 2.652	35.0 Fy .183	Fz -1.767 -1.082 -2.385 .233 1.349 2.649	Mx .006 .001	My 133 070 204 .029 .000 .000	Mz .000 .000 .000 .000 .000
41 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 42	Wind .0 Fx .984 1.338 .606 .134 1.360 2.652 Wind .0	Elev 40.0	Fz -1.767 -1.082 -2.385 .233 1.349 2.649 Vel 12.1	Mx .006 .001	My 133 070 204 .029 .000 .000	Mz .000 .000 .000 .000 .000
41 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 42 Comp : Mean :	Wind .0 Fx .984 1.338 .606 .134 1.360 2.652 Wind .0 Fx 1.149	Elev 40.0 Fy .183 .025 Fy .185	Vel 12.3 Fz -1.767 -1.082 -2.385 .233 1.349 2.649 Vel 12.1 Fz -1.802	Mx .006 .001 .001 Mx .005	My 133 070 204 .029 .000 .000	Mz .000 .000 .000 .000 .000 .000
41 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 42 Comp : Mean : Mean : Min : Rms :	Wind .0 Fx .984 1.338 .606 .134 1.360 2.652 Wind .0 Fx 1.149 1.666 .716 .147	Elev 40.0 .024	Vel 12.3 Fz -1.767 -1.082 -2.385 .233 1.349 2.649 Vel 12.1 Fz -1.802 -1.111 -2.519 .220	Mx .006 .001 .001 .005	My 133 070 204 .029 .000 .000 .000 .000 025 171 .026	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 43	Wind .0	Elev 45.0	Vel 12.1			
Comp : Mean :	Fx 1.258	Fy .167	Fz -1.517	Mx .006	Му 002	Mz .000
Max : Min : Rms :	1.826 .811 .169	.022	996 -2.123 .189	.019	.067 069 .008	.000 .000 .000
Gfac : Pfac :	1.452 3.363		1.399 3.197		.000 .000	.000 .000
Run # 44	Wind .0	Elev .0	Vel 12.2			
Comp : Mean :	Fx .130	Fy .050	Fz 354	Mx .004	My .086	Mz .000
Max : Min : Rms :	.260 .028 .036	.014	082 733 .094	.001	.158 .031 .021	.000 .000 .000
Gfac : Pfac :	2.000 3.596		2.071 4.024		.000 .000	.000 .000
Run # 45	Wind .0	Elev 5.0	Vel 12.3			
Run # 45 Comp : Mean :	Wind .0 Fx .139	Elev 5.0 Fy .054	Vel 12.3 Fz 440	Mx .002	Му .068	Mz .000
Run # 45 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .139 .247 .012 .036	Elev 5.0 Fy .054 .014	Vel 12.3 Fz 440 122 771 .098	Mx .002 .001	My .068 .137 .009 .020	Mz .000 .000 .000 .000
Run # 45 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .139 .247 .012 .036 1.781 3.038	Elev 5.0 Fy .054 .014	Vel 12.3 Fz 440 122 771 .098 1.751 3.362	Mx .002 .001	My .068 .137 .009 .020 .000 .000	Mz .000 .000 .000 .000 .000
Run # 45 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 46	Wind .0 Fx .139 .247 .012 .036 1.781 3.038 Wind .0	Elev 5.0 Fy .054 .014 Elev 10.0	Vel 12.3 Fz 440 122 771 .098 1.751 3.362 Vel 12.2	Mx .002 .001	My .068 .137 .009 .020 .000 .000	Mz .000 .000 .000 .000 .000
Run # 45 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 46 Comp : Mean :	Wind .0 Fx .139 .247 .012 .036 1.781 3.038 Wind .0 Fx .219	Elev 5.0 Fy .054 .014 Elev 10.0 Fy .085	Vel 12.3 Fz 440 122 771 .098 1.751 3.362 Vel 12.2 Fz 835	Mx .002 .001 .001 Mx .004	My .068 .137 .009 .020 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 45 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 46 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .139 .247 .012 .036 1.781 3.038 Wind .0 Fx .219 .359 .101 .045	Elev 5.0 Fy .054 .014 Elev 10.0 Fy .085 .018	Vel 12.3 Fz 440 122 771 .098 1.751 3.362 Vel 12.2 Fz 835 423 -1.301 .140	Mx .002 .001 .001 .004 .017	My .068 .137 .009 .020 .000 .000 .000 .000 .000 .003 .073 .058 .017	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 48	Wind .0	Elev 90.0	Vel 10.9			
Comp : Mean :	Fx 1.769	Fy 192	Fz .391	Мх .055	. 172	Mz .000
Max : Min : Rms :	4.178 .674 .516	.056	.798 .031 .107	.012	.361 .062 .038	.000 .000 .000
Gfac : Pfac :	2.362 4.671		2.042 3.805		.000	.000 .000
Run # 49	Wind .0	Elev 35.0	Vel 11.0			
Comp : Mean :	Fx 1.068	Fy .176	Fz -1.447	Mx .022	My 229	Mz .000
Max : Min : Rms :	2.149 .380 .308	.051	518 -2.836 .414	.006	084 489 .065	.000 .000 .000
Gfac : Pfac :	2.012 3.509		1.959 3.356		.000 .000	.000 .000
Run # 50	Wind .0	Elev 30.0	Vel 10.8			
Run # 50 Comp :	Wind .0 Fx .875	Elev 30.0 Fy .142	Vel 10.8 Fz -1.550	Мх . 006	Му 259	Mz .000
Run # 50 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .875 1.796 .282 .271	Elev 30.0 Fy .142	Vel 10.8 -1.550 564 -3.099 .458	.006	My 259 088 581 .080	Mz .000 .000 .000 .000
Run # 50 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .875 1.796 .282 .271 2.053 3.401	Elev 30.0 .142 .044	Vel 10.8 Fz -1.550 564 -3.099 .458 1.999 3.383	.006	My 259 088 581 .080 .000 .000	Mz .000 .000 .000 .000 .000
Run # 50 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 51	Wind .0 Fx .875 1.796 .282 .271 2.053 3.401 Wind .0	Elev 30.0 Fy .142 .044 Elev 25.0	Vel 10.8 -1.550 564 -3.099 .458 1.999 3.383 Vel 10.8	• Mx .006 .002	My 259 088 581 .080 .000 .000	Mz .000 .000 .000 .000 .000
Run # 50 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 51 Comp : Mean :	Wind .0 Fx .875 1.796 .282 .271 2.053 3.401 Wind .0 Fx .827	Elev 30.0 .142 .044 Elev 25.0 .154	Vel 10.8 -1.550 564 -3.099 .458 1.999 3.383 Vel 10.8 Fz -1.484	Mx .006 .002 Mx .006	My 259 088 581 .080 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 50 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 51 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .875 1.796 .282 .271 2.053 3.401 Wind .0 Fx .827 1.758 .164 .280	Elev 30.0 Fy .142 .044 Elev 25.0 Fy .154 .052	Vel 10.8 -1.550 564 -3.099 .458 1.999 3.383 Vel 10.8 Fz -1.484 357 -3.072 .492	Mx .006 .002 .002 Mx .006	My 259 088 581 .080 .000 .000 .000 .000 .000 .000 .0	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 52	Wind .0	Elev 90.0	Vel 10.7			
Comp : Mean :	Fx 1.879	Fy .146	Fz 225	Мх .006	Му .138	Mz .000
Max : Min : Rms :	4.056 .520 .546	.042	082 446 .051	.003	.521 042 .064	.000 .000 .000
Gfac : Pfac :	2.159 3.989		1.979 4.301		.000 .000	.000 .000
Run # 53	Wind 65.0	Elev 90.0	Vel 10.9			
Comp : Mean :	Fx 1.189	Fy .103	Fz 016	Мх .005	Му .109	Mz .000
Max : Min : Rms :	3.446 159 .526	.046	.153 153 .047	.003	.379 070 .058	.000 .000 .000
Gfac : Pfac :	2.898 4.291		9.824 2.934		.000 .000	.000 .000
Run # 54	Wind 70.0	Elev 90.0	Vel 11.0			
Run # 54 Comp : Mean :	Wind 70.0 Fx .869	Elev 90.0 Fy .040	Vel 11.0 Fz .007	Mx .004	Му .082	Mz .000
Run # 54 Comp : Mean : Max : Min : Rms :	Wind 70.0 Fx .869 2.956 438 .477	Elev 90.0 Fy .040	Vel 11.0 Fz .007 .208 139 .050	Mx .004 .003	My .082 .312 093 .057	Mz .000 .000 .000 .000
Run # 54 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 70.0 Fx .869 2.956 438 .477 3.400 4.372	Elev 90.0 Fy .040	Vel 11.0 Fz .007 .208 139 .050 30.503 4.055	Mx .004 .003	My .082 .312 093 .057 .000 .000	Mz .000 .000 .000 .000 .000
Run # 54 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 55	Wind 70.0 Fx .869 2.956 438 .477 3.400 4.372 Wind 60.0	Elev 90.0 .040 .022 Elev 90.0	Vel 11.0 Fz .007 .208 139 .050 30.503 4.055 Vel 10.9	Mx .004 .003	My .082 .312 093 .057 .000 .000	Mz .000 .000 .000 .000 .000
Run # 54 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 55 Comp : Mean :	Wind 70.0 Fx .869 2.956 438 .477 3.400 4.372 Wind 60.0 Fx 1.389	Elev 90.0 Fy .040 .022 Elev 90.0 Fy .167	Vel 11.0 Fz .007 .208 139 .050 30.503 4.055 Vel 10.9 Fz .056	Mx .004 .003 .003	My .082 .312 093 .057 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 54 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 55 Comp : Mean : Max : Min : Rms :	Wind 70.0 Fx .869 2.956 438 .477 3.400 4.372 Wind 60.0 Fx 1.389 4.091 .194 .503	Elev 90.0 .040 .022 Elev 90.0 .167 .060	Vel 11.0 Fz .007 .208 139 .050 30.503 4.055 Vel 10.9 Fz .056 .230 059 .042	Mx .004 .003 .003 005	My .082 .312 093 .057 .000 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 56	Wind .0	Elev 90.0	Vel 10.8				
Comp : Mean :	Fx 1.857	Fy .122	Fz 116	Mx .010	Му .147	Mz .000	
Max : Min : Rms :	4.182° .576 .520	.034	010 233 .038	.004	.406 012 .060	.000 .000 .000	
Gfac : Pfac :	2.252 4.470		2.003 3.048	,	.000 .000	.000 .000	
Run # 57	Wind .0	Elev 35.0	Vel 11.0				
Comp : Mean :	Fx 1.164	Fy .201	Fz -1.637	Мх 005	Му 059	Mz .000	
Max : Min : Rms :	2.380 .231 .355	.061	444 -3.183 .461	.004	.062 255 .048	.000 .000 .000	
Gfac : Pfac :	2.045 3.426		1.945 3.351		.000	.000 .000	
Run # 58	Wind .0	Elev 30.0	Vel 11.0				
Comn ·							
Mean :	Fx .766	.184	Fz -1.508	001	My 131	Mz .000	5 J245.00
Mean : Max : Min : Rms :	Fx .766 1.772 .130 .254	. 184 . 061	Fz -1.508 256 -3.409 .479	• Mx • • .001	My 131 .003 388 .062	Mz .000 .000 .000 .000	. 1.21,0.41
Mean : Max : Min : Rms : Gfac : Pfac :	Fx .766 1.772 .130 .254 2.313 3.960	. Fy .184 .061	Fz -1.508 256 -3.409 .479 2.260 3.970	Mx 001 .001	My 131 .003 388 .062 .000 .000	Mz .000 .000 .000 .000 .000	2 J
Mean : Max : Min : Rms : Gfac : Pfac : Run # 59	Fx .766 1.772 .130 .254 2.313 3.960 Wind .0	.184 .061 Elev 40.0	Fz -1.508 256 -3.409 .479 2.260 3.970 Vel 11.1	Mx 001 .001	My 131 .003 388 .062 .000 .000	Mz .000 .000 .000 .000 .000	
Mean : Max : Min : Rms : Gfac : Pfac : Run # 59 Comp : Mean :	Fx .766 1.772 .130 .254 2.313 3.960 Wind .0 Fx 1.116	Elev 40.0 Fy 5061	Fz -1.508 256 -3.409 .479 2.260 3.970 Vel 11.1 Fz -1.500	Mx 001 .001 Mx 001	My 131 .003 388 .062 .000 .000	Mz .000 .000 .000 .000 .000 .000	
Mean : Max : Min : Rms : Gfac : Pfac : Run # 59 Comp : Mean : Max : Min : Rms :	Fx .766 1.772 .130 .254 2.313 3.960 Wind .0 Fx 1.116 2.181 .385 .318	Elev 40.0 Fy .214 .061	Fz -1.508 256 -3.409 .479 2.260 3.970 Vel 11.1 Fz -1.500 533 -2.960 .419	Mx 001 .001 Mx 001 .000	My 131 .003 388 .062 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0	

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	Run # 60	Wind 55.0	Elev 90.0	Vel 10.7				
	Comp : Mean :	Fx 1.574	Fy .139	Fz .106	Mx 009	My .141	Mz .000	
	Max : Min : Rms :	3.817 .100 .536	.047	.320 041 .054	.004	.392 034 .060	.000 .000 .000	
	Gfac : Pfac :	2.424 4.184		3.012 3.980		.000 .000	.000 .000	
	Run # 61	Wind 60.0	Elev 90.0	Vel 10.7				
	Comp : Mean :	Fx 1.482	Fy .111	Fz .056	Mx 005	Му .138	Mz .000	
	Max : Min : Rms :	3.973 .093 .545	.041	.270 098 .060	.002	.407 044 .061	.000 .000 .000	
	Gfac : Pfac :	2.681 4.569		4.832 3.563		.000 .000	.000 .000	
	Run # 62	Wind 65.0	Elev 90.0	Vel 10.7				
	Comp : Mean :	Fx 1.231	Fy .043	Fz .004	Mx .003	Му .126	Mz .000	
	Max : Min : Rms :	3.325 256 .553	.019	.274 171 .070	.002	.397 040 .062	.000 .000 .000	
	Gfac : Pfac :	2.701 3.786		62.753 3.856		.000 .000	.000 .000	
÷	Run # 63	Wind 70.0	Elev 90.0	Vel 10.8				
	Comp : Mean :	Fx 1.116	Fy .102	Fz .042	Mx 004	Му .112	Mz .000	
	Max : Min : Rms :	3.559 296 .514	.047	.308 119 .061	.002	.351 077 .060	.000 .000 .000	
	Gfac : Pfac :	3.190 4.756		7.279 4.383		.000	.000	

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Run # 64	Wind .0	Elev 90.0	Vel 10.9			
Comp : Mean :	Fx 1.841	Fy .134	Fz 164	Mx .011	Му .172	Mz .000
Max : Min : Rms :	4.000 .404 .563	.041	035 320 .041	.004	.465 008 .070	.000 .000 .000
Gfac : Pfac :	2.172 3.836		1.954 3.847	•	.000 .000	.000 .000
Run # 69	Wind .0	Elev 90.0	Vel 10.8			
Comp : Mean :	Fx 2.048	Fy .071	Fz 147	Mx .015	Му .147	Mz .000
Max : Min : Rms :	4.738 .044 .692	.024	.086 443 .068	.012	.612 259 .116	.000 .000 .000
Gfac : Pfac :	2.314 3.886		3.020 4.346		.000 .000	.000 .000
Run # 70	Wind .0	Elev 35.0	Ve] 10.8			
Run # 70 Comp : Mean :	Wind .0 Fx 1.261	Elev 35.0 Fy .190	Vel 10.8 Fz -1.987	Mx .007	My 117	Mz .000
Run # 70 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.261 4.266 359 .583	Elev 35.0 Fy .190	Vel 10.8 -1.987 583 -4.493 .596	Mx .007 .009	My 117 .410 664 .144	Mz .000 .000 .000 .000
Run # 70 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.261 4.266 359 .583 3.382 5.154	Elev 35.0 Fy .190	Vel 10.8 Fz -1.987 583 -4.493 .596 2.262 4.205	Mx .007 .009	My 117 .410 664 .144 .000 .000	Mz .000 .000 .000 .000 .000
Run # 70 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 71	Wind .0 Fx 1.261 4.266 359 .583 3.382 5.154 Wind .0	Elev 35.0 Fy .190 .088 Elev 40.0	Vel 10.8 Fz -1.987 583 -4.493 .596 2.262 4.205 Vel 10.9	Mx .007 .009	My 117 .410 664 .144 .000 .000	Mz .000 .000 .000 .000 .000
Run # 70 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 71 Comp : Mean :	Wind .0 Fx 1.261 4.266 359 .583 3.382 5.154 Wind .0 Fx 1.414	Elev 35.0 Fy .190 .088 Elev 40.0 Fy .204	Vel 10.8 Fz -1.987 583 -4.493 .596 2.262 4.205 Vel 10.9 Fz -2.025	Mx .007 .009 Mx .011	My 117 .410 664 .144 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 70 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 71 Comp : Mean : Mean : Min : Rms :	Wind .0 Fx 1.261 4.266 359 .583 3.382 5.154 Wind .0 Fx 1.414 3.909 223 .632	Elev 35.0 Fy .190 .088 Elev 40.0 Fy .204 .091	Vel 10.8 Fz -1.987 583 -4.493 .596 2.262 4.205 Vel 10.9 Fz -2.025 723 -4.126 .578	Mx .007 .009 .009 Mx .011	My 117 .410 664 .144 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 72	Wind .0	Elev 45.0	Vel 11.0			
Comp : Mean :	Fx 1.448	Fy .185	Fz -1.813	Mx .011	Му 037	Mz .000
Max : Min : Rms :	3.407 123 .589	.075	639 -3.610 .495	.038	.307 339 .124	.000 .000 .000
Gfac : Pfac :	2.352 3.327		1.990 3.632		.000 .000	.000 .000
Run # 73	Wind .0	Elev 10.0	Vel 10.7			
Comp : Mean :	Fx .294	Fy .118	Fz -1.002	Мх .006	Му 012	Mz .000
Max : Min : Rms :	2.040 -1.345 .530	.212	013 -2.841 .476	.071	.476 579 .158	.000 .000 .000
Gfac : Pfac :	6.938 3.294		2.834 3.866		.000 .000	.000 .000
Run # 74	Wind .0	Elev 5.0	Vel 10.8			
Run # 74 Comp : Mean :	Wind .0 Fx .176	Elev 5.0 Fy .085	Vel 10.8 Fz 572	Mx .003	Му .074	Mz .000
Run # 74 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .176 1.871 -1.205 .450	Elev 5.0 Fy .085 .218	Vel 10.8 Fz 572 .307 -1.785 .341	Mx .003 .007	My .074 .557 433 .153	Mz .000 .000 .000 .000
Run # 74 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .176 1.871 -1.205 .450 10.660 3.763	Elev 5.0 Fy .085	Vel 10.8 Fz 572 .307 -1.785 .341 3.119 3.553	Mx .003 .007	My .074 .557 433 .153 .000 .000	Mz .000 .000 .000 .000 .000
Run # 74 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 75	Wind .0 Fx.176 1.871 -1.205 .450 10.660 3.763 Wind .0	Elev 5.0 Fy .085 .218 Elev .0	Vel 10.8 Fz 572 .307 -1.785 .341 3.119 3.553 Vel 10.7	Mx .003 .007	My .074 .557 433 .153 .000 .000	Mz .000 .000 .000 .000 .000
Run # 74 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 75 Comp : Mean :	Wind .0 Fx .176 1.871 -1.205 .450 10.660 3.763 Wind .0 Fx .164	Elev 5.0 .085 .218 Elev .0 Fy .086	Vel 10.8 Fz 572 .307 -1.785 .341 3.119 3.553 Vel 10.7 Fz 448	Mx .003 .007 .007 Mx .008	My .074 .557 .433 .153 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 74 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 75 Comp : Mean : Mean : Max : Min : Rms :	Wind .0 Fx.176 1.871 -1.205 .450 10.660 3.763 Wind .0 Fx. 164 1.933 -1.477 .465	Elev 5.0 .085 .218 Elev .0 .086 .245	Vel 10.8 Fz 572 .307 -1.785 .341 3.119 3.553 Vel 10.7 Fz 448 .411 -2.324 .348	Mx .003 .007 .007 .008 .012	My .074 .557 .433 .153 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 76	Wind 55.0	Elev 90.0	Vel 10.7			
Comp Mean	Fx 1.823	Fy .102	Fz 000	Мх .003	Му .173	Mz .000
Max Min Rms	5.126 -1.019 .764	.043	.544 360 .107	.002	.786 418 .133	.000 .000 .000
Gfac Pfac	2.811 4.324	:	1684.135 3.350		.000 .000	.000 .000
Run # 77	Wind 60.0	Elev 90.0	Vel 10.7			
Comp Mean	Fx 1.642	Fy 017	Fz .030	Mx .012	Му .170	Mz .000
Max Min Rms	5.080 722 .770	.008	.474 390 .116	.010	.722 438 .135	.000 .000 .000
Gfac Pfac	3.094 4.464		15.858 3.825		.000 .000	.000 .000
Run # 78	Wind 50.0	Elev 90.0	Vel 10.8			
Comp Mean	Fx 1.855	Fy 023	Fz .037	Mx .012	Му .168	Mz .000
Max Min Rms	5.006 537 .763	.010	.444 329 .108	.010	.673 377 .132	.000 .000 .000
Gfac Pfac	2.698 4.131		12.054 3.781		.000	.000
Run # 79	Wind 45.0	Elev 90.0	Vel 10.6			
Run # 79 Comp Mean	Wind 45.0 Fx 1.862	Elev 90.0 Fy .057	Vel 10.6 Fz 006	Mx .004	Му .163	Mz .000
Run # 79 Comp Mean Max Min Rms	Wind 45.0 Fx 1.862 4.935 703 .692	Elev 90.0 Fy .057	Vel 10.6 Fz 006 .368 302 .088	Mx .004 .003	My .163 .700 291 .117	Mz .000 .000 .000 .000

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Run # 80	Wind 80.0	Elev 90.0	Vel 10.7			
Comp : Mean :	Fx .782	Fy .116	Fz 013	Mx 004	Му .089	Mz .000
Max : Min : Rms :	3.712 -3.169 .627	.093	.509 435 .116	.006	.624 -1.195 .118	.000 .000 .000
Gfac : Pfac :	4.747 4.671		32.233 3.627		.000 .000	.000 .000
Run # 81	Wind 85.0	Elev 90.0	Vel 10.7			
Comp : Mean :	Fx .428	Fy .124	Fz 005	Мх 003	Му .050	Mz .000
Max : Min : Rms :	3.330 -6.487 .517	.150	.453 413 .106	.007	.526 -2.154 .106	.000 .000 .000
Gfac : Pfac :	7.776 5.608		76.810 3.843		.000 .000	.000 .000
Run # 82	Wind 90.0	Elev 90.0	Vel 10.9			
Run # 82 Comp : Mean :	Wind 90.0 Fx .159	Elev 90.0 Fy .133	Vel 10.9 Fz 032	Mx 012	My .020	Mz .000
Run # 82 Comp : Mean : Max : Min : Rms :	Wind 90.0 Fx .159 2.021 -1.948 .400	Elev 90.0 Fy .133	Vel 10.9 Fz 032 .377 479 .105	Mx 012 .051	My .020 .366 374 .091	Mz .000 .000 .000 .000
Run # 82 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 90.0 Fx .159 2.021 -1.948 .400 12.709 4.654	Elev 90.0 Fy .133 .334	Vel 10.9 Fz 032 .377 479 .105 14.958 4.265	Mx 012 .051	My .020 .366 374 .091 .000 .000	Mz .000 .000 .000 .000 .000
Run # 82 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 83	Wind 90.0 Fx .159 2.021 -1.948 .400 12.709 4.654 Wind .0	Elev 90.0 Fy .133 .334 Elev 90.0	Vel 10.9 Fz 032 .377 479 .105 14.958 4.265 Vel 9.5	Mx 012 .051	My .020 .366 374 .091 .000 .000	Mz .000 .000 .000 .000 .000
Run # 82 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 83 Comp : Mean :	Wind 90.0 Fx .159 2.021 -1.948 .400 12.709 4.654 Wind .0 Fx 2.283	Elev 90.0 Fy .133 .334 Elev 90.0 Fy .119	Vel 10.9 Fz 032 .377 479 .105 14.958 4.265 Vel 9.5 Fz 164	Mx 012 .051 Mx .012	My .020 .366 374 .091 .000 .000 .000	Mz .000 .000 .000 .000 .000
Run # 82 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 83 Comp : Mean : Mean : Min : Rms :	Wind 90.0 Fx .159 2.021 -1.948 .400 12.709 4.654 Wind .0 Fx 2.283 5.312 .268 .727	Elev 90.0 Fy .133 .334 Elev 90.0 Fy .119 .038	Vel 10.9 Fz 032 .377 479 .105 14.958 4.265 Vel 9.5 Fz 164 .066 344 .051	Mx 012 .051 .051 .012 .006	My .020 .366 374 .091 .000 .000 .000 .000 .000 .176 .517 023 .084	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 84	Wind .0	Elev 35.0	Vel 9.7			
Comp : Mean :	Fx 1.427	Fy .285	Fz -2.117	Мх .010	Му 096	Mz .000
Max : Min : Rms :	3.324 .279 .524	.105	541 -4.931 .751	.009	.108 418 .084	.000 .000 .000
Gfac : Pfac :	2.328 3.620		2.329 3.744		.000 .000	.000 .000
Run # 85	Wind .0	Elev 40.0	Vel 10.0			
Comp : Mean :	Fx 1.476	Fy .261	Fz -2.158	Мх .009	My 086	Mz .000
Max : Min : Rms :	3.286 .278 .524	.092	637 -4.585 .685	.008	.124 352 .074	.000 .000 .000
Gfac : Pfac :	2.225 3.454		2.124 3.543		.000 .000	.000 .000
Run # 86	Wind .0	Elev 45.0	Vel 9.7			
Run # 86 Comp : Mean :	Wind .0 Fx 1.784	Elev 45.0 Fy .252	Vel 9.7 Fz -1.861	Мх .010	Му .001	Mz .000
Run # 86 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.784 4.322 .304 .605	Elev 45.0 Fy .252	Vel 9.7 Fz -1.861 432 -4.412 .595	Mx .010 .068	My .001 .236 226 .005	Mz .000 .000 .000 .000
Run # 86 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.784 4.322 .304 .605 2.423 4.195	Elev 45.0 Fy .252	Vel 9.7 -1.861 432 -4.412 .595 2.371 4.287	Mx .010 .068	My .001 .236 .226 .005 .000 .000	Mz .000 .000 .000 .000 .000
Run # 86 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 87	Wind .0 Fx 1.784 4.322 .304 .605 2.423 4.195 Wind 50.0	Elev 45.0 Fy .252 .086 Elev 90.0	Vel 9.7 Fz -1.861 432 -4.412 .595 2.371 4.287 Vel 9.5	Mx .010 .068	My .001 .236 .226 .005 .000 .000	Mz .000 .000 .000 .000 .000
Run # 86 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 87 Comp : Mean :	Wind .0 Fx 1.784 4.322 .304 .605 2.423 4.195 Wind 50.0 Fx 1.977	Elev 45.0 .252 .086 Elev 90.0 Fy .116	Vel 9.7 -1.861 432 -4.412 .595 2.371 4.287 Vel 9.5 Fz .017	Mx .010 .068 Mx .012	My .001 .236 .226 .005 .000 .000	Mz .000 .000 .000 .000 .000
Run # 86 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 87 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.784 4.322 .304 .605 2.423 4.195 Wind 50.0 Fx 1.977 5.156 .160 .773	Elev 45.0 .252 .086 Elev 90.0 Fy .116 .045	Vel 9.7 Fz -1.861 432 -4.412 .595 2.371 4.287 Vel 9.5 Fz .017 .337 144 .067	Mx .010 .068 .068 .012 .006	My .001 .236 .226 .005 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 88	Wind 55.0	Elev 90.0	Vel 9.4			
Comp : Mean :	Fx 1.951	Fy .067	Fz 008	Mx .006	Му .193	Mz .000
Max : Min : Rms :	5.673 041 .807	.028	.318 238 .078	.003	.637 041 .093	.000 .000 .000
Gfac : Pfac :	2.908 4.611		28.507 2.935		.000	.000 .000
Run # 89	Wind .0	Elev 90.0	Vel 9.9			
Comp : Mean :	Fx 2.040	Fy .174	Fz 141	Mx .008	Му .156	Mz .000
Max : Min : Rms :	4.577 .406 .670	.057	006 272 .042	.004	.424 031 .075	.000 .000 .000
Gfac : Pfac :	2.243		1.929 3.137		.000 .000	.000
True .						
Run # 90	Wind .0	Elev 35.0	Vel 9.5			
Run # 90 Comp : Mean :	Wind .0 Fx 1.284	Elev 35.0 Fy .267	Vel 9.5 Fz -1.865	Мх 005	Му 088	Mz .000
Run # 90 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.284 3.007 .304 .470	Elev 35.0 Fy .267	Vel 9.5 -1.865 493 -4.295 .642	Mx 005 .004	My 088 .097 321 .072	Mz .000 .000 .000 .000
Run # 90 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.284 3.007 .304 .470 2.342 3.670	Elev 35.0 Fy .267	Vel 9.5 Fz -1.865 493 -4.295 .642 2.303 3.787	Mx 005 .004	My 088 .097 321 .072 .000 .000	Mz .000 .000 .000 .000 .000
Run # 90 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 91	Wind .0 Fx 1.284 3.007 .304 .470 2.342 3.670 Wind .0	Elev 35.0 Fy .267 .098 Elev 40.0	Vel 9.5 -1.865 493 -4.295 .642 2.303 3.787 Vel 9.6	Mx 005 .004	My 088 .097 321 .072 .000 .000	Mz .000 .000 .000 .000 .000
Run # 90 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 91 Comp : Mean :	Wind .0 Fx 1.284 3.007 .304 .470 2.342 3.670 Wind .0 Fx 1.494	Elev 35.0 Fy .267 .098 Elev 40.0 Fy .257	Vel 9.5 -1.865 493 -4.295 .642 2.303 3.787 Vel 9.6 Fz -1.666	Mx 005 .004 .004	My 088 .097 321 .072 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 90 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 91 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.284 3.007 .304 .470 2.342 3.670 Wind .0 Fx 1.494 3.730 .329 .499	Elev 35.0 Fy .267 .098 Elev 40.0 Fy .257 .086	Vel 9.5 -1.865 493 -4.295 .642 2.303 3.787 Vel 9.6 Fz -1.666 515 -4.029 .530	Mx 005 .004 .004 .007 .018	My 088 .097 321 .072 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 92	Wind .0	Elev 30.0	Vel 9.7				
Comp : Mean :	Fx 1.040	Fy . 233	Fz -1.721	Мх .001	Му 127	Mz .000	
Max : Min : Rms :	2.830 .205 .378	.085	401 -4.606 .612	.000	.027 402 .075	.000 .000 .000	
Gfac : Pfac :	2.721 4.737		2.676 4.711		.000 .000	.000 .000	
Run # 93	Wind 65.0	Elev 90.0	Vel 9.5				
Comp : Mean :	Fx 1.446	Fy .114	Fz .019	Mx .004	My .150	Mz .000	
Max : Min : Rms :	5.964 488 .760	.060	.344 157 .069	.002	.580 091 .087	.000 .000 .000	
Gfac : Pfac :	4.123 5.945		17.747 4.728		.000 .000	.000 .000	
Run # 94	Wind 70.0	Elev 90.0	Vel 9.7				
Run # 94 Comp : Mean :	Wind 70.0 Fx 1.097	Elev 90.0 Fy .111	Ve1 9.7 Fz 051	Mx ⁻ .002	Му .116	Mz .000	**** -**\$#2 ==
Run # 94 Comp : Mean : Max : Min : Rms :	Wind 70.0 Fx 1.097 3.860 474 .639	Elev 90.0 .111 .065	Vel 9.7 051 .225 225 .067	Mx - .002 .002	My .116 .469 141 .075	Mz .000 .000 .000 .000	9m exited
Run # 94 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 70.0 Fx 1.097 3.860 474 .639 3.518 4.323	Elev 90.0 .111	Vel 9.7 Fz 051 .225 225 .067 4.400 2.612	Mx .002 .002	My .116 .469 141 .075 .000 .000	Mz .000 .000 .000 .000 .000	vn velsti −
Run # 94 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 95	Wind 70.0 Fx 1.097 3.860 474 .639 3.518 4.323 Wind 60.0	Elev 90.0 .111 .065 Elev 90.0	Vel 9.7 051 .225 .067 4.400 2.612 Vel 9.4	Mx .002 .002	My .116 .469 141 .075 .000 .000	Mz .000 .000 .000 .000 .000	Series and and
Run # 94 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 95 Comp : Mean :	Wind 70.0 Fx 1.097 3.860 474 .639 3.518 4.323 Wind 60.0 Fx 1.684	Elev 90.0 Fy .111 .065 Elev 90.0 Fy .228	Vel 9.7 051 .225 225 .067 4.400 2.612 Vel 9.4 Fz .041	Mx .002 .002 .002 Mx 006	My .116 .469 141 .075 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000	4914-9924 -
Run # 94 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 95 Comp : Mean : Max : Min : Rms :	Wind 70.0 Fx 1.097 3.860 474 .639 3.518 4.323 Wind 60.0 Fx 1.684 4.490 281 .732	Elev 90.0 Fy .111 .065 Elev 90.0 Fy .228 .099	Vel 9.7 Fz 051 .225 .067 4.400 2.612 Vel 9.4 Fz .041 .260 128 .061	Mx .002 .002 .002 Mx 006 .003	My .116 .469 141 .075 .000 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0	

Run # 96	Wind .O	Elev 90.0	Vel 9.5			
Comp : Mean :	Fx 2.174	Fy .143	Fz 195	Mx .008	My .157	Mz .000
Max : Min : Rms :	4.750 .657 .699	.046	048 401 .054	.004	.624 082 .084	.000 .000 .000
Gfac : Pfac :	2.185 3.685		2.062 3.857		.000 .000	.000 .000
Run # 97	Wind .0	Elev 35.0	Vel 9.5			
Comp : Mean :	Fx 1.221	Fy .214	Fz -1.677	Mx 007	My 091	Mz .000
Max : Min : Rms :	2.924 .268 .418	.073	548 -3.863 .533	.006	.089 310 .077	.000 .000 .000
Gfac : Pfac :	2.395 4.070		2.304 4.104		.000 .000	.000 .000
Run # 98	Wind .0	Elev 30.0	Vel 9.6			
Comp : Mean :	Fx 1.028	Fy .197	Fz -1.706	Мх 006	Му 153	Mz .000
Max : Min : Rms :	2.473 .263 .370	.071	510 -3.996 .597	004	.037	.000
Gfac ·				.004	.093	.000
Pfac :	2.405 3.903		2.342 3.833	.004	.093 .000 .000	.000 .000 .000
Pfac : Run # 99	2.405 3.903 Wind .0	Elev 25.0	2.342 3.833 Vel 9.7		.093 .000 .000	.000 .000
Pfac : Run # 99 Comp : Mean :	2.405 3.903 Wind .0 Fx .811	Elev 25.0 Fy .184	2.342 3.833 Vel 9.7 Fz -1.552	.004 Mx 005	.093 .000 .000 My 173	.000 .000 .000 Mz .000
Pfac : Run # 99 Comp : Mean : Max : Min : Rms :	2.405 3.903 Wind .0 Fx .811 2.199 .092 .317	Elev 25.0 Fy .184	2.342 3.833 Vel 9.7 Fz -1.552 266 -4.131 .596	Mx 005 .003	.093 .000 .000 .000 .000 .014 .525 .102	.000 .000 .000 .000 .000 .000

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Run # 100	Wind 65.0	Elev 90.0	Vel 9.5			
Comp : Mean :	Fx 1.271	Fy .045	Fz 025	Мх .007	Му .116	Mz .000
Max : Min : Rms :	3.776 619 .664	.024	.189 196 .055	.005	.464 127 .080	.000 .000 .000
Gfac : Pfac :	2.970 3.771		7.934 3.133		.000	.000 .000
Run # 101	Wind 70.0	Elev 90.0	Vel 9.6			•
Comp : Mean :	Fx 1.076	Fy .068	Fz .035	Mx .005	Му .107	Mz .000
Max : Min : Rms :	3.916 500 .628	.039	.282 111 .054	.004	.493 111 .081	.000 .000 .000
Gfac : Pfac :	3.639 4.525		7.958 4.581		.000 .000	.000 .000
Run # 102	Wind 60.0	Elev 90.0	Vel 9.6	~		
Run # 102 Comp : Mean :	Wind 60.0 Fx 1.565	Elev 90.0 Fy .183	Ve1 9.6 Fz 022	Mx .001	Му .135	Mz .000
Run # 102 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.565 4.839 414 .718	Elev 90.0 Fy .183	Ve1 9.6 Fz 022 .178 166 .046	Mx .001 .001	My .135 .484 130 .076	Mz .000 .000 .000 .000
Run # 102 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx 1.565 4.839 414 .718 3.092 4.557	Elev 90.0 Fy .183	Ve1 9.6 Fz 022 .178 166 .046 7.552 3.167	Mx .001 .001	My .135 .484 130 .076 .000 .000	Mz .000 .000 .000 .000 .000
Run # 102 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 103	Wind 60.0 Fx 1.565 4.839 414 .718 3.092 4.557 Wind .0	Elev 90.0 Fy .183 .084 Elev 90.0	Vel 9.6 Fz 022 .178 166 .046 7.552 3.167 Vel 9.5	Mx .001 .001	My .135 .484 130 .076 .000 .000	Mz .000 .000 .000 .000 .000
Run # 102 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 103 Comp : Mean :	Wind 60.0 Fx 1.565 4.839 414 .718 3.092 4.557 Wind .0 Fx 2.127	Elev 90.0 Fy .183 .084 Elev 90.0 Fy .183	Vel 9.6 Fz 022 .178 166 .046 7.552 3.167 Vel 9.5 Fz 187	Mx .001 .001 .001 Mx .018	My .135 .484 130 .076 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 102 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 103 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.565 4.839 414 .718 3.092 4.557 Wind .0 Fx 2.127 4.774 .450 .701	Elev 90.0 .183 .084 Elev 90.0 .183 .060	Vel 9.6 Fz 022 .178 166 .046 7.552 3.167 Vel 9.5 Fz 187 027 357 .053	Mx .001 .001 .001 Mx .018	My .135 .484 130 .076 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 104	Wind .0	Elev 35.0	Vel 9.3			
Comp : Mean :	Fx 1.133	Fy .227	Fz -1.832	Мх 003	My 145	Mz .000
Max : Min : Rms :	2.967 .186 .440	.088	394 -4.530 .674	.002	.032 429 .089	.000 .000 .000
Gfac : Pfac :	2.619 4.173		2.472 4.002		.000 .000	.000 .000
Run # 105	Wind .0	Elev 30.0	Vel 9.5			
Comp : Mean :	Fx 1.031	Fy .200	Fz -1.761	Mx 002	My 147	Mz .000
Max : Min : Rms :	2.746 .017 .402	.078	267 -4.471 .647	.001	.045 443 .091	.000 .000 .000
Gfac : Pfac :	2.662 4.266		2.539 4.189		.000 .000	.000 .000
Run # 106	Wind .0	Elev 40.0	Vel 9.6			
Run # 106 Comp : Mean :	Wind .0 Fx 1.432	Elev 40.0 Fy .223	Vel 9.6 Fz -1.785	Mx .003	Му 064	Mz .000
Run # 106 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.432 4.004 .277 .522	Elev 40.0 Fy .223	Vel 9.6 Fz -1.785 463 -4.531 .607	Mx .003 .004	My 064 .109 298 .073	Mz .000 .000 .000 .000
Run # 106 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.432 4.004 .277 .522 2.797 4.928	Elev 40.0 Fy .223	Vel 9.6 Fz -1.785 463 -4.531 .607 2.538 4.527	Mx .003 .004	My 064 .109 298 .073 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 106 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 107	Wind .0 Fx 1.432 4.004 .277 .522 2.797 4.928 Wind 65.0	Elev 40.0 Fy .223 .081 Elev 90.0	Vel 9.6 Fz -1.785 463 -4.531 .607 2.538 4.527 Vel 9.6	Mx .003 .004	My 064 .109 298 .073 .000 .000	Mz .000 .000 .000 .000 .000
Run # 106 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 107 Comp : Mean :	Wind .0 Fx 1.432 4.004 .277 .522 2.797 4.928 Wind 65.0 Fx 1.395	Elev 40.0 Fy .223 .081 Elev 90.0 Fy .093	Vel 9.6 -1.785 463 -4.531 .607 2.538 4.527 Vel 9.6 Fz 065	Mx .003 .004 .004 Mx .007	My 064 .109 298 .073 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 106 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 107 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.432 4.004 .277 .522 2.797 4.928 Wind 65.0 Fx 1.395 4.389 523 .715	Elev 40.0 Fy .223 .081 Elev 90.0 Fy .093 .048	Vel 9.6 -1.785 463 -4.531 .607 2.538 4.527 Vel 9.6 Fz 065 .156 276 .066	Mx .003 .004 .004	My 064 .109 298 .073 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 108	Wind 70.0	Elev 90.0	Vel 9.7			
Comp : Mean :	Fx 1.095	Fy .087	Fz 020	Mx .011	Му .132	Mz .000
Max : Min : Rms :	4.131 687 .703	.056	.297 217 .064	.008	.586 150 .094	.000 .000 .000
Gfac : Pfac :	3.774 4.322		10.787 3.099	· .	.000 .000	.000 .000
Run # 109	Wind 60.0	Elev 90.0	Vel 9.7			•
Comp : Mean :	Fx 1.649	Fy .201	Fz 045	Мх 001	Му .176	Mz .000
Max : Min : Rms :	5.717 214 .729	.089	.195 178 .053	.001	,595 076 .094	.000 .000 .000
Gfac : Pfac :	3.468 5.579		3.978 2.503		.000 .000	.000 .000
Run # 110	Wind 60.0	Elev 90.0	Vel 11.1			
Comp : Mean :	Fx 1.487	Fy .185	Fz .035	Мх 002	Му .159	Mz .000
Comp : Mean : Max : Min : Rms :	Fx 1.487 3.482 .135 .552	Fy .185 .069	Fz .035 .175 088 .037	Mx 002 .001	My .159 .440 060 .069	Mz .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Fx 1.487 3.482 .135 .552 2.341 3.615	Fy .185 .069	Fz .035 .175 088 .037 4.936 3.766	Mx 002 .001	My .159 .440 060 .069 .000 .000	Mz .000 .000 .000 .000 .000
Comp : Mean : Min : Rms : Gfac : Pfac : Run # 111	Fx 1.487 3.482 .135 .552 2.341 3.615 Wind 65.0	Fy .185 .069 Elev 90.0	Fz .035 .175 088 .037 4.936 3.766 Vel 11.0	Mx 002 .001	My .159 .440 .060 .069 .000 .000	Mz .000 .000 .000 .000 .000
Comp : Mean : Min : Min : Rms : Gfac : Pfac : Run # 111 Comp : Mean :	Fx 1.487 3.482 .135 .552 2.341 3.615 Wind 65.0 Fx 1.232	Fy .185 .069 Elev 90.0 Fy .089	Fz .035 .175 088 .037 4.936 3.766 Vel 11.0 Fz .018	Mx 002 .001 Mx .010	My .159 .440 060 .069 .000 .000	Mz .000 .000 .000 .000 .000 .000
Comp : Mean : Min : Rms : Gfac : Pfac : Run # 111 Comp : Mean : Max : Min : Rms :	Fx 1.487 3.482 .135 .552 2.341 3.615 Wind 65.0 Fx 1.232 3.359 082 .521	Fy .185 .069 Elev 90.0 Fy .089 .038	Fz .035 .175 088 .037 4.936 3.766 Vel 11.0 Fz .018 .180 123 .043	Mx 002 .001 .001 Mx .010 .005	My .159 .440 .060 .069 .000 .000 .000 .000 .000 .135 .417 .073 .067	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 112	Wind .0	Elev 35.0	Vel 11.3			
Comp : Mean :	Fx .995	Fy .195	Fz -1.471	Mx .006	Му 091	Mz .000
Max : Min : Rms :	2.194 .279 .309	.061	439 -3.062 .434	.004	.033 279 .058	.000 .000 .000
Gfac : Pfac :	2.205 3.881		2.082 3.665		.000 .000	.000
Run # 113	Wind .0	Elev 30.0	Vel 11.2			
Comp : Mean :	Fx .968	Fy .200	Fz -1.587	Mx .002	Му 128	Mz .000
Max : Min : Rms :	2.243 .185 .313	.065	345 -3.706 .504	.001	.023 350 .067	.000 .000 .000
Gfac : Pfac :	2.318 4.077		2.336 4.209		.000 .000	.000 .000
Run # 114	Wind .0	Elev 25.0	Vel 11.3			
Run # 114 Comp : Mean :	Wind .0 .Fx .680	Elev 25.0 Fy .164	Vel 11.3 Fz -1.361	Mx .003	Му 137	Mz .000
Run # 114 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .680 1.606 .136 .240	Elev 25.0 Fy .164	Vel 11.3 -1.361 344 -3.227 .478	Mx .003 .002	My 137 002 379 .075	Mz .000 .000 .000 .000
Run # 114 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .680 1.606 .136 .240 2.362 3.858	Elev 25.0 Fy .164 .058	Vel 11.3 Fz -1.361 344 -3.227 .478 2.371 3.902	Mx .003 .002	My 137 002 379 .075 .000 .000	Mz .000 .000 .000 .000 .000
Run # 114 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 115	Wind .0 Fx .680 1.606 .136 .240 2.362 3.858 Wind .0	Elev 25.0 Fy .164 .058 Elev 30.0	Vel 11.3 Fz -1.361 344 -3.227 .478 2.371 3.902 Vel 10.3	Mx .003 .002	My 137 002 379 .075 .000 .000	Mz .000 .000 .000 .000 .000
Run # 114 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 115 Comp : Mean :	Wind .0 1.606 .136 .240 2.362 3.858 Wind .0 Fx .914	Elev 25.0 Fy .164 .058 Elev 30.0 Fy .218	Vel 11.3 -1.361 344 -3.227 .478 2.371 3.902 Vel 10.3 Fz -1.495	Mx .003 .002 Mx .013	My 137 002 379 .075 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 114 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 115 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .680 1.606 .136 .240 2.362 3.858 Wind .0 Fx .914 2.197 .228 .321	Elev 25.0 Fy .164 .058 Elev 30.0 Fy .218 .076	Vel 11.3 -1.361 344 -3.227 .478 2.371 3.902 Vel 10.3 Fz -1.495 381 -3.461 .530	Mx .003 .002 .002 Mx .013	My 137 002 379 .075 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 116	Wind .0	Elev 90.0	Vel 10.3				
Comp : Mean :	Fx 1.856	Fy .172	Fz 200	Mx .014	Му .179	Mz .000	
Max : Min : Rms :	4.692 .469 .596	.055	089 345 .042	.006	.585 005 .078	.000 .000 .000	
Gfac : Pfac :	2.528 4.759		1.728 3.440		.000 .000	.000 .000	
Run # 117	Wind 65.0	Elev 90.0	Vel 10.3				
Comp : Mean :	Fx 1.166	Fy .081	Fz 006	Mx .007	Му .133	Mz .000	
Max : Min : Rms :	3.744 196 .577	.040	.262 165 .058	.004	.475 106 .077	.000 .000 .000	
Gfac : Pfac :	3.211 4.471		27.707 2.765		.000 .000	.000 .000	
Run #	Wind	Elev 90.0	Vel 10.4				
110							
Comp : Mean :	Fx 1.891	Fy .120	Fz 154	Mx .008	Му .138	Mz .000	
Comp : Mean : Max : Min : Rms :	Fx 1.891 4.192 .644 .572	Fy .120	Fz 154 028 303 .036	Mx .008 .004	My .138 .436 048 .067	Mz .000 .000 .000 .000	
Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Fx 1.891 4.192 .644 .572 2.216 4.020	Fy .120 .036	Fz 154 028 303 .036 1.971 4.156	.008	My .138 .436 048 .067 .000 .000	Mz .000 .000 .000 .000 .000	
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 119	Fx 1.891 4.192 .644 .572 2.216 4.020 Wind .0	Fy .120 .036 Elev 30.0	Fz 154 028 303 .036 1.971 4.156 Vel 10.4	Mx .008	My .138 .436 048 .067 .000 .000	Mz .000 .000 .000 .000 .000	
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 119 Comp : Mean :	Fx 1.891 4.192 .644 .572 2.216 4.020 Wind .0 Fx .903	Fy .120 .036 Elev 30.0 Fy .173	Fz 154 028 303 .036 1.971 4.156 Vel 10.4 Fz -1.495	Mx .008 .004 Mx .002	My .138 .436 .048 .067 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000	
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 119 Comp : Mean : Mean : Max : Min : Rms :	Fx 1.891 4.192 .644 .572 2.216 4.020 Wind .0 Fx .903 2.344 .225 .311	Fy .120 .036 Elev 30.0 Fy .173 .059	Fz 154 028 303 .036 1.971 4.156 Vel 10.4 Fz -1.495 382 -3.726 .495	Mx .008 .004 .004 .002	My .138 .436 .048 .067 .000 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0	

Run # 120	Wind 65.0	Elev 90.0	Vel 10.6			
Comp : Mean :	Fx 1.029	Fy .058	Fz .002	Mx .010	Му .099	Mz .000
Max : Min : Rms :	3.106 224 .491	.028	.172 125 .040	.006	.358 093 .059	.000 .000 .000
Gfac : Pfac :	3.018 4.233		80.146 4.258		.000 .000	.000
Run # 121	Wind 65.0	Elev 90.0	Vel 10.4		4 .	
Comp : Mean :	Fx 1.144	Fy .050	Fz .043	Mx .009	Му .110	Mz .000
Max : Min : Rms :	3.312 339 .544	.024	.212 103 .041	.005	.382 079 .061	.000 .000 .000
Gfac : Pfac :	2.894 3.984		4.973 4.130		.000 .000	.000 .000
Dup #	U.P., J	C1	M - 7			
122	Wind 60.0	90.0	vei 10.3			
122 Comp : Mean :	60.0 Fx 1.525	90.0 Fy .188	vei 10.3 Fz 139	Mx .005	Му .140	Mz .000
Comp : Mean : Max : Min : Rms :	Fx 1.525 4.308 068 .604	Fy 90.0 Fy .188	Fz 139 011 258 .040	Mx .005 .002	My .140 .488 067 .067	Mz .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Fx 1.525 4.308 068 .604 2.825 4.606	Fy 90.0 Fy .188	Fz 139 011 258 .040 1.858 2.953	Mx .005 .002	My .140 .488 067 .067 .000 .000	Mz .000 .000 .000 .000 .000
Mean : Mean : Max : Min : Rms : Gfac : Pfac : Run # 123	Wind 60.0 Fx 1.525 4.308 068 .604 2.825 4.606 Wind .0	ETev 90.0 Fy .188 .074 ETev 90.0	Vel 10.3 Fz 139 011 258 .040 1.858 2.953 Vel 10.5	Mx .005 .002	My .140 .488 067 .067 .000 .000	Mz .000 .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 123 Comp : Mean :	Wind 60.0 Fx 1.525 4.308 068 .604 2.825 4.606 Wind .0 Fx 1.836	Elev 90.0 Fy .188 .074 Elev 90.0 Fy .130	Ve1 10.3 Fz 139 011 258 .040 1.858 2.953 Ve1 10.5 Fz 248	Mx .005 .002 .002 Mx .007	My .140 .488 067 .067 .000 .000	Mz .000 .000 .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 123 Comp : Mean : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.525 4.308 068 .604 2.825 4.606 Wind .0 Fx 1.836 3.901 .473 .554	Elev 90.0 Fy .188 .074 Elev 90.0 Fy .130 .039	Ve1 10.3 Fz 139 011 258 .040 1.858 2.953 Ve1 10.5 Fz 248 104 466 .054	Mx .005 .002 .002 .007	My .140 .488 067 .067 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 124	Wind .0	Elev 30.0	Vel 10.4				
Comp : Mean :	Fx .922	Fy .203	Fz -1.510	Мх 002	Му 114	Mz .000	
Max : Min : Rms :	2.155 .243 .302	.067	492 -3.631 .487	.001	.014 333 .063	.000 .000 .000	
Gfac : Pfac :	2.338 4.086		2.404 4.356		.000 .000	.000 .000	
Run # 125	Wind .0	Elev 90.0	Vel 10.9				
Comp : Mean :	Fx 1.852	Fy .082	Fz 144	Mx .013	Му .129	Mz .000	
Max : Min : Rms :	4.347 .650 .581	.026	007 323 .041	.006	.414 038 .060	.000 .000 .000	
Gfac : Pfac :	2.348 4.296		2.236 4.353		.000 .000	.000 .000	
Run # 126	Wind .0	Elev 40.0	Vel 10.5				
Run # 126 Comp : Mean :	Wind .0 Fx 1.348	Elev 40.0 Fy .206	Vel 10.5 Fz -1.862	Мх .012	Му 082	Mz .000	
Run # 126 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.348 2.980 .322 .449	Elev 40.0 Fy .206	Vel 10.5 -1.862 569 -3.978 .594	Mx .012 .009	My 082 .088 284 .066	Mz .000 .000 .000 .000	
Run # 126 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.348 2.980 .322 .449 2.211 3.632	Elev 40.0 Fy .206	Vel 10.5 -1.862 569 -3.978 .594 2.136 3.561	Mx .012 .009	My 082 .088 284 .066 .000 .000	Mz .000 .000 .000 .000 .000	
Run # 126 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 127	Wind .0 Fx 1.348 2.980 .322 .449 2.211 3.632 Wind 50.0	Elev 40.0 Fy .206 .069 Elev 90.0	Vel 10.5 Fz -1.862 569 -3.978 .594 2.136 3.561 Vel 10.3	Mx .012 .009	My 082 .088 284 .066 .000 .000	Mz .000 .000 .000 .000 .000	
Run # 126 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 127 Comp : Mean :	Wind .0 Fx 1.348 2.980 .322 .449 2.211 3.632 Wind 50.0 Fx 1.787	Elev 40.0 Fy .206 .069 Elev 90.0 Fy .069	Vel 10.5 Fz -1.862 569 -3.978 .594 2.136 3.561 Vel 10.3 Fz .089	Mx .012 .009 Mx 001	My 082 .088 284 .066 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000	
Run # 126 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 127 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.348 2.980 .322 .449 2.211 3.632 Wind 50.0 Fx 1.787 4.680 .141 .684	Elev 40.0 Fy .206 .069 Elev 90.0 Fy .069 .026	Vel 10.5 Fz -1.862 569 -3.978 .594 2.136 3.561 Vel 10.3 Fz .089 .414 102 .067	Mx .012 .009 .009 Mx 001 .001	My 082 .088 284 .066 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0	

Run # 128	Wind .0	Elev 90.0	Vel 8.3			
Comp : Mean :	Fx 2.218	Fy .164	Fz 305	Mx .011	Му .166	Mz .000
Max : Min : Rms :	6.532 .018 .895	.066	047 718 .097	.007	.704 066 .106	.000 .000 .000
Gfac : Pfac :	2.945 4.819		2.357 4.260		.000 .000	.000
Run # 129	Wind .0	Elev 30.0	Vel 8.6			
Comp : Mean :	Fx 1.143	Fy .211	Fz -1.759	Mx .014	Му 139	Mz .000
Max : Min : Rms :	3.103 .163 .535	.099	376 -4.662 .792	.012	.093 567 .117	.000 .000 .000
Gfac : Pfac :	2.715		2.651 3.667		.000 .000	.000 .000
Run # 130	Wind 60.0	Elev 90.0	Vel 8.7			
Run # 130 Comp : Mean :	Wind 60.0 Fx 1.559	Elev 90.0 Fy .211	Ve1 8.7 Fz 112	Mx 005	Му .146	Mz .000
Run # 130 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.559 5.559 285 .841	Elev 90.0 Fy .211	Vel 8.7 Fz 112 .091 304 .064	Mx 005 .004	My .146 .683 149 .104	Mz .000 .000 .000 .000
Run # 130 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx 1.559 5.559 285 .841 3.566 4.756	Elev 90.0 Fy .211	Vel 8.7 Fz 112 .091 304 .064 2.704 2.974	Mx 005 .004	My .146 .683 149 .104 .000 .000	Mz .000 .000 .000 .000 .000
Run # 130 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 131	Wind 60.0 Fx 1.559 5.559 285 .841 3.566 4.756 Wind 60.0	Elev 90.0 Fy .211 .114 Elev 90.0	Vel 8.7 112 .091 304 .064 2.704 2.974 Vel 8.4	Mx 005 .004	My .146 .683 149 .104 .000 .000	Mz .000 .000 .000 .000 .000
Run # 130 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 131 Comp : Mean :	Wind 60.0 Fx 1.559 5.559 285 .841 3.566 4.756 Wind 60.0 Fx 1.630	Elev 90.0 Fy .211 .114 Elev 90.0 Fy .261	Vel 8.7 Fz 112 .091 304 .064 2.704 2.974 Vel 8.4 Vel 8.4 Fz 023	Mx 005 .004 .004	My .146 .683 149 .104 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 130 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 131 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.559 5.559 285 .841 3.566 4.756 Wind 60.0 Fx 1.630 5.948 362 .886	Elev 90.0 Fy .211 .114 Elev 90.0 Fy .261 .142	Vel 8.7 112 .091 304 .064 2.704 2.974 Vel 8.4 Vel 8.4 Fz 023 .346 277 .088	Mx 005 .004 002 .001	My .146 .683 149 .104 .000 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 132	Wind .0	Elev 30.0	Vel 8.6			
Comp : Mean :	Fx .974	Fy .233	Fz -1.769	Mx .016	Му 144	Mz .000
Max : Min : Rms :	3.208 042 .487	.116	053 -5.315 .820	.013	.098 602 .120	.000 .000 .000
Gfac : Pfac :	3.295 4.591		3.004 4.322		.000 .000	.000 .000
Run # 133	Wind .0	Elev 90.0	Vel 8.4			,
Comp : Mean :	Fx 2.126	Fy .186	Fz 309	Мх .016	Му .204	Mz .000
Max : Min : Rms :	6.782 040 .869	.076	098 539 .068	.009	.725 102 .117	.000 .000 .000
Gfac : Pfac :	3.190 5.358		1.746 3.362		.000 .000	.000 .000
Run # 135	Wind .0	Elev 30.0	Vel 8.5			
Comp : Mean :	Fx 1.006	Fy .260	Fz -1.648	Мх 003	Му 131	Mz .000
Comp : Mean : Max : Min : Rms :	Fx 1.006 2.845 .085 .467	Fy .260 .121	Fz -1.648 171 -4.759 .780	Mx 003 .002	My 131 .072 483 .105	Mz .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Fx 1.006 2.845 .085 .467 2.827 3.934	Fy .260 .121	Fz -1.648 171 -4.759 .780 2.888 3.992	Mx 003 .002	My 131 .072 483 .105 .000 .000	Mz .000 .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 136	Fx 1.006 2.845 .085 .467 2.827 3.934 Wind .0	Fy .260 .121 Elev 90.0	Fz -1.648 171 -4.759 .780 2.888 3.992 Vel 8.2	Mx 003 .002	My 131 .072 483 .105 .000 .000	Mz .000 .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 136 Comp : Mean :	Fx 1.006 2.845 .085 .467 2.827 3.934 Wind .0 Fx 2.230	Fy .260 .121 Elev 90.0 Fy .148	Fz -1.648 171 -4.759 .780 2.888 3.992 Vel 8.2 Fz 290	Mx 003 .002 Mx .010	My 131 .072 483 .105 .000 .000	Mz .000 .000 .000 .000 .000 .000
Comp : Mean : Min : Rms : Gfac : Pfac : Run # 136 Comp : Mean : Max : Min : Rms :	Fx 1.006 2.845 .085 .467 2.827 3.934 Wind .0 Fx 2.230 6.611 .087 .906	Fy .260 .121 Elev 90.0 Fy .148 .060	Fz -1.648 171 -4.759 .780 2.888 3.992 Vel 8.2 Fz 290 058 621 .073	Mx 003 .002 .002 Mx .010 .006	My 131 .072 483 .105 .000 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 137	Wind 65.0	Elev 90.0	Vel 8.6			
Comp : Mean :	Fx 1.350	Fy .164	Fz 094	Mx .005	My .141	Mz .000
Max : Min : Rms :	5.379 912 .843	.102	.190 303 .073	.003	.662 283 .102	.000 .000 .000
Gfac : Pfac :	3.986 4.780		3.219 2.860		.000 .000	.000
Run # 138	Wind 60.0	Elev 90.0	Vel 8.7			
Comp : Mean :	Fx 1.574	Fy .189	Fz 090	Mx 001	Му .154	Mz .000
Max : Min : Rms :	4.873 327 .795	.096	.094 247 .054	.000	.574 129 .096	.000 .000 .000
Gfac : Pfac :	3.097 4.150	2 X	2.760 2.895		.000 .000	.000 .000
Run # 139	Wind 55.0	Elev 90.0	Vel 8.7			
Run # 139 Comp : Mean :	Wind 55.0 Fx 1.699	Elev 90.0 Fy .203	Ve1 8.7 Fz 058	Mx .002	Му .148	Mz .000
Run # 139 Comp : Mean : Max : Min : Rms :	Wind 55.0 Fx 1.699 5.212 272 .825	Elev 90.0 Fy .203	Vel 8.7 058 .166 269 .059	Mx .002 .001	My .148 .646 103 .095	Mz .000 .000 .000 .000
Run # 139 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 55.0 Fx 1.699 5.212 272 .825 3.067 4.260	Elev 90.0 Fy .203	Vel 8.7 Fz 058 .166 269 .059 4.653 3.597	Mx .002 .001	My .148 .646 103 .095 .000 .000	Mz .000 .000 .000 .000 .000
Run # 139 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 140	Wind 55.0 Fx 1.699 5.212 272 .825 3.067 4.260 Wind .0	Elev 90.0 Fy .203 .098 Elev 90.0	Vel 8.7 058 .166 269 .059 4.653 3.597 Vel 8.3	Mx .002 .001	My .148 .646 103 .095 .000 .000	Mz .000 .000 .000 .000 .000
Run # 139 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 140 Comp : Mean :	Wind 55.0 Fx 1.699 5.212 272 .825 3.067 4.260 Wind .0 Fx 2.398	Elev 90.0 .203 .098 Elev 90.0 .159	Vel 8.7 058 .166 269 .059 4.653 3.597 Vel 8.3 Fz 236	Mx .002 .001 .001 Mx .012	My .148 .646 103 .095 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 139 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 140 Comp : Mean : Max : Min : Rms :	Wind 55.0 Fx 1.699 5.212 272 .825 3.067 4.260 Wind .0 Fx 2.398 6.733 .377 .977	Elev 90.0 .203 .098 Elev 90.0 .159 .065	Vel 8.7 058 .166 269 .059 4.653 3.597 Vel 8.3 Vel 8.3 Fz 236 .004 496 .072	Mx .002 .001 .001 Mx .012	My .148 .646 103 .095 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 141	Wind .0	Elev 40.0	Vel 8.8				
Comp : Mean :	Fx 1.429	Fy .251	Fz -1.993	Mx .012	Му 080	Mz .000	
Max : Min : Rms :	4.225 .093 .637	.112	305 -5.709 .853	.015	.164 581 .099	.000 .000 .000	
Gfac : Pfac :	2.957 4.390		2.864 4.358		.000 .000	.000 .000	
Run # 142	Wind 50.0	Elev 90.0	Vel 8.3				
Comp : Mean :	Fx 2.022	Fy .078	Fz .067	Mx .007	Му .200	Mz .000	
Max : Min : Rms :	6.662 333 1.018	.039	.528 221 .104	.004	.769 081 .120	.000 .000 .000	
Gfac : Pfac :	3.294 4.556		7.841 4.435		.000 .000	.000 .000	
Run # 143	Wind 55.0	Elev 90.0	Ve1 8.7				
Run # 143 Comp : Mean :	Wind 55.0 Fx 1.839	Elev 90.0 Fy .082	Vel 8.7 Fz 018	Mx .001	Му .190	Mz .000	
Run # 143 Comp : Mean : Max : Min : Rms :	Wind 55.0 Fx 1.839 6.420 375 .946	Elev 90.0 Fy .082	Ve1 8.7 Fz 018 .469 285 .107	Mx .001 .000	My .190 .792 111 .112	Mz .000 .000 .000 .000	
Run # 143 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 55.0 Fx 1.839 6.420 375 .946 3.492 4.843	Elev 90.0 Fy .082	Ve1 8.7 Fz 018 .469 285 .107 16.198 2.491	Mx .001 .000	My .190 .792 111 .112 .000 .000	Mz .000 .000 .000 .000 .000 .000	
Run # 143 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 144	Wind 55.0 Fx 1.839 6.420 375 .946 3.492 4.843 Wind 45.0	Elev 90.0 Fy .082 .042 Elev 90.0	Ve1 8.7 Fz 018 .469 285 .107 16.198 2.491 Ve1 8.4	Mx .001 .000	My .190 .792 111 .112 .000 .000	Mz .000 .000 .000 .000 .000	
Run # 143 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 144 Comp : Mean :	Wind 55.0 Fx 1.839 6.420 375 .946 3.492 4.843 Wind 45.0 Fx 2.052	Elev 90.0 Fy .082 .042 Elev 90.0 Fy .135	Vel 8.7 Fz 018 .469 285 .107 16.198 2.491 Vel 8.4 Fz 061	Mx . 001 . 000 Mx . 000	My .190 .792 111 .112 .000 .000	Mz .000 .000 .000 .000 .000 .000	
Run # 143 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 144 Comp : Mean : Mean : Max : Min : Rms :	Wind 55.0 Fx 1.839 6.420 375 .946 3.492 4.843 Wind 45.0 Fx 2.052 6.621 128 .942	Elev 90.0 Fy .082 .042 Elev 90.0 Fy .135 .062	Vel 8.7 Fz 018 .469 285 .107 16.198 2.491 Vel 8.4 Fz 061 .406 301 .097	Mx .001 .000 .000 .000	My .190 .792 111 .112 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0	

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Run # 145	Wind .0	Elev 35.0	Vel 8.4			
Comp : Mean :	Fx 1.432	Fy .273	Fz -2.203	Мх .008	Му 098	Mz .000
Max : Min : Rms :	3.762 137 .671	.128	032 -5.853 .957	.010	.164 477 .115	.000 .000 .000
Gfac : Pfac :	2.627 3.472		2.657 3.813		.000 .000	.000 .000
Run # 146	Wind .0	Elev 30.0	Vel 8.6			
Comp : Mean :	Fx 1.190	Fy .252	Fz -2.118	Mx .006	My 134	Mz 000.
Max : Min : Rms :	3.196 .024 .576	.122	065 -5.591 1.009	.006	.106 590 .133	.000 .000 .000
Gfac : Pfac :	2.686 3.482		2.640 3.442		.000 .000	.000 .000
Run #	Wind	Elev 30.0	Vel 10.6			
140	.0					
Comp : Mean :	.0 Fx .939	Fy .148	Fz -1.524	Mx .002	Му 140	Mz .000
Comp : Mean : Max : Min : Rms :	Fx .939 2.010 .272 .305	Fy .148 .048	Fz -1.524 508 -3.251 .486	Mx .002	My 140 .039 412 .077	Mz .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Fx .939 2.010 .272 .305 2.141 3.515	Fy .148 .048	Fz -1.524 508 -3.251 .486 2.134 3.553	Mx .002 .001	My 140 .039 412 .077 .000 .000	Mz .000 .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 149	Fx .939 2.010 .272 .305 2.141 3.515 Wind .0	Fy .148 .048 Elev 25.0	Fz -1.524 508 -3.251 .486 2.134 3.553 Vel 11.1	Mx .002	My 140 .039 412 .077 .000 .000	Mz .000 .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 149 Comp : Mean :	Fx .939 2.010 .272 .305 2.141 3.515 Wind .0 Fx .670	Fy .148 .048 Elev 25.0 Fy .119	Fz -1.524 508 -3.251 .486 2.134 3.553 Vel 11.1 Fz -1.341	Mx .002 .001 Mx .000	My 140 .039 412 .077 .000 .000	Mz .000 .000 .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 149 Comp : Mean : Mean : Max : Min : Rms :	Fx .939 2.010 .272 .305 2.141 3.515 Wind .0 Fx .670 1.811 .141 .245	Fy .148 .048 Elev 25.0 Fy .119 .044	Fz -1.524 508 -3.251 .486 2.134 3.553 Vel 11.1 Fz -1.341 370 -3.580 .491	Mx .002 .001 .001 .000	My 140 .039 412 .077 .000 .000 .000 .000 .000 .000 .00	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 150	Wind .0	Elev 20.0	Vel 11.1				
Comp : Mean :	Fx .500	Fy .088	Fz -1.144	Mx 003	Му 151	Mz .000	
Max : Min : Rms :	1.335 .041 .188	.033	209 -3.010 .444	.002	.020 453 .084	.000 .000 .000	
Gfac : Pfac :	2.673 4.439		2.631 4.202	·	.000 .000	.000 .000	
Run # 152	Wind .0	Elev 15.0	Vel 11.1				
Comp : Mean :	Fx .292	Fy .068	Fz 887	Мх 006	Му 137	Mz .000	
Max : Min : Rms :	.807 105 .133	.031	.045 -2.396 .418	.004	.054 526 .094	.000 .000 .000	
Gfac : Pfac :	2.766 3.870		2.700 3.608		.000 .000	.000 .000	
Run # 153	Wind .0	Elev 35.0	Vel 11.0				
Comp : Mean :	Fx 1.046	Fy .129	Fz -1.396	Mx .003	Му 082	Mz .000	
Max : Min : Rms :	2.444 .314 .346	.043	440 -3.215 .450	.002	.125 292 .063	.000 .000 .000	
Gfac : Pfac :	2.335 4.042		2.304 4.048		.000 .000	.000 .000	
Run # 154	Wind 65.0	Elev 90.0	Vel 11.2			·	
Comp : Mean :	Fx 1.123	Fy .068	Fz 010	Mx .005	Му .095	Mz .000	
Max : Min : Rms :	3.558 246 .511	.031	.141 121 .034	.003	.347 085 .059	.000 .000 .000	
Gfac :	3.167		11.769	•	.000	.000	

	Run # 155	Wind 60.0	Elev 90.0	Vel 10.9				
	Comp : Mean :	Fx 1.292	Fy .107	Fz 037	Mx .005	Му .102	Mz .000	
	Max : Min : Rms :	3.895 .011 .543	.045	.039 117 .024	.003	.421 075 .058	.000 .000 .000	i
	Gfac : Pfac :	3.014 4.792		3.132 3.248		.000 .000	.000 .000	
	Run # 156	Wind 70.0	Elev 90.0	Vel 11.1				
	Comp : Mean :	Fx .998	Fy .091	Fz 037	Mx .007	Му .086	Mz .000	
	Max : Min : Rms :	3.373 294 .515	.047	.056 126 .027	.005	.324 113 .061	.000 .000 .000	
	Gfac : Pfac :	3.381 4.613		3.414 3.302		.000 .000	.000 .000	
	Run # 157	Wind .0	Elev 20.0	Vel 11.8				
	Comp : Mean :	Fx 533	Fy .102	Fz -1.163	Mx .003	Му 156	Mz .000	
·	Max : Min : Rms :	1.271 .119 .170	.033	318 -2.744 .375	.001	.020 403 .072	.000 .000 .000	
	Gfac : Pfac :	2.386 4.355		2.360 4.211		.000 .000	.000 .000	
'n	Run # 158	Wind .0	Elev 25.0	Vel 11.7				
	Comp : Mean :	Fx .677	Fy .100	Fz -1.319	Mx .003	Му 148	Mz .000	
	Max : Min : Rms :	1.505 .192 .226	.033	384 -2.895 .431	.002	.005 374 .072	.000 .000 .000	
Run # 159	Wind .0	Elev 20.0	Vel 10.5					
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Comp : Mean :	Fx .526	Fy .099	Fz -1.189	Mx .001	My 161	Mz .000		
Max : Min : Rms :	1.452 .037 .222	.042	119 -3.327 .510	.000	.006 479 .102	.000 .000 .000		
Gfac : Pfac :	2.763 4.170		2.797 4.194		.000 .000	.000 .000		
Run # 160	Wind .0	Elev 15.0	Vel 10.5					
Comp : Mean :	Fx .323	Fy .074	Fz 932-	Мх 003	My 149	Mz .000		
Max : Min : Rms :	1.135 024 .162	.037	.135 -3.326 .484	.002	.058 649 .109	.000 .000 .000		
Gfac : Pfac :	3.520 5.025		3.569 4.949		.000	.000 .000		
Run # 161	Wind .0	Elev 20.0	Vel 9.0					
Run # 161 Comp : Mean :	Wind .0 .525	Elev 20.0 Fy .107	Ve1 9.0 Fz -1.223	Mx .007	Му 160	Mz .000		
Run # 161 Comp : Mean : Max : Min : Rms :	Wind .0 .525 1.757 087 .286	Elev 20.0 Fy .107	Ve1 9.0 Fz -1.223 .344 -4.311 .669	Mx .007 .006	My 160 .055 765 .130	Mz .000 .000 .000 .000		
Run # 161 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .525 1.757 087 .286 3.346 4.311	Elev 20.0 Fy .107	Ve1 9.0 Fz -1.223 .344 -4.311 .669 3.523 4.613	Mx .007 .006	My 160 .055 765 .130 .000 .000	Mz .000 .000 .000 .000 .000 .000		
Run # 161 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 162	Wind .0 Fx .525 1.757 087 .286 3.346 4.311 Wind .0	Elev 20.0 Fy .107 .058 Elev 25.0	Vel 9.0 Fz -1.223 .344 -4.311 .669 3.523 4.613 Vel 11.7	Mx .007 .006	My 160 .055 765 .130 .000 .000	Mz .000 .000 .000 .000 .000		
Run # 161 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 162 Comp : Mean :	Wind .0 Fx .525 1.757 087 .286 3.346 4.311 Wind .0 Fx .632	Elev 20.0 Fy .107 .058 Elev 25.0 Fy .115	Ve1 9.0 Fz -1.223 .344 -4.311 .669 3.523 4.613 Ve1 11.7 Fz -1.279	Mx .007 .006 Mx .005	My 160 .055 765 .130 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000		
Run # 161 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 162 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .525 1.757 087 .286 3.346 4.311 Wind .0 Fx .632 1.589 .157 .229	Elev 20.0 Fy .107 .058 Elev 25.0 Fy .115 .041	Ve1 9.0 Fz -1.223 .344 -4.311 .669 3.523 4.613 Ve1 11.7 Fz -1.279 230 -3.210 .485	Mx .007 .006 .006 Mx .005	My 160 .055 765 .130 .000 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0		

Run # 163	Wind .0	Elev 20.0	Vel 11.6			
Comp : Mean :	Fx .482	Fy .103	Fz -1.152	Mx .005	Му 147	Mz .000
Max : Min : Rms :	1.140 .087 .171	.037	247 -2.718 .425	.003	.006 419 .081	.000 .000 .000
Gfac : Pfac :	2.367 3.856		2.360 3.690		.000 .000	.000 .000
Run # 164	Wind .0	Elev 25.0	Vel 8.8			
Comp : Mean :	Fx .706	Fy .139	Fz -1.434	Мх .009	My 143	Mz .000
Max : Min : Rms :	2.428 101 .375	.074	.111 -4.943 .785	.008	.113 614 .133	.000 .000 .000
Gfac : Pfac :	3.442 4.593		3.447 4.468		.000 .000	.000 .000
Run # 165	Wind .0	Elev 25.0	Vel 10.7			
Run # 165 Comp : Mean :	Wind .0 Fx .654	Elev 25.0 Fy .136	Vel 10.7 Fz -1.334	Mx .009	Му 143	Mz .000
Run # 165 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .654 2.017 .096 .295	Elev 25.0 Fy .136	Vel 10.7 Fz -1.334 192 -4.076 .620	Mx .009 .006	My 143 .031 498 .097	Mz .000 .000 .000 .000
Run # 165 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .654 2.017 .096 .295 3.085 4.625	Elev 25.0 Fy .136	Vel 10.7 Fz -1.334 192 -4.076 .620 3.054 4.424	Mx .009 .006	My 143 .031 498 .097 .000 .000	Mz .000 .000 .000 .000 .000
Run # 165 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 166	Wind .0 Fx .654 2.017 .096 .295 3.085 4.625 Wind .0	Elev 25.0 .136 .061 Elev 25.0	Vel 10.7 Fz -1.334 192 -4.076 .620 3.054 4.424 Vel 10.9	Mx .009 .006	My 143 .031 498 .097 .000 .000	Mz .000 .000 .000 .000 .000
Run # 165 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 166 Comp : Mean :	Wind .0 Fx .654 2.017 .096 .295 3.085 4.625 Wind .0 Fx .644	Elev 25.0 Fy .136 .061 Elev 25.0 Fy .133	Vel 10.7 Fz -1.334 192 -4.076 .620 3.054 4.424 Vel 10.9 Fz -1.309	Mx .009 .006 Mx .007	My 143 .031 498 .097 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 165 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 166 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .654 2.017 .096 .295 3.085 4.625 Wind .0 Fx .644 1.650 .123 .261	Elev 25.0 Fy .136 .061 Elev 25.0 Fy .133 .054	Vel 10.7 Fz -1.334 192 -4.076 .620 3.054 4.424 Vel 10.9 Fz -1.309 192 -3.419 .552	Mx .009 .006 .006 Mx .007	My 143 .031 498 .097 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 167	Wind 65.0	Elev 90.0	Vel 11.0			
Comp : Mean :	Fx 1.161	Fy .090	Fz 001	Mx .013	Му .125	Mz .000
Max : Min : Rms :	3.879 388 .550	.043	.164 153 .043	.007	.511 126 .072	.000 .000 .000
Gfac : Pfac :	3.340 4.940		132.000 3.515	•	.000 .000	.000 .000
Run # 172	Wind 60.0	Elev 90.0	Vel 11.6	с. С.Х.		•
Comp : Mean :	Fx 1.402	Fy .115	Fz 051	Mx .011	My .112	Mz .000
Max : Min : Rms :	3.648 .015 .510	.042	.062 176 .030	.005	.353 047 .052	.000 .000 .000
Gfac : Pfac :	2.602 4.404		3.431 4.168		.000 .000	.000
Run # 173	Wind .0	Elev 25.0	Vel 11.7			
Run # 173 Comp : Mean :	Wind .0 Fx .654	Elev 25.0 Fy .134	Vel 11.7 Fz -1.344	Мх 003	My 137	Mz .000
Run # 173 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .654 1.438 .137 .226	Elev 25.0 Fy .134	Vel 11.7 -1.344 343 -2.783 .455	Mx 003 .001	My 137 014 330 .061	Mz .000 .000 .000 .000
Run # 173 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .654 1.438 .137 .226 2.199 3.462	Elev 25.0 Fy .134	Vel 11.7 -1.344 343 -2.783 .455 2.070 3.160	Mx 003 .001	My 137 014 330 .061 .000 .000	Mz .000 .000 .000 .000 .000
Run # 173 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 174	Wind .0 Fx .654 1.438 .137 .226 2.199 3.462 Wind .0	Elev 25.0 Fy .134 .046 Elev 90.0	Vel 11.7 -1.344 343 -2.783 .455 2.070 3.160 Vel 11.3	Mx 003 .001	My 137 014 330 .061 .000 .000	Mz .000 .000 .000 .000 .000
Run # 173 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 174 Comp : Mean :	Wind .0 Fx .654 1.438 .137 .226 2.199 3.462 Wind .0 Fx 1.770	Elev 25.0 Fy .134 .046 Elev 90.0 Fy .134	Vel 11.7 Fz -1.344 343 -2.783 .455 2.070 3.160 Vel 11.3 Fz 184	Мх 003 .001 Мх .006	My 137 014 330 .061 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 173 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 174 Comp : Mean : Mean : Max : Min : Rms :	Wind .0 Fx .654 1.438 .137 .226 2.199 3.462 Wind .0 Fx 1.770 3.775 .639 .503	Elev 25.0 Fy .134 .046 Elev 90.0 Fy .134 .038	Vel 11.7 Fz -1.344 343 -2.783 .455 2.070 3.160 Vel 11.3 Fz 184 065 343 .044	Mx 003 .001 .001 Mx .006 .003	My 137 014 330 .061 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 175	Wind .0	Elev 30.0	Vel 10.9			
Comp : Mean :	Fx .964	Fy .160	Fz -1.420	Mx 001	Му 090	Mz .000
Max : Min : Rms :	2.114 .194 .338	.056	281 -3.119 .496	.000	.035 267 .055	.000 .000 .000
Gfac : Pfac :	2.193 3.398		2.196 3.422		.000 .000	.000 .000
Run # 176	Wind .0	Elev 25.0	Vel 11.1			
Comp : Mean :	Fx .680	Fy .130	Fz -1.329	Мх 002	Му 128	Mz .000
Max : Min : Rms :	1.614 .097 .248	.047	218 -3.241 .485	.001	.008 329 .065	.000 .000 .000
Gfac : Pfac :	2.374 3.763		2.438 3.946		.000 .000	.000 .000
Run # 177	Wind .0	Elev 20.0	Vel 11.1			
Run # 177 Comp : Mean :	Wind .0 Fx .463	Elev 20.0 Fy .111	Vel 11.1 Fz -1.135	Mx .001	Му 138	Mz .000
Run # 177 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .463 1.299 .039 .207	Elev 20.0 Fy .111	Vel 11.1 -1.135 133 -3.095 .517	Mx .001 .000	My 138 001 403 .081	Mz .000 .000 .000 .000
Run # 177 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .463 1.299 .039 .207 2.808 4.041	Elev 20.0 Fy .111	Vel 11.1 -1.135 133 -3.095 .517 2.725 3.789	Mx .001 .000	My 138 001 403 .081 .000 .000	Mz .000 .000 .000 .000 .000
Run # 177 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 178	Wind .0 Fx .463 1.299 .039 .207 2.808 4.041 Wind .0	Elev 20.0 Fy .111 .050 Elev 15.0	Vel 11.1 -1.135 133 -3.095 .517 2.725 3.789 Vel 11.1	Mx .001 .000	My 138 001 403 .081 .000 .000	Mz .000 .000 .000 .000 .000
Run # 177 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 178 Comp : Mean :	Wind .0 Fx .463 1.299 .039 .207 2.808 4.041 Wind .0 Fx .296	Elev 20.0 Fy .111 .050 Elev 15.0 Fy .086	Vel 11.1 -1.135 133 -3.095 .517 2.725 3.789 Vel 11.1 Fz 898	Mx .001 .000 .000	My 138 001 403 .081 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 177 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 178 Comp : Mean : Mean : Max : Min : Rms :	Wind .0 Fx .463 1.299 .039 .207 2.808 4.041 Wind .0 Fx .296 .897 .006 .133	Elev 20.0 Fy .111 .050 Elev 15.0 Fy .086 .039	Vel 11.1 -1.135 133 -3.095 .517 2.725 3.789 Vel 11.1 Fz 898 004 -3.051 .422	Mx .001 .000 .000 .003	My 138 001 403 .081 .000 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 179	Wind .0	Elev 20.0	Vel 10.4			
Comp : Mean :	Fx .609	Fy .141	Fz -1.314	Мх 006	Му 145	Mz .000
Max : Min : Rms :	1.704 .075 .266	.062	107 -4.028 .597	.004	.003 429 .088	.000 .000 .000
Gfac : Pfac :	2.799 4.113		3.066 4.548		.000 .000	.000 .000
Run # 180	Wind .0	Elev 20.0	Vel 9.1			
Comp : Mean :	Fx .624	Fy .156	Fz -1.340	Mx 001	Му 141	Mz .000
Max : Min : Rms :	2.242 025 .331	.083	.113 -4.806 .739	.001	.065 550 .116	.000 .000 .000
Gfac : Pfac :	3.591 4.885		3.585 4.691		.000 .000	.000 .000
Run # 181	Wind .0	Elev 35.0	Ve1 9.0			
Run # 181 Comp : Mean :	Wind .0 Fx 1.381	Elev 35.0 Fy .279	Ve1 9.0 Fz -2.019	Mx .019	Му 096	Mz .000
Run # 181 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.381 3.581 .090 .641	Elev 35.0 Fy .279 .130	Ve1 9.0 Fz -2.019 223 -5.396 .924	Mx .019 .021	My 096 .128 505 .106	Mz .000 .000 .000 .000
Run # 181 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.381 3.581 .090 .641 2.593 3.433	Elev 35.0 .279 .130	Ve1 9.0 Fz -2.019 223 -5.396 .924 2.672 3.655	Mx .019 .021	My 096 .128 505 .106 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 181 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 182	Wind .0 Fx 1.381 3.581 .090 .641 2.593 3.433 Wind .0	Elev 35.0 Fy .279 .130 Elev 30.0	Vel 9.0 Fz -2.019 223 -5.396 .924 2.672 3.655 Vel 9.0	Mx .019 .021	My 096 .128 505 .106 .000 .000	Mz .000 .000 .000 .000 .000
Run # 181 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 182 Comp : Mean :	Wind .0 Fx 1.381 3.581 .090 .641 2.593 3.433 Wind .0 Fx 1.097	Elev 35.0 Fy .279 .130 Elev 30.0 Fy .231	Ve1 9.0 Fz -2.019 223 -5.396 .924 2.672 3.655 Ve1 9.0 Fz -1.872	Mx .019 .021 Mx .023	My 096 .128 505 .106 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000
Run # 181 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 182 Comp : Mean : Mean : Max : Rms :	Wind .0 Fx 1.381 3.581 .090 .641 2.593 3.433 Wind .0 Fx 1.097 2.975 .031 .540	Elev 35.0 Fy .279 .130 Elev 30.0 Fy .231 .114	Ve1 9.0 Fz -2.019 223 -5.396 .924 2.672 3.655 Ve1 9.0 Fz -1.872 153 -5.244 .926	Mx .019 .021 .021 Mx .023 .022	My 096 .128 505 .106 .000 .000 .000 .000 .000 .119 .123 443 .115	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 183	Wind .0	Elev 25.0	Vel 8.8			
Comp : Mean :	Fx .895	Fy .238	Fz -1.898	Mx .009	Му 130	Mz .000
Max : Min : Rms :	2.701 049 .458	.122	.003 -5.974 1.021	.010	.209 548 .144	.000 .000 .000
Gfac : Pfac :	3.017 3.944		3.148 3.992		.000	.000 .000
Run # 184	Wind .0	Elev 20.0	Vel 9.1			
Comp : Mean :	Fx .638	Fy .213	Fz -1.634	Мх .024	Му 110	Mz .000
Max : Min : Rms :	1.931 .004 .311	.104	.014 -4.988 .865	.029	.146 530 .136	.000 .000 .000
Gfac : Pfac :	3.027 4.154		3.052 3.875		.000 .000	.000 .000
Run # 185	Wind .0	Elev 20.0	Vel 10.6			
Run # 185 Comp : Mean :	Wind .0 Fx .594	Elev 20.0 Fy .182	Vel 10.6 Fz -1.519	Mx .004	Му 105	Mz .000
Run # 185 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .594 1.583 .006 .249	Elev 20.0 Fy .182	Vel 10.6 Fz -1.519 107 -4.542 .678	Mx .004 .004	My 105 .123 500 .107	Mz .000 .000 .000 .000
Run # 185 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .594 1.583 .006 .249 2.664 3.964	Elev 20.0 Fy .182	Vel 10.6 Fz -1.519 107 -4.542 .678 2.990 4.458	Mx .004 .004	My 105 .123 500 .107 .000 .000	Mz .000 .000 .000 .000 .000
Run # 185 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 186	Wind .0 Fx .594 1.583 .006 .249 2.664 3.964 Wind .0	Elev 20.0 Fy .182 .076 Elev 25.0	Vel 10.6 Fz -1.519 107 -4.542 .678 2.990 4.458 Vel 10.3	Mx .004 .004	My 105 .123 500 .107 .000 .000	Mz .000 .000 .000 .000 .000
Run # 185 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 186 Comp : Mean :	Wind .0 Fx .594 1.583 .006 .249 2.664 3.964 Wind .0 Fx .759	Elev 20.0 Fy .182 .076 Elev 25.0 Fy .196	Vel 10.6 Fz -1.519 107 -4.542 .678 2.990 4.458 Vel 10.3 Fz -1.705	Mx .004 .004 .004	My 105 .123 500 .107 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 185 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 186 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .594 1.583 .006 .249 2.664 3.964 Wind .0 Fx .759 1.966 .090 .312	Elev 20.0 Fy .182 .076 Elev 25.0 Fy .196 .081	Vel 10.6 Fz -1.519 107 -4.542 .678 2.990 4.458 Vel 10.3 Fz -1.705 246 -4.677 .718	Mx .004 .004 .004 .004	My 105 .123 500 .107 .000 .000 .000 .000 .000 .000 .0	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 187	Wind .0	Elev 25.0	Vel 11.0			
Comp : Mean :	Fx .720	Fy .177	Fz -1.589	Mx .009	Му 123	Mz .000
Max : Min : Rms :	1.812 .144 .274	.068	246 -4.169 .631	.007	.063 448 .092	.000 .000 .000
Gfac : Pfac :	2.516 3.980		2.624 4.087		.000 .000	.000 .000
Run # 188	Wind .0	Elev 40.0	Vel 10.8			
Comp : Mean :	Fx 1.372	Fy .223	Fz -1.789	Mx .010	Му 069	Mz .000
Max : Min : Rms :	3.016 .194 .457	.074	348 -3.883 .578	.008	.075 238 .058	.000 .000 .000
Gfac : Pfac :	2.198 3.597		2.171 3.622		.000 .000	.000
Run # 189	Wind .0	Elev 90.0	Vel 10.9			
		г.,	-			N
Comp : Mean :	Fx 1.926	.134	103	Mx .011	My .144	.000
Comp : Mean : Max : Min : Rms :	Fx 1.926 4.339 .551 .582	. 134 . 040	+z 103 .038 239 .039	Mx .011 .005	My .144 .477 034 .062	MZ .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Fx 1.926 4.339 .551 .582 2.253 4.144	.134 .040	+z 103 .038 239 .039 2.314 3.455	Mx .011 .005	My .144 .477 034 .062 .000 .000	MZ .000 .000 .000 .000 .000
Comp : Mean : Min : Rms : Gfac : Pfac : Run # 190	Fx 1.926 4.339 .551 .582 2.253 4.144 Wind 50.0	- Fy .134 .040 Elev 90.0	FZ 103 .038 239 .039 2.314 3.455 Vel 10.8	Mx .011 .005	My .144 .477 034 .062 .000 .000	MZ .000 .000 .000 .000 .000
Comp : Mean : Min : Rms : Gfac : Pfac : Run # 190 Comp : Mean :	Fx 1.926 4.339 .551 .582 2.253 4.144 Wind 50.0 Fx 1.741	Fy .134 .040 Elev 90.0 Fy .004	Fz 103 .038 239 .039 2.314 3.455 Vel 10.8 Fz 079	Mx .011 .005 Mx .015	My .144 .477 034 .062 .000 .000	MZ .000 .000 .000 .000 .000 .000
Comp : Mean : Min : Rms : Gfac : Pfac : Run # 190 Comp : Mean : Max : Min : Rms :	Fx 1.926 4.339 .551 .582 2.253 4.144 Wind 50.0 Fx 1.741 4.686 .217 .663	Fy .134 .040 Elev 90.0 Fy .004 .001	FZ 103 .038 239 .039 2.314 3.455 Vel 10.8 FZ 079 .134 242 .044	Mx .011 .005 .005 .015 .007	My .144 .477 034 .062 .000 .000 .000 .000 .152 .432 029 .068	MZ .000 .000 .000 .000 .000 .000 .000 .0

Run # 194	Wind .0	Elev 40.0	Vel 11.7			
Comp : Mean :	Fx 1.264	Fy .176	Fz -1.665	Mx .012	My 064	Mz .000
Max : Min : Rms :	2.446 .389 .358	.050	608 -3.160 .458	.009	.049 213 .049	.000 .000 .000
Gfac : Pfac :	1.936 3.304		1.898 3.265		.000 .000	.000 .000
Run # 195	Wind .0	Elev 25.0	Vel 12.2			
Comp : Mean :	Fx .644	Fy .171	Fz -1.486	Mx .011	Му 118	Mz .000
Max : Min : Rms :	1.365 .111 .222	.059	279 -3.173 .532	.007	.044 337 .075	.000 .000 .000
Gfac : Pfac :	2.118 3.251		2.135 3.172		.000 .000	.000 .000
Run # 196	Wind .0	Elev 20.0	Vel 12.0			
Comp :		F	E-7	М.,	N	M-7
Mean :	Fx .427	.153	-1.297	.011	му 075	.000
Mean : Max : Min : Rms :	Fx .427 1.178 .089 .152	. 153 . 055	-1.297 281 -3.484 .476	.011 .011	My 075 .085 358 .074	.000 .000 .000 .000
Mean : Max : Min : Rms : Gfac : Pfac :	Fx .427 1.178 .089 .152 2.758 4.935	.153 .055	-1.297 281 -3.484 .476 2.686 4.597	.011 .011	My 075 358 .074 .000 .000	.000 .000 .000 .000 .000 .000
Mean : Max : Min : Rms : Gfac : Pfac : Run # 198	Fx .427 1.178 .089 .152 2.758 4.935 Wind .0	Elev 35.0	-1.297 281 -3.484 .476 2.686 4.597 Vel 12.1	.011 .011	My 075 358 .074 .000 .000	.000 .000 .000 .000 .000 .000
Mean : Max : Min : Rms : Gfac : Pfac : Run # 198 Comp : Mean :	Fx .427 1.178 .089 .152 2.758 4.935 Wind .0 Fx 1.060	Fy .153 .055 Elev 35.0 Fy .190	-1.297 281 -3.484 .476 2.686 4.597 Vel 12.1 Fz -1.726	MX .011 .011 .011 Mx .010	My 075 358 .074 .000 .000	.000 .000 .000 .000 .000 .000 .000
Mean : Max : Min : Rms : Gfac : Pfac : Run # 198 Comp : Mean : Max : Min : Rms :	Fx .427 1.178 .089 .152 2.758 4.935 Wind .0 Fx 1.060 2.187 .320 .304	Fy .153 .055 Elev 35.0 Fy .190 .054	-1.297 281 -3.484 .476 2.686 4.597 Vel 12.1 Fz -1.726 576 -3.514 .488	MX .011 .011 .011 .010 .005	My 075 .085 358 .074 .000 .000 .000 .000 .000 .000	MZ .000 .000 .000 .000 .000 .000 .000 .0

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Run # 200	Wind .0	Elev 20.0	Vel 12.3			
Comp : Mean :	Fx .354	Fy .100	Fz 944	Mx .003	Му 132	Mz .000
Max : Min : Rms :	.568 .177 .060	.017	533 -1.483 .156	.001	056 243 .035	.000 .000 .000
Gfac : Pfac :	1.608 3.594		1.571 3.459		.000 .000	.000 .000
Run # 201	Wind .0	Elev .0	Vel 10.2			
Comp : Mean :	Fx .027	Fy .065	Fz 057	Мх .008	Му .002	Mz .000
Max : Min : Rms :	.066 .006- .008	.020	.035 134 .028	.004	.010 007 .001	.000 .000 .000
Gfac : Pfac :	2.465 4.694		2.343 2.703		.000 .000	.000 .000
Run # 202	Wind .0	Elev 90.0	Vel 10.3			
Run # 202 Comp : Mean :	Wind .0 Fx 1.780	Elev 90.0 Fy .098	Vel 10.3 Fz 068	Mx .013	Му .148	Mz .000
Run # 202 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.780 3.293 .577 .465	Elev 90.0 Fy .098	Vel 10.3 068 .027 147 .027	Mx .013 .005	My .148 .403 015 .059	Mz .000 .000 .000 .000
Run # 202 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.780 3.293 .577 .465 1.850 3.258	Elev 90.0 Fy .098	Vel 10.3 Fz 068 .027 147 .027 2.154 2.895	Mx .013 .005	My .148 .403 015 .059 .000 .000	Mz .000 .000 .000 .000 .000
Run # 202 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 203	Wind .0 Fx 1.780 3.293 .577 .465 1.850 3.258 Wind .0	Elev 90.0 Fy .098 .026 Elev 90.0	Vel 10.3 Fz 068 .027 147 .027 2.154 2.895 Vel 10.2	Mx .013 .005	My .148 .403 015 .059 .000 .000	Mz .000 .000 .000 .000 .000
Run # 202 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 203 Comp : Mean :	Wind .0 Fx 1.780 3.293 .577 .465 1.850 3.258 Wind .0 Fx 1.790	Elev 90.0 Fy .098 .026 Elev 90.0 Fy .087	Vel 10.3 Fz 068 .027 147 .027 2.154 2.895 Vel 10.2 Fz 073	Mx .013 .005 Mx .010	My .148 .403 015 .059 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 202 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 203 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.780 3.293 .577 .465 1.850 3.258 Wind .0 Fx 1.790 3.655 .756 .466	Elev 90.0 .098 .026 Elev 90.0 Fy .087 .023	Vel 10.3 Fz 068 .027 147 .027 2.154 2.895 Vel 10.2 Vel 10.2 Fz 073 .028 160 .030	Mx .013 .005 .005 .010 .004	My .148 .403 015 .059 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 204	Wind .0	Elev 30.0	Vel 10.5			
Comp : Mean :	Fx .840	Fy .099	Fz -1.392	Mx .011	Му 133	Mz .000
Max : Min : Rms :	1.601 .296 .217	.026	475 -2.646 .354	.005	003 327 .059	.000 .000 .000
Gfac : Pfac :	1.906 3.501		1.901 3.545		.000 .000	.000 .000
Run # 205	Wind 65.0	Elev 90.0	Vel 10.3			
Comp : Mean :	Fx 1.129	Fy .073	Fz .052	Mx .004	Му .113	Mz .000
Max : Min : Rms :	2.710 .038 .398	.026	.198 082 .037	.002	.318 065 .051	.000 .000 .000
Gfac : Pfac :	2.401 3.974		3.797 3.893		.000 .000	.000 .000
Run # 206	Wind 65.0	Elev 90.0	Vel 10.2			
Comp : Mean :	Fx 1.095	Fy .083	Fz .063	Mx .006	Му .150	Mz .000
Max : Min : Rms :	3.172 .101 .429	.033	.334 118 .063	.002	.436 033 .062	.000 .000 .000
Gfac : Pfac :	2.898 4.838		5.310 4.289		.000 .000	.000 .000
Run # 207	Wind .0	Elev 90.0	Vel 10.3			
Comp : Mean :	Fx 1 728	Fy .099	Fz 129-	Mx .017	Му .176	Mz .000
nean .	1.720					
Max : Min : Rms :	3.471 .677 .467	.027	.004 249 .040	.006	.406 .007 .063	.000 .000 .000

Run # 208	Wind .0	Elev 30.0	Vel 10.5			
Comp : Mean :	Fx .880	Fy .112	Fz -1.472	Mx .011	Му 132	Mz .000
Max : Min : Rms :	1.856 .328 .241	.031	552 -3.119 .397	.005	020 287 .056	.000 .000 .000
Gfac : Pfac :	2.108 4.040		2.118 4.151		.000 .000	.000 .000
Run # 209	Wind .0	Elev 30.0	Vel 10.4			
Comp : Mean :	Fx .952	Fy .080	Fz -1.474	Мх .023	Му 098	Mz .000
Max : Min : Rms :	1.830 .285 .267	.022	495 -2.910 .406	.010	.003 266 .044	.000 .000 .000
Gfac : Pfac :	1.922 3.285		1.974 3.540		.000 .000	.000 .000
Run # 210	Wind .0	Elev 90.0	Vel 10.3			
Run # 210 Comp : Mean :	Wind .0 Fx 1.814	Elev 90.0 Fy .047	Vel 10.3 Fz 147	Mx .015	Му .140	Mz .000
Run # 210 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.814 3.479 .690 .488	Elev 90.0 Fy .047	Vel 10.3 Fz 147 032 278 .043	Mx .015 .006	My .140 .415 .007 .054	Mz .000 .000 .000 .000
Run # 210 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.814 3.479 .690 .488 1.918 3.409	Elev 90.0 Fy .047	Vel 10.3 Fz 147 032 278 .043 1.887 3.054	Mx .015 .006	My .140 .415 .007 .054 .000 .000	Mz .000 .000 .000 .000 .000
Run # 210 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 211	Wind .0 Fx 1.814 3.479 .690 .488 1.918 3.409 Wind 65.0	Elev 90.0 Fy .047 .013 Elev 90.0	Vel 10.3 Fz 147 032 278 .043 1.887 3.054 Vel 10.3	Mx .015 .006	My .140 .415 .007 .054 .000 .000	Mz .000 .000 .000 .000 .000
Run # 210 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 211 Comp : Mean :	Wind .0 Fx 1.814 3.479 .690 .488 1.918 3.409 Wind 65.0 Fx 1.157	Elev 90.0 Fy .047 .013 Elev 90.0 Fy .102	Vel 10.3 Fz 147 032 278 .043 1.887 3.054 Vel 10.3 Fz .055	Mx .015 .006 Mx .002	My .140 .415 .007 .054 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 210 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 211 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.814 3.479 .690 .488 1.918 3.409 Wind 65.0 Fx 1.157 2.694 .132 .396	Elev 90.0 Fy .047 .013 Elev 90.0 Fy .102 .035	Vel 10.3 Fz 147 032 278 .043 1.887 3.054 Vel 10.3 Fz .055 .212 088 .046	Mx .015 .006 .006 .002	My .140 .415 .007 .054 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

212	Wind .0	Elev 40.0	Vel 10.5				
Comp : Mean :	Fx 1.430	Fy .043	Fz -1.650	Mx .021	My 017	Mz .000	
Max : Min : Rms :	2.808 .480 .376	.011	636 -3.127 .413	.034	.120 193 .028	.000 .000 .000	
Gfac : Pfac :	1.964 3.665		1.895 3.572		.000 .000	.000 .000	
Run # 213	Wind .0	Elev 90.0	Vel 10.4				
Comp : Mean :	Fx 1.846	Fy .115	Fz 053	Mx .010	Му .146	Mz .000	
Max : Min : Rms :	3.728 .707 .526	.033	.077 172 .037	.004	.406 014 .059	.000 .000 .000	
Gfac : Pfac :	2.020 3.577		3.262 3.239		.000 .000	.000	
Run #	Wind	Elev	Ve1				
214	50.0	90.0	10.3				
214 Comp : Mean :	50.0 Fx 1.682	90.0 Fy 143	10.3 Fz .135	Mx .023	Му .177	Mz .000	
214 Comp : Mean : Max : Min : Rms :	50.0 Fx 1.682 3.464 .359 .518	90.0 Fy 143 .044	10.3 Fz .135 .443 094 .074	Mx .023 .009	My .177 .431 014 .064	Mz .000 .000 .000 .000	
214 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	50.0 Fx 1.682 3.464 .359 .518 2.060 3.443	90.0 Fy 143 .044	10.3 Fz .135 .443 094 .074 3.284 4.171	Mx .023 .009	My .177 .431 014 .064 .000 .000	Mz .000 .000 .000 .000 .000 .000	
214 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 215	50.0 Fx 1.682 3.464 .359 .518 2.060 3.443 Wind 50.0	90.0 Fy 143 .044 Elev 90.0	10.3 Fz .135 .443 094 .074 3.284 4.171 Vel 9.6	Mx .023 .009	My .177 .431 014 .064 .000 .000	Mz .000 .000 .000 .000 .000	
214 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 215 Comp : Mean :	50.0 Fx 1.682 3.464 .359 .518 2.060 3.443 Wind 50.0 Fx 1.732	90.0 Fy 143 .044 Elev 90.0 Fy 136	10.3 Fz .135 .443 094 .074 3.284 4.171 Ve1 9.6 Fz .203	Mx .023 .009 .Mx .026	My .177 .431 014 .064 .000 .000	Mz .000 .000 .000 .000 .000 .000	
214 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 215 Comp : Mean : Mean : Max : Min : Rms :	50.0 Fx 1.682 3.464 .359 .518 2.060 3.443 Wind 50.0 Fx 1.732 4.517 .206 .609	90.0 Fy 143 .044 Elev 90.0 Fy 136 .048	10.3 Fz .135 .443 094 .074 3.284 4.171 Vel 9.6 Fz .203 .659 070 .092	Mx .023 .009 .009 .026 .011	My .177 .431 014 .064 .000 .000 .000 .000 .000 .000 .00	Mz .000 .000 .000 .000 .000 .000 .000 .0	

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Run # 216	Wind .0	Elev 90.0	Vel 9.3			
Comp : Mean :	Fx 2.122	Fy .133	Fz 027	Mx .012	Му .165	Mz .000
Max : Min : Rms :	4.798 .613 .648	.040	.179 213 .057	.005	.452 005 .073	.000 .000 .000
Gfac : Pfac :	2.261 4.129		7.827 3.270		.000 .000	.000 .000
Run # 217	Wind .0	Elev 40.0	Vel 9.5			
Comp : Mean :	Fx 1.432	Fy .168	Fz -2.018	Mx .013	Му 090	Mz .000
Max : Min : Rms :	2.719 .313 .417	.049	510 -3.803 .574	.009	.071 289 .065	.000 .000 .000
Gfac : Pfac :	1.898 3.088		1.884 3.108		.000 .000	.000 .000
Run # 218	Wind .0	Elev 90.0	Vel 9.8			
Comp : Mean :	Fx 1.873	Fy .095	Fz 074	Мх .008	Му .142	Mz .000
Mov						
Min : Rms :	4.023 .594 .565	.029	.073 221 .044	.004	.418 013 .061	.000 .000 .000
Max : Min : Rms : Gfac : Pfac :	4.023 .594 .565 2.147 3.802	.029	.073 221 .044 2.990 3.351	.004	.418 013 .061 .000 .000	.000 .000 .000 .000 .000
Max : Min : Rms : Gfac : Pfac : Run # 219	4.023 .594 .565 2.147 3.802 Wind .0	.029 Elev 30.0	.073 221 .044 2.990 3.351 Vel 9.9	.004	.418 013 .061 .000 .000	.000 .000 .000 .000 .000
Max : Min : Rms : Gfac : Pfac : Run # 219 Comp : Mean :	4.023 .594 .565 2.147 3.802 Wind .0 Fx .847	.029 Elev 30.0 Fy .119	.073 221 .044 2.990 3.351 Vel 9.9 Fz -1.447	.004 Mx .018	.418 013 .061 .000 .000	.000 .000 .000 .000 .000 .000
Max : Min : Rms : Gfac : Pfac : Run # 219 Comp : Mean : Max : Min : Rms :	4.023 .594 .565 2.147 3.802 Wind .0 Fx .847 1.794 .230 .265	.029 Elev 30.0 Fy .119 .037	.073 221 .044 2.990 3.351 Vel 9.9 Fz -1.447 434 -3.164 .456	.004 Mx .018 .008	.418 013 .061 .000 .000 .000 125 001 325 .058	.000 .000 .000 .000 .000 .000 .000 .00

Run # 220	Wind 65.0	Elev 90.0	Vel 9.5			
Comp : Mean :	Fx 1.340	Fy .159	Fz .060	Mx .000	Му .126	Mz .000
Max : Min : Rms :	4.171 268 .548	.065	.291 100 .058	.000	.443 107 .064	.000 .000 .000
Gfac : Pfac :	3.113 5.165		4.874 3.955		.000 .000	.000 .000
Run # 221	Wind .0	Elev 90.0	Vel 9.7			
Comp : Mean :	Fx 1.908	Fy .110	Fz 067	Mx .006	My .155	Mz .000
Max : Min : Rms :	4.112 .534 .560	.032	.040 188 .037	.003	.468 019 .069	.000 .000 .000
Gfac : Pfac :	2.155 3.939		2.791 3.286		.000 .000	.000 .000
Run # 222	Wind .0	Elev 30.0	Vel 9.5			
Run # 222 Comp : Mean :	Wind .0 Fx .974	Elev 30.0 Fy .120	Vel 9.5 Fz -1.518	Mx .005	Му 130	Mz .000
Run # 222 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .974 2.049 .164 .314	Elev 30.0 Fy .120	Vel 9.5 -1.518 419 -3.301 .483	Mx .005 .003	My 130 .047 380 .071	Mz .000 .000 .000 .000
Run # 222 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .974 2.049 .164 .314 2.103 3.424	Elev 30.0 Fy .120 .039	Vel 9.5 -1.518 419 -3.301 .483 2.175 3.688	Mx .005 .003	My 130 .047 380 .071 .000 .000	Mz .000 .000 .000 .000 .000
Run # 222 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 223	Wind .0 Fx .974 2.049 .164 .314 2.103 3.424 Wind 65.0	Elev 30.0 Fy .120 .039 Elev 90.0	Vel 9.5 -1.518 419 -3.301 .483 2.175 3.688 Vel 9.6	Mx .005 .003	My 130 .047 380 .071 .000 .000	Mz .000 .000 .000 .000 .000
Run # 222 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 223 Comp : Mean :	Wind .0 Fx .974 2.049 .164 .314 2.103 3.424 Wind 65.0 Fx 1.276	Elev 30.0 Fy .120 .039 Elev 90.0 Fy .132	Vel 9.5 -1.518 419 -3.301 .483 2.175 3.688 Vel 9.6 Fz .038	Mx .005 .003 Mx .002	My 130 .047 380 .071 .000 .000	Mz .000 .000 .000 .000 .000
Run # 222 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 223 Comp : Mean : Mean : Max : Min : Rms :	Wind .0 Fx .974 2.049 .164 .314 2.103 3.424 Wind 65.0 Fx 1.276 3.193 101 .500	Elev 30.0 Fy .120 .039 Elev 90.0 Fy .132 .052	Vel 9.5 -1.518 419 -3.301 .483 2.175 3.688 Vel 9.6 Fz .038 .214 102 .047	Mx .005 .003 .003 Mx .002	My 130 .047 380 .071 .000 .000 .000 .000 .000 .000 .00	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 224	Wind 65.0	Elev 90.0	Vel 9.7			
Comp : Mean :	Fx 1.269	Fy .137	Fz .135	Мх 004	Му .151	Mz .000
Max : Min : Rms :	3.354 088 .513	.055	.388 093 .073	.002	.439 080 .071	.000 .000 .000
Gfac : Pfac :	2.643 4.062		2.873 3.442		.000 .000	.000 .000
Run # 225	Wind .0	Elev 90.0	Vel 9.4			
Comp : Mean :	Fx 1.990	Fy .111	Fz 153	Mx .010	Му .189	Mz .000
Max : Min : Rms :	4.971 .511 .627	.035	.043 369 .063	.004	.540 016 .081	.000 .000 .000
Gfac : Pfac :	2.499 4.753		2.406 3.428		.000 .000	.000 .000
Run # 226	Wind .0	Elev 30.0	Vel 9.3			
Comp : Mean :	Fx .956	Fy .144	Fz -1.610	Мх .008	My 140	Mz .000
Max : Min : Rms :	2.088 .219 .327	.049	379 -3.493 .545	.004	.009 392 .076	.000 .000 .000
Gfac : Pfac :	2.185 3.466		2.169 3.457		.000 .000	.000 .000

APPENDIX D

Data for File SCPT1 - Parabolic Single Study

°.

Run # 1	Wind .0	Elev .0	Vel 12.9			
Comp : Mean :	Fx .062	Fy .098	Fz 111	Mx .011	Му 003	Mz .000
Max : Min : Rms :	.097 .037 .009	.015	044 179 .026	.003	.002 009 .001	.000 .000 .000
Gfac : Pfac :	1.558 3.699		1.608 2.618		.000 .000	.000 .000
Run # 2	Wind .0	Elev .0	Vel 12.8			
Comp : Mean :	Fx .028	Fy .025	Fz 010	Mx .004	My 002	Mz .000
Max : Min : Rms :	.055 .002 .008	.007	.033 054 .014	.002	.004 007 .001	.000 .000 .000
Gfac : Pfac :	1.957 3.486		5.321 3.151		.000 .000	.000 .000
Run # 3	Wind .0	Elev 90.0	Vel 12.4			
Run # 3 Comp : Mean :	Wind .0 Fx 1.745	Elev 90.0 Fy .120	Vel 12.4 Fz 166	Mx .006	Му .113	Mz .000
Run # 3 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.745 3.513 .765 .393	Elev 90.0 Fy .120	Vel 12.4 Fz 166 068 313 .036	Mx .006 .002	My .113 .307 006 .042	Mz .000 .000 .000 .000
Run # 3 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.745 3.513 .765 .393 2.013 4.496	Elev 90.0 Fy .120	Vel 12.4 Fz 166 068 313 .036 1.887 4.115	Mx .006 .002	My .113 .307 006 .042 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 3 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 4	Wind .0 Fx 1.745 3.513 .765 .393 2.013 4.496 Wind .0	Elev 90.0 Fy .120 .027 Elev 80.0	Vel 12.4 Fz 166 068 313 .036 1.887 4.115 Vel 12.7	Mx .006 .002	My .113 .307 006 .042 .000 .000	Mz .000 .000 .000 .000 .000
Run # 3 Comp : Mean : Min : Rms : Gfac : Pfac : Run # Comp : Mean :	Wind .0 Fx 1.745 3.513 .765 .393 2.013 4.496 Wind .0 Fx 1.703	Elev 90.0 Fy .120 .027 Elev 80.0 Fy .113	Vel 12.4 Fz 166 068 313 .036 1.887 4.115 Vel 12.7 Fz 446	Mx .006 .002 .002 Mx .007	My .113 .307 006 .042 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 3 Comp : Mean : Min : Rms : Gfac : Pfac : Run # Comp : Mean : Mean : Max : Min : Rms :	Wind .0 Fx 1.745 3.513 .765 .393 2.013 4.496 Wind .0 Wind .0 Fx 1.703 3.280 .702 .401	Elev 90.0 Fy .120 .027 Elev 80.0 Fy .113 .027	Vel 12.4 Fz 166 068 313 .036 1.887 4.115 Vel 12.7 Vel 12.7 Fz 446 211 793 .093	Mx .006 .002 .002 .007	My .113 .307 006 .042 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 5	Wind .0	Elev 70.0	Vel 12.5			
Comp : Mean :	Fx 1.725	Fy .144	Fz 656	Mx .006	Му .100	Mz .000
Max : Min : Rms :	3.160 .732 .383	.032	304 -1.150 .134	.002	.277 .003 .039	.000 .000 .000
Gfac : Pfac :	1.832 3.751		1.751 3.678		.000 .000	.000 .000
Run # 6	Wind .0	Elev 60.0	Vel 12.7			
Comp : Mean :	Fx 1.612	Fy .138	Fz 890	Мх .008	Му .067	Mz .000
Max : Min : Rms :	2.903 .632 .389	.033	375 -1.565 .206	.004	.240 025 .034	.000 .000 .000
Gfac : Pfac :	1.800 3.318		1.757 3.272		.000 .000	.000 .000
Run # 7	Wind .0	Elev 50.0	Vel 12.7			
Run # 7 Comp : Mean :	Wind .0 Fx 1.353	Elev 50.0 Fy .140	Vel 12.7 Fz -1.176	Mx .010	Му .029	Mz .000
Run # 7 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.353 2.473 .615 .313	Elev 50.0 Fy .140	Vel 12.7 Fz -1.176 552 -2.149 .260	Mx .010 .009	My .029 .140 060 .028	Mz .000 .000 .000 .000
Run # 7 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.353 2.473 .615 .313 1.828 3.573	Elev 50.0 Fy .140	Vel 12.7 Fz -1.176 552 -2.149 .260 1.827 3.740	Mx .010 .009	My .029 .140 060 .028 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 7 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 8	Wind .0 Fx 1.353 2.473 .615 .313 1.828 3.573 Wind .0	Elev 50.0 Fy .140 .032 Elev 45.0	Vel 12.7 Fz -1.176 552 -2.149 .260 1.827 3.740 Vel 12.5	Mx .010 .009	My .029 .140 .060 .028 .000 .000	Mz .000 .000 .000 .000 .000
Run # 7 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 8 Comp : Mean :	Wind .0 Fx 1.353 2.473 .615 .313 1.828 3.573 Wind .0 Fx 1.323	Elev 50.0 .140 .032 Elev 45.0 Fy .150	Vel 12.7 Fz -1.176 552 -2.149 .260 1.827 3.740 Vel 12.5 Fz -1.443	Mx .010 .009 Mx .009	My .029 .140 .060 .028 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 7 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 8 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.353 2.473 .615 .313 1.828 3.573 Wind .0 Fx 1.323 2.513 .570 .289	Elev 50.0 Fy .140 .032 Elev 45.0 Fy .150 .033	Vel 12.7 Fz -1.176 552 -2.149 .260 1.827 3.740 Vel 12.5 Fz -1.443 661 -2.664 .303	Mx .010 .009 .009 .028	My .029 .140 .060 .028 .000 .000 .000 .000 .000 .000 .00	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 9	Wind .0	Elev 40.0	Vel 12.7			
Comp : Mean :	Fx 1.244	Fy .140	Fz -1.553	Мх .009	Му 036	Mz .000
Max : Min : Rms :	2.196 .473 .269	.030	607 -2.737 .326	.008	.053 149 .032	.000 .000 .000
Gfac : Pfac :	1.765 3.536		1.763 3.635		.000 .000	.000 .000
Run # 10	Wind .0	Elev 35.0	Vel 12.9			
Comp : Mean :	Fx 1.205	Fy .126	Fz -1.627	Mx .010	My 059	Mz .000
Max : Min : Rms :	2.142 .578 .270	.028	811 -2.912 .351	.006	.037 179 .034	.000 .000 .000
Gfac : Pfac :	1.777 3.469		1.790 3.663		.000 .000	.000 .000
Run # 11	Wind .0	Elev 30.0	Vel 12.9			
Run # 11 Comp : Mean :	Wind .0 Fx 1.076	Elev 30.0 Fy .111	Vel 12.9 Fz -1.744	Mx .012	My 113	Mz .000
Run # 11 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.076 1.893 .466 .248	Elev 30.0 Fy .111	Vel 12.9 Fz -1.744 758 -3.102 .398	Mx .012 .005	My 113 016 249 .041	Mz .000 .000 .000 .000
Run # 11 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.076 1.893 .466 .248 1.759 3.294	Elev 30.0 Fy .111	Vel 12.9 Fz -1.744 758 -3.102 .398 1.779 3.417	Mx .012 .005	My 113 016 249 .041 .000 .000	Mz .000 .000 .000 .000 .000
Run # 11 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 12	Wind .0 Fx 1.076 1.893 .466 .248 1.759 3.294 Wind .0	Elev 30.0 .111 .026 Elev 25.0	Vel 12.9 Fz -1.744 758 -3.102 .398 1.779 3.417 Vel 12.7	Mx .012 .005	My 113 016 249 .041 .000 .000	Mz .000 .000 .000 .000 .000
Run # 11 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 12 Comp : Mean :	Wind .0 Fx 1.076 1.893 .466 .248 1.759 3.294 Wind .0 Fx .842	Elev 30.0 Fy .111 .026 Elev 25.0 Fy .078	Vel 12.9 Fz -1.744 758 -3.102 .398 1.779 3.417 Vel 12.7 Fz -1.679	Mx .012 .005 .005 Mx .010	My 113 016 249 .041 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 11 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 12 Comp : Mean : Mean : Min : Rms :	Wind .0 Fx 1.076 1.893 .466 .248 1.759 3.294 Wind .0 Fx .842 1.555 .310 .212	Elev 30.0 Fy .111 .026 Elev 25.0 Fy .078 .020	Vel 12.9 Fz -1.744 758 -3.102 .398 1.779 3.417 Vel 12.7 Fz -1.679 632 -2.986 .421	Mx .012 .005 .005 .010 .004	My 113 016 249 .041 .000 .000 .000 .000 .000 129 009 270 .054	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 13	Wind .0	Elev 20.0	Vel 12.7			
Comp : Mean :	Fx .535	Fy .109	Fz -1.365	Мх .006	Му 102	Mz .000
Max : Min : Rms :	1.102 .206 .150	.031	424 -2.934 .391	.004	.035 301 .058	.000 .000 .000
Gfac : Pfac :	2.059 3.773		2.150 4.011		.000 .000	.000 .000
Run # 14	Wind .0	Elev 10.0	Vel 12.9			
Comp : Mean :	Fx .238	Fy .079	Fz 835	Mx .003	My 010	Mz .000
Max : Min : Rms :	.531 .069 .077	.026	139 -1.755 .286	.011	.092 158 .042	.000 .000 .000
Gfac : Pfac :	2.228 3.819		2.101 3.209		.000 .000	.000 .000
Run # 15	Wind .0	Elev .0	Vel 12.7			
Comp : Mean :	Fx .132	Fy .041	Fz 341	Мх .003	Му .086	Mz .000
Max : Min : Rms :	.347 119 .058	.018	.227 977 .195	.001	.218 084 .038	.000 .000 .000
Gfac : Pfac :	2.632 3.738		2.866 3.260		.000 .000	.000 .000
Run # 16	Wind	Elev	Vel			
	60.0	80.0	12.8			
Comp : Mean :	60.0 Fx 1.507	80.0 Fy .020	Fz 065	Mx .011	Му .139	Mz .000
Comp : Mean : Max : Min : Rms :	60.0 Fx 1.507 3.112 .508 .408	80.0 Fy .020 .006	Fz 065 .063 169 .032	Mx .011 .004	My .139 .344 .003 .046	Mz .000 .000 .000 .000

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Run # 17	Wind 60.0	Elev 75.0	Vel 12.9			
Comp : Mean :	Fx 1.451	Fy .050	Fz 365	Mx .045	Му .115	Mz .000
Max : Min : Rms :	3.324 .449 .385	.013	100 747 .091	.016	.280 065 .041	.000 .000 .000
Gfac : Pfac :	2.290 4.867		2.048 4.225		.000 .000	.000 .000
Run # 18	Wind 60.0	Elev 70.0	Vel 12.8			
Comp : Mean :	Fx 1.443	Fy .054	Fz 378	Mx .050	Му .110	Mz .000
Max : Min : Rms :	3.009 .340 .380	.014	140 771 .094	.018	.264 084 .039	.000 .000 .000
Gfac : Pfac :	2.085 4.124		2.038 4.194		.000 .000	.000 .000
Run # 19	Wind 60.0	Elev 65.0	Vel 12.5			
Run # 19 Comp : Mean :	Wind 60.0 Fx 1.430	Elev 65.0 Fy .069	Vel 12.5 Fz 517	Mx .062	My .104	Mz .000
Run # 19 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.430 2.954 .313 .399	Elev 65.0 Fy .069	Vel 12.5 517 153 -1.058 .130	Mx .062 .024	My .104 .262 128 .040	Mz .000 .000 .000 .000
Run # 19 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx 1.430 2.954 .313 .399 2.067 3.823	Elev 65.0 .069 .019	Vel 12.5 517 153 -1.058 .130 2.045 4.143	Mx .062 .024	My .104 .262 128 .040 .000 .000	Mz .000 .000 .000 .000 .000
Run # 19 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 20	Wind 60.0 Fx 1.430 2.954 .313 .399 2.067 3.823 Wind 60.0	Elev 65.0 .069 .019 Elev 60.0	Vel 12.5 517 153 -1.058 .130 2.045 4.143 Vel 12.7	Mx .062 .024	My .104 .262 128 .040 .000 .000	Mz .000 .000 .000 .000 .000
Run # 19 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 20 Comp : Mean :	Wind 60.0 Fx 1.430 2.954 .313 .399 2.067 3.823 Wind 60.0 Fx 1.388	Elev 65.0 .069 .019 Elev 60.0 Fy .085	Vel 12.5 Fz 517 153 -1.058 .130 2.045 4.143 Vel 12.7 Fz 650	Mx .062 .024 .024 .079	My .104 .262 128 .040 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 19 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 20 Comp : Mean : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.430 2.954 .313 .399 2.067 3.823 Wind 60.0 Fx 1.388 2.788 .266 .382	Elev 65.0 .069 .019 Elev 60.0 Fy .085 .023	Vel 12.5 Fz 517 153 -1.058 .130 2.045 4.143 Vel 12.7 Fz 650 190 -1.237 .164	Mx .062 .024 .024 .079 .031	My .104 .262 128 .040 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 21	Wind 60.0	Elev 55.0	Vel 12.8				
Comp : Mean :	Fx 1.257	Fy .074	Fz 781	Mx .089	Му .068	Mz .000	
Max : Min : Rms :	2.765 .291 .365	.021	337 -1.647 .210	.038	.184 277 .030	.000 .000 .000	
Gfac : Pfac :	2.199 4.132		2.109 4.127		.000 .000	.000 .000	
Run # 22	Wind 60.0	Elev 50.0	Vel 12.9				
Comp : Mean :	Fx 1.166	Fy .073	Fz 857	Mx .092	Му .054	Mz .000	
Max : Min : Rms :	2.472 .287 .333	.021	287 -1.683 .227	.045	.128 299 .026	.000 .000 .000	
Gfac : Pfac :	2.121 3.928		1.965 3.646		.000 .000 ·	.000 .000	
Run # 23	Wind 60.0	Elev 45.0	Vel 12.8				
Run # 23 Comp : Mean :	Wind 60.0 Fx 1.034	Elev 45.0 Fy .087	Vel 12.8 Fz 885	Mx .092	My .041	Mz .000	
Run # 23 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.034 2.533 .165 .317	Elev 45.0 Fy .087	Vel 12.8 885 261 -2.126 .258	Mx .092 .050	My .041 .108 425 .022	Mz .000 .000 .000 .000	
Run # 23 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx 1.034 2.533 .165 .317 2.449 4.729	Elev 45.0 Fy .087	Vel 12.8 885 261 -2.126 .258 2.403 4.815	Mx .092 .050	My .041 .108 425 .022 .000 .000	Mz .000 .000 .000 .000 .000 .000	
Run # 23 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 24	Wind 60.0 Fx 1.034 2.533 .165 .317 2.449 4.729 Wind 60.0	Elev 45.0 Fy .087 .027 Elev 40.0	Vel 12.8 Fz 885 261 -2.126 .258 2.403 4.815 Vel 12.6	Mx .092 .050	My .041 .108 425 .022 .000 .000	Mz .000 .000 .000 .000 .000	
Run # 23 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 24 Comp : Mean :	Wind 60.0 Fx 1.034 2.533 .165 .317 2.449 4.729 Wind 60.0 Fx .852	Elev 45.0 .087 .027 Elev 40.0 Fy .093	Vel 12.8 Fz 885 261 -2.126 .258 2.403 4.815 Vel 12.6 Fz 926	Mx .092 .050 Mx .085	My .041 .108 425 .022 .000 .000	Mz .000 .000 .000 .000 .000 .000	
Run # 23 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 24 Comp : Mean : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.034 2.533 .165 .317 2.449 4.729 Wind 60.0 Fx .852 1.915 .128 .268	Elev 45.0 .087 .027 Elev 40.0 .093 .029	Vel 12.8 885 261 -2.126 .258 2.403 4.815 Vel 12.6 Fz 926 254 -2.055 .274	Mx .092 .050 .050 .085 .085	My .041 .108 425 .022 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0	

Run # 25	Wind 60.0	Elev 35.0	Vel 12.8			
Comp : Mean :	Fx .698	Fy .103	Fz 904	Mx .074	Му .025	Mz .000
Max : Min : Rms :	1.683 .110 .235	.035	268 -2.027 .291	.052	.076 448 .018	.000 .000 .000
Gfac : Pfac :	2.411 4.188		2.244 3.858		.000 .000	.000 .000
Run # 26	Wind 60.0	Elev 30.0	Vel 12.8			
Comp : Mean :	Fx . 552	Fy .100	Fz 891	Mx .055	Му .022	Mz .000
Max : Min : Rms :	1.317 032 .191	.035	268 -2.019 .285	.051	.082 456 .020	.000 .000 .000
Gfac : Pfac :	2.383 4.001		2.265 3.961		.000 .000	.000 .000
Run # 27	Wind 60.0	Elev 20.0	Vel 12.8			
Run # 27 Comp : Mean :	Wind 60.0 Fx .310	Elev 20.0 Fy .114	Vel 12.8 Fz 761	Mx .016	Му .019	Mz .000
Run # 27 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx .310 .763 073 .109	Elev 20.0 Fy .114 .040	Vel 12.8 761 020 -1.770 .258	Mx .016 .029	My .019 .150 343 .034	Mz .000 .000 .000 .000
Run # 27 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx .310 .763 073 .109 2.460 4.145	Elev 20.0 Fy .114 .040	Vel 12.8 Fz 761 020 -1.770 .258 2.327 3.919	Mx .016 .029	My .019 .150 343 .034 .000 .000	Mz .000 .000 .000 .000 .000
Run # 27 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 28	Wind 60.0 Fx .310 .763 073 .109 2.460 4.145 Wind 60.0	Elev 20.0 Fy .114 .040 Elev 10.0	Vel 12.8 Fz 761 020 -1.770 .258 2.327 3.919 Vel 12.8	Mx .016 .029	My .019 .150 343 .034 .000 .000	Mz .000 .000 .000 .000 .000
Run # 27 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 28 Comp : Mean :	Wind 60.0 Fx .310 .763 073 .109 2.460 4.145 Wind 60.0 Fx .129	Elev 20.0 Fy .114 .040 Elev 10.0 Fy .124	Vel 12.8 Fz 761 020 -1.770 .258 2.327 3.919 Vel 12.8 Fz 628	Mx .016 .029 Mx 026	My .019 .150 343 .034 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 27 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 28 Comp : Mean : Mean : Max : Min : Rms :	Wind 60.0 Fx .310 .763 073 .109 2.460 4.145 Wind 60.0 Fx .129 .354 095 .049	Elev 20.0 Fy .114 .040 Elev 10.0 Fy .124 .047	Vel 12.8 Fz 761 020 -1.770 .258 2.327 3.919 Vel 12.8 Vel 12.8 Fz 628 112 -1.468 .222	Mx .016 .029 .029 .026	My .019 .150 343 .034 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

	Run # 29	Wind 30.0	Elev 80.0	Vel 12.4			
	Comp : Mean :	Fx 1.625	Fy .114	Fz 184	Mx .011	Му .121	Mz .000
	Max : Min : Rms :	3.117 .589 .376	.026	044 372 .043	.003	.294 .013 .040	.000 .000 .000
	Gfac : Pfac :	1.918 3.967		2.026 4.350		.000 .000	.000 .000
	Run # 30	Wind 30.0	Elev 70.0	Vel 12.7			
	Comp : Mean :	Fx 1.564	Fy .148	Fz 554	Mx .021	Му .113	Mz .000
	Max : Min : Rms :	2.933 .510 .368	.035	256 985 .119	.007	.275 .003 .038	.000 .000 .000
	Gfac : Pfac :	1.876 3.727		1.779 3.631		.000 .000	.000 .000
	Run # 31	Wind 30.0	Elev 60.0	Vel 12.7			
	Run # 31 Comp : Mean :	Wind 30.0 Fx 1.460	Elev 60.0 Fy .164	Vel 12.7 Fz 858	Mx .035	Му .072	Mz .000
	Run # 31 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx 1.460 2.821 .427 .346	Elev 60.0 Fy .164 .039	Vel 12.7 Fz 858 363 -1.617 .190	Mx .035 .014	My .072 .196 036 .030	Mz .000 .000 .000 .000
	Run # 31 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx 1.460 2.821 .427 .346 1.932 3.933	Elev 60.0 Fy .164	Vel 12.7 Fz 858 363 -1.617 .190 1.885 4.002	Mx .035 .014	My .072 .196 036 .030 .000 .000	Mz .000 .000 .000 .000 .000
•	Run # 31 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 32	Wind 30.0 Fx 1.460 2.821 .427 .346 1.932 3.933 Wind 30.0	Elev 60.0 Fy .164 .039 Elev 50.0	Vel 12.7 Fz 858 363 -1.617 .190 1.885 4.002 Vel 12.6	Mx .035 .014	My .072 .196 .036 .030 .000 .000	Mz .000 .000 .000 .000 .000
•	Run # 31 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 32 Comp : Mean :	Wind 30.0 Fx 1.460 2.821 .427 .346 1.932 3.933 Wind 30.0 Fx 1.377	Elev 60.0 Fy .164 .039 Elev 50.0 Fy .155	Vel 12.7 Fz 858 363 -1.617 .190 1.885 4.002 Vel 12.6 Fz -1.104	Mx .035 .014 .014	My .072 .196 .036 .030 .000 .000	Mz .000 .000 .000 .000 .000 .000
•	Run # 31 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 32 Comp : Mean : Mean : Max : Min : Rms :	Wind 30.0 Fx 1.460 2.821 .427 .346 1.932 3.933 Wind 30.0 Fx 1.377 2.786 .411 .311	Elev 60.0 Fy .164 .039 Elev 50.0 Fy .155 .035	Vel 12.7 Fz 858 363 -1.617 .190 1.885 4.002 Vel 12.6 Fz -1.104 557 -2.140 .237	Mx .035 .014 .014 Mx .045 .023	My .072 .196 .036 .030 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 33	Wind 30.0	Elev 40.0	Vel 12.5			
Comp : Mean :	Fx 1.233	Fy .176	Fz -1.519	Мх .089	Му 036	Mz .000
Max : Min : Rms :	2.219 .290 .285	.041	681 -2.692 .337	.036	062 246 .015	.000 .000 .000
Gfac : Pfac :	1.800 3.465		1.772 3.484		.000 .000	.000 .000
Run # 34	Wind 30.0	Elev 30.0	Vel 12.8			
Comp : Mean :	Fx .874	Fy .146	Fz -1.491	Mx .098	Му 080	Mz .000
Max : Min : Rms :	1.700 .144 .227	.038	578 -2.874 .385	.040	127 321 .033	.000 .000 .000
Gfac : Pfac :	1.945 3.640		1.928 3.594		.000 .000	.000 .000
Run # 35	Wind 30.0	Elev 20.0	Vel 12.7			
Run # 35 Comp : Mean :	Wind 30.0 Fx .435	Elev 20.0 Fy .123	Vel 12.7 Fz -1.151	Мх .058	My 051	Mz .000
Run # 35 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .435 .911 090 .128	Elev 20.0 Fy .123	Vel 12.7 Fz -1.151 201 -2.470 .352	Mx .058 .041	My 051 100 261 .036	Mz .000 .000 .000 .000
Run # 35 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx .435 .911 090 .128 2.093 3.726	Elev 20.0 Fy .123	Vel 12.7 Fz -1.151 -2.01 -2.470 .352 2.145 3.748	Mx .058 .041	My 051 100 261 .036 .000 .000	Mz .000 .000 .000 .000 .000
Run # 35 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 36	Wind 30.0 Fx .435 .911 090 .128 2.093 3.726 Wind 30.0	Elev 20.0 Fy .123 .036 Elev 10.0	Vel 12.7 Fz -1.151 -2.01 -2.470 .352 2.145 3.748 Vel 13.0	Mx .058 .041	My 051 100 261 .036 .000 .000	Mz .000 .000 .000 .000 .000
Run # 35 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 36 Comp : Mean :	Wind 30.0 Fx .435 .911 090 .128 2.093 3.726 Wind 30.0 Fx .235	Elev 20.0 .123 .036 Elev 10.0 Fy .100	Vel 12.7 Fz -1.151 -2.470 .352 2.145 3.748 Vel 13.0 Fz 817	Mx .058 .041 .041 Mx .019	My 051 100 261 .036 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 35 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 36 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .435 .911 090 .128 2.093 3.726 Wind 30.0 Fx .235 .497 188 .074	Elev 20.0 .123 .036 Elev 10.0 .Fy .100 .031	Vel 12.7 Fz -1.151 -2.470 .352 2.145 3.748 Vel 13.0 Fz 817 173 -1.850 .277	Mx .058 .041 .041 .019 .039	My 051 100 261 .036 .000 .000 .000 .000 008 059 189 .016	Mz .000 .000 .000 .000 .000 .000 .000 .0

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	Run # 37	Wind 90.0	Elev 75.0	Vel 13.0			
	Comp : Mean :	Fx .191	Fy .116	Fz 050	Mx 028	Му .023	Mz .000
	Max : Min : Rms :	1.213 585 .193	.117	.068 183 .033	.026	.142 069 .021	.000 .000 .000
	Gfac : Pfac :	6.341 5.291		3.678 4.066		.000 .000	.000 .000
	Run # 38	Wind 90.0	Elev 60.0	Vel 12.9			
	Comp : Mean :	Fx .210	Fy .126	Fz 124	Мх 044	Му .023	Mz .000
	Max : Min : Rms :	1.158 602 .183	.109	.156 449 .079	.035	.152 076 .018	.000 .000 .000
	Gfac : Pfac :	5.511 5.194		3.607 4.114		.000 .000	.000 .000
	Run # 39	Wind 90.0	Elev 45.0	Vel 12.7			
	Comp : Mean :	Fx .191	Fy .129	Fz 229	Мх 062	Му .020	Mz .000
	Max : Min : Rms :	.867 428 .143	.096	.234 792 .141	.042	.160 081 .013	.000 .000 .000
	Gfac : Pfac :	4.530 4.719		3.450 3.980		.000 .000	.000 .000
*3	Run # 40	Wind 90.0	Elev 30.0	Vel 12.9			
	Comp : Mean :	Fx .145	Fy .131	Fz 290	Mx 067	Му .018	Mz .000
	Max : Min : Rms :	.635 236 .094	.085	.220 910 .165	.041	.149 060 .011	.000 .000 .000
	Gfac : Pfac :	4.370 5.193		3.139 3.756		.000 .000	.000 .000

Run # 41	Wind 90.0	Elev 15.0	Vel 12.7			
Comp : Mean :	Fx .063	Fy .131	Fz 357	Мх 076	Му .011	Mz .000
Max : Min : Rms :	.312 142 .034	.070	.102 -1.013 .181	.037	.129 079 .005	.000 .000 .000
Gfac : Pfac :	4.947 7.382		2.836 3.621		.000 .000	.000 .000
Run # 42	Wind 10.0	Elev 90.0	Vel 12.5			
Comp : Mean :	Fx 1.649	Fy .081	Fz .051	Mx .002	Му .118	Mz .000
Max : Min : Rms :	3.090 .371 .371	.018	.165 061 .032	.001	.280 .014 .041	.000 .000 .000
Gfac : Pfac :	1.874 3.889		3.255 3.610		.000 .000	.000 .000
Run # 43	Wind 10.0	Elev 60.0	Vel 12.9			
Run # 43 Comp : Mean :	Wind 10.0 Fx 1.487	Elev 60.0 Fy .158	Vel 12.9 Fz 931	Mx .018	My .058	Mz .000
Run # 43 Comp : Mean : Max : Min : Rms :	Wind 10.0 Fx 1.487 2.672 026 .342	Elev 60.0 Fy .158	Vel 12.9 Fz 931 390 -1.632 .205	Mx .018 .010	My .058 .205 128 .031	Mz .000 .000 .000 .000
Run # 43 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 10.0 Fx 1.487 2.672 026 .342 1.797 3.464	Elev 60.0 Fy .158	Vel 12.9 Fz 931 390 -1.632 .205 1.752 3.420	Mx .018 .010	My .058 .205 128 .031 .000 .000	Mz .000 .000 .000 .000 .000
Run # 43 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 44	Wind 10.0 Fx 1.487 2.672 026 .342 1.797 3.464 Wind 10.0	Elev 60.0 Fy .158 .036 Elev 30.0	Vel 12.9 Fz 931 390 -1.632 .205 1.752 3.420 Vel 13.0	Mx .018 .010	My .058 .205 128 .031 .000 .000	Mz .000 .000 .000 .000 .000
Run # 43 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 44 Comp : Mean :	Wind 10.0 Fx 1.487 2.672 026 .342 1.797 3.464 Wind 10.0 Fx .931	Elev 60.0 .158 .036 Elev 30.0 Fy .187	Vel 12.9 Fz 931 390 -1.632 .205 1.752 3.420 Vel 13.0 Fz -1.643	Mx .018 .010 .010 Mx .045	My .058 .205 128 .031 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 43 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 44 Comp : Mean : Mean : Max : Min : Rms :	Wind 10.0 Fx 1.487 2.672 026 .342 1.797 3.464 Wind 10.0 Fx .931 1.605 802 .219	Elev 60.0 .158 .036 Elev 30.0 .Fy .187 .044	Vel 12.9 Fz 931 390 -1.632 .205 1.752 3.420 Vel 13.0 Vel 13.0 Fz -1.643 733 -2.808 .385	Mx .018 .010 .010 .045 .016	My .058 .205 128 .031 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 45	Wind 10.0	Elev .0	Vel 12.8			
Comp : Mean :	Fx .133	Fy .093	Fz 462	Mx 004	My .075	Mz .000
Max : Min : Rms :	.337 -1.459 .052	.036	.070 -1.113 .199	.002	.234 532 .039	.000 .000 .000
Gfac : Pfac :	2.543 3.940	η	2.410 3.269		.000 .000	.000 .000
Run # 46	Wind 20.0	Elev 90.0	Vel 12.8			
Comp : Mean :	Fx 1.554	Fy 251	Fz .050	Mx .027	Му .116	Mz .000
Max : Min : Rms :	2.816 .615 .351	.057	.168 027 .028	.008	.251 .014 .036	.000 .000 .000
Gfac : Pfac :	1.812 3.596		3.325 4.169		.000 .000	.000 .000
Run # 47	Wind 20.0	Elev 60.0	Vel 12.8			
Run # 47 Comp : Mean :	Wind 20.0 Fx 1.411	Elev 60.0 Fy 176	Vel 12.8 Fz 872	Mx .052	Му .055	Mz .000
Run # 47 Comp : Mean : Max : Min : Rms :	Wind 20.0 Fx 1.411 2.516 .573 .344	Elev 60.0 Fy 176 .043	Vel 12.8 Fz 872 403 -1.513 .196	Mx .052 .022	My .055 .146 064 .024	Mz .000 .000 .000 .000
Run # 47 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 20.0 Fx 1.411 2.516 .573 .344 1.784 3.218	Elev 60.0 176 .043	Vel 12.8 Fz 872 403 -1.513 .196 1.735 3.261	Mx .052 .022	My .055 .146 064 .024 .000 .000	Mz .000 .000 .000 .000 .000
Run # 47 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 48	Wind 20.0 Fx 1.411 2.516 .573 .344 1.784 3.218 Wind 20.0	Elev 60.0 Fy 176 .043 Elev 30.0	Vel 12.8 Fz 872 403 -1.513 .196 1.735 3.261 Vel 12.8	Mx .052 .022	My .055 .146 064 .024 .000 .000	Mz .000 .000 .000 .000 .000
Run # 47 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 48 Comp : Mean :	Wind 20.0 Fx 1.411 2.516 .573 .344 1.784 3.218 Wind 20.0 Fx .714	Elev 60.0 176 .043 Elev 30.0 Fy 020	Vel 12.8 Fz 872 403 -1.513 .196 1.735 3.261 Vel 12.8 Fz -1.366	Mx .052 .022 .022 .075	My .055 .146 064 .024 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 47 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 48 Comp : Mean : Mean : Max : Min : Rms :	Wind 20.0 Fx 1.411 2.516 .573 .344 1.784 3.218 Wind 20.0 Fx .714 1.420 .104 .192	Elev 60.0 Fy 176 .043 Elev 30.0 Fy 020 .005	Vel 12.8 Fz 872 403 -1.513 .196 1.735 3.261 Vel 12.8 Fz -1.366 500 -2.666 .368	Mx .052 .022 .022 .075 .036	My .055 .146 064 .024 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 49	Wind 20.0	Elev .0	Vel 12.9			
Comp : Mean :	Fx .109	Fy .117	Fz 357	Mx 024	Му .081	Mz .000
Max : Min : Rms :	.264 689 .044	.048	.121 986 .185	.010	.223 170 .035	.000 .000 .000
Gfac : Pfac :	2.426 3.490		2.760 3.402		.000 .000	.000 .000
Run # 50	Wind 30.0	Elev 90.0	Vel 12.6			
Comp : Mean :	Fx 1.583	Fy .163	Fz .109	Мх 007	Му .126	Mz .000
Max : Min : Rms :	3.010 .497 .380	.039	.293 .004 .038	.002	.310 .019 .040	.000 .000 .000
Gfac : Pfac :	1.901 3.752		2.681 4.783		.000 .000	.000 .000
Run # 51	Wind 30.0	Elev .0	Vel 12.7			
Comp : Mean :	Fx .095	Fy .120	Fz 349	Мх 039	My .075	Mz .000
Max : Min : Rms :	.251 478 .040	.050	.124 -1.190 .190	.018	.211 198 .034	.000 .000 .000
Gfac : Pfac :	2.650 3.928		3.404 4.421		.000 .000	.000 .000
Run # 52	Wind 40.0	Elev 90.0	Vel 12.7			
Comp : Mean :	Fx 1.518	Fy 087	Fz 017	Mx .021	Му .123	Mz .000
Max : Min : Rms :	2.989 .374 .378	.022	.065 087 .022	.006	.294 .013 .037	.000 .000 .000

Run # 53	Wind 40.0	Elev 60.0	Vel 12.9			
Comp : Mean :	Fx 1.475	Fy 035	Fz 827	Mx .064	My .067	Mz .000
Max : Min : Rms :	2.814 .446 .383	.009	314 -1.507 .195	.025	.171 067 .026	.000 .000 .000
Gfac : Pfac :	1.908 3.493		1.822 3.494		.000 .000	.000 .000
Run # 54	Wind 40.0	Elev 30.0	Vel 12.7			
Comp : Mean :	Fx .742	Fy .068	Fz -1.273	Мх .098	Му 038	Mz .000
Max : Min : Rms :	1.502 .034 .203	.019	420 -2.499 .335	.051	088 343 .020	.000 .000 .000
Gfac : Pfac :	2.023 3.743		1.963 3.660		.000 .000	.000 .000
Run # 55	Wind 40.0	Elev .0	Vel 12.9			
Run # 55 Comp : Mean :	Wind 40.0 Fx .075	Elev .0 Fy .128	Vel 12.9 Fz 371	Mx 048	Му .062	Mz .000
Run # 55 Comp : Mean : Max : Min : Rms :	Wind 40.0 Fx .075 .179 314 .030	Elev .0 Fy .128 .051	Vel 12.9 Fz 371 .141 -1.135 .194	Mx 048 .023	My .062 .191 147 .029	Mz .000 .000 .000 .000
Run # 55 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 40.0 Fx .075 .179 314 .030 2.373 3.447	Elev .0 Fy .128	Vel 12.9 Fz 371 .141 -1.135 .194 3.058 3.928	Mx 048 .023	My .062 .191 147 .029 .000 .000	Mz .000 .000 .000 .000 .000
Run # 55 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 56	Wind 40.0 Fx .075 .179 314 .030 2.373 3.447 Wind 45.0	Elev .0 .128 .051 Elev 90.0	Vel 12.9 Fz 371 .141 -1.135 .194 3.058 3.928 Vel 12.9	Mx 048 .023	My .062 .191 147 .029 .000 .000	Mz .000 .000 .000 .000 .000
Run # 55 Mean : Max : Min : Rms : Gfac : Pfac : Run # 56 Comp : Mean :	Wind 40.0 Fx .075 .179 314 .030 2.373 3.447 Wind 45.0 Fx 1.538	Elev .0 Fy .128 .051 Elev 90.0 Fy 097	Vel 12.9 Fz 371 .141 -1.135 .194 3.058 3.928 Vel 12.9 Fz .066	Mx 048 .023 Mx .016	My .062 .191 147 .029 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 55 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 56 Comp : Mean : Mean : Min : Rms :	Wind 40.0 Fx .075 .179 314 .030 2.373 3.447 Wind 45.0 Fx 1.538 3.129 .524 .371	Elev .0 .051 .051 Elev 90.0 Fy 097 .023	Vel 12.9 Fz 371 .141 -1.135 .194 3.058 3.928 Vel 12.9 Fz .066 .183 023 .029	Mx 048 .023 .023 Mx .016 .005	My .062 .191 147 .029 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 57	Wind 45.0	Elev 45.0	Vel 13.1			
Comp : Mean :	Fx 1.119	Fy .016	Fz -1.152	Mx .117	My 001	Mz .000
Max : Min : Rms :	2.137 .278 .282	.004	364 -2.187 .287	.047	003 279 .000	.000 .000 .000
Gfac : Pfac :	1.910 3.608		1.898 3.607		.000 .000	.000 .000
Run # 58	Wind 45.0	Elev 60.0	Vel 13.0			
Comp : Mean :	Fx 1.450	Fy 011	Fz 880	Mx .089	My .061	Mz .000
Max : Min : Rms :	2.919 .476 .360	.003	389 -1.708 .196	.032	.160 124 .022	.000 .000 .000
Gfac : Pfac :	2.013 4.081		1.942 4.226		.000 .000	.000 .000
Run # 59	Wind 45.0	Elev 30.0	Vel 12.7			
Run # 59 Comp : Mean :	Wind 45.0 Fx .652	Elev 30.0 Fy .086	Vel 12.7 Fz -1.166	. Мх . 090	Му 020	Mz .000
Run # 59 Comp : Mean : Max : Min : Rms :	Wind 45.0 Fx .652 1.313 .015 .189	Elev 30.0 .086	Vel 12.7 -1.166 380 -2.267 .320	• Mx • 090 • 056	My 020 048 330 .013	Mz .000 .000 .000 .000
Run # 59 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 45.0 Fx .652 1.313 .015 .189 2.015 3.506	Elev 30.0 .086	Vel 12.7 -1.166 380 -2.267 .320 1.943 3.438	• Mx • 090	My 020 048 330 .013 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 59 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 60	Wind 45.0 Fx .652 1.313 .015 .189 2.015 3.506 Wind 45.0	Elev 30.0 .086 .025 Elev .0	Vel 12.7 -1.166 380 -2.267 .320 1.943 3.438 Vel 12.7	• Mx .090	My 020 048 330 .013 .000 .000	Mz .000 .000 .000 .000 .000
Run # 59 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 60 Comp : Mean :	Wind 45.0 Fx .652 1.313 .015 .189 2.015 3.506 Wind 45.0 Fx .050	Elev 30.0 .086 .025 Elev .0 Fy .135	Vel 12.7 Fz -1.166 380 -2.267 .320 1.943 3.438 Vel 12.7 Fz 395	Мх .090 .056 Мх 060	My 020 048 330 .013 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 59 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 60 Comp : Mean : Max : Min : Rms :	Wind 45.0 Fx .652 1.313 .015 .189 2.015 3.506 Wind 45.0 Fx .050 .121 294 .020	Elev 30.0 .086 .025 Elev .0 .135 .056	Vel 12.7 Fz -1.166 380 -2.267 .320 1.943 3.438 Vel 12.7 Fz 395 .122 -1.099 .192	Мх .090 .056 .056 060 .026	My 020 048 330 .013 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 61	Wind 50.0	Elev 90.0	Vel 12.8			
Comp : Mean :	Fx 1.516	Fy 098	Fz .106	Mx .013	Му .130	Mz .000
Max : Min : Rms :	3.110 .501 .398	.026	.275 020 .042	.004	.294 .007 .041	.000 .000 .000
Gfac : Pfac :	2.051 4.002		2.589 4.064		.000 .000	.000 .000
Run # 62	Wind 50.0	Elev 60.0	Vel 12.8			
Comp : Mean :	Fx 1.419	Fy 015	Fz 807	Mx .091	Му .062	Mz .000
Max : Min : Rms :	2.806 .475 .376	.004	339 -1.507 .199	.034	.148 153 .023	.000 .000 .000
Gfac : Pfac :	1.977 3.692		1.868 3.518		.000 .000	.000 .000
Run # 63	Wind 50.0	Elev 30.0	Vel 12.7			
Run # 63 Comp : Mean :	Wind 50.0 Fx .636	Elev 30.0 Fy .079	Vel 12.7 Fz -1.050	Mx .080	Му 004	Mz .000
Run # 63 Comp : Mean : Max : Min : Rms :	Wind 50.0 Fx .636 1.422 .009 .200	Elev 30.0 Fy .079	Vel 12.7 Fz -1.050 328 -2.144 .313	Mx .080 .056	My 004 333 .002	Mz .000 .000 .000 .000
Run # 63 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 50.0 Fx .636 1.422 .009 .200 2.235 3.929	Elev 30.0 Fy .079	Vel 12.7 Fz -1.050 328 -2.144 .313 2.042 3.496	Mx .080 .056	My 004 009 333 .002 .000 .000	Mz .000 .000 .000 .000 .000
Run # 63 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 64	Wind 50.0 Fx .636 1.422 .009 .200 2.235 3.929 Wind 50.0	Elev 30.0 Fy .079 .025 Elev .0	Vel 12.7 Fz -1.050 328 -2.144 .313 2.042 3.496 Vel 13.0	Mx .080 .056	My 004 333 .002 .000 .000	Mz .000 .000 .000 .000 .000
Run # 63 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 64 Comp : Mean :	Wind 50.0 Fx .636 1.422 .009 .200 2.235 3.929 Wind 50.0 Fx .051	Elev 30.0 Fy .079 .025 Elev .0 Fy .138	Vel 12.7 -1.050 328 -2.144 .313 2.042 3.496 Vel 13.0 Fz 401	Mx .080 .056 Mx 057	My 004 009 333 .002 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 63 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 64 Comp : Mean : Mean : Max : Rms :	Wind 50.0 Fx .636 1.422 .009 .200 2.235 3.929 Wind 50.0 Fx .051 .144 242 .020	Elev 30.0 .079 .025 Elev .0 .138 .054	Vel 12.7 Fz -1.050 328 -2.144 .313 2.042 3.496 Vel 13.0 Fz 401 .054 -1.129 .190	Mx .080 .056 .057 .026	My 004 009 333 .002 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 65	Wind 55.0	Elev 90.0	Vel 12.8			
Comp : Mean :	Fx 1.519	Fy 026-	Fz .156	Mx .005	Му .137	Mz .000
Max : Min : Rms :	3.119 .408 .380	.007	.354 .008 .050	.002	.347 006 .042	.000 .000 .000
Gfac : Pfac :	2.053 4.212		2.265 3.964		.000 .000	.000 .000
Run # 67	Wind 55.0	Elev 60.0	Vel 12.9			
Comp : Mean :	Fx 1.415	Fy .045	Fz 752	Мх .088	My .071	Mz .000
Max : Min : Rms :	2.890 .416 .360	.011	270 -1.478 .183	.033	.180 204 .027	.000 .000 .000
Gfac : Pfac :	2.042 4.102		1.967 3.971		.000 .000	.000 .000
Run # 68	Wind 55.0	Elev 30.0	Vel 12.8			
Run # 68 Comp : Mean :	Wind 55.0 Fx .548	Elev 30.0 Fy .108	Vel 12.8 Fz 957	Мх .067	Му .006	Mz .000
Run # 68 Comp : Mean : Max : Min : Rms :	Wind 55.0 Fx .548 1.248 044 .177	Elev 30.0 Fy .108	Vel 12.8 Fz 957 213 -2.022 .289	Mx .067 .053	My .006 .020 343 .004	Mz .000 .000 .000 .000
Run # 68 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 55.0 Fx .548 1.248 044 .177 2.279 3.959	Elev 30.0 Fy .108	Vel 12.8 Fz 957 213 -2.022 .289 2.112 3.688	Mx .067 .053	My .006 .020 343 .004 .000 .000	Mz .000 .000 .000 .000 .000
Run # 68 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 69	Wind 55.0 Fx .548 1.248 044 .177 2.279 3.959 Wind 55.0	Elev 30.0 Fy .108 .035 Elev .0	Vel 12.8 Fz 957 213 -2.022 .289 2.112 3.688 Vel 12.9	Mx .067 .053	My .006 .020 343 .004 .000 .000	Mz .000 .000 .000 .000 .000
Run # 68 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 69 Comp : Mean :	Wind 55.0 Fx .548 1.248 044 .177 2.279 3.959 Wind 55.0 Fx .033	Elev 30.0 Fy .108 .035 Elev .0 Fy .146	Vel 12.8 957 213 -2.022 .289 2.112 3.688 Vel 12.9 Fz 412	Mx .067 .053 Mx 056	My .006 .020 343 .004 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 68 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 69 Comp : Mean : Mean : Max : Min : Rms :	Wind 55.0 Fx .548 1.248 044 .177 2.279 3.959 Wind 55.0 Fx .033 .071 256 .013	Elev 30.0 Fy .108 .035 Elev .0 Fy .146 .057	Vel 12.8 Fz 957 213 -2.022 .289 2.112 3.688 Vel 12.9 Fz 412 .059 -1.107 .188	Mx .067 .053 .053 .056 .029	My .006 .020 343 .004 .000 .000 .000 .000 .000 .040 .124 114 .021	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 71	Wind 60.0	Elev 90.0	Vel 12.9			
Comp : Mean :	Fx 1.426	Fy .002	Fz .152	Mx .001	Му .142	Mz .000
Max : Min : Rms :	2.893 .489 .408	.000	.350 .010 .054	.000	.335 .001 .049	.000 .000 .000
Gfac : Pfac :	2.028 3.590		2.300 3.644		.000 .000	.000 .000
Run # 72	Wind 60.0	Elev .0	Vel 12.7			
Comp : Mean :	Fx .025	Fy .147	Fz 425	Мх 069	Му .039	Mz .000
Max : Min : Rms :	.061 205 .010	.060	.100 -1.177 .207	.033	.116 095 .019	.000 .000 .000
Gfac : Pfac :	2.489 3.653		2.768 3.629		.000 .000	.000 .000
Run # 73	Wind 65.0	Elev 90.0	Vel 12.8			
Run # 73 Comp : Mean :	Wind 65.0 Fx 1.324	Elev 90.0 Fy .034	Vel 12.8 Fz .088	Mx .001	Му .144	Mz .000
Run # 73 Comp : Mean : Max : Min : Rms :	Wind 65.0 Fx 1.324 3.025 .403 .397	Elev 90.0 Fy .034	Vel 12.8 Fz .088 .325 065 .054	Mx .001 .000	My .144 .374 .016 .050	Mz .000 .000 .000 .000
Run # 73 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 65.0 Fx 1.324 3.025 .403 .397 2.285 4.280	Elev 90.0 Fy .034	Vel 12.8 Fz .088 .325 065 .054 3.702 4.412	Mx .001 .000	My .144 .374 .016 .050 .000 .000	Mz .000 .000 .000 .000 .000
Run # 73 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 74	Wind 65.0 Fx 1.324 3.025 .403 .397 2.285 4.280 Wind 65.0	Elev 90.0 Fy .034 .010 Elev 60.0	Vel 12.8 Fz .088 .325 .065 .054 3.702 4.412 Vel 12.7	Mx .001 .000	My .144 .374 .016 .050 .000 .000	Mz .000 .000 .000 .000 .000
Run # 73 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 74 Comp : Mean :	Wind 65.0 Fx 1.324 3.025 .403 .397 2.285 4.280 Wind 65.0 Fx 1.185	Elev 90.0 Fy .034 .010 Elev 60.0 Fy .089	Vel 12.8 Fz .088 .325 065 .054 3.702 4.412 Vel 12.7 Fz 634	Mx .001 .000 .000 Mx .072	My .144 .374 .016 .050 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 73 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 74 Comp : Mean : Max : Min : Rms :	Wind 65.0 Fx 1.324 3.025 .403 .397 2.285 4.280 Wind 65.0 Fx 1.185 2.463 .234 .365	Elev 90.0 Fy .034 .010 Elev 60.0 Fy .089 .028	Vel 12.8 Fz .088 .325 .065 .054 3.702 4.412 Vel 12.7 Fz .634 228 -1.184 .177	Mx .001 .000 .000 Mx .072 .035	My .144 .374 .016 .050 .000 .000 .000 .000 .000 .000 .00	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 75	Wind 65.0	Elev 30.0	Vel 12.7			
Comp : Mean :	Fx .454	Fy .129	Fz 814	Mx .039	My .025	Mz .000
Max : Min : Rms :	1.030 015 .158	.045	191 -1.820 .263	.041	.113 412 .026	.000 .000 .000
Gfac : Pfac :	2.271 3.638		2.235 3.819		.000 .000	.000 .000
Run # 76	Wind 65.0	Elev .0	Vel 12.7			
Comp : Mean :	Fx .009	Fy .144	Fz 393	Мх 071	Му .031	Mz .000
Max : Min : Rms :	.022 189 .004	.058	.299 -1.129 .190	.034	.098 079 .015	.000 .000 .000
Gfac : Pfac :	2.347 3.355		2.872 3.882		.000 .000	.000 .000
Run # 77	Wind 70.0	Elev 90.0	Vel 12.7			
Run # 77 Comp : Mean :	Wind 70.0 Fx 1.044	Elev 90.0 Fy .032	Vel 12.7 Fz .162	Mx 002	Му .117	Mz .000
Run # 77 Comp : Mean : Max : Min : Rms :	Wind 70.0 Fx 1.044 2.525 .103 .352	Elev 90.0 Fy .032	Vel 12.7 Fz .162 .421 004 .065	Mx 002 .001	My .117 .297 004 .046	Mz .000 .000 .000 .000
Run # 77 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 70.0 Fx 1.044 2.525 .103 .352 2.418 4.202	Elev 90.0 Fy .032	Vel 12.7 Fz .162 .421 004 .065 2.588 3.945	Mx 002 .001	My .117 .297 004 .046 .000 .000	Mz .000 .000 .000 .000 .000
Run # 77 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 78	Wind 70.0 Fx 1.044 2.525 .103 .352 2.418 4.202 Wind 70.0	Elev 90.0 Fy .032 .011 Elev 60.0	Vel 12.7 Fz .162 .421 004 .065 2.588 3.945 Vel 12.9	Mx 002 .001	My .117 .297 004 .046 .000 .000	Mz .000 .000 .000 .000 .000
Run # 77 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 78 Comp : Mean :	Wind 70.0 Fx 1.044 2.525 .103 .352 2.418 4.202 Wind 70.0 Fx .887	Elev 90.0 .032 .011 Elev 60.0 Fy .074	Vel 12.7 Fz .162 .421 004 .065 2.588 3.945 Vel 12.9 Fz 464	Mx 002 .001 .001 Mx .040	My .117 .297 004 .046 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 77 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 78 Comp : Mean : Mean : Max : Min : Rms :	Wind 70.0 Fx 1.044 2.525 .103 .352 2.418 4.202 Wind 70.0 Fx .887 2.093 .084 .306	Elev 90.0 .032 .011 Elev 60.0 .074 .026	Vel 12.7 Fz .162 .421 004 .065 2.588 3.945 Vel 12.9 Fz 464 134 -1.021 .143	Mx 002 .001 .001 Mx .040 .025	My .117 .297 004 .046 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 79	Wind 70.0	Elev 30.0	Vel 12.7			
Comp : Mean :	Fx .357	Fy .121	Fz 651	Mx .010	My .031	Mz .000
Max : Min : Rms :	.922 028 .137	.046	105 -1.631 .234	.013	.193 545 .042	.000 .000 .000
Gfac : Pfac :	2.585 4.119		2.506 4.183		.000 .000	.000 .000
Run # 80	Wind 70.0	Elev .0	Vel 13.0			
Comp : Mean :	Fx .001	Fy .140	Fz 421	Mx .066	Му .025	Mz .000
Max : Min : Rms :	.003 183 .000	.054	.088 -1.175 .199	.033	.078 139 .013	.000 .000 .000
Gfac : Pfac :	2.254 3.222		2.790 3.793		.000 .000	.000 .000
Run # 81	Wind 80.0	Elev 90.0	Vel 12.8			
Run # 81 Comp : Mean :	Wind 80.0 Fx .841	Elev 90.0 Fy .147	Vel 12.8 Fz .118	Mx 012	Му .090	Mz .000
Run # 81 Comp : Mean : Max : Min : Rms :	Wind 80.0 Fx .841 2.198 .111 .318	Elev 90.0 Fy .147	Vel 12.8 Fz .118 .345 064 .059	Mx 012 .006	My .090 .243 030 .042	Mz .000 .000 .000 .000
Run # 81 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 80.0 Fx .841 2.198 .111 .318 2.614 4.274	Elev 90.0 Fy .147	Vel 12.8 Fz .118 .345 064 .059 2.928 3.827	Mx 012 .006	My .090 .243 030 .042 .000 .000	Mz .000 .000 .000 .000 .000
Run # 81 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 82	Wind 80.0 Fx .841 2.198 .111 .318 2.614 4.274 Wind 80.0	Elev 90.0 Fy .147 .056 Elev 60.0	Vel 12.8 Fz .118 .345 064 .059 2.928 3.827 Vel 12.8	Mx 012 .006	My .090 .243 030 .042 .000 .000	Mz .000 .000 .000 .000 .000
Run # 81 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 82 Comp : Mean :	Wind 80.0 Fx .841 2.198 .111 .318 2.614 4.274 Wind 80.0 Fx .757	Elev 90.0 Fy .147 .056 Elev 60.0 Fy .164	Vel 12.8 Fz .118 .345 064 .059 2.928 3.827 Vel 12.8 Fz 353	Mx 012 .006 Mx .014	My .090 .243 .030 .042 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 81 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 82 Comp : Mean : Max : Min : Rms :	Wind 80.0 Fx .841 2.198 .111 .318 2.614 4.274 Wind 80.0 Fx .757 1.769 .017 .292	Elev 90.0 Fy .147 .056 Elev 60.0 Fy .164 .063	Vel 12.8 Fz .118 .345 064 .059 2.928 3.827 Vel 12.8 Fz 353 035 854 .133	Mx 012 .006 .006 .014 .010	My .090 .243 .030 .042 .000 .000 .000 .000 .000 .000 .00	Mz .000 .000 .000 .000 .000 .000 .000 .0
Run # 83	Wind 80.0	Elev 30.0	Vel 12.7			
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Comp : Mean :	Fx .273	Fy .149	Fz 541	Mx 020	My .033	Mz .000
Max : Min : Rms :	.758 158 .120	.065	030 -1.356 .208	.022	.195 599 .036	.000 .000 .000
Gfac : Pfac :	2.778 4.056		2.508 3.912		.000 .000	.000 .000
Run # 84	Wind 80.0	Elev .0	Vel 12.8			
Comp : Mean :	Fx 015	Fy .134	Fz 357	Mx 083	Му .015	Mz .000
Max : Min : Rms :	037 216 .006	.055	.091 -1.180 .188	.037	.045 272 .007	.000 .000 .000
Gfac : Pfac :	14.563 33.183		3.301 4.366		.000 .000	.000 .000
Run # 85	Wind 90.0	Elev 90.0	Vel 12.6			
Comp : Mean :	Fx .224	Fy .122	Fz .033	Мх 006	My .026	Mz .000
Max : Min : Rms :	1.126 614 .197	.107	.211 115 .042	.006	.151 083 .029	.000 .000 .000
Gfac : Pfac :	5.029 4.572		6.443 4.228		.000 .000	.000 .000
Run # 86	Wind 90.0	Elev .0	Vel 12.7			
Comp : Mean :	Fx 023	Fy .126	Fz 272-	Мх 102	Му 000	Mz .000
Max : Min : Rms :	.104 150 .011	.057	.160 929 .187	.039	.092 087 .000	.000 .000 .000
Gfac : Pfac :	6.447 12.023		3.419 3.523		.000 .000	.000 .000

кun # 87	Wind .0	Elev 90.0	Vel 12.6			
Comp : Mean :	Fx 1.385	Fy .076	Fz .006	Mx .001	Му .123	Mz .000
Max : Min : Rms :	2.516 .656 .318	.017	.119 106 .029	.000	.273 .017 .039	.000 .000 .000
Gfac : Pfac :	1.817 3.557		21.158 3.851		.000 .000	.000 .000
Run # 88	Wind .0	Elev 80.0	Vel 12.6			
Comp : Mean :	Fx 1.280	Fy .063	Fz .240	Mx .001	My .145	Mz .000
Max : Min : Rms :	2.757 .521 .291	.014	.529 .090 .055	.000	.351 .047 .042	.000 .000 .000
Gfac : Pfac :	2.154 5.083		2.199 5.282		.000	.000 .000
Run # 89	Wind .0	Elev 70.0	Vel 12.7			
Run # 89 Comp : Mean :	Wind .0 Fx 1.177	Elev 70.0 Fy .057	Vel 12.7 Fz .395	Mx .000	Му .162	Mz .000
Run # 89 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.177 2.082 .547 .246	Elev 70.0 Fy .057	Vel 12.7 .395 .665 .182 .076	Mx .000 .000	My .162 .295 .056 .042	Mz .000 .000 .000 .000
Run # 89 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.177 2.082 .547 .246 1.769 3.672	Elev 70.0 Fy .057	Vel 12.7 Fz .395 .665 .182 .076 1.684 3.567	Mx .000 .000	My .162 .295 .056 .042 .000 .000	Mz .000 .000 .000 .000 .000
Run # 89 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 90	Wind .0 Fx 1.177 2.082 .547 .246 1.769 3.672 Wind .0	Elev 70.0 Fy .057 .012 Elev 60.0	Vel 12.7 Fz .395 .665 .182 .076 1.684 3.567 Vel 12.6	Mx .000 .000	My .162 .295 .056 .042 .000 .000	Mz .000 .000 .000 .000 .000
Run # 89 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 90 Comp : Mean :	Wind .0 Fx 1.177 2.082 .547 .246 1.769 3.672 Wind .0 Fx 1.041	Elev 70.0 Fy .057 .012 Elev 60.0 Fy .049	Vel 12.7 Fz .395 .665 .182 .076 1.684 3.567 Vel 12.6 Fz .501	Mx .000 .000 .000	My .162 .295 .056 .042 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 89 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 90 Comp : Mean : Mean : Min : Rms :	Wind .0 Fx 1.177 2.082 .547 .246 1.769 3.672 Wind .0 Fx 1.041 1.846 .523 .212	Elev 70.0 Fy .057 .012 Elev 60.0 Fy .049 .010	Vel 12.7 Fz .395 .665 .182 .076 1.684 3.567 Vel 12.6 Fz .501 .850 .259 .095	Mx .000 .000 .000	My .162 .295 .056 .042 .000 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 91	Wind .0	Elev 50.0	Vel 12.7			
Comp : Mean :	Fx .828	Fy .046	Fz .568	Mx 002	Му .166	Mz .000
Max : Min : Rms :	1.552 .330 .167	.009	.986 .255 .105	.000	.324 .048 .042	.000 .000 .000
Gfac : Pfac :	1.875 4.339		1.736 3.995		.000 .000	.000 .000
Run # 92	Wind .0	Elev 45.0	Vel 12.7			
Comp : Mean :	Fx .771	Fy .043	Fz .599	Мх 002	Му .167	Mz .000
Max : Min : Rms :	1.328 .352 .156	.009	.964 .314 .108	.000	.293 .045 .042	.000 .000 .000
Gfac : Pfac :	1.722 3.576		1.610 3.377		.000 .000	.000 .000
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Run # 94	Wind .0	Elev 40.0	Vel 12.8			
Run # 94 Comp : Mean :	Wind .0 Fx .710	Elev 40.0 Fy .049	Vel 12.8 Fz .616	Mx 001	Му .164	Mz .000
Run # 94 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .710 1.236 .289 .148	Elev 40.0 Fy .049	Vel 12.8 Fz .616 1.000 .283 .116	Mx 001 .000	My .164 .309 .056 .041	Mz .000 .000 .000 .000
Run # 94 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .710 1.236 .289 .148 1.740 3.551	Elev 40.0 Fy .049	Vel 12.8 Fz .616 1.000 .283 .116 1.623 3.321	Mx 001 .000	My .164 .309 .056 .041 .000 .000	Mz .000 .000 .000 .000 .000
Run # 94 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 95	Wind .0 Fx .710 1.236 .289 .148 1.740 3.551 Wind .0	Elev 40.0 Fy .049 .010 Elev 35.0	Vel 12.8 Fz .616 1.000 .283 .116 1.623 3.321 Vel 12.6	Mx 001 .000	My .164 .309 .056 .041 .000 .000	Mz .000 .000 .000 .000 .000
Run # 94 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 95 Comp : Mean :	Wind .0 Fx .710 1.236 .289 .148 1.740 3.551 Wind .0 Fx .605	Elev 40.0 Fy .049 .010 Elev 35.0 Fy .036	Vel 12.8 Fz .616 1.000 .283 .116 1.623 3.321 Vel 12.6 Fz .624	Mx 001 .000 .Mx 002	My .164 .309 .056 .041 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 94 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 95 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .710 1.236 .289 .148 1.740 3.551 Wind .0 Fx .605 1.158 .198 .130	Elev 40.0 Fy .049 .010 Elev 35.0 Fy .036 .008	Vel 12.8 Fz .616 1.000 .283 .116 1.623 3.321 Vel 12.6 Fz .624 1.162 .231 .117	Mx 001 .000 002 .001	My .164 .309 .056 .041 .000 .000 .000 .000 .000 .157 .314 .046 .040	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 96	Wind .0	Elev 30.0	Vel 12.5			
Comp : Mean :	Fx .485	Fy .041	Fz .585	Mx 001	Му .141	Mz .000
Max : Min : Rms :	1.044 .109 .116	.010	1.013 .210 .124	.000	.371 .039 .039	.000 .000 .000
Gfac : Pfac :	2.155 4.827		1.732 3.446		.000 .000	.000 .000
Run # 97	Wind .0	Elev 25.0	Vel 12.7			
Comp : Mean :	Fx .430	Fy .045	Fz .563	Mx 001	Му .143	Mz .000
Max : Min : Rms :	.891 .057 .114	.012	1.074 .114 .136	.000	.317 .029 .042	.000 .000 .000
Gfac : Pfac :	2.070 4.053		1.909 3.752		.000 .000	.000 .000
Run # 98	Wind .0	Elev 20.0	Vel 12.9			
Run # 98 Comp : Mean :	Wind .0 Fx .337	Elev 20.0 Fy .037	Vel 12.9 Fz .501	Mx 002	Му .146	Mz .000
Run # 98 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .337 .682 .045 .097	Elev 20.0 Fy .037	Vel 12.9 Fz .501 .983 .130 .121	Mx 002 .000	My .146 .332 .043 .044	Mz .000 .000 .000 .000
Run # 98 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .337 .682 .045 .097 2.026 3.547	Elev 20.0 Fy .037	Vel 12.9 Fz .501 .983 .130 .121 1.959 3.959	Mx 002 .000	My .146 .332 .043 .044 .000 .000	Mz .000 .000 .000 .000 .000
Run # 98 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 99	Wind .0 Fx .337 .682 .045 .097 2.026 3.547 Wind .0	Elev 20.0 Fy .037 .011 Elev 10.0	Vel 12.9 Fz .501 .983 .130 .121 1.959 3.959 Vel 12.8	Mx 002 .000	My .146 .332 .043 .044 .000 .000	Mz .000 .000 .000 .000 .000
Run # 98 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 99 Comp : Mean :	Wind .0 Fx .337 .682 .045 .097 2.026 3.547 Wind .0 Fx .154	Elev 20.0 Fy .037 .011 Elev 10.0 Fy .036	Vel 12.9 Fz .501 .983 .130 .121 1.959 3.959 Vel 12.8 Fz 022	Mx 002 .000 .000 Mx .001	My .146 .332 .043 .044 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 98 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 99 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .337 .682 .045 .097 2.026 3.547 Wind .0 Fx .154 .433 108 .068	Elev 20.0 Fy .037 .011 Elev 10.0 Fy .036 .016	Vel 12.9 Fz .501 .983 .130 .121 1.959 3.959 Vel 12.8 Vel 12.8 Fz 022 .345 654 .138	Mx 002 .000 .000 Mx .001 .000	My .146 .332 .043 .044 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 100	Wind 60.0	Elev 80.0	Vel 12.9			
Comp : Mean :	Fx .854	Fy .215	Fz .160	Mx 031	Му .082	Mz .000
Max : Min : Rms :	1.941 .100 .246	.062	.401 .022 .055	.011	.209 022 .030	.000 .000 .000
Gfac : Pfac :	2.272 4.419		2.507 4.359		.000 .000	.000 .000
Run # 101	Wind 60.0	Elev 70.0	Vel 12.7			
Comp : Mean :	Fx .800	Fy .216	Fz .330	Mx 054	My .089	Mz .000
Max : Min : Rms :	1.588 .021 .228	.062	.656 .081 .093	.019	.210 027 .032	.000 .000 .000
Gfac : Pfac :	1.985 3.452		1.989 3.526		.000 .000	.000 .000
Run # 102	Wind 60.0	Elev 60.0	Vel 12.7			
Comp : Mean :	Fx .692	Fy .201	Fz .417	Мх 073	Му .088	Mz .000
Max : Min : Rms :	1.458 .075 .202	.059	.826 .095 .115	.025	.209 039 .030	.000 .000 .000
Gfac : Pfac :	2.109 3.798		1.979 3.560		.000 .000	.000 .000
Run # 103	Wind 60.0	Elev 50.0	Vel 12.6			
Comp : Mean :	Fx .532	Fy .188	Fz .451	Мх 880	Му .083	Mz .000
Max : Min : Rms :	1.245 .019 .156	.055	1.012 .054 .125	.029	.195 061 .028	.000 .000 .000
Gfac : Pfac :	2.342 4.583		2.246 4.503		.000	.000 .000

Run # 104	Wind 60.0	Elev 40.0	Vel 12.8			
Comp : Mean :	Fx .432	Fy .180	Fz .464	Mx 101	Му .081	Mz .000
Max : Min : Rms :	.991 036 .138	.057	.991 .077 .132	.034	.217 059 .028	.000 .000 .000
Gfac : Pfac :	2.292 4.046		2.136 3.985		.000 .000	.000 .000
Run # 105	Wind 60.0	Elev 30.0	Vel 12.7			
Comp : Mean :	Fx .326	Fy .204	Fz .458	Mx 116	Му .085	Mz .000
Max : Min : Rms :	.790 136 .110	.069	1.069 039 .139	.039	.207 066 .029	.000 .000 .000
Gfac : Pfac :	2.421 4.217		2.336 4.404		.000 .000	.000 .000
Run # 106	Wind	Elev 20 0	Vel			
= =	00.0	20.0	12.0			
Comp : Mean :	Fx .163	Fy . 187	Fz .308	Мх 138	Му .085	Mz .000
Comp : Mean : Max : Min : Rms :	Fx .163 .446 163 .065	Fy .187	Fz .308 .771 214 .127	Mx 138 .044	My .085 .192 094 .027	Mz .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Fx .163 .446 163 .065 2.742 4.384	Fy .187 .074	Fz .308 .771 214 .127 2.504 3.661	Mx 138 .044	My .085 .192 094 .027 .000 .000	Mz .000 .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 107	Fx .163 .446 163 .065 2.742 4.384 Wind 60.0	Fy .187 .074 Elev 10.0	Fz .308 .771 214 .127 2.504 3.661 Vel 12.9	Mx 138 .044	My .085 .192 094 .027 .000 .000	Mz .000 .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 107 Comp : Mean :	Fx .163 .446 163 .065 2.742 4.384 Wind 60.0 Fx .069	Fy .187 .074 Elev 10.0 Fy .164	Fz .308 .771 214 .127 2.504 3.661 Vel 12.9 Fz .089	Mx 138 .044 	My .085 .192 .094 .027 .000 .000	Mz .000 .000 .000 .000 .000 .000
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 107 Comp : Mean : Mean : Max : Min : Rms :	Fx .163 .446 163 .065 2.742 4.384 Wind 60.0 Fx .069 .190 219 .029	Fy .187 .074 Elev 10.0 Fy .164 .070	Fz .308 .771 214 .127 2.504 3.661 Vel 12.9 Fz .089 .544 495 .134	Mx 138 .044 .044 138 .041	My .085 .192 .094 .027 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 108	Wind 30.0	Elev 80.0	Vel 12.5			
Comp : Mean :	Fx 1.115	Fy .130	Fz .296	Мх 026	My .132	Mz .000
Max : Min : Rms :	2.060 .360 .254	.029	.575 .109 .067	.007	.278 003 .038	.000 .000 .000
Gfac : Pfac :	1.847 3.723		1.945 4.142		.000 .000	.000 .000
Run # 109	Wind 30.0	Elev 70.0	Vel 12.6			
Comp : Mean :	Fx 1.034	Fy .121	Fz .377	Мх 036	Му .138	Mz .000
Max : Min : Rms :	2.106 .341 .225	.026	.691 .136 .082	.010	.325 014 .038	.000 .000 .000
Gfac : Pfac :	2.036 4.761		1.830 3.814		.000 .000	.000 .000
Run # 110	Wind 30.0	Elev 60.0	Vel 12.6			
Run # 110 Comp-: Mean :	Wind 30.0 -Fx .854	Elev 60.0 Fy .126	Vel 12.6 Fz .472	Mx 050	My .143	Mz .000
Run # 110 Comp-: Mean : Max : Min : Rms :	Wind 30.0 -Fx .854 1.595 .209 .186	Elev 60.0 Fy .126	Vel 12.6 Fz .472 .913 .173 .101	Mx 050 .013	My .143 .284 032 .039	Mz .000 .000 .000 .000
Run # 110 Comp-: Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 -Fx .854 1.595 .209 .186 1.868 3.988	Elev 60.0 .126 .027	Vel 12.6 Fz .472 .913 .173 .101 1.935 4.346	Mx 050 .013	My .143 .284 032 .039 .000 .000	Mz .000 .000 .000 .000 .000
Run # 110 Comp-: Mean : Max : Min : Rms : Gfac : Pfac : Run # 111	Wind 30.0 -Fx .854 1.595 .209 .186 1.868 3.988 Wind 30.0	Elev 60.0 .126 .027 Elev 45.0	Vel 12.6 Fz .472 .913 .173 .101 1.935 4.346 Vel 12.7	Mx 050 .013	My .143 .284 032 .039 .000 .000	Mz .000 .000 .000 .000 .000
Run # 110 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 111 Comp : Mean :	Wind 30.0 -Fx .854 1.595 .209 .186 1.868 3.988 Wind 30.0 Fx .739	Elev 60.0 .126 .027 Elev 45.0 Fy .119	Vel 12.6 Fz .472 .913 .173 .101 1.935 4.346 Vel 12.7 Fz .555	Mx 050 .013 Mx 059	My .143 .284 032 .039 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 110 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 111 Comp : Mean : Mean : Max : Min : Rms :	Wind 30.0 -Fx .854 1.595 .209 .186 1.868 3.988 Wind 30.0 Fx .739 1.278 .122 .155	Elev 60.0 .126 .027 Elev 45.0 Fy .119 .025	Vel 12.6 Fz .472 .913 .173 .101 1.935 4.346 Vel 12.7 Fz .555 .926 .244 .106	Mx 050 .013 .013 059 .015	My .143 .284 032 .039 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 112	Wind 30.0	Elev 30.0	Vel 12.5			
Comp : Mean :	Fx .418	Fy .112	Fz .540	Mx 064	Му .128	Mz .000
Max : Min : Rms :	.978 071 .114	.031	1.250 .131 .134	.019	.323 137 .038	.000 .000 .000
Gfac : Pfac :	2.339 4.913		2.313 5.305		.000 .000	.000 .000
Run # 113	Wind 30.0	Elev 15.0	Vel 12.5			
Comp : Mean :	Fx .196	Fy .114	Fz .225	Mx 081	Му .142	Mz .000
Max : Min : Rms :	.588 311 .077	.045	.799 382 .128	.026	.351 200 .045	.000 .000 .000
Gfac : Pfac :	3.005 5.078		3.548 4.498		.000 .000	.000 .000
Run # 114	Wind 90.0	Elev 75.0	Vel 12.8			
Comp : Mean :	Fx 164	Fy .121	Fz 122	Мх 038	Му 011	Mz .000
Max : Min : Rms :	.528 -1.054 .173	.127	.120 470 .083	.032	.113 150 .010	.000 .000 .000
Gfac : Pfac :	6.430 5.149		3.851 4.197		.000 .000	.000 .000
Run # 115	Wind 90.0	Elev 60.0	Vel 12.8			
Run # 115 Comp : Mean :	Wind 90.0 Fx 148	Elev 60.0 Fy .124	Vel 12.8 Fz 115	Mx 055	Му 009	Mz .000
Run # 115 Comp : Mean : Max : Min : Rms :	Wind 90.0 Fx 148 .467 989 .158	Elev 60.0 Fy .124 .133	Vel 12.8 Fz 115 .259 617 .121	Mx 055 .037	My 009 .094 121 .006	Mz .000 .000 .000 .000

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Run # 118	Wind 90.0	Elev 45.0	Vel 12.7			
Comp : Mean :	Fx 102	Fy .131	Fz 130	Мх 087	My 004	Mz .000
Max : Min : Rms :	.430 734 .096	.124	.441 784 .157	.043	.083 108 .002	.000 .000 .000
Gfac : Pfac :	7.226 6.580		6.052 4.174		.000 .000	.000 .000
Run # 119	Wind 90.0	Elev 30.0	Vel 12.7			
Comp : Mean :	Fx 082	Fy .129	Fz 164	Мх 112	My 001	Mz .000
Max : Min : Rms :	.275 428 .060	.094	.378 785 .167	.043	.091 078 .000	.000 .000 .000
Gfac : Pfac :	5.229 5.788		4.772 3.710		.000 .000	.000 .000
Run # 120	Wind 90.0	Elev 15.0	Vel 12.5			
Run # 120 Comp : Mean :	Wind 90.0 Fx 055	Elev 15.0 Fy .124	Vel 12.5 Fz 140	Mx 121	Му .001	Mz .000
Run # 120 Comp : Mean : Max : Min : Rms :	Wind 90.0 Fx 055 .143 276 .033	Elev 15.0 Fy .124 .074	Vel 12.5 Fz 140 .340 861 .170	Mx 121 .043	My .001 .112 089 .000	Mz .000 .000 .000 .000
Run # 120 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 90.0 Fx 055 .143 276 .033 4.984 6.676	Elev 15.0 Fy .124 .074	Vel 12.5 Fz 140 .340 861 .170 6.167 4.250	Mx 121 .043	My .001 .112 089 .000 .000 .000	Mz .000 .000 .000 .000 .000
Run # 120 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 121	Wind 90.0 Fx 055 .143 276 .033 4.984 6.676 Wind 10.0	Elev 15.0 Fy .124 .074 Elev 90.0	Vel 12.5 Fz 140 .340 861 .170 6.167 4.250 Vel 12.6	Mx 121 .043	My .001 .112 089 .000 .000 .000	Mz .000 .000 .000 .000 .000
Run # 120 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 121 Comp : Mean :	Wind 90.0 Fx 055 .143 276 .033 4.984 6.676 Wind 10.0 Fx 1.362	Elev 15.0 Fy .124 .074 Elev 90.0 Fy .088	Vel 12.5 Fz 140 .340 861 .170 6.167 4.250 Vel 12.6 Fz .025	Mx 121 .043 Mx 002	My .001 .112 089 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 120 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 121 Comp : Mean : Max : Min : Rms :	Wind 90.0 Fx 055 .143 276 .033 4.984 6.676 Wind 10.0 Fx 1.362 2.506 .165 .304	Elev 15.0 Fy .124 .074 Elev 90.0 Fy .088 .020	Vel 12.5 Fz 140 .340 861 .170 6.167 4.250 Vel 12.6 Fz .025 .128 104 .030	Mx 121 .043 	My .001 .112 089 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 122	Wind 10.0	Elev 60.0	Vel 12.7			
Comp : Mean :	Fx .981	Fy .063	Fz .505	Мх 018	Му .168	Mz .000
Max : Min : Rms :	1.731 053 .193	.012	.889 .198 .095	.004	.344 198 .040	.000 .000 .000
Gfac : Pfac :	1.765 3.880		1.759 4.028		.000 .000	.000
Run # 123	Wind 10.0	Elev 30.0	Vel 12.8			
Comp : Mean :	Fx .424	Fy .035	Fz .579	Mx 024	Му .143	Mz .000
Max : Min : Rms :	.898 562 .112	.009	1.037 .159 .134	.007	.342 450 .041	.000 .000 .000
Gfac : Pfac :	2.121 4.256		1.790 3.425		.000 .000	.000 .000
Run # 124	Wind 20.0	Elev 90.0	Vel 12.7			
Run # 124 Comp : Mean :	Wind 20.0 Fx 1.268	Elev 90.0 Fy .077	Vel 12.7 Fz 001	Mx 000	Му .107	Mz .000
Run # 124 Comp : Mean : Max : Min : Rms :	Wind 20.0 Fx 1.268 2.272 .388 .286	Elev 90.0 Fy .077	Vel 12.7 Fz 001 .100 097 .027	Mx 000 .000	My .107 .239 .015 .033	Mz .000 .000 .000 .000
Run # 124 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 20.0 Fx 1.268 2.272 .388 .286 1.791 3.512	Elev 90.0 Fy .077	Vel 12.7 Fz 001 .100 097 .027 78.700 3.582	Mx 000 .000	My .107 .239 .015 .033 .000 .000	Mz .000 .000 .000 .000 .000
Run # 124 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 125	Wind 20.0 Fx 1.268 2.272 .388 .286 1.791 3.512 Wind 20.0	Elev 90.0 Fy .077 .017 Elev 60.0	Vel 12.7 Fz 001 .100 097 .027 78.700 3.582 Vel 12.6	Mx 000 .000	My .107 .239 .015 .033 .000 .000	Mz .000 .000 .000 .000 .000
Run # 124 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 125 Comp : Mean :	Wind 20.0 Fx 1.268 2.272 .388 .286 1.791 3.512 Wind 20.0 Fx .906	Elev 90.0 .077 .017 Elev 60.0 Fy .057	Vel 12.7 Fz 001 .100 097 .027 78.700 3.582 Vel 12.6 Fz .494	Mx 000 .000 Mx 032	My .107 .239 .015 .033 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 124 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 125 Comp : Mean : Max : Min : Rms :	Wind 20.0 Fx 1.268 2.272 .388 .286 1.791 3.512 Wind 20.0 Fx .906 1.642 .164 .200	Elev 90.0 .077 .017 Elev 60.0 .057 .013	Vel 12.7 Fz 001 .100 097 .027 78.700 3.582 Vel 12.6 Fz .494 .915 .212 .106	Mx 000 .000 .000 Mx 032 .009	My .107 .239 .015 .033 .000 .000 .000 .000 .000 .000 .00	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 126	Wind 20.0	Elev 30.0	Vel 12.8			
Comp : Mean :	Fx .440	Fy .051	Fz .557	Мх 043	Му .135	Mz .000
Max : Min : Rms :	.927 095 .114	.013	1.065 .105 .128	.012	.368 203 .039	.000 .000 .000
Gfac : Pfac :	2.105 4.277		1.911 3.958		.000 .000	.000 .000
Run # 127	Wind 30.0	Elev 90.0	Vel 12.5			
Comp : Mean :	Fx 1.218	Fy .151	Fz .002	Мх 006	Му .103	Mz .000
Max : Min : Rms :	2.216 .305 .280	.035	.110 100 .028	.002	.258 002 .034	.000 .000 .000
Gfac : Pfac :	1.819 3.567		72.113 3.903		.000 .000	.000 .000
Run # 128	Wind 40.0	Elev 90.0	Vel 12.6			
Run # 128 Comp : Mean :	Wind 40.0 Fx 1.075	Elev 90.0 Fy .135	Vel 12.6 Fz .034	Мх 006	My .092	Mz .000
Run # 128 Comp : Mean : Max : Min : Rms :	Wind 40.0 Fx 1.075 2.059 .297 .272	Elev 90.0 Fy .135	Vel 12.6 Fz .034 .143 049 .028	Mx 006 .002	My .092 .213 008 .032	Mz .000 .000 .000 .000
Run # 128 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 40.0 Fx 1.075 2.059 .297 .272 1.915 3.615	Elev 90.0 Fy .135	Vel 12.6 Fz .034 .143 049 .028 4.171 3.945	Mx 006 .002	My .092 .213 008 .032 .000 .000	Mz .000 .000 .000 .000 .000
Run # 128 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 129	Wind 40.0 Fx 1.075 2.059 .297 .272 1.915 3.615 Wind 40.0	Elev 90.0 Fy .135 .034 Elev 60.0	Vel 12.6 Fz .034 .143 049 .028 4.171 3.945 Vel 12.8	Mx 006 .002	My .092 .213 008 .032 .000 .000	Mz .000 .000 .000 .000 .000
Run # 128 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 129 Comp : Mean :	Wind 40.0 Fx 1.075 2.059 .297 .272 1.915 3.615 Wind 40.0 Fx .825	Elev 90.0 Fy .135 .034 Elev 60.0 Fy .103	Vel 12.6 Fz .034 .143 049 .028 4.171 3.945 Vel 12.8 Fz .390	Mx 006 .002 	My .092 .213 008 .032 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 128 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 129 Comp : Mean : Mean : Min : Rms :	Wind 40.0 Fx 1.075 2.059 .297 .272 1.915 3.615 Wind 40.0 Fx .825 1.671 .218 .198	Elev 90.0 Fy .135 .034 Elev 60.0 Fy .103 .025	Vel 12.6 Fz .034 .143 049 .028 4.171 3.945 Vel 12.8 Fz .390 .779 .136 .097	Mx 006 .002 .002 .053 .015	My .092 .213 008 .032 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 130	Wind 40.0	Elev 30.0	Vel 12.8			
Comp : Mean :	Fx .374	Fy .100	Fz .463	Мх 082	My .116	Mz .000
Max : Min : Rms :	.875 094 .114	.030	.964 .048 .129	.026	.283 084 .037	.000 .000 .000
Gfac : Pfac :	2.342 4.402		2.083 3.878		.000 .000	.000 .000
Run # 131	Wind 50.0	Elev 90.0	Vel 12.8			
Comp : Mean :	Fx .961	Fy .183	Fz .044	Mx 011	My .082	Mz .000
Max : Min : Rms :	2.004 .224 .243	.046	.151 050 .028	.004	.198 021 .029	.000 .000 .000
Gfac : Pfac :	2.086 4.292		3.470 3.889		.000 .000	.000 .000
Run # 132	Wind 50.0	Elev 60.0	Vel 12.7			
Comp : Mean :	Fx .748	Fy .151	Fz .401	Мх 064	Му .105	Mz .000
Max : Min : Rms :	1.677 .144 .195	.039	.940 .120 .106	.021	.254 038 .034	.000 .000 .000
Gfac : Pfac :	2.243 4.759		2.343 5.086		.000 .000	.000 .000
Run # 133	Wind 50.0	Elev 30.0	Vel 12.7			
Comp : Mean :	Fx .332	Fy .139	Fz .415	Мх 105	Му .102	Mz .000
Max : Min : Rms :	.789 102 .109	.046	.952 062 .129	.035	.256 067 .034	.000 .000 .000
Gfac : Pfac :	2.375		2.296 4.153		.000	.000 .000

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Run # 134	Wind 60.0	Elev 90.0	Vel 12.6			
Comp : Mean :	Fx .798	Fy .186	Fz .012	Мх 009	My .064	Mz .000
Max : Min : Rms :	1.862 .101 .238	.056	.129 078 .027	.004	.175 023 .028	.000 .000 .000
Gfac : Pfac :	2.333 4.471		10.813 4.400		.000 .000	.000 .000
Run # 135	Wind 70.0	Elev 90.0	Vel 12.7			
Comp : Mean :	Fx .550	Fy .165	Fz .014	Mx 007	My .043	Mz .000
Max : Min : Rms :	1.538 153 .223	.067	.133 065 .030	.004	.162 067 .026	.000 .000 .000
Gfac : Pfac :	2.794 4.430		9.520 4.048		.000 .000	.000 .000
Run # 136	Wind 70.0	Elev 60.0	Vel 12.8			
Run # 136 Comp : Mean :	Wind 70.0 Fx .419	Elev 60.0 Fy .161	Vel 12.8 Fz .220	Mx 075	My .057	Mz .000
Run # 136 Comp : Mean : Max : Min : Rms :	Wind 70.0 Fx .419 1.107 325 .179	Elev 60.0 Fy .161	Vel 12.8 Fz .220 .616 154 .107	Mx 075 .030	My .057 .153 068 .023	Mz .000 .000 .000 .000
Run # 136 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 70.0 Fx .419 1.107 325 .179 2.645 3.837	Elev 60.0 Fy .161	Vel 12.8 Fz .220 .616 154 .107 2.801 3.706	Mx 075 .030	My .057 .153 068 .023 .000 .000	Mz .000 .000 .000 .000 .000
Run # 136 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 137	Wind 70.0 Fx .419 1.107 325 .179 2.645 3.837 Wind 70.0	Elev 60.0 Fy .161 .069 Elev 30.0	Vel 12.8 Fz .220 .616 154 .107 2.801 3.706 Vel 12.8	Mx 075 .030	My .057 .153 068 .023 .000 .000	Mz .000 .000 .000 .000 .000
Run # 136 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 137 Comp : Mean :	Wind 70.0 Fx .419 1.107 325 .179 2.645 3.837 Wind 70.0 Fx .077	Elev 60.0 Fy .161 .069 Elev 30.0 Fy .156	Vel 12.8 Fz .220 .616 154 .107 2.801 3.706 Vel 12.8 Fz .042	Mx 075 .030 	My .057 .153 .068 .023 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 136 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 137 Comp : Mean : Max : Min : Rms :	Wind 70.0 Fx .419 1.107 325 .179 2.645 3.837 Wind 70.0 Fx .077 .278 426 .052	Elev 60.0 Fy .161 .069 Elev 30.0 Fy .156 .106	Vel 12.8 Fz .220 .616 154 .107 2.801 3.706 Vel 12.8 Fz .042 .597 595 .146	Mx 075 .030 .030 	My .057 .153 .068 .023 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

кип # 138	Wind 80.0	Elev 90.0	Vel 12.8			
Comp : Mean :	Fx .335	Fy .181	Fz 035	Mx 007	Му .028	Mz .000
Max : Min : Rms :	1.079 348 .206	.112	.064 132 .028	.007	.148 123 .026	.000 .000 .000
Gfac : Pfac :	3.221 3.604		3.764 3.458		.000 .000	.000 .000
Run # 139	Wind 80.0	Elev 60.0	Vel 12.6			
Comp : Mean :	Fx . 203	Fy .181	Fz .100	Mx 082	My .032	Mz .000
Max : Min : Rms :	.831 443 .139	.124	.529 306 .109	.036	.085 074 .014	.000 .000 .000
Gfac : Pfac :	4.093 4.508		5.286 3.929		.000 .000	.000 .000
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кun # 140	Wind 80.0	Elev 30.0	Vel 12.6			
Kun # 140 Comp : Mean :	Wind 80.0 Fx .009	Elev 30.0 Fy .150	Vel 12.6 Fz 015	Мх 126	Му .024	Mz .000
Kun # 140 Comp : Mean : Max : Min : Rms :	Wind 80.0 Fx .009 .036 693 .007	Elev 30.0 Fy .150 .112	Vel 12.6 015 .519 622 .151	Mx 126 .045	My .024 .065 072 .009	Mz .000 .000 .000 .000
Kun # 140 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 80.0 Fx .009 .036 693 .007 4.105 4.170	Elev 30.0 Fy .150 .112	Vel 12.6 Fz 015 .519 622 .151 41.671 4.034	Mx 126 .045	My .024 .065 072 .009 .000 .000	Mz .000 .000 .000 .000 .000
Kun # 140 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 141	Wind 80.0 Fx .009 .036 693 .007 4.105 4.170 Wind 90.0	Elev 30.0 Fy .150 .112 Elev 90.0	Vel 12.6 Fz 015 .519 622 .151 41.671 4.034 Vel 12.9	Mx 126 .045	My .024 .065 072 .009 .000 .000	Mz .000 .000 .000 .000 .000
Kun # 140 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 141 Comp : Mean :	Wind 80.0 Fx .009 .036 693 .007 4.105 4.170 Wind 90.0 Fx 138	Elev 30.0 Fy .150 .112 Elev 90.0 Fy .124	Vel 12.6 Fz 015 .519 622 .151 41.671 4.034 Vel 12.9 Fz 056	Mx 126 .045 .Mx 009	My .024 .065 072 .009 .000 .000	Mz .000 .000 .000 .000 .000 .000
Kun # 140 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Pfac : Run # 141 Comp : Mean : Mean : Max : Min : Rms :	Wind 80.0 Fx .009 .036 693 .007 4.105 4.105 4.170 Wind 90.0 Fx 138 .732 -1.053 .172	Elev 30.0 Fy .150 .112 Elev 90.0 Fy .124 .154	Vel 12.6 Fz 015 .519 622 .151 41.671 4.034 Vel 12.9 Fz 056 .044 183 .033	Mx 126 .045 .045 009	My .024 .065 072 .009 .000 .000 .000 .000 .000 .130 105 .020	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 142	Wind .0	Elev 90.0	Vel 11.7			
Comp : Mean :	Fx 1.734	Fy .030	Fz 105	Mx .012	Му .128	Mz .000
Max : Min : Rms :	3.290 .674 .399	.007	016 233 .032	.004	.290 .008 .043	.000 .000 .000
Gfac : Pfac :	1.897 3.898		2.231 4.055		.000 .000	.000 .000
Run # 143	Wind 10.0	Elev 90.0	Vel 11.4			
Comp : Mean :	Fx 1.688	Fy 072	Fz 064	Mx .014	My .124	Mz .000
Max : Min : Rms :	3.061 .622 .380	.016	.039 151 .028	.005	.290 .010 .041	.000 .000 .000
Gfac : Pfac :	1.814 3.614		2.363 3.139		.000 .000	.000 .000
Run # 144	Wind 20.0	Elev 90.0	Vel 11.6			
Run # 144 Comp : Mean :	Wind 20.0 Fx 1.593	Elev 90.0 Fy 080	Vel 11.6 Fz 023	Mx .017	Му .121	Mz .000
Run # 144 Comp : Mean : Max : Min : Rms :	Wind 20.0 Fx 1.593 3.124 .654 .358	Elev 90.0 Fy 080	Vel 11.6 Fz 023 .063 111 .024	Mx .017 .005	My .121 .285 .018 .037	Mz .000 .000 .000 .000
Run # 144 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 20.0 Fx 1.593 3.124 .654 .358 1.961 4.273	Elev 90.0 080 .018	Vel 11.6 Fz 023 .063 111 .024 4.869 3.647	Mx .017 .005	My .121 .285 .018 .037 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 144 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 145	Wind 20.0 Fx 1.593 3.124 .654 .358 1.961 4.273 Wind 30.0	Elev 90.0 Fy 080 .018 Elev 90.0	Vel 11.6 Fz 023 .063 111 .024 4.869 3.647 Vel 11.7	Mx .017 .005	My .121 .285 .018 .037 .000 .000	Mz .000 .000 .000 .000 .000
Run # 144 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 145 Comp : Mean :	Wind 20.0 Fx 1.593 3.124 .654 .358 1.961 4.273 Wind 30.0 Fx 1.541	Elev 90.0 Fy 080 .018 Elev 90.0 Fy 038	Vel 11.6 Fz 023 .063 111 .024 4.869 3.647 Vel 11.7 Fz 034	Mx .017 .005 .Mx .012	My .121 .285 .018 .037 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 144 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 145 Comp : Mean : Mean : Max : Min : Rms :	Wind 20.0 Fx 1.593 3.124 .654 .358 1.961 4.273 Wind 30.0 Fx 1.541 2.952 .475 .356	Elev 90.0 Fy 080 .018 Elev 90.0 Fy 038 .009	Vel 11.6 Fz 023 .063 111 .024 4.869 3.647 Vel 11.7 Vel 11.7 Fz 034 .060 131 .027	Mx .017 .005 .005 .012 .003	My .121 .285 .018 .037 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 146	Wind 40.0	Elev 90.0	Vel 11.7			
Comp : Mean :	Fx 1.539	Fy 104	Fz .044	Мх .015	Му .130	Mz .000
Max : Min : Rms :	2.914 .595 .372	.025	.165 043 .029	.004	.278 .019 .038	.000 .000 .000
Gfac : Pfac :	1.894 3.698		3.756 4.169		.000 .000	.000 .000
Run # 147	Wind 50.0	Elev 90.0	Vel 11.6			
Comp : Mean :	Fx 1.449	Fy 234	Fz .069	Mx .029	My .142	Mz .000
Max : Min : Rms :	2.827 .402 .388	.063	.234 053 .040	.010	.335 .009 .046	.000 .000 .000
Gfac : Pfac :	1.951 3.552		3.389 4.109		.000 .000	.000 .000
Run # 148	Wind 60.0	Elev 90.0	Vel 12.0			
Comp : Mean :	Fx 1.180	Fy 111	Fz .054	Mx .021	My .135	Mz .000
Max : Min : Rms :	2.868 .200 .369	.035	.239 075 .045	.008	.331 .010 .048	.000 .000 .000
Gfac : Pfac :	2.430 4.569		4.427 4.077		.000 .000	.000 .000
Run # 149	Wind	Elev 90.0	Vel 11.9			
	/0.0	50.0				
Comp : Mean :	Fx .808	Fy 007	Fz .056	Мх .008	My .085	Mz .000
Comp : Mean : Max : Min : Rms :	Fx .808 1.900 016 .303	Fy 007	Fz .056 .224 085 .040	Mx .008 .004	My .085 .270 071 .040	Mz .000 .000 .000 .000

Run # 150	Wind 80.0	Elev 90.0	Vel 11.7			
Comp : Mean :	Fx .427	Fy .069	Fz .040	Мх 003	Му .046	Mz .000
Max : Min : Rms :	1.401 380 .254	.041	.194 082 .037	.002	.189 072 .034	.000 .000 .000
Gfac : Pfac :	3.280 3.840		4.879 4.129		.000	.000 .000
Run # 151	Wind 45.0	Elev 90.0	Vel 11.9			
Comp : Mean :	Fx 1.421	Fy 321	Fz .039	Mx .043	Му .134	Mz .000
Max : Min : Rms :	3.017 .393 .379	.086	.168 065 .037	.014	.306 .007 .042	.000 .000 .000
Gfac : Pfac :	2.123 4.205		4.309 3.499		.000 .000	.000 .000
Run # 152	Wind 55.0	Elev 90.0	Vel 11.8			
Comp : Mean :	Fx 1.263	Fy 211	Fz .075	Mx .032	Му .136	Mz .000
Max : Min : Rms :	2.917 .360 .388	.065	.239 051 .043	.011	.312 004 .048	.000 .000 .000
Gfac : Pfac :	2.309 4.264		3.190 3.846		.000 .000	.000 .000
Run # 153	Wind .0	Elev 90.0	Vel 11.7			
Comp : Mean :	Fx 1.400	Fy .077	Fz 072	Мх .004	My .111	Mz .000
Max : Min : Rms :	2.573 .589 .323	.018	.028 179 .032	.001	.236 .023 .036	.000 .000 .000
Gfac :	1.838		2.478		.000	.000

Run # 154	Wind 10.0	Elev 90.0	Vel 11.4			
Comp : Mean :	Fx 1.374	Fy .151	Fz 041	Mx 004	Му .109	Mz .000
Max : Min : Rms :	2.457 076 .316	.035	.042 148 .030	.001	.261 006 .038	.000 .000 .000
Gfac : Pfac :	1.788 3.428		3.652 3.565		.000 .000	.000 .000
Run # 155	Wind 20.0	Elev 90.0	Vel 11.4			
Comp : Mean :	Fx 1.337	Fy .137	Fz 010	Mx 003	Му .109	Mz .000
Max : Min : Rms :	2.590 .393 .312	.032	.081 118 .028	.001	.255 003 .036	.000 .000 .000
Gfac : Pfac :	1.938 4.019		11.898 3.875		.000 .000	.000 .000
Run # 156	Wind 30.0	Elev 90.0	Vel 11.6			
Run # 156 Comp : Mean :	Wind 30.0 Fx 1.246	Elev 90.0 Fy .254	Vel 11.6 Fz 009	Mx 013	Му .100	Mz .000
Run # 156 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx 1.246 2.292 .321 .281	Elev 90.0 Fy .254	Vel 11.6 Fz 009 .070 116 .027	Mx 013 .004	My .100 .229 .013 .033	Mz .000 .000 .000 .000
Run # 156 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx 1.246 2.292 .321 .281 1.839 3.724	Elev 90.0 Fy .254	Vel 11.6 Fz 009 .070 116 .027 12.466 3.937	Mx 013 .004	My .100 .229 .013 .033 .000 .000	Mz .000 .000 .000 .000 .000
Run # 156 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 157	Wind 30.0 Fx 1.246 2.292 .321 .281 1.839 3.724 Wind 40.0	Elev 90.0 Fy .254 .057 Elev 90.0	Vel 11.6 Fz 009 .070 116 .027 12.466 3.937 Vel 11.5	Mx 013 .004	My .100 .229 .013 .033 .000 .000	Mz .000 .000 .000 .000 .000
Run # 156 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 157 Comp : Mean :	Wind 30.0 Fx 1.246 2.292 .321 .281 1.839 3.724 Wind 40.0 Fx 1.083	Elev 90.0 .254 .057 Elev 90.0 .175	Vel 11.6 Fz 009 .070 116 .027 12.466 3.937 Vel 11.5 Fz .024	Mx 013 .004 	My .100 .229 .013 .033 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 156 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 157 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx 1.246 2.292 .321 .281 1.839 3.724 Wind 40.0 Fx 1.083 2.110 .381 .259	Elev 90.0 .254 .057 Elev 90.0 .175 .042	Vel 11.6 Fz 009 .070 116 .027 12.466 3.937 Vel 11.5 Fz .024 .106 045 .023	Mx 013 .004 .004	My .100 .229 .013 .033 .000 .000 .000 .000 .199 .004 .030	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 158	Wind 50.0	Elev 90.0	Vel 11.5			
Comp : Mean :	Fx 1.004	Fy .269	Fz .002	Mx 011	Му .084	Mz .000
Max : Min : Rms :	1.904 .256 .254	.068	.100 078 .022	.004	.191 024 .029	.000 .000 .000
Gfac : Pfac :	1.896 3.541		57.498 4.372		.000 .000	.000 .000
Run # 159	Wind 60.0	Elev 90.0	Vel 11.7			
Comp : Mean :	Fx .826	Fy .226	Fz .008	Мх 009	Му .067	Mz .000
Max : Min : Rms :	1.913 .076 .244	.067	.079 060 .022	.004	.206 017 .027	.000 .000 .000
Gfac : Pfac :	2.315 4.463		9.806 3.171		.000 .000	.000
Run # 160	Wind 70.0	Elev 90.0	Vel 11.9			
Run # 160 Comp : Mean :	Wind 70.0 Fx .637	Elev 90.0 Fy .212	Vel 11.9 Fz .009	Mx 007	Му .050	Mz .000
Run # 160 Comp : Mean : Max : Min : Rms :	Wind 70.0 Fx .637 1.412 070 .220	Elev 90.0 Fy .212	Vel 11.9 Fz .009 .101 058 .021	Mx 007 .003	My .050 .155 047 .025	Mz .000 .000 .000 .000
Run # 160 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 70.0 Fx .637 1.412 070 .220 2.216 3.516	Elev 90.0 Fy .212	Vel 11.9 Fz .009 .101 058 .021 11.749 4.511	Mx 007 .003	My .050 .155 047 .025 .000 .000	Mz .000 .000 .000 .000 .000
Run # 160 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 161	Wind 70.0 Fx .637 1.412 070 .220 2.216 3.516 Wind 80.0	Elev 90.0 Fy .212 .073 Elev 90.0	Vel 11.9 Fz .009 .101 058 .021 11.749 4.511 Vel 11.9	Mx 007 .003	My .050 .155 047 .025 .000 .000	Mz .000 .000 .000 .000 .000
Run # 160 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 161 Comp : Mean :	Wind 70.0 Fx .637 1.412 070 .220 2.216 3.516 Wind 80.0 Fx .357	Elev 90.0 Fy .212 .073 Elev 90.0 Fy .191	Vel 11.9 Fz .009 .101 058 .021 11.749 4.511 Vel 11.9 Fz 003	Mx 007 .003 	My .050 .155 047 .025 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 160 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 161 Comp : Mean : Max : Min : Rms :	Wind 70.0 Fx .637 1.412 070 .220 2.216 3.516 Wind 80.0 Fx .357 1.008 310 .206	Elev 90.0 Fy .212 .073 Elev 90.0 Fy .191 .110	Vel 11.9 Fz .009 .101 058 .021 11.749 4.511 Vel 11.9 Fz 003 .101 091 .028	Mx 007 .003 .003 	My .050 .155 047 .025 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 162	Wind 85.0	Elev 90.0	Vel 11.9			
Comp : Mean :	Fx .132	Fy .163	Fz 027	Mx 007	My .014	Mz .000
Max : Min : Rms :	.616 651 .136	.167	.059 108 .025	.013	.104 148 .023	.000 .000 .000
Gfac : Pfac :	4.677 3.575		3.929 3.258		.000 .000	.000 .000
Run # 163	Wind 90.0	Elev 90.0	Vel 11.9			
Comp : Mean :	Fx 305	Fy .123	Fz 061	Mx 005	Му 026	Mz .000
Max : Min : Rms :	.438 -1.325 .222	.089	.017 182 .029	.005	.086 175 .030	.000 .000 .000
Gfac : Pfac :	4.350 4.604		3.009 4.221		.000 .000	.000 .000
Run # 164	Wind 60.0	Elev 75.0	Vel 11.7			
Run # 164 Comp : Mean :	Wind 60.0 Fx 1.354	Elev 75.0 Fy 039	Vel 11.7 Fz 297	Mx .052	Му .119	Mz .000
Run # 164 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.354 2.665 .331 .400	Elev 75.0 Fy 039 .012	Vel 11.7 Fz 297 094 575 .081	Mx .052 .020	My .119 .299 074 .046	Mz .000 .000 .000 .000
Run # 164 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx 1.354 2.665 .331 .400 1.968 3.275	Elev 75.0 039 .012	Vel 11.7 Fz 297 094 575 .081 1.932 3.407	Mx .052 .020	My .119 .299 074 .046 .000 .000	Mz .000 .000 .000 .000 .000
Run # 164 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 165	Wind 60.0 Fx 1.354 2.665 .331 .400 1.968 3.275 Wind 70.0	Elev 75.0 039 .012 Elev 75.0	Vel 11.7 Fz 297 094 575 .081 1.932 3.407 Vel 11.8	Mx .052 .020	My .119 .299 074 .046 .000 .000	Mz .000 .000 .000 .000 .000
Run # 164 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 165 Comp : Mean :	Wind 60.0 Fx 1.354 2.665 .331 .400 1.968 3.275 Wind 70.0 Fx .692	Elev 75.0 039 .012 Elev 75.0 Fy .002	Vel 11.7 Fz 297 094 575 .081 1.932 3.407 Vel 11.8 Fz 187	Mx .052 .020 Mx .012	My .119 .299 074 .046 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 164 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 165 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.354 2.665 .331 .400 1.968 3.275 Wind 70.0 Fx .692 1.791 142 .293	Elev 75.0 .039 .012 Elev 75.0 Fy .002 .001	Vel 11.7 297 094 575 .081 1.932 3.407 Vel 11.8 Fz 187 033 408 .054	Mx .052 .020 .020 Mx .012 .007	My .119 .299 074 .046 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 166	Wind 80.0	Elev 75.0	Vel 11.5			
Comp : Mean :	Fx .440	Fy .082	Fz 107	Mx 012	Му .049	Mz .000
Max : Min : Rms :	1.454 456 .249	.046	.051 313 .044	.009	.205 152 .037	.000 .000 .000
Gfac : Pfac :	3.301 4.074		2.928 4.701		.000 .000	.000 .000
Run # 167	Wind 45.0	Elev 60.0	Vel 11.8			
Comp : Mean :	Fx 1.402	Fy 131	Fz 889	Мх .107	Му .052	Mz .000
Max : Min : Rms :	2.648 .481 .354	.033	401 -1.556 .202	.039	.139 169 .019	.000 .000 .000
Gfac : Pfac :	1.889 3.516		1.750 3.294		.000 .000	.000 .000
Dun #	Wind	Flow	Vol			
168	55.0	60.0	11.6			
168 Comp : Mean :	55.0 Fx .842	60.0 Fy 046	Fz 807	Mx .076	Му .040	Mz .000
168 Comp : Mean : Max : Min : Rms :	Fx .842 1.852 .142 .281	60.0 Fy 046	Fz 807 269 -1.677 .238	Мх .076 .049	My .040 .112 280 .026	Mz .000 .000 .000 .000
168 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Fx .842 1.852 .142 .281 2.200 3.598	Fy 046	Fz 807 269 -1.677 .238 2.077 3.646	Mx .076 .049	My .040 .112 280 .026 .000 .000	Mz .000 .000 .000 .000 .000
168 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 169	Fx .842 1.852 .142 .281 2.200 3.598 Wind 80.0	Elev 70.0	Ve1 11.6 Fz 807 269 -1.677 .238 2.077 3.646 Ve1 11.6	Mx .076 .049	My .040 .112 280 .026 .000 .000	Mz .000 .000 .000 .000 .000
168 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 169 Comp : Mean :	Wind 55.0 Fx .842 1.852 .142 .281 2.200 3.598 Wind 80.0 Fx .376	Elev 70.0 Fy 046 .015 Elev 70.0 Fy .209	Ve1 11.6 Fz 807 269 -1.677 .238 2.077 3.646 Ve1 11.6 Fz .132	Mx .076 .049 	My .040 .112 280 .026 .000 .000	Mz .000 .000 .000 .000 .000 .000
168 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 169 Comp : Mean : Mean : Max : Min : Rms :	Wind 55.0 Fx .842 1.852 .142 .281 2.200 3.598 Wind 80.0 Fx .376 1.079 330 .191	Elev 70.0 .106	Ve1 11.6 Fz 807 269 -1.677 .238 2.077 3.646 Ve1 11.6 Fz .132 .420 115 .078	Mx .076 .049 .049 053	My .040 .112 280 .026 .000 .000 .000 .000 .000 .119 057 .020	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 170	Wind 70.0	Elev 70.0	Vel 11.4			
Comp : Mean :	Fx .697	Fy .269	Fz .287	Mx 060	My .069	Mz .000
Max : Min : Rms :	1.554 .046 .214	.083	.632 .017 .088	.024	.177 033 .027	.000 .000 .000
Gfac : Pfac :	2.228 3.998		2.201 3.906		.000 .000	.000 .000
Run # 171	Wind 60.0	Elev 70.0	Vel 11.5			
Comp : Mean :	Fx .838	Fy .276	Fz .274	Мх 056	My .095	Mz .000
Max : Min : Rms :	1.803 .182 .225	.074	.634 .053 .080	.018	.216 009 .031	.000 .000 .000
Gfac : Pfac :	2.151 4.286		2.316 4.484		.000 .000	.000 .000
Run # 172	Wind 50.0	Elev 70.0	Vel 11.8			
Run # 172 Comp : Mean :	Wind 50.0 Fx .887	Elev 70.0 Fy .177	Vel 11.8 Fz .302	Mx 047	Му .107	Mz .000
Run # 172 Comp : Mean : Max : Min : Rms :	Wind 50.0 Fx .887 1.751 .135 .223	Elev 70.0 Fy .177	Vel 11.8 Fz .302 .586 .080 .081	Mx 047 .014	My .107 .247 039 .032	Mz .000 .000 .000 .000
Run # 172 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 50.0 Fx .887 1.751 .135 .223 1.973 3.879	Elev 70.0 Fy .177	Vel 11.8 Fz .302 .586 .080 .081 1.943 3.530	Mx 047 .014	My .107 .247 039 .032 .000 .000	Mz .000 .000 .000 .000 .000
Run # 172 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 173	Wind 50.0 Fx .887 1.751 .135 .223 1.973 3.879 Wind 40.0	Elev 70.0 Fy .177 .044 Elev 70.0	Vel 11.8 Fz .302 .586 .080 .081 1.943 3.530 Vel 11.5	Mx 047 .014	My .107 .247 039 .032 .000 .000	Mz .000 .000 .000 .000 .000
Run # 172 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 173 Comp : Mean :	Wind 50.0 Fx .887 1.751 .135 .223 1.973 3.879 Wind 40.0 Fx 1.015	Elev 70.0 Fy .177 .044 Elev 70.0 Fy .176	Vel 11.8 Fz .302 .586 .080 .081 1.943 3.530 Vel 11.5 Fz .320	Mx 047 .014 .014	My .107 .247 .039 .032 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 172 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 173 Comp : Mean : Max : Min : Rms :	Wind 50.0 Fx .887 1.751 .135 .223 1.973 3.879 Wind 40.0 Fx 1.015 2.091 .299 .228	Elev 70.0 .177 .044 Elev 70.0 .176 .039	Vel 11.8 Fz .302 .586 .080 .081 1.943 3.530 Vel 11.5 Fz .320 .680 .105 .073	Mx 047 .014 .014 042 .012	My .107 .247 039 .032 .000 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 174	Wind 40.0	Elev 80.0	Vel 11.5			
Comp : Mean :	Fx 1.063	Fy .162	Fz .141	Мх 020	Му .108	Mz .000
Max : Min : Rms :	2.071 .396 .236	.036	.297 .021 .042	.006	.232 .013 .032	.000 .000 .000
Gfac : Pfac :	1.949 4.271		2.101 3.690		.000 .000	.000 .000
Run # 175	Wind 50.0	Elev 80.0	Vel 11.5			
Comp : Mean :	Fx .945	Fy .172	Fz .155	Мх 028	Му .094	Mz .000
Max : Min : Rms :	1.959 .282 .246	.045	.375 .029 .048	.009	.233 021 .031	.000 .000 .000
Gfac : Pfac :	2.073 4.125		2.425 4.560		.000 .000	.000 .000
Run # 176	Wind 60.0	Elev 80.0	Vel 11.6			
Comp : Mean :	Fx .829	Fy .182	Fz .134	Mx 031	Му .079	Mz .000
Max : Min : Rms :	1.853 .142 .237	.052	.388 031 .053	.011	.191 020 .029	.000 .000 .000
Gfac : Pfac :	2.236 4.318		2.893 4.803		.000 .000	.000 .000
Run # 177	Wind 70.0	Elev 80.0	Vel 11.9			
Comp : Mean :	Fx .535	Fy .151	Fz .075	Мх 027	Му .052	Mz .000
Max : Min : Rms :	1.475 131 .218	.061	.315 081 .054	.013	.149 049 .026	.000 .000 .000
Gfac : Pfac :	2.758 4.311		4.184 4.395		.000 .000	.000 .000

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Run # 178	Wind 80.0	Elev 80.0	Vel 11.6			
Comp : Mean :	Fx .259	Fy .186	Fz .006	Mx 031	Му .032	Mz .000
Max : Min : Rms :	1.114 596 .190	.137	.250 204 .054	.021	.117 107 .022	.000 .000 .000
Gfac : Pfac :	4.305 4.497		41.126 4.483		.000 .000	.000 .000
Run # 179	Wind 10.0	Elev 80.0	Vel 11.6			
Comp : Mean :	Fx 1.258	Fy .085	Fz .180	Мх 800	Му .135	Mz .000
Max : Min : Rms :	2.173 001 .284	.019	.352 .069 .044	.002	.280 069 .039	.000 .000 .000
Gfac : Pfac :	1.727 3.217		1.949 3.922		.000 .000	.000 .000
Run #	Wind	Flev	Vol			
187	10.0	80.0	11.0			
187 Comp : Mean :	10.0 Fx 1.723	80.0 Fy 084	11.0 Fz 354	Mx .027	Му .103	Mz .000
187 Comp : Mean : Max : Min : Rms :	Fx 1.723 3.356 .792 .412	Fy 084	Fz 354 155 681 .078	Mx .027 .011	My .103 .258 000 .040	Mz .000 .000 .000 .000
187 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Fx 1.723 3.356 .792 .412 1.947 3.959	80.0 Fy 084	Fz 354 155 681 .078 1.925 4.186	Mx .027 .011	My .103 .258 000 .040 .000 .000	Mz .000 .000 .000 .000 .000
187 Comp : Mean : Min : Min : Rms : Gfac : Pfac : Run # 188	10.0 Fx 1.723 3.356 .792 .412 1.947 3.959 Wind 20.0	Elev 80.0 Fy 084 .020	Fz 354 155 681 .078 1.925 4.186 Vel 10.6	Mx .027 .011	My .103 .258 000 .040 .000 .000	Mz .000 .000 .000 .000 .000
187 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 188 Comp : Mean :	Wind 20.0 Fx 1.723 3.356 .792 .412 1.947 3.959 Wind 20.0 Fx 1.728	Elev 80.0 Fy 084 .020 Elev 80.0 Fy 110	Fz 354 155 681 .078 1.925 4.186 Vel 10.6 Fz 315	Mx .027 .011 .011 Mx .029	My .103 .258 000 .040 .000 .000	Mz .000 .000 .000 .000 .000 .000
187 Comp : Mean : Min : Min : Rms : Gfac : Pfac : Run # 188 Comp : Mean : Mean : Min : Rms :	Wind 20.0 Fx 1.723 3.356 .792 .412 1.947 3.959 Wind 20.0 Fx 1.728 3.226 .770 .382	Elev 80.0 Fy 084 .020 Elev 80.0 Fy 110 .024	<pre>Fz354155681 .078 1.925 4.186 Vel 10.6 Fz315157536 .061</pre>	Mx .027 .011 .011 Mx .029 .009	My .103 .258 .000 .040 .000 .000 .000 .000 .000 .00	Mz .000 .000 .000 .000 .000 .000 .000 .0

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Run # 189	Wind 10.0	Elev 25.0	Vel 10.9			
Comp : Mean :	Fx .721	Fy .083	Fz -1.567	Mx .050	Му 119	Mz .000
Max : Min : Rms :	1.398 691 .192	.022	454 -3.023 .419	.023	164 598 .054	.000 .000 .000
Gfac : Pfac :	1.938 3.529		1.929 3.477		.000 .000	.000 .000
Run # 190	Wind 20.0	Elev 25.0	Vel 10.7			
Comp : Mean :	Fx .654	Fy .070	Fz -1.435	Мх .069	Му 087	Mz .000
Max : Min : Rms :	1.269 091 .180	.019	514 -2.806 .388	.036	143 302 .046	.000 .000 .000
Gfac : Pfac :	1.940 3.420		1.955 3.531		.000 .000	.000 .000
Run # 191	Wind 10.0	Elev 10.0	Vel 11.0			
Comp : Mean :	Fx .191	Fy .059	Fz .150	Мх 026	Му .161	Mz .000
Max : Min : Rms :	.544 898 .076	.024	.659 326 .126	.008	.354 404 .049	.000 .000 .000
Gfac : Pfac :	2.855 4.634		4.378 4.031		.000 .000	.000 .000
Run # 192	Wind 20.0	Elev 10.0	Vel 10.8			
Comp : Mean :	Fx .201	Fy .079	Fz .194	Мх 056	Му .157	Mz .000
Max ·			600		222	000
Min : Rms :	.557 336 .077	.030	.600 345 .132	.018	.333 224 .049	.000

Run # 193	Wind 30.0	Elev 10.0	Vel 10.8			
Comp : Mean :	Fx .163	Fy .108	Fz .139	Mx 082	Му .146	Mz .000
Max : Min : Rms :	.490 335 .067	.044	.592 327 .137	.025	.370 175 .045	.000 .000 .000
Gfac : Pfac :	2.999 4.903		4.250 3.301		.000 .000	.000 .000
Run # 194	Wind 40.0	Elev 10.0	Vel 10.9			
Comp : Mean :	Fx .155	Fy .141	Fz .142	Мх 103	Му .128	Mz .000
Max : Min : Rms :	.413 259 .062	.056	.551 414 .136	.032	.282 126 .040	.000 .000 .000
Gfac : Pfac :	2.664 4.192		3.884 3.010		.000 .000	.000 .000
Run # 195	Wind 50.0	Elev 10.0	Vel 10.7			
Run # 195 Comp : Mean :	Wind 50.0 Fx .129	Elev 10.0 Fy .155	Vel 10.7 Fz .104	Mx 131	Му .113	Mz .000
Run # 195 Comp : Mean : Max : Min : Rms :	Wind 50.0 Fx .129 .366 206 .054	Elev 10.0 Fy .155 .064	Vel 10.7 Fz .104 .620 331 .135	Mx 131 .038	My .113 .241 095 .033	Mz .000 .000 .000 .000
Run # 195 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 50.0 Fx .129 .366 206 .054 2.830 4.403	Elev 10.0 Fy .155 .064	Vel 10.7 Fz .104 .620 331 .135 5.986 3.836	Mx 131 .038	My .113 .241 095 .033 .000 .000	Mz .000 .000 .000 .000 .000
Run # 195 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 196	Wind 50.0 Fx .129 .366 -206 .054 2.830 4.403 Wind 60.0	Elev 10.0 Fy .155 .064 Elev 10.0	Vel 10.7 Fz .104 .620 331 .135 5.986 3.836 Vel 10.6	Mx 131 .038	My .113 .241 095 .033 .000 .000	Mz .000 .000 .000 .000 .000
Run # 195 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 196 Comp : Mean :	Wind 50.0 Fx .129 .366 206 .054 2.830 4.403 Wind 60.0 Fx .077	Elev 10.0 .155 .064 Elev 10.0 Fy .170	Vel 10.7 Fz .104 .620 331 .135 5.986 3.836 Vel 10.6 Fz .042	Mx 131 .038 Mx 140	My .113 .241 095 .033 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 195 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 196 Comp : Mean : Max : Min : Rms :	Wind 50.0 Fx .129 .366 206 .054 2.830 4.403 Wind 60.0 Fx .077 .210 220 .033	Elev 10.0 .155 .064 Elev 10.0 .170 .073	Vel 10.7 Fz .104 .620 331 .135 5.986 3.836 Vel 10.6 Fz .042 .465 554 .148	Mx 131 .038 .038 .038 .042	My .113 .241 095 .033 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 197	Wind 70.0	Elev 10.0	Vel 10.7			
Comp : Mean :	Fx .026	Fy .157	Fz 047	Мх 138	Му .050	Mz .000
Max : Min : Rms :	.071 268 .012	.077	.407 765 .148	.043	.109 095 .016	.000 .000 .000
Gfac : Pfac :	2.786 3.667		16.152 4.850		.000 .000	.000 .000
Run # 198	Wind 80.0	Elev 10.0	Vel 10.8			
Comp : Mean :	Fx 009	Fy .160	Fz 069	Mx 134	Му .022	Mz .000
Max : Min : Rms :	025 434 .004	.081	.488 785 .163	.046	.053 076 .007	.000 .000 .000
Gfac : Pfac :	50.875 98.025		11.451 4.399		.000 .000	.000 .000
Run # 199	Wind 15.0	Elev 20.0	Vel 10.5			
Run # 199 Comp : Mean :	Wind 15.0 Fx .372	Elev 20.0 Fy .075	Vel 10.5 Fz .556	Mx 041	Му .159	Mz .000
Run # 199 Comp : Mean : Max : Min : Rms :	Wind 15.0 Fx .372 .903 341 .111	Elev 20.0 Fy .075	Vel 10.5 Fz .556 1.073 .116 .137	Mx 041 .013	My .159 .427 390 .051	Mz .000 .000 .000 .000
Run # 199 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 15.0 Fx .372 .903 341 .111 2.424 4.792	Elev 20.0 Fy .075 .022	Vel 10.5 Fz .556 1.073 .116 .137 1.931 3.769	Mx 041 .013	My .159 .427 390 .051 .000 .000	Mz .000 .000 .000 .000 .000
Run # 199 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 200	Wind 15.0 Fx .372 .903 341 .111 2.424 4.792 Wind 30.0	Elev 20.0 Fy .075 .022 Elev 20.0	Vel 10.5 Fz .556 1.073 .116 .137 1.931 3.769 Vel 10.7	Mx 041 .013	My .159 .427 390 .051 .000 .000	Mz .000 .000 .000 .000 .000
Run # 199 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 200 Comp : Mean :	Wind 15.0 Fx .372 .903 341 .111 2.424 4.792 Wind 30.0 Fx .354	Elev 20.0 .075 .022 Elev 20.0 Fy .099	Vel 10.5 Fz .556 1.073 .116 .137 1.931 3.769 Vel 10.7 Fz .540	Mx 041 .013 Mx 077	My .159 .427 390 .051 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 199 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 200 Comp : Mean : Max : Min : Rms :	Wind 15.0 Fx .372 .903 341 .111 2.424 4.792 Wind 30.0 Fx .354 .844 069 .107	Elev 20.0 .075 .022 Elev 20.0 Fy .099 .030	Vel 10.5 Fz .556 1.073 .116 .137 1.931 3.769 Vel 10.7 Fz .540 1.046 .108 .138	Mx 041 .013 	My .159 .427 390 .051 .000 .000 .000 .000 .000 .137 .390 147 .044	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 201	Wind 45.0	Elev 20.0	Vel 10.7			
Comp : Mean :	Fx .299	Fy .150	Fz .443	Mx 108	Му .117	Mz .000
Max : Min : Rms :	.706 202 .096	.048	1.016 177 .129	.036	.266 133 .039	.000 .000 .000
Gfac : Pfac :	2.360 4.218		2.292 4.426		.000 .000	.000 .000
Run # 202	Wind 60.0	Elev 20.0	Vel 10.6			
Comp : Mean :	Fx .160	Fy .172	Fz .231	Mx 145	Му .089	Mz .000
Max : Min : Rms :	.464 438 .068	.073	.756 2 <u>63</u> .139	.046	.202 100 .028	.000 .000 .000
Gfac : Pfac :	2.908 4.501		3.270 3.788		.000 .000	.000 .000
Run # 203	Wind 75.0	Elev 20.0	Vel 10.8			
Comp : Mean :	Fx .072	Fy .180	Fz .105	Мх 145	My .041	Mz .000
Max : Min : Rms :	.234 279	000	.712 435		.094 077	.000 .000
	.040	.099	.14/	.048	.014	.000
Gfac : Pfac :	3.241 4.084	.099	.147 6.761 4.126	.048	.014 .000 .000	.000 .000 .000
Gfac : Pfac : Run # 204	3.241 4.084 Wind 10.0	.099 Elev 50.0	.147 6.761 4.126 Vel 10.7	.048	.014 .000 .000	.000 .000 .000
Gfac : Pfac : Run # 204 Comp : Mean :	3.241 4.084 Wind 10.0 Fx .899	.099 Elev 50.0 Fy .037	.147 6.761 4.126 Vel 10.7 Fz .598	.048 Mx 023	.014 .000 .000 My .171	.000 .000 .000 Mz .000
Gfac : Pfac : Run # 204 Comp : Mean : Max : Min : Rms :	.040 3.241 4.084 Wind 10.0 Fx .899 1.568 .057 .180	.099 Elev 50.0 Fy .037 .008	.147 6.761 4.126 Vel 10.7 Fz .598 1.021 .267 .110	.048 Mx 023 .006	.014 .000 .000 .171 .325 283 .043	.000 .000 .000 .000 .000 .000 .000

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Run # 205	Wind 20.0	Elev 50.0	Vel 10.5			
Comp : Mean :	Fx .973	Fy .096	Fz .600	Mx 042	Му .166	Mz .000
Max : Min : Rms :	1.643 .193 .203	.020	.967 .253 .113	.011	.320 115 .044	.000 .000 .000
Gfac : Pfac :	1.688 3.294		1.612 3.244		.000 .000	.000 .000
Run # 206	Wind 20.0	Elev 40.0	Vel 10.7			
Comp : Mean :	Fx .705	Fy .089	Fz .643	Мх 045	Му .159	Mz .000
Max : Min : Rms :	1.415 .044 .154	.019	1.044 .253 .121	.012	.333 125 .042	.000 .000 .000
Gfac : Pfac :	2.007 4.619		1.623 3.311		.000 .000	.000 .000
Run # 207	Wind 10.0	Elev 40.0	Vel 10.5			
Run # 207 Comp : Mean :	Wind 10.0 Fx .819	Elev 40.0 Fy .055	Vel 10.5 Fz .660	Mx 024	My .175	Mz .000
Run # 207 Comp : Mean : Max : Min : Rms :	Wind 10.0 Fx .819 1.392 219 .165	Elev 40.0 Fy .055	Vel 10.5 Fz .660 1.072 .315 .118	Mx 024 .006	My .175 .322 334 .044	Mz .000 .000 .000 .000
Run # 207 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 10.0 Fx .819 1.392 219 .165 1.699 3.462	Elev 40.0 Fy .055	Vel 10.5 Fz .660 1.072 .315 .118 1.625 3.485	Mx 024 .006	My .175 .322 334 .044 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 207 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 208	Wind 10.0 Fx .819 1.392 219 .165 1.699 3.462 Wind 10.0	Elev 40.0 Fy .055 .011 Elev 50.0	Vel 10.5 Fz .660 1.072 .315 .118 1.625 3.485 Vel 10.5	Mx 024 .006	My .175 .322 334 .044 .000 .000	Mz .000 .000 .000 .000 .000
Run # 207 Mean : Max : Min : Rms : Gfac : Pfac : Run # 208 Comp : Mean :	Wind 10.0 Fx .819 1.392 219 .165 1.699 3.462 Wind 10.0 Fx 1.495	Elev 40.0 Fy .055 .011 Elev 50.0 Fy .086	Vel 10.5 Fz .660 1.072 .315 .118 1.625 3.485 Vel 10.5 Fz -1.241	Mx 024 .006 .Mx .028	My .175 .322 334 .044 .000 .000	Mz .000 .000 .000 .000 .000 .000
Run # 207 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 208 Comp : Mean : Max : Min : Rms :	Wind 10.0 Fx .819 1.392 219 .165 1.699 3.462 Wind 10.0 Fx 1.495 2.659 .082 .348	Elev 40.0 Fy .055 .011 Elev 50.0 Fy .086 .020	Vel 10.5 Fz .660 1.072 .315 .118 1.625 3.485 Vel 10.5 Fz -1.241 557 -2.101 .276	Mx 024 .006 .028 .021	My .175 .322 334 .044 .000 .000 .000 .000 .000 .000	Mz .000 .000 .000 .000 .000 .000 .000 .0

Run # 209	#	Wind 20.0	Elev 50.0	Vel 10.7			
Comp	•	Fx	Fy	Fz	Мх	Му	Mz
Mean	:	1.450	.044	-1.266	.047	.032	.000
Max	:	2.479		500		.109	.000
Min	:	.419		-2.081		076	.000
Rms	:	.331	.010	.275	.027	.019	.000
Gfac	:	1.709		1.644		.000	.000
Pfac	:	3.110		2.963		.000	.000

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APPENDIX E

Data for File SCPT2 - Heliostat Single Study

Run # 1	Wind .0	Elev 90.0	Vel 12.3			
Comp : Mean :	Fx 1.610	Fy .095	Fz 055	Mx .003	Му .120	Mz .056
Max : Min : Rms :	3.017 .703 .370	.022	.018 129 .020	.001	.284 .022 .042	.175 048 .035
Gfac : Pfac :	1.874 3.800		2.357 3.750		2.367 3.899	3.100 3.378
Run # 2	Wind .0	Elev 80.0	Vel 12.4			
Comp : Mean :	Fx 1.584	Fy .116	Fz 398	Mx .004	Му .099	Mz .046
Max : Min : Rms :	2.923 .764 .366	.027	178 700 .083	.002	.270 016 .040	.172 090 .035
Gfac : Pfac :	1.845 3.654		1.758 3.632		2.716 4.226	3.738 3.561
Run # 3	Wind .0	Elev 70.0	Vel 12.3			
Run # 3 Comp : Mean :	Wind .0 Fx 1.543	Elev 70.0 Fy .117	Vel 12.3 Fz 690	Mx .004	Му .070	Mz .035
Run # 3 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.543 2.826 .611 .340	Elev 70.0 Fy .117	Vel 12.3 690 307 -1.231 .142	Mx .004 .002	My .070 .201 029 .035	Mz .035 .163 078 .034
Run # 3 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.543 2.826 .611 .340 1.832 3.770	Elev 70.0 Fy .117	Vel 12.3 Fz 690 307 -1.231 .142 1.783 3.803	Mx .004 .002	My .070 .201 029 .035 2.884 3.796	Mz .035 .163 078 .034 4.605 3.709
Run # 3 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 4	Wind .0 Fx 1.543 2.826 .611 .340 1.832 3.770 Wind .0	Elev 70.0 Fy .117 .026 Elev 60.0	Vel 12.3 690 307 -1.231 .142 1.783 3.803 Vel 12.6	Mx .004 .002	My .070 .201 029 .035 2.884 3.796	Mz .035 .163 078 .034 4.605 3.709
Run # 3 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # Comp : Mean :	Wind .0 Fx 1.543 2.826 .611 .340 1.832 3.770 Wind .0 Fx 1.305	Elev 70.0 Fy .117 .026 Elev 60.0 Fy .108	Vel 12.3 Fz 690 307 -1.231 .142 1.783 3.803 Vel 12.6 Fz 882	Mx .004 .002 Mx .003	My .070 .201 029 .035 2.884 3.796 My .034	Mz .035 .163 078 .034 4.605 3.709 Mz .035
Run # 3 Comp : Mean : Min : Rms : Gfac : Pfac : Run # Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.543 2.826 .611 .340 1.832 3.770 Wind .0 Fx 1.305 2.546 .496 .294	Elev 70.0 Fy .117 .026 Elev 60.0 Fy .108 .024	Vel 12.3 Fz 690 307 -1.231 .142 1.783 3.803 Vel 12.6 Fz 882 386 -1.638 .191	Mx .004 .002 .002 .003	My .070 .201 029 .035 2.884 3.796 My .034 .136 044 .029	Mz .035 .163 078 .034 4.605 3.709 Mz .035 .121 055 .027

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Run # 5	Wind .0	Elev 50.0	Vel 12.3			
Comp : Mean :	Fx 1.139	Fy .095	Fz -1.082	Mx .004	Му .005	Mz .022
Max : Min : Rms :	2.120 .525 .261	.022	541 -2.027 .238	.019	.105 068 .022	.094 057 .022
Gfac : Pfac :	1.861 3.754		1.872 3.972		20.438 4.481	4.287 3.222
Run # 6	Wind .0	Elev 40.0	Vel 12.8			
Comp : Mean :	Fx .963	Fy .101	Fz -1.215	Mx .001	Му 047	Mz .008
Max : Min : Rms :	1.648 .489 .210	.022	615 -2.074 .261	.001	.040 158 .030	.094 059 .018
Gfac : Pfac :	1.711 3.260		1.707 3.295		3.325 3.638	12.011 4.852
Run # 7	Wind .0	Elev 30.0	Vel 12.7			
Run # 7 Comp : Mean :	Wind .0 Fx .686	Elev 30.0 Fy .086	Vel 12.7 Fz -1.266	Mx .002	Му 133	Mz .005
Run # 7 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .686 1.253 .291 .165	Elev 30.0 Fy .086	Vel 12.7 Fz -1.266 550 -2.291 .303	Mx .002 .001	My 133 039 260 .046	Mz .005 .086 058 .018
Run # 7 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .686 1.253 .291 .165 1.826 3.432	Elev 30.0 Fy .086	Vel 12.7 Fz -1.266 550 -2.291 .303 1.809 3.379	Mx .002 .001	My 133 039 260 .046 1.957 2.781	Mz .005 .086 058 .018 18.637 4.480
Run # 7 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 8	Wind .0 Fx .686 1.253 .291 .165 1.826 3.432 Wind .0	Elev 30.0 Fy .086 .021 Elev 20.0	Vel 12.7 Fz -1.266 550 -2.291 .303 1.809 3.379 Vel 12.7	Mx .002 .001	My 133 039 260 .046 1.957 2.781	Mz .005 .086 058 .018 18.637 4.480
Run # 7 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 8 Comp : Mean :	Wind .0 Fx .686 1.253 .291 .165 1.826 3.432 Wind .0 Fx .298	Elev 30.0 Fy .086 .021 Elev 20.0 Fy .046	Vel 12.7 Fz -1.266 -2.291 .303 1.809 3.379 Vel 12.7 Fz 811	Mx .002 .001 Mx .002	My 133 039 260 .046 1.957 2.781 My 138	Mz .005 .086 058 .018 18.637 4.480 Mz .000
Run # 7 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 8 Comp : Mean : Mean : Max : Min : Rms :	Wind .0 Fx .686 1.253 .291 .165 1.826 3.432 Wind .0 Fx .298 .708 .094 .088	Elev 30.0 Fy .086 .021 Elev 20.0 Fy .046 .014	Vel 12.7 Fz -1.266 550 -2.291 .303 1.809 3.379 Vel 12.7 Fz 811 231 -2.064 .258	Mx .002 .001 .001 .002	My 133 039 260 .046 1.957 2.781 My 138 035 366 .056	Mz .005 .086 058 .018 18.637 4.480 Mz .000 .048 040 .012

Run # 9	Wind .0	Elev 10.0	Vel 13.0			
Comp : Mean :	Fx .110	Fy .030	Fz 390	Mx .004	Му 080	Mz .011
Max : Min : Rms :	.264 .015 .041	.011	017 -1.027 .173	.002	.016 248 .046	.030 008 .005
Gfac : Pfac :	2.401 3.748		2.632 3.677		3.121 3.652	2.824 3.674
Run # 10	Wind .0	Elev .0	Vel 12.6			
Comp : Mean :	Fx .056	Fy .030	Fz 071	Mx .003	Му .012	Mz .014
Max : Min : Rms :	.207 057 .029	.016	.343 478 .108	.008	.150 121 .034	.023 .005 .003
Gfac : Pfac :	3.714 5.160		6.753 3.767		12.408 4.028	1.602 2.988
Run # 11	Wind 60.0	Elev 80.0	Vel 12.6			
Run # 11 Comp : Mean :	Wind 60.0 Fx 1.164	Elev 80.0 Fy .142	Vel 12.6 Fz 277	Mx .027	Му .084	Mz .150
Run # 11 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.164 2.379 .390 .309	Elev 80.0 Fy .142	Vel 12.6 Fz 277 110 501 .061	Mx .027 .010	My .084 .222 034 .030	Mz .150 .387 .040 .044
Run # 11 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx 1.164 2.379 .390 .309 2.044 3.929	Elev 80.0 Fy .142	Vel 12.6 Fz 277 110 501 .061 1.810 3.688	Mx .027 .010	My .084 .222 034 .030 2.632 4.547	Mz .150 .387 .040 .044 2.577 5.410
Run # 11 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 12	Wind 60.0 Fx 1.164 2.379 .390 .309 2.044 3.929 Wind 60.0	Elev 80.0 Fy .142 .038 Elev 60.0	Vel 12.6 Fz 277 110 501 .061 1.810 3.688 Vel 12.7	Mx .027 .010	My .084 .222 034 .030 2.632 4.547	Mz .150 .387 .040 .044 2.577 5.410
Run # 11 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 12 Comp : Mean :	Wind 60.0 Fx 1.164 2.379 .390 .309 2.044 3.929 Wind 60.0 Fx 1.068	Elev 80.0 Fy .142 .038 Elev 60.0 Fy .148	Vel 12.6 Fz 277 110 501 .061 1.810 3.688 Vel 12.7 Fz 560	Mx .027 .010 .010 Mx .078	My .084 .222 034 .030 2.632 4.547 My .050	Mz .150 .387 .040 .044 2.577 5.410 Mz .159
Run # 11 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 12 Comp : Mean : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.164 2.379 .390 .309 2.044 3.929 Wind 60.0 Fx 1.068 2.105 .231 .277	Elev 80.0 Fy .142 .038 Elev 60.0 Fy .148 .038	Vel 12.6 Fz 277 110 501 .061 1.810 3.688 Vel 12.7 Fz 560 188 -1.040 .134	Mx .027 .010 .010 Mx .078 .029	My .084 .222 034 .030 2.632 4.547 My .050 .126 213 .018	Mz .150 .387 .040 .044 2.577 5.410 Mz .159 .324 .033 .044

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Run # 13	Wind 60.0	Elev 45.0	Vel 12.6			
Comp : Mean :	Fx .825	Fy .135	Fz 762	Мх .122	Му 014	Mz .137
Max : Min : Rms :	1.691 .166 .234	.038	215 -1.498 .206	.044	018 485 .005	.282 .043 .037
Gfac : Pfac :	2.050 3.704	76	1.966 3.576		35.757 96.198	2.066 3.960
Run # 14	Wind 60.0	Elev 30.0	Vel 12.8			
Comp : Mean :	Fx .438	Fy .110	Fz 713	Mx .124	Му 040	Mz .081
Max : Min : Rms :	.954 .041 .143	.036	216 -1.448 .221	.051	045 571 .017	.171 .017 .026
Gfac : Pfac :	2.181 3.625		2.030 3.318		14.206 31.935	2.122 3.492
Run # 15	Wind 60.0	Elev 15.0	Vel 12.7			
Run # 15 Comp : Mean :	Wind 60.0 Fx .118	Elev 15.0 Fy .079	Vel 12.7 Fz 442	Mx .073	Му 030	Mz .025
Run # 15 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx .118 .314 124 .054	Elev 15.0 Fy .079	Vel 12.7 Fz 442 .043 -1.136 .197	Mx .073 .047	My 030 057 473 .020	Mz .025 .070 007 .011
Run # 15 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx .118 .314 124 .054 2.659 3.635	Elev 15.0 Fy .079	Vel 12.7 Fz 442 .043 -1.136 .197 2.571 3.516	Mx .073 .047	My 030 057 473 .020 15.704 22.514	Mz .025 .070 007 .011 2.811 3.953
Run # 15 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 16	Wind 60.0 Fx .118 .314 124 .054 2.659 3.635 Wind 30.0	Elev 15.0 .079 .036 Elev 75.0	Vel 12.7 Fz 442 .043 -1.136 .197 2.571 3.516 Vel 12.7	Mx .073 .047	My 030 057 473 .020 15.704 22.514	Mz .025 .070 007 .011 2.811 3.953
Run # 15 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 16 Comp : Mean :	Wind 60.0 Fx .118 .314 124 .054 2.659 3.635 Wind 30.0 Fx 1.403	Elev 15.0 .079 .036 Elev 75.0 Fy .159	Vel 12.7 Fz 442 .043 -1.136 .197 2.571 3.516 Vel 12.7 Fz 288	Mx .073 .047 .047 Mx .015	My 030 057 473 .020 15.704 22.514 My .095	Mz .025 .070 007 .011 2.811 3.953 Mz .136
Run # 15 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 16 Comp : Mean : Mean : Min : Rms :	Wind 60.0 Fx .118 .314 124 .054 2.659 3.635 Wind 30.0 Fx 1.403 2.629 .463 .303	Elev 15.0 Fy .079 .036 Elev 75.0 Fy .159 .034	Vel 12.7 Fz 442 .043 -1.136 .197 2.571 3.516 Vel 12.7 Fz 288 118 505 .059	Mx .073 .047 .047 .015 .005	My 030 057 473 .020 15.704 22.514 My .095 .226 020 .033	Mz .025 .070 007 .011 2.811 3.953 Mz .136 .292 .028 .038

Run # 17	Wind 30.0	Elev 60.0	Vel 12.5			
Comp : Mean :	Fx 1.249	Fy .180	Fz 689	Mx .039	My .052	Mz .114
Max : Min : Rms :	2.338 .393 .288	.042	335 -1.310 .154	.018	.172 051 .024	.238 .034 .032
Gfac : Pfac :	1.873 3.780		1.902 4.044		3.274 4.908	2.091 3.921
Run # 18	Wind 30.0	Elev 45.0	Vel 12.6			
Comp : Mean :	Fx 1.021	Fy .177	Fz 966	Mx .058	My .002	Mz .078
Max : Min : Rms :	1.928 .284 .235	.041	447 -1.753 .213	.030	.006 127 .001	.179 .000 .026
Gfac : Pfac :	1.889 3.860		1.814 3.701		2.654 3.196	2.297 3.884
Run # 19	Wind 30.0	Elev 30.0	Vel 12.6			
Run # 19 Comp : Mean :	Wind 30.0 Fx .684	Elev 30.0 Fy .160	Vel 12.6 Fz -1.110	Mx .112	My 090	Mz .066
Run # 19 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .684 1.344 .078 .179	Elev 30.0 Fy .160	Vel 12.6 Fz -1.110 452 -2.138 .288	Mx .112 .037	My 090 109 318 .029	Mz .066 .153 .003 .025
Run # 19 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx .684 1.344 .078 .179 1.965 3.681	Elev 30.0 Fy .160	Vel 12.6 Fz -1.110 452 -2.138 .288 1.926 3.568	Mx .112 .037	My 090 109 318 .029 3.549 7.761	Mz .066 .153 .003 .025 2.319 3.531
Run # 19 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 20	Wind 30.0 Fx .684 1.344 .078 .179 1.965 3.681 Wind 30.0	Elev 30.0 Fy .160 .042 Elev 15.0	Vel 12.6 Fz -1.110 452 -2.138 .288 1.926 3.568 Vel 12.7	Mx .112 .037	My 090 109 318 .029 3.549 7.761	Mz .066 .153 .003 .025 2.319 3.531
Run # 19 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 20 Comp : Mean :	Wind 30.0 Fx .684 1.344 .078 .179 1.965 3.681 Wind 30.0 Fx .272	Elev 30.0 .160 .042 Elev 15.0 Fy .105	Vel 12.6 Fz -1.110 452 -2.138 .288 1.926 3.568 Vel 12.7 Fz 785	Mx .112 .037 Mx .100	My 090 109 318 .029 3.549 7.761 My 101	Mz .066 .153 .003 .025 2.319 3.531 Mz .028
Run # 19 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 20 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .684 1.344 .078 .179 1.965 3.681 Wind 30.0 Fx .272 .561 070 .086	Elev 30.0 .160 .042 Elev 15.0 .105 .033	Vel 12.6 Fz -1.110 452 -2.138 .288 1.926 3.568 Vel 12.7 Fz 785 254 -1.704 .256	Mx .112 .037 .037 Mx .100 .040	My 090 109 318 .029 3.549 7.761 My 101 098 356 .041	Mz .066 .153 .003 .025 2.319 3.531 Mz .028 .077 010 .013

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Run # 21	Wind 90.0	Elev 70.0	Vel 12.7			
Comp : Mean :	Fx .020	Fy .044	Fz 049	Mx 004	Му .009	Mz .007
Max : Min : Rms :	.774 677 .073	.161	.144 223 .045	.011	.118 089 .029	.186 175 .045
Gfac : Pfac :	39.230 10.403		4.519 3.851		13.034 3.769	25.710 3.982
Run # 22	Wind 90.0	Elev 50.0	Vel 12.5			
Comp : Mean :	Fx .039	Fy .054	Fz 059	Mx .003	Му .009	Mz .017
Max : Min : Rms :	.710 483 .088	.120	.250 475 .094	.013	.109 110 .037	.174 115 .039
Gfac : Pfac :	18.128 7.654		8.062 4.431		12.221 2.734	10.445 4.084
Run # 23	Wind 90.0	Elev 25.0	Vel 12.8			
Run # 23 Comp : Mean :	Wind 90.0 Fx .023	Elev 25.0 Fy .054	Vel 12.8 Fz 092	Mx .010	Му .008	Mz .013
Run # 23 Comp : Mean : Max : Min : Rms :	Wind 90.0 Fx .023 .324 244 .026	Elev 25.0 Fy .054 .062	Vel 12.8 092 .334 667 .111	Mx .010 .029	My .008 .092 066 .023	Mz .013 .098 053 .016
Run # 23 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 90.0 Fx .023 .324 244 .026 14.181 11.454	Elev 25.0 Fy .054 .062	Vel 12.8 Fz 092 .334 667 .111 7.249 5.192	Mx .010 .029	My .008 .092 066 .023 12.109 3.693	Mz .013 .098 053 .016 7.693 5.166
Run # 23 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 24	Wind 90.0 Fx .023 .324 244 .026 14.181 11.454 Wind 15.0	Elev 25.0 Fy .054 .062 Elev 90.0	Vel 12.8 Fz 092 .334 667 .111 7.249 5.192 Vel 12.3	Mx .010 .029	My .008 .092 066 .023 12.109 3.693	Mz .013 .098 053 .016 7.693 5.166
Run # 23 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 24 Comp : Mean :	Wind 90.0 Fx .023 .324 244 .026 14.181 11.454 Wind 15.0 Fx 1.596	Elev 25.0 Fy .054 .062 Elev 90.0 Fy .044	Vel 12.8 Fz 092 .334 667 .111 7.249 5.192 Vel 12.3 Fz 085	Mx .010 .029 Mx .010	My .008 .092 066 .023 12.109 3.693 My .122	Mz .013 .098 053 .016 7.693 5.166 Mz .123
Run # 23 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 24 Comp : Mean : Mean : Max : Min : Rms :	Wind 90.0 Fx .023 .324 244 .026 14.181 11.454 Wind 15.0 Fx 1.596 2.848 .539 .375	Elev 25.0 Fy .054 .062 Elev 90.0 Fy .044 .010	Vel 12.8 Fz 092 .334 667 .111 7.249 5.192 Vel 12.3 Vel 12.3 Fz 085 016 163 .023	Mx .010 .029 .029 .029 .029	My .008 .092 066 .023 12.109 3.693 My .122 .294 .016 .041	Mz .013 .098 053 .016 7.693 5.166 Mz .123 .283 009 .040

Run # 25	Wind 15.0	Elev 60.0	Vel 12.6			
Comp : Mean :	Fx 1.326	Fy .097	Fz 801	Мх .034	Му .046	Mz .086
Max : Min : Rms :	2.278 .395 .286	.021	383 -1.364 .165	.019	.143 053 .025	.207 .001 .030
Gfac : Pfac :	1.718 3.332		1.702 3.418		3.140 3.882	2.415 4.014
Run # 26	Wind 15.0	Elev 30.0	Vel 12.4			
Comp : Mean :	Fx .810	Fy .126	Fz -1.256	Mx .065	My 096	Mz .045
Max : Min : Rms :	1.408 .028 .184	.029	622 -2.151 .277	.023	123 264 .034	.127 024 .023
Gfac : Pfac :	1.738 3.249		1.712 3.228		2.757 4.935	2.823 3.571
Run # 27	Wind 15.0	Elev .0	Vel 12.7			
Run # 27 Comp : Mean :	Wind 15.0 Fx .061	Elev .0 Fy .035	Vel 12.7 Fz 173	Mx .007	Му 024	Mz .001
Run # 27 Comp : Mean : Max : Min : Rms :	Wind 15.0 Fx .061 .168 367 .030	Elev .0 Fy .035 .017	Vel 12.7 Fz 173 .172 739 .137	Mx .007 .012	My 024 094 321 .037	Mz .001 .012 010 .003
Run # 27 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 15.0 Fx .061 .168 367 .030 2.759 3.611	Elev .0 Fy .035 .017	Vel 12.7 Fz 173 .172 739 .137 4.273 4.139	Mx .007 .012	My 024 094 321 .037 13.336 8.016	Mz .001 .012 010 .003 12.668 3.673
Run # 27 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 28	Wind 15.0 Fx .061 .168 367 .030 2.759 3.611 Wind 30.0	Elev .0 Fy .035 .017 Elev 90.0	Vel 12.7 Fz 173 .172 739 .137 4.273 4.139 Vel 12.7	Mx .007 .012	My 024 094 321 .037 13.336 8.016	Mz .001 .012 010 .003 12.668 3.673
Run # 27 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 28 Comp : Mean :	Wind 15.0 Fx .061 .168 367 .030 2.759 3.611 Wind 30.0 Fx 1.445	Elev .0 Fy .035 .017 Elev 90.0 Fy .129	Vel 12.7 Fz 173 .172 739 .137 4.273 4.139 Vel 12.7 Fz 005	Mx .007 .012 Mx 003	My 024 094 321 .037 13.336 8.016 My .114	Mz .001 .012 010 .003 12.668 3.673 Mz .143
Run # 27 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 28 Comp : Mean : Mean : Max : Min : Rms :	Wind 15.0 Fx .061 .168 367 .030 2.759 3.611 Wind 30.0 Fx 1.445 2.833 .556 .310	Elev .0 Fy .035 .017 Elev 90.0 Fy .129 .028	Vel 12.7 Fz 173 .172 739 .137 4.273 4.139 Vel 12.7 Fz 005 .065 063 .017	Mx .007 .012 .012 .003 .001	My 024 094 321 .037 13.336 8.016 My .114 .248 .012 .036	Mz .001 .012 010 .003 12.668 3.673 12.668 3.673 Mz .143 .279 .020 .037

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Run # 29	Wind 30.0	Elev .0	Vel 12.8			
Comp : Mean :	Fx .053	Fy .050	Fz 249	Mx .022	Му 032	Mz .001
Max : Min : Rms :	.174 164 .027	.025	.221 915 .160	.025	105 246 .035	.014 011 .003
Gfac : Pfac :	3.293 4.548		3.676 4.157		7.760 6.053	13.949 3.857
Run # 30	Wind 45.0	Elev 90.0	Ve] 12.7			
Comp : Mean :	Fx 1.283	Fy .091	Fz .039	Mx 003	Му .105	Mz .150
Max : Min : Rms :	2.365 .486 .305	.022	.110 028 .022	.001	.221 .011 .033	.313 .059 .038
Gfac : Pfac :	1.843 3.543		2.812 3.293		2.107 3.515	2.084 4.326
Run # 31	Wind 45.0	Elev 60.0	Vel 12.6			
Run # 31 Comp : Mean :	Wind 45.0 Fx 1.144	Elev 60.0 Fy .141	Vel 12.6 Fz 659	Mx .056	My .049	Mz .119
Run # 31 Comp : Mean : Max : Min : Rms :	Wind 45.0 Fx 1.144 2.210 .343 .273	Elev 60.0 Fy .141	Vel 12.6 659 249 -1.226 .147	Mx .056 .023	My .049 .133 080 .020	Mz .119 .269 .025 .033
Run # 31 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 45.0 Fx 1.144 2.210 .343 .273 1.931 3.908	Elev 60.0 Fy .141	Vel 12.6 Fz 659 249 -1.226 .147 1.861 3.851	Mx .056 .023	My .049 .133 080 .020 2.698 4.095	Mz .119 .269 .025 .033 2.253 4.563
Run # 31 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 32	Wind 45.0 Fx 1.144 2.210 .343 .273 1.931 3.908 Wind 45.0	Elev 60.0 .141 .034 Elev 30.0	Vel 12.6 Fz 659 249 -1.226 .147 1.861 3.851 Vel 12.8	Mx .056 .023	My .049 .133 080 .020 2.698 4.095	Mz .119 .269 .025 .033 2.253 4.563
Run # 31 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 32 Comp : Mean :	Wind 45.0 Fx 1.144 2.210 .343 .273 1.931 3.908 Wind 45.0 Fx .647	Elev 60.0 .141 .034 Elev 30.0 Fy .147	Vel 12.6 659 249 -1.226 .147 1.861 3.851 Vel 12.8 Fz -1.031	Mx .056 .023 Mx .147	My .049 .133 080 .020 2.698 4.095 My 088	Mz .119 .269 .025 .033 2.253 4.563 Mz .085
Run # 31 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 32 Comp : Mean : Mean : Min : Rms :	Wind 45.0 Fx 1.144 2.210 .343 .273 1.931 3.908 Wind 45.0 Fx .647 1.237 .075 .175	Elev 60.0 Fy .141 .034 Elev 30.0 Fy .147 .040	Vel 12.6 Fz 659 249 -1.226 .147 1.861 3.851 Vel 12.8 Fz -1.031 347 -1.986 .272	Mx .056 .023 .023 .147 .047	My .049 .133 080 .020 2.698 4.095 4.095 My 088 082 461 .028	Mz .119 .269 .025 .033 2.253 4.563 4.563 Mz .085 .175 .015 .027

Run # 33	Wind 45.0	Elev .0	Vel 12.8			
Comp : Mean :	Fx .040	Fy .058	Fz 199	Mx .020	Му 018	Mz 008.
Max : Min : Rms :	.120 120 .019	.027	.215 792 .152	.030	083 244 .028	.016 003 .003
Gfac : Pfac :	3.034 4.328		3.977 3.887		13.672 8.219	2.008 2.779
Run # 34	Wind 60.0	Elev 90.0	Vel 12.8			
Comp : Mean :	Fx 1.184	Fy .090	Fz .035	Мх 003	Му .098	Mz .164
Max : Min : Rms :	2.441 .364 .325	.025	.153 047 .028	.001	.210 007 .034	.336 .064 .043
Gfac : Pfac :	2.061 3.867		4.393 4.175		2.147 3.305	2.050 4.016
Run # 35	Wind 60.0	Elev .0	Vel 12.8			
Comp : Mean :	Fx .019	Fy .061	Fz 213	Мх .023	Му 011	Mz .007
Max : Min : Rms :	.057 105 .010	.031	.264 794 .148	.036	057 347 .018	.016 003 .003
Gfac : Pfac :	3.009 3.917		3.726 3.930		30.455 18.974	2.242 3.215
Run # 36	Wind 75.0	Elev 90.0	Vel 12.9			
Comp : Mean :	Fx .736	Fy .077	Fz .027	Мх 003	Му .075	Mz .158
Max : Min : Rms :	2.314 131 .302	.032	.180 078 .035	.001	.224 054 .038	.409 013 .055

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Run # 37	Wind 75.0	Elev 60.0	Vel 12.7			
Comp : Mean :	Fx .614	Fy .099	Fz 322	Mx 068.	My .035	Mz .131
Max : Min : Rms :	1.624 059 .250	.040	.002 798 .120	.036	.095 608 .019	.330 011 .048
Gfac : Pfac :	2.646 4.035		2.474 3.962		2.704 3.204	2.529 4.131
Run # 38	Wind 75.0	Elev 30.0	Vel 12.6			
Comp : Mean :	Fx .227	Fy .085	Fz 394	Mx .079	Му .000	Mz .058
Max : Min : Rms :	.681 087 .116	.043	.019 -1.122 .181	.050	.001 -1.005 .000	.167 015 .026
Gfac : Pfac :	2.995 3.919		2.846 4.013		1.694 1.091	2.909 4.278
Run # 39	Wind 75.0	Elev .0	Vel 12.6			
Run # 39 Comp : Mean :	Wind 75.0 Fx .001	Elev .0 Fy .061	Vel 12.6 Fz 146	Mx .016	My 002	Mz .008
Run # 39 Comp : Mean : Max : Min : Rms :	Wind 75.0 Fx .001 .003 183 .000	Elev .0 Fy .061	Vel 12.6 Fz 146 .359 682 .136	Mx .016 .038	My 002 016 619 .005	Mz .008 .020 003 .004
Run # 39 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 75.0 Fx .001 .003 183 .000 3.297 4.407	Elev .0 Fy .061 .032	Vel 12.6 Fz 146 .359 682 .136 4.684 3.943	Mx .016 .038	My 002 016 619 .005 301.489 128.924	Mz .008 .020 003 .004 2.402 3.294
Run # 39 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 40	Wind 75.0 Fx .001 .003 183 .000 3.297 4.407 Wind 90.0	Elev .0 Fy .061 .032 Elev 90.0	Vel 12.6 Fz 146 .359 682 .136 4.684 3.943 Vel 12.8	Mx .016 .038	My 002 016 619 .005 301.489 128.924	Mz .008 .020 003 .004 2.402 3.294
Run # 39 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 40 Comp : Mean :	Wind 75.0 Fx .001 .003 183 .000 3.297 4.407 Wind 90.0 Fx 018	Elev .0 Fy .061 .032 Elev 90.0 Fy .038	Vel 12.6 Fz 146 .359 682 .136 4.684 3.943 Vel 12.8 Fz 026	Mx .016 .038 038	My 002 016 619 .005 301.489 128.924 My .005	Mz .008 .020 003 .004 2.402 3.294 Mz 007
Run # 39 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 40 Comp : Mean : Mean : Max : Min : Rms :	Wind 75.0 Fx .001 .003 183 .000 3.297 4.407 Wind 90.0 Fx 018 .797 739 .081	Elev .0 Fy .061 .032 Elev 90.0 Fy .038 .177	Vel 12.6 Fz 146 .359 682 .136 4.684 3.943 Vel 12.8 Vel 12.8 Fz 026 .079 115 .027	Mx .016 .038 .038 004 .017	My 002 016 619 .005 301.489 128.924 My .005 .143 113 .021	Mz .008 .020 003 .004 2.402 3.294 Mz 007 .183 177 .050

Run # 41	Wind 90.0	Elev .0	Vel 13.0				
Comp : Mean :	Fx 010	Fy .054	Fz 105	Mx .014	Му .005	Mz .008	
Max : Min : Rms :	.039 055 .005	.028	.288 582 .115	.033	.058 045 .011	.020 002 .003	
Gfac : Pfac :	5.511 8.656		5.561 4.137		12.430 4.901	2.555 3.896	
Run # 42	Wind .0	Elev 90.0	Vel 12.5				
Comp : Mean :	Fx 1.605	Fy .071	Fz 047	Mx .006	Му .125	Mz .050	
Max : Min : Rms :	2.985 .577 .363	.016	.013 118 .018	.002	.341 .003 .046	.183 084 .036	
Gfac : Pfac :	1.860 3.798		2.520 3.870		2.733 4.712	3.627 3.675	
Run # 43	Wind 10.0	Elev 90.0	Vel 12.7				
Comp : Mean :	Fx 1.582	Fy .119	Fz 032	Mx .001	Му .120	Mz .074	
Max : Min : Rms :	2.867 .347		.024 091		.332	.212	
14115 .	.331	.025	.017	.000	.042	.038	
Gfac : Pfac :	.331 1.812 3.878	.025	.017 2.832 3.475	.000	.042 2.769 5.101	.038 2.860 3.666	
Gfac : Pfac : Run # 44	.331 1.812 3.878 Wind 20.0	.025 Elev 90.0	.017 2.832 3.475 Vel 12.6	.000	.042 2.769 5.101	.038 2.860 3.666	
Gfac : Pfac : Run # 44 Comp : Mean :	.331 1.812 3.878 Wind 20.0 Fx 1.478	.025 Elev 90.0 Fy 023	.017 2.832 3.475 Vel 12.6 Fz .020	.000 Mx .011	.042 2.769 5.101 My .116	.038 2.860 3.666 Mz .116	
Gfac : Pfac : Run # 44 Comp : Mean : Max : Min : Rms :	.331 1.812 3.878 Wind 20.0 Fx 1.478 2.825 .697 .315	.025 Elev 90.0 Fy 023 .005	.017 2.832 3.475 Vel 12.6 Fz .020 .078 045 .016	.000 Mx .011 .004	.042 2.769 5.101 My .116 .282 .009 .039	.038 2.860 3.666 .116 .272 .006 .036	

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Run # 45	Wind 30.0	Elev 90.0	Vel 12.7			•
Comp : Mean :	Fx 1.392	Fy .034	Fz .013	Mx .004	Му .108	Mz .123
Max : Min : Rms :	2.577 .557 .314	.008	.080 046 .018	.001	.256 019 .037	.291 .023 .035
Gfac : Pfac :	1.852 3.770		6.013 3.754		2.371 3.972	2.373 4.824
Run # 46	Wind 40.0	Elev 90.0	Vel 12.6			
Comp : Mean :	Fx 1.332	Fy .031	Fz .037	Mx .004	Му .105	Mz .137
Max : Min : Rms :	2.402 .522 .296	.007	.117 024 .020	.001	.256 .004 .035	.294 .047 .036
Gfac : Pfac :	1.804 3.611		3.171 3.961		2.452 4.344	2.146 4.414
Run # 47	Wind 50.0	Elev 90.0	Vel 12.7			
Run # 47 Comp : Mean :	Wind 50.0 Fx 1.259	Elev 90.0 Fy .052	Vel 12.7 Fz .035	Mx .001	Му .101	Mz .140
Run # 47 Comp : Mean : Max : Min : Rms :	Wind 50.0 Fx 1.259 2.415 .355 .310	Elev 90.0 Fy .052	Vel 12.7 Fz .035 .109 036 .021	Mx .001 .000	My .101 .238 007 .034	Mz .140 .260 .035 .037
Run # 47 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 50.0 Fx 1.259 2.415 .355 .310 1.919 3.732	Elev 90.0 Fy .052	Vel 12.7 Fz .035 .109 036 .021 3.095 3.513	Mx .001 .000	My .101 .238 007 .034 2.352 4.003	Mz .140 .260 .035 .037 1.860 3.226
Run # 47 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 48	Wind 50.0 Fx 1.259 2.415 .355 .310 1.919 3.732 Wind 60.0	Elev 90.0 .052 .013 Elev 90.0	Vel 12.7 Fz .035 .109 036 .021 3.095 3.513 Vel 12.6	Mx .001 .000	My .101 .238 007 .034 2.352 4.003	Mz .140 .260 .035 .037 1.860 3.226
Run # Comp : Mean : Min : Rms : Gfac : Pfac : Run # 48 Comp : Mean :	Wind 50.0 Fx 1.259 2.415 .355 .310 1.919 3.732 Wind 60.0 Fx 1.211	Elev 90.0 .052 .013 Elev 90.0 Fy .070	Vel 12.7 Fz .035 .109 036 .021 3.095 3.513 Vel 12.6 Fz .068	Mx .001 .000 .000 Mx 002	My .101 .238 007 .034 2.352 4.003 My .095	Mz .140 .035 .037 1.860 3.226 Mz .152
Run # Comp : Mean : Min : Rms : Gfac : Pfac : Run # 48 Comp : Mean : Max : Min : Rms :	Wind 50.0 Fx 1.259 2.415 .355 .310 1.919 3.732 Wind 60.0 Fx 1.211 2.390 .375 .328	Elev 90.0 .052 .013 Elev 90.0 .070 .019	Vel 12.7 Fz .035 .109 036 .021 3.095 3.513 Vel 12.6 Fz .068 .165 018 .027	Mx .001 .000 .000 	My .101 .238 007 .034 2.352 4.003 My .095 .260 006 .036	Mz .140 .260 .035 .037 1.860 3.226 Mz .152 .338 .029 .044

Run # 49	Wind 65.0	Elev 90.0	Vel 13.0			
Comp : Mean :	Fx 1.033	Fy .050	Fz .054	Мх 000	Му .088	Mz .169
Max : Min : Rms :	2.424 .147 .307	.015	.174 031 .030	.000	.220 034 .035	.441 .030 .050
Gfac : Pfac :	2.346 4.525	ن	3.185 4.032		2.492 3.773	2.615 5.440
Run # 50	Wind 70.0	Elev 90.0	Vel 13.0			
Comp : Mean :	Fx .878	Fy .068	Fz .044	Mx 000	Му .078	Mz .170
Max : Min : Rms :	2.123 .075 .303	.023	.165 038 .028	.000	.260 035 .036	.382 .036 .051
Gfac : Pfac :	2.417 4.112		3.729 4.266		3.335 4.984	2.243 4.149
Run # 51	Wind 75.0	Elev 90.0	Vel 12.8			
Run # 51 Comp : Mean :	Wind 75.0 Fx .657	Elev 90.0 Fy .054	Vel 12.8 Fz .029	Mx 002	Му .065	Mz .146
Run # 51 Comp : Mean : Max : Min : Rms :	Wind 75.0 Fx .657 1.805 257 .293	Elev 90.0 Fy .054	Vel 12.8 Fz .029 .145 066 .030	Mx 002 .001	My .065 .212 065 .038	Mz .146 .370 031 .055
Run # 51 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 75.0 Fx .657 1.805 257 .293 2.746 3.916	Elev 90.0 Fy .054	Vel 12.8 Fz .029 .145 066 .030 4.940 3.836	Mx 002 .001	My .065 .212 065 .038 3.254 3.875	Mz .146 .370 031 .055 2.533 4.085
Run # 51 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 52	Wind 75.0 Fx .657 1.805 257 .293 2.746 3.916 Wind 80.0	Elev 90.0 Fy .054 .024 Elev 90.0	Vel 12.8 Fz .029 .145 066 .030 4.940 3.836 Vel 12.0	Mx 002 .001	My .065 .212 065 .038 3.254 3.875	Mz .146 .370 031 .055 2.533 4.085
Run # 51 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 52 Comp : Mean :	Wind 75.0 Fx .657 1.805 257 .293 2.746 3.916 Wind 80.0 Fx .433	Elev 90.0 Fy .054 .024 Elev 90.0 Fy .059	Vel 12.8 Fz .029 .145 066 .030 4.940 3.836 Vel 12.0 Fz .045	Mx 002 .001 .001	My .065 .212 065 .038 3.254 3.875 My .045	Mz .146 .370 031 .055 2.533 4.085 Mz .103
Run # 51 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 52 Comp : Mean : Max : Min : Rms :	Wind 75.0 Fx .657 1.805 257 .293 2.746 3.916 Wind 80.0 Fx .433 1.519 235 .261	Elev 90.0 Fy .054 .024 Elev 90.0 Fy .059 .036	Vel 12.8 Fz .029 .145 066 .030 4.940 3.836 Vel 12.0 Fz .045 .162 037 .030	Mx 002 .001 .001 004 .003	My .065 .212 065 .038 3.254 3.875 .038 .045 .203 080 .035	Mz .146 .370 031 .055 2.533 4.085 Mz .103 .307 076 .055

Run # 53	ŧ	Wind 85.0	Elev 90.0	Vel 11.9			
Comp Mean	:	Fx .233	Fy .060	Fz .005	Mx 002	My .026	Mz .056
Max Min Rms	::	1.444 523 .228	.059	.144 078 .028	.002	.186 115 .032	.287 131 .055
Gfac Pfac	:	6.192 5.311		29.299 4.990	×	7.166 5.041	5.095 4.169

APPENDIX F

Data for File SCPT3 - Parabolic Field Study

NOTE: Data in this file have <u>not</u> been corrected by the velocity ratio discussed in Section 1.5.1.

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Run # 1	Wind .0	Elev 90.0	Vel 10.7			
Comp : Mean :	Fx 1.123	Fy .100	Fz 109	Mx .008	My .093	Mz .054
Max : Min : Rms :	3.287 .151 .432	.038	.010 317 .044	.005	.512 063 .058	.355 073 .041
Gfac : Pfac :	2.928 5.014		2.921 4.754		5.523 7.175	6.598 7.322
Run # 2	Wind 60.0	Elev 90.0	Vel 11.9			
Comp : Mean :	Fx .850	Fy .104	Fz .020	Mx .001	Му .111	Mz .072
Max : Min : Rms :	2.768 106 .334	.041	.263 110 .049	.001	.429 052 .061	.384 089 .058
Gfac : Pfac :	3.255 5.733		12.930 4.993		3.856 5.234	5.306 5.339
Run # 3	Wind .0	Elev 30.0	Vel 11.9			
Run # 3 Comp : Mean :	Wind .0 Fx .501	Elev 30.0 Fy .119	Vel 11.9 Fz -1.088	Mx .004	Му 080	Mz .014
Run # 3 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .501 .979 .209 .114	Elev 30.0 Fy .119 .027	Vel 11.9 Fz -1.088 486 -2.150 .236	Mx .004 .002	My 080 .021 224 .039	Mz .014 .083 046 .013
Run # 3 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .501 .979 .209 .114 1.954 4.189	Elev 30.0 Fy .119 .027	Vel 11.9 -1.088 486 -2.150 .236 1.976 4.499	Mx .004 .002	My 080 .021 224 .039 2.809 3.721	Mz .014 .083 046 .013 5.938 5.183
Run # 3 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 4	Wind .0 Fx .501 .979 .209 .114 1.954 4.189 Wind .0	Elev 30.0 Fy .119 .027 Elev 60.0	Vel 11.9 -1.088 486 -2.150 .236 1.976 4.499 Vel 11.8	Mx .004 .002	My 080 .021 224 .039 2.809 3.721	Mz .014 .083 046 .013 5.938 5.183
Run # 3 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 4 Comp : Mean :	Wind .0 Fx .501 .979 .209 .114 1.954 4.189 Wind .0 Fx .855	Elev 30.0 Fy .119 .027 Elev 60.0 Fy .071	Vel 11.9 Fz -1.088 -2.150 .236 1.976 4.499 Vel 11.8 Fz .324	Mx .004 .002 .002 Mx 001	My 080 .021 224 .039 2.809 3.721 My .135	Mz .014 .083 046 .013 5.938 5.183 5.183
Run # 3 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 4 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .501 .979 .209 .114 1.954 4.189 Wind .0 Fx .855 1.928 .241 .237	Elev 30.0 Fy .119 .027 Elev 60.0 Fy .071 .020	Vel 11.9 -1.088 486 -2.150 .236 1.976 4.499 Vel 11.8 Fz .324 .717 .076 .089	Mx .004 .002 .002 001 .001	My 080 .021 224 .039 2.809 3.721 My .135 .347 035 .053	Mz .014 .083 046 .013 5.938 5.183 5.183 Mz .045 .154 050 .024

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Kun # 5	Wind 15.0	Elev 60.0	Vel 11.7			ing in the	
Comp : Mean :	Fx .842	Fy .091	Fz .333	Mx 019	Му .131	Mz .079	÷
Max : Min : Rms :	1.751 256 .252	.027	.722 .065 .099	.008	.368 141 .057	.230 .005 .029	
Gfac : Pfac :	2.080 3.606		2.167 3.936		2.803 4.182	2.912 5.288	
Run # 6	Wind 30.0	Elev 60.0	Vel 11.8				
Comp : Mean :	Fx .801	Fy .135	Fz .334	Mx 039	Му .123	Mz .099	
Max : Min : Rms :	1.815 .076 .238	.040	.698 .093 .098	.016	.349 076 .051	.249 .018 .033	
Gfac : Pfac :	2.266 4.267		2.090 3.701		2.842 4.399	2.525 4.590	
Run # 7	Wind 15.0	Elev 30.0	Vel 11.8				
Run # 7 Comp : Mean :	Wind 15.0 Fx .534	Elev 30.0 Fy .131	Vel 11.8 Fz -1.039	Mx .033	Му 071	Mz .026	
Run # 7 Comp : Mean : Max : Min : Rms :	Wind 15.0 Fx .534 1.233 479 .126	Elev 30.0 Fy .131	Ve1 11.8 -1.039 479 -2.552 .242	Mx .033 .017	My 071 133 412 .037	Mz .026 .090 035 .015	
Run # 7 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 15.0 Fx .534 1.233 479 .126 2.308 5.552	Elev 30.0 Fy .131	Vel 11.8 -1.039 479 -2.552 .242 2.456 6.250	Mx .033 .017	My 071 133 412 .037 5.772 9.253	Mz .026 .090 035 .015 3.514 4.221	
Run # 7 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 8	Wind 15.0 Fx .534 1.233 479 .126 2.308 5.552 Wind 30.0	Elev 30.0 Fy .131 .031 Elev 30.0	Ve1 11.8 Fz -1.039 479 -2.552 .242 2.456 6.250 Ve1 12.0	Mx .033 .017	My 071 133 412 .037 5.772 9.253	Mz .026 .090 035 .015 3.514 4.221	
Run # Comp : Mean : Min : Rms : Gfac : Pfac : Run # 8 Comp : Mean :	Wind 15.0 Fx .534 1.233 479 .126 2.308 5.552 Wind 30.0 Fx .448	Elev 30.0 Fy .131 .031 Elev 30.0 Fy .099	Vel 11.8 -1.039 479 -2.552 .242 2.456 6.250 Vel 12.0 Fz -1.012	Mx .033 .017 Mx .057	My 071 133 412 .037 5.772 9.253 My 051	Mz .026 .090 035 .015 3.514 4.221 Mz .042	
Run # Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # Comp : Mean : Max : Min : Rms : Max :	Wind 15.0 Fx .534 1.233 479 .126 2.308 5.552 Wind 30.0 Fx .448 1.045 122 .118	Elev 30.0 Fy .131 .031 Elev 30.0 Fy .099 .026	Ve1 11.8 Fz -1.039 479 -2.552 .242 2.456 6.250 Ve1 12.0 Ve1 12.0 Fz -1.012 471 -2.019 .222	Mx .033 .017 .017 .057 .032	My 071 133 412 .037 5.772 9.253 My 051 132 250 .029	Mz .026 .090 035 .015 3.514 4.221 Mz .042 .131 015 .017	

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Run # 9	Wind 30.0	Elev 30.0	Vel 11.6			
Comp : Mean :	Fx .389	Fy .085	Fz 818	Mx .056	Му 030	Mz .052
Max : Min : Rms :	1.491 201 .209	.046	.009 -3.088 .415	.055	134 343 .029	.180 009 .026
Gfac : Pfac :	3.837 5.273		3.775 5.466		11.460 10.644	3.468 4.875
Run # 10	Wind 15.0	Elev 30.0	Vel 11.9			
Comp : Mean :	Fx .379	Fy .087	Fz 832	Mx .031	My 046	Mz .024
Max : Min : Rms :	1.104 507 .178	.041	024 -2.627 .389	.029	189 426 .044	.123 034 .018
Gfac : Pfac :	2.913 4.082		3.160 4.621		9.343 8.667	5.202 5.421
Run # 11	Wind .0	Elev 30.0	Vel 11.7			
Run # 11 Comp : Mean :	Wind .0 Fx .458	Elev 30.0 Fy .084	Vel 11.7 Fz 928	Mx .011	Му 049	Mz .017
Run # 11 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .458 1.404 013 .215	Elev 30.0 Fy .084	Vel 11.7 Fz 928 051 -2.839 .424	Mx .011 .011	My 049 .112 244 .050	Mz .017 .101 076 .019
Run # 11 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .458 1.404 013 .215 3.065 4.390	Elev 30.0 Fy .084	Vel 11.7 Fz 928 051 -2.839 .424 3.058 4.502	Mx .011 .011	My 049 .112 244 .050 5.001 3.879	Mz .017 .101 076 .019 6.065 4.539
Run # 11 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 12	Wind .0 Fx .458 1.404 013 .215 3.065 4.390 Wind .0	Elev 30.0 Fy .084 .040 Elev 90.0	Vel 11.7 Fz 928 051 -2.839 .424 3.058 4.502 Vel 11.4	Mx .011 .011	My 049 .112 244 .050 5.001 3.879	Mz .017 .101 076 .019 6.065 4.539
Run # 11 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 12 Comp : Mean :	Wind .0 Fx .458 1.404 013 .215 3.065 4.390 Wind .0 Fx .854	Elev 30.0 Fy .084 .040 Elev 90.0 Fy .079	Vel 11.7 Fz 928 051 -2.839 .424 3.058 4.502 Vel 11.4 Fz 141	Mx .011 .011 .011 Mx .007	My 049 .112 244 .050 5.001 3.879 My .074	Mz .017 .101 076 .019 6.065 4.539 Mz .053
Run # 11 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 12 Comp : Mean : Mean : Max : Min : Rms :	Wind .0 Fx .458 1.404 013 .215 3.065 4.390 Wind .0 Fx .854 2.821 .075 .414	Elev 30.0 Fy .084 .040 Elev 90.0 Fy .079 .038	Vel 11.7 Fz 928 051 -2.839 .424 3.058 4.502 Vel 11.4 Fz 141 009 298 .042	Mx .011 .011 .011 Mx .007 .006	My 049 .112 244 .050 5.001 3.879 My .074 .377 044 .055	Mz .017 .101 076 .019 6.065 4.539 Mz .053 .256 129 .040

Run # 13	Wind 60.0	Elev 90.0	Vel 11.7				2
Comp : Mean :	Fx .695	Fy .049	Fz 014	Mx .004	My .091	Mz .094	
Max : Min : Rms :	3.291 242 .417	.029	.192 181 .056	.003	.384 073 .064	.437 106 .058	
Gfac : Pfac :	4.735 6.226		13.037 3.010	-	4.209 4.576	4.633 5.918	
Run # 14	Wind .0	Elev 60.0	Vel 11.5				
Comp : Mean :	Fx .557	Fy .054	Fz .218	Mx .000	Му .092	Mz .034	
Max : Min : Rms :	1.623 015 .220	.021	.651 014 .093	.000	.346 036 .052	.140 070 .026	
Gfac : Pfac :	2.911 4.842		2.987 4.657		3.740 4.843	4.108 4.138	
Run # 15	Wind 15.0	Elev 60.0	Vel 11.8				
Comp : Mean :	Fx .544	Fy .078	Fz .208	Мх 011	My .091	Mz .069	
Max : Min : Rms :	1.563 310 .230	.033	.654 111 .103	.006	.314 171 .052	.192 012 .026	
Gfac : Pfac :	2.874 4.424		3.148 4.351		3.433 4.238	2.798 4.662	
Run #							
16	Wind 30.0	Elev 60.0	Vel 11.8				
16 Comp : Mean :	Wind 30.0 Fx .480	Elev 60.0 Fy .093	Vel 11.8 Fz .236	Mx 025	Му .082	Mz .074	
16 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .480 1.557 198 .196	Elev 60.0 Fy .093	Vel 11.8 Fz .236 .623 074 .096	Mx 025 .014	My .082 .354 104 .047	Mz .074 .191 .003 .027	

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Run # 17	Wind 30.0	Elev 60.0	Vel 11.6			
Comp : Mean :	Fx .505	Fy .119	Fz .226	Мх 028	Му .089	Mz .088
Max : Min : Rms :	1.649 172 .216	.051	.642 082 .109	.016	.385 086 .049	.279 .000 .030
Gfac : Pfac :	3.264 5.294		2.845 3.834		4.344 6.020	3.165 6.285
Run # 18	Wind 15.0	Elev 60.0	Vel 11.4			
Comp : Mean :	Fx .568	Fy .066	Fz .218	Мх 015	My .100	Mz .074
Max : Min : Rms :	1.884 228 .240	.028	.729 055 .105	.008	.355 181 .055	.204 011 .029
Gfac : Pfac :	3.315 5.492		3.346 4.854		3.556 4.657	2.747 4.545
D		-1				
Run # 19	Wind .0	Elev 60.0	Vel 11.6			
Nun # 19 Comp : Mean :	Wind .0 Fx .565	Elev 60.0 Fy .037	Vei 11.6 Fz .218	Mx .002	Му .100	Mz .045
Comp : Mean : Max : Min : Rms :	Wind .0 Fx .565 1.549 .018 .214	Elev 60.0 Fy .037	Fz .218 .723 079 .093	Mx .002 .001	My .100 .334 015 .050	Mz .045 .159 036 .025
Nun # 19 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .565 1.549 .018 .214 2.740 4.600	ETev 60.0 Fy .037	Vel 11.6 Fz .218 .723 079 .093 3.312 5.448	Mx .002 .001	My .100 .334 015 .050 3.345 4.728	Mz .045 .159 036 .025 3.562 4.640
Run # 19 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 20	Wind .0 Fx .565 1.549 .018 .214 2.740 4.600 Wind .0	Elev 60.0 Fy .037 .014 Elev 90.0	Vel 11.6 Fz .218 .723 079 .093 3.312 5.448 Vel 11.5	Mx .002 .001	My .100 .334 015 .050 3.345 4.728	Mz .045 .159 036 .025 3.562 4.640
Run # 19 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 20 Comp : Mean :	Wind .0 Fx .565 1.549 .018 .214 2.740 4.600 Wind .0 Fx .762	Elev 60.0 Fy .037 .014 Elev 90.0 Fy .074	Vel 11.6 Fz .218 .723 079 .093 3.312 5.448 Vel 11.5 Fz 087	Mx .002 .001 Mx .005	My .100 .334 015 .050 3.345 4.728 My .071	Mz .045 .159 036 .025 3.562 4.640 Mz .044
Run # 19 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 20 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .565 1.549 .018 .214 2.740 4.600 Wind .0 Fx .762 2.669 031 .341	Elev 90.0 Fy .037 .014 Elev 90.0 Fy .074 .033	Vel 11.6 Fz .218 .723 .079 .093 3.312 5.448 Vel 11.5 Fz 087 .027 233 .037	Mx .002 .001 .001 Mx .005	My .100 .334 015 .050 3.345 4.728 My .071 .322 039 .049	Mz .045 .159 036 .025 3.562 4.640 Mz .044 .200 082 .034

Run # 21	Wind 60.0	Elev 90.0	Vel 11.6	:		11	
Comp : Mean :	Fx .611	Fy .014	Fz .009	Mx .009	My .083	Mz .089	
Max : Min : Rms :	2.737 440 .398	.009	.271 200 .052	.007	.423 101 .064	.384 062 .059	
Gfac : Pfac :	4.483 5.348		28.574 5.007		5.109 5.302	4.302 4.990	
Run # 22	Wind .0	Elev 30.0	Vel 11.8			· .	
Comp : Mean :	Fx .378	Fy .067	Fz 688	Mx .018	My 024	Mz .029	
Max : Min : Rms :	1.180 042 .183	.033	008 -2.329 .344	.026	.106 188 .035	.109 045 .018	
Gfac : Pfac :	3.122 4.379		3.387 4.774		7.871 4.704	3.741 4.463	
Run # 23	Wind 15.0	Elev 30.0	Vel 11.7				
Run # 23 Comp : Mean :	Wind 15.0 Fx .376	Elev 30.0 Fy .093	Vel 11.7 Fz 770	Mx .028	Му 028	Mz .036	
Run # 23 Comp : Mean : Max : Min : Rms :	Wind 15.0 Fx .376 1.243 631 .191	Elev 30.0 Fy .093	Vel 11.7 Fz 770 074 -2.628 .387	Mx .028 .037	My 028 168 433 .037	Mz .036 .143 031 .020	
Run # 23 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 15.0 Fx .376 1.243 631 .191 3.306 4.540	Elev 30.0 Fy .093	Vel 11.7 Fz 770 074 -2.628 .387 3.412 4.804	Mx .028 .037	My 028 168 433 .037 15.559 10.995	Mz .036 .143 031 .020 3.969 5.432	
Run # 23 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 24	Wind 15.0 Fx .376 1.243 631 .191 3.306 4.540 Wind 30.0	Elev 30.0 Fy .093 .047 Elev 30.0	Vel 11.7 Fz 770 074 -2.628 .387 3.412 4.804 Vel 11.8	Mx .028 .037	My 028 168 433 .037 15.559 10.995	Mz .036 .143 031 .020 3.969 5.432	
Run # 23 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 24 Comp : Mean :	Wind 15.0 Fx .376 1.243 631 .191 3.306 4.540 Wind 30.0 Fx .380	Elev 30.0 Fy .093 .047 Elev 30.0 Fy .080	Vel 11.7 Fz 770 074 -2.628 .387 3.412 4.804 Vel 11.8 Fz 738	Mx .028 .037 Mx .046	My 028 168 433 .037 15.559 10.995 My 017	Mz .036 .143 031 .020 3.969 5.432 Mz .050	
Run # 23 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 24 Comp : Mean : Max : Min : Rms :	Wind 15.0 Fx .376 1.243 631 .191 3.306 4.540 Wind 30.0 Fx .380 1.315 265 .195	Elev 30.0 Fy .093 .047 Elev 30.0 Fy .080 .041	Vel 11.7 770 074 -2.628 .387 3.412 4.804 Vel 11.8 Fz 738 036 -2.451 .352	Mx .028 .037 .037 .046 .054	My 028 168 433 .037 15.559 10.995 10.995 My 017 101 335 .020	Mz .036 .143 031 .020 3.969 5.432 Mz .050 .187 017 .026	

Run # 25	Wind .0	Elev 60.0	Vel 11.8			
Comp : Mean :	Fx .602	Fy .058	Fz .187	Mx .003	My .099	Mz .054
Max : Min : Rms :	1.519 .091 .227	.022	.664 055 .091	.001	.302 006 .051	.167 055 .026
Gfac : Pfac :	2.522 4.047		3.554 5.221		3.038 3.976	3.084 4.276
Run # 26	Wind 15.0	Elev 60.0	Vel 11.5			
Comp : Mean :	Fx .581	Fy .063	Fz .215	Mx 011	My .095	Mz .070
Max : Min : Rms :	1.633 350 .233	.025	.665 048 .102	.006	.329 204 .050	.192 014 .028
Gfac : Pfac :	2.811 4.522		3.087 4.408		3.447 4.648	2.753 4.414
Run # 27	Wind 15.0	Elev 60.0	Vel 11.9			
Comp : Mean :	Fx .766	Fy .068	Fz .308	Mx 017	My 126	Mz
Max :					.120	.000
Min : Rms :	1.931 113 .239	.021	.762 .067 .097	.007	.368 153 .052	.226 .012 .029
Min : Rms : Gfac : Pfac :	1.931 113 .239 2.522 4.882	.021	.762 .067 .097 2.474 4.670	.007	.368 153 .052 2.931 4.636	.226 .012 .029 2.618 4.858
Min : Rms : Gfac : Pfac : Run # 28	1.931 113 .239 2.522 4.882 Wind 30.0	.021 Elev 60.0	.762 .067 .097 2.474 4.670 Vel 11.9	.007	.368 153 .052 2.931 4.636	.226 .012 .029 2.618 4.858
Min : Rms : Gfac : Pfac : Run # 28 Comp : Mean :	1.931 113 .239 2.522 4.882 Wind 30.0 Fx .715	.021 Elev 60.0 Fy .099	.762 .067 .097 2.474 4.670 Vel 11.9 Fz .299	.007 Mx 038	.368 153 .052 2.931 4.636 My .113	.226 .012 .029 2.618 4.858 Mz .113
Min : Rms : Gfac : Pfac : Run # 28 Comp : Mean : Mean : Min : Rms :	1.931 113 .239 2.522 4.882 Wind 30.0 Fx .715 1.672 .040 .230	.021 Elev 60.0 Fy .099 .032	.762 .067 .097 2.474 4.670 Vel 11.9 Fz .299 .694 .039 .096	.007 Mx 038 .017	.368 153 .052 2.931 4.636 My .113 .354 074 .050	.226 .012 .029 2.618 4.858 4.858 Mz .113 .261 .033 .035

Run # 29	Wind .0	Elev 60.0	Vel 11.9				
Comp : Mean :	Fx .769	Fy .026	Fz .289	Mx .003	Му .129	Mz .045	
Max : Min : Rms :	1.999 .158 .233	.008	.739 .021 .091	.001	.374 003 .053	.148 041 .025	
Gfac : Pfac :	2.600 5.283		2.557 4.961	*	2.913 4.603	3.279 4.100	
Run # 30	Wind .0	Elev 90.0	Vel 11.7				
Comp : Mean :	Fx .815	Fy .074	Fz 050	Mx .004	Му .070	Mz .038	
Max : Min : Rms :	2.419 .140 .324	.029	.089 180 .036	.003	.345 034 .048	.243 111 .037	
Gfac : Pfac :	2.969 4.952		3.612 3.645		4.895 5.767	6.411 5.536	
Run # 31	Wind 60.0	Elev 90.0	Vel 11.9	-			
Comp : Mean :	Fx .617	Fy .110	Fz .039	Mx 001	My .091	Mz .039	
Comp : Mean : Max : Min : Rms :	Fx .617 3.150 201 .320	Fy .110 .057	Fz .039 .366 129 .051	Mx 001	My .091 .522 053 .057	Mz .039 .446 095 .053	
Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Fx .617 3.150 201 .320 5.109 7.926	Fy .110 .057	Fz .039 .366 129 .051 9.334 6.385	Mx 001	My .091 .522 053 .057 5.746 7.611	Mz .039 .446 095 .053 11.518 7.612	
Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 32	Fx .617 3.150 201 .320 5.109 7.926 Wind .0	Fy .110 .057 Elev 30.0	Fz .039 .366 129 .051 9.334 6.385 Vel 11.8	Mx 001 .001	My .091 .522 053 .057 5.746 7.611	Mz .039 .446 095 .053 11.518 7.612	
Comp : Mean : Min : Rms : Gfac : Pfac : Run # 32 Comp : Mean :	Fx .617 3.150 201 .320 5.109 7.926 Wind .0 Fx .427	Fy .110 .057 Elev 30.0 Fy .101	Fz .039 .366 129 .051 9.334 6.385 Vel 11.8 Fz 830	Mx 001 .001	My .091 .522 053 .057 5.746 7.611 My 045	Mz .039 .446 095 .053 11.518 7.612 Mz .021	
Comp : Mean : Min : Rms : Gfac : Pfac : Run # 32 Comp : Mean : Mean : Min : Rms :	Fx .617 3.150 201 .320 5.109 7.926 Wind .0 Fx .427 .959 .111 .125	Fy .110 .057 Elev 30.0 Fy .101 .030	Fz .039 .366 129 .051 9.334 6.385 Vel 11.8 Fz 830 237 -2.002 .244	Mx 001 .001 Mx 006 .005	My .091 .522 053 .057 5.746 7.611 My 045 .040 164 .039	Mz .039 .446 095 .053 11.518 7.612 Mz .021 .083 063 .017	

Run # 33	Wind 15.0	Elev 30.0	Vel 11.8			
Comp : Mean :	Fx .368	Fy .079	Fz 777	Mx .011	Му 038	Mz .030
Max : Min : Rms :	.943 421 .121	.026	081 -2.075 .249	.012	126 392 .038	.100 025 .016
Gfac : Pfac :	2.567 4.759		2.672 5.219		10.404 9.296	3.349 4.406
Run # 34	Wind 15.0	Elev 30.0	Vel 11.7			
Comp : Mean :	Fx .675	Fy .099	Fz -1.430	Mx .054	Му 096	Mz .033
Max : Min : Rms :	1.240 903 .144	.021	550 -2.771 .291	.028	166 552 .051	.123 051 .021
Gfac : Pfac :	1.836 3.908		1.938 4.614		5.773 9.032	3.678 4.308
Run # 35	Wind 30.0	Elev 30.0	Vel 11.9			
Run # 35 Comp : Mean :	Wind 30.0 Fx .564	Elev 30.0 Fy .092	Vel 11.9 Fz -1.281	Mx .077	My 069	Mz .054
Run # 35 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .564 1.194 292 .142	Elev 30.0 Fy .092	Vel 11.9 Fz -1.281 489 -2.595 .267	Mx .077 .047	My 069 146 350 .043	Mz .054 .148 028 .024
Run # 35 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx .564 1.194 292 .142 2.117 4.451	Elev 30.0 Fy .092	Vel 11.9 Fz -1.281 489 -2.595 .267 2.026 4.912	Mx .077 .047	My 069 146 350 .043 5.059 6.586	Mz .054 .148 028 .024 2.767 3.902
Run # 35 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 36	Wind 30.0 Fx .564 1.194 292 .142 2.117 4.451 Wind .0	Elev 30.0 Fy .092 .023 Elev 30.0	Vel 11.9 -1.281 489 -2.595 .267 2.026 4.912 Vel 11.7	Mx .077 .047	My 069 146 350 .043 5.059 6.586	Mz .054 .148 028 .024 2.767 3.902
Run # 35 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 36 Comp : Mean :	Wind 30.0 Fx .564 1.194 292 .142 2.117 4.451 Wind .0 Fx .734	Elev 30.0 .092 .023 Elev 30.0 Fy .082	Vel 11.9 -1.281 489 -2.595 .267 2.026 4.912 Vel 11.7 -Fz -1.498	Mx .077 .047 .047 Mx .012	My 069 146 350 .043 5.059 6.586 My 105	Mz .054 .148 028 .024 2.767 3.902 Mz .021
Run # 35 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 36 Comp : Mean : Mean : Min : Rms :	Wind 30.0 Fx .564 1.194 292 .142 2.117 4.451 Wind .0 Fx .734 1.383 .289 .158	Elev 30.0 .092 .023 Elev 30.0 Fy .082 .018	Vel 11.9 -1.281 489 -2.595 .267 2.026 4.912 Vel 11.7 -1.498 572 -2.907 .316	Mx .077 .047 .047 .012 .007	My 069 146 350 .043 5.059 6.586 My 105 .051 303 .059	Mz .054 .148 028 .024 2.767 3.902 Mz .021 .110 068 .021

Run # 37	Wind .0	Elev 90.0	Vel 11.6			r f	
Comp : Mean :	Fx 1.345	Fy .082	Fz 121	Мх .006	Му .113	Mz .062	
Max : Min : Rms :	3.435 .001 .491	.030	.019 339 .047	.003	.468 072 .066	.271 150 .046	
Gfac : Pfac :	2.553 4.258		2.797 4.591		4.144 5.341	4.387 4.548	
Run # 38	Wind 60.0	Elev 90.0	Vel 11.8				
Comp : Mean :	Fx 1.206	Fy .095	Fz .054	Mx .005	Му .136	Mz .126	•.
Max : Min : Rms :	3.133 .088 .388	.031	.280 084 .048	.002	.404 042 .063	.408 067 .061	
Gfac : Pfac :	2.597 4.960		5.170 4.689		2.981 4.242	3.243 4.637	
Run # 39	Wind .0	Elev 60.0	Vel 11.8				
Run # 39 Comp : Mean :	Wind .0 Fx .957	Elev 60.0 Fy .024	Vel 11.8 Fz .407	Mx .005	Му .156	Mz .052	
Run # 39 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .957 2.184 .270 .264	Elev 60.0 Fy .024	Vel 11.8 Fz .407 .809 .144 .098	Mx .005 .002	My .156 .402 005 .058	Mz .052 .149 027 .024	
Run # 39 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .957 2.184 .270 .264 2.281 4.654	Elev 60.0 Fy .024	Vel 11.8 Fz .407 .809 .144 .098 1.987 4.094	Mx .005 .002	My .156 .402 005 .058 2.568 4.199	Mz .052 .149 027 .024 2.858 3.985	
Run # 39 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 40	Wind .0 Fx .957 2.184 .270 .264 2.281 4.654 Wind 15.0	Elev 60.0 Fy .024 .007 Elev 60.0	Vel 11.8 Fz .407 .809 .144 .098 1.987 4.094 Vel 11.8	Mx .005 .002	My .156 .402 005 .058 2.568 4.199	Mz .052 .149 027 .024 2.858 3.985	
Run # 39 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 40 Comp : Mean :	Wind .0 Fx .957 2.184 .270 .264 2.281 4.654 Wind 15.0 Fx .923	Elev 60.0 Fy .024 .007 Elev 60.0 Fy .123	Vel 11.8 Fz .407 .809 .144 .098 1.987 4.094 Vel 11.8 Fz .419	Mx .005 .002 .002 Mx 023	My .156 .402 005 .058 2.568 4.199 My .150	Mz .052 .149 027 .024 2.858 3.985 Mz .083	
Run # 39 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 40 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .957 2.184 .270 .264 2.281 4.654 Wind 15.0 Fx .923 1.871 118 .256	Elev 60.0 Fy .024 .007 Elev 60.0 Fy .123 .034	Vel 11.8 Fz .407 .809 .144 .098 1.987 4.094 Vel 11.8 Fz .419 .771 .102 .108	Mx .005 .002 .002 Mx 023	My .156 .402 .005 .058 2.568 4.199 My .150 .412 .186 .058	Mz .052 .149 027 .024 2.858 3.985 .985 Mz .083 .196 .013 .027	

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Run # 41	Wind 30.0	Elev 60.0	Vel 11.8			
Comp : Mean :	Fx .941	Fy .176	Fz .407	Mx 044	Му .136	Mz .115
Max : Min : Rms :	2.214 .126 .271	.051	.925 .107 .105	.018	.410 078 .057	.267 .016 .037
Gfac : Pfac :	2.353 4.689		2.275 4.947		3.015 4.824	2.331 4.124
Run # 42	Wind 30.0	Elev 60.0	Vel 11.8			
Comp : Mean :	Fx .414	Fy .113	Fz .126	Mx 017	Му .072	Mz .073
Max : Min : Rms :	1.439 253 .195	.053	.592 129 .082	.011	.317 076 .045	.200 004 .028
Gfac : Pfac :	3.477 5.265		4.718 5.695		4.404 5.400	2.735 4.546
Run # 43	Wind .0	Elev 60.0	Vel 11.7			
Run # 43 Comp : Mean :	Wind .0 Fx .459	Elev 60.0 Fy .038	Vel 11.7 Fz .128	Mx .004	Му .075	Mz .037
Run # 43 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .459 1.333 063 .202	Elev 60.0 Fy .038	Vel 11.7 Fz .128 .462 063 .076	Mx .004 .003	My .075 .318 039 .048	Mz .037 .184 061 .025
Run # 43 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .459 1.333 063 .202 2.907 4.334	Elev 60.0 Fy .038	Vel 11.7 Fz .128 .462 063 .076 3.612 4.396	Mx .004 .003	My .075 .318 039 .048 4.243 5.014	Mz .037 .184 061 .025 4.939 5.754
Run # 43 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 44	Wind .0 Fx .459 1.333 063 .202 2.907 4.334 Wind .0	Elev 60.0 Fy .038 .017 Elev 90.0	Vel 11.7 Fz .128 .462 063 .076 3.612 4.396 Vel 11.6	Mx .004 .003	My .075 .318 039 .048 4.243 5.014	Mz .037 .184 061 .025 4.939 5.754
Run # 43 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 44 Comp : Mean :	Wind .0 Fx .459 1.333 063 .202 2.907 4.334 Wind .0 Fx .676	Elev 60.0 Fy .038 .017 Elev 90.0 Fy .039	Vel 11.7 Fz .128 .462 063 .076 3.612 4.396 Vel 11.6 Fz 055	Mx .004 .003 Mx .007	My .075 .318 039 .048 4.243 5.014 My .067	Mz .037 .184 061 .025 4.939 5.754 Mz .042
Run # 43 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 44 Comp : Mean : Mean : Max : Min : Rms :	Wind .0 Fx .459 1.333 063 .202 2.907 4.334 Wind .0 Fx .676 2.777 048 .335	Elev 60.0 Fy .038 .017 Elev 90.0 Fy .039 .019	Vel 11.7 Fz .128 .462 063 .076 3.612 4.396 Vel 11.6 Vel 11.6 Fz 055 .070 266 .039	Mx .004 .003 .003 .007	My .075 .318 039 .048 4.243 5.014 My .067 .339 047 .050	Mz .037 .184 061 .025 4.939 5.754 Mz .042 .042 .417 122 .037

Run # 45	Wind .0	Elev 30.0	Vel 11.7				
Comp : Mean :	Fx .429	Fy .101	Fz 780	Mx .010	My 032	Mz .022	
Max : Min : Rms :	1.315 099 .214	.051	.121 -2.486 .396	.014	.157 243 .048	.119 055 .020	
Gfac : Pfac :	3.063 4.131		3.187 4.303		7.531 4.407	5.518 4.810	
Run # 46	Wind 60.0	Elev 90.0	Vel 11.8				
Comp : Mean :	Fx .387	Fy .010	Fz .016	Mx .007	Му .066	Mz .055	
Max : Min : Rms :	2.208 735 .311	.008	.286 170 .055	.006	.379 112 .058	.318 106 .043	
Gfac : Pfac :	5.710 5.859		18.364 4.916		5.782 5.420	5.776 6.041	
Run # 47	Wind 60.0	Elev 90.0	Vel 11.5				
Run # 47 Comp : Mean :	Wind 60.0 Fx .361	Elev 90.0 Fy .015	Vel 11.5 Fz .003	Mx .006	Му .063	Mz .042	
Run # 47 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx .361 2.402 555 .324	Elev 90.0 Fy .015	Vel 11.5 Fz .003 .312 169 .058	Mx .006 .006	My .063 .369 096 .057	Mz .042 .305 102 .042	
Run # 47 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx .361 2.402 555 .324 6.660 6.297	Elev 90.0 Fy .015 .014	Vel 11.5 Fz .003 .312 169 .058 118.370 5.375	Mx .006 .006	My .063 .369 096 .057 5.896 5.369	Mz .042 .305 102 .042 7.222 6.193	
Run # 47 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 48	Wind 60.0 Fx .361 2.402 555 .324 6.660 6.297 Wind .0	Elev 90.0 Fy .015 .014 Elev 90.0	Vel 11.5 Fz .003 .312 169 .058 118.370 5.375 Vel 11.7	Mx .006 .006	My .063 .369 096 .057 5.896 5.369	Mz .042 .305 102 .042 7.222 6.193	
Run # 47 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 48 Comp : Mean :	Wind 60.0 Fx .361 2.402 555 .324 6.660 6.297 Wind .0 Fx .538	Elev 90.0 Fy .015 .014 Elev 90.0 Fy .048	Vel 11.5 Fz .003 .312 169 .058 118.370 5.375 Vel 11.7 Fz 047	Mx .006 .006 Mx .007	My .063 .369 096 .057 5.896 5.369 My .060	Mz .042 .305 102 .042 7.222 6.193 Mz .031	
Run # 47 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 48 Comp : Mean : Mean : Max : Min : Rms :	Wind 60.0 Fx .361 2.402 555 .324 6.660 6.297 Wind .0 Fx .538 2.043 094 .322	Elev 90.0 .015 .014 Elev 90.0 Fy .048 .029	Vel 11.5 Fz.003 .312 169 .058 118.370 5.375 Vel 11.7 Fz 047 .084 192 .040	Mx .006 .006 .007 .007	My .063 .369 096 .057 5.896 5.369 .369 My .060 .320 063 .047	Mz .042 .305 102 .042 7.222 6.193 Mz .031 .225 089 .032	

Run # 49	Wind .0	Elev 30.0	Vel 11.7			
Comp : Mean :	Fx .353	Fy .089	Fz 701	Мх .007	Му 028	Mz 024
Max : Min : Rms :	1.370 102 .189	.048	.101 -2.685 .374	.011	.111 256 .045	.111 045 .017
Gfac : Pfac :	3.881 5.392		3.830 5.309		9.093 5.069	4.638 5.001
Run # 50	Wind .0	Elev 60.0	Vel 11.5			
Comp : Mean :	Fx .383	Fy .050	Fz .114	Мх .003	Му .069	Mz .044
Max : Min : Rms :	1.482 162 .188	.025	.485 090 .079	.002	.362 041 .047	.167 049 .025
Gfac : Pfac :	3.871 5.831		4.275 4.725		5.250 6.207	3.778 4.871
Run # 51	Wind .0	Elev 60.0	Vel 11.7			
Run # 51 Comp : Mean :	Wind .0 Fx .630	Elev 60.0 Fy .060	Vel 11.7 Fz .203	Mx .000	Му .118	Mz .050
Run # 51 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .630 1.706 .024 .223	Elev 60.0 Fy .060	Vel 11.7 Fz .203 .550 030 .080	.000	My .118 .432 000 .058	Mz .050 .184 042 .026
Run # 51 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .630 1.706 .024 .223 2.709 4.821	Elev 60.0 Fy .060	Vel 11.7 Fz .203 .550 030 .080 2.713 4.335	.000 .000	My .118 .432 000 .058 3.673 5.436	Mz .050 .184 042 .026 3.671 5.152
Run # 51 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 52	Wind .0 Fx .630 1.706 .024 .223 2.709 4.821 Wind .0	Elev 60.0 Fy .060 .021 Elev 90.0	Vel 11.7 Fz .203 .550 030 .080 2.713 4.335 Vel 11.6	.000	My .118 .432 000 .058 3.673 5.436	Mz .050 .184 042 .026 3.671 5.152
Run # 51 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 52 Comp : Mean :	Wind .0 Fx .630 1.706 .024 .223 2.709 4.821 Wind .0 Fx .922	Elev 60.0 Fy .060 .021 Elev 90.0 Fy .034	Vel 11.7 Fz .203 .550 030 .080 2.713 4.335 Vel 11.6 Fz 029	Mx .000 .000 .000 Mx .011	My .118 .432 000 .058 3.673 5.436 My .113	Mz .050 .184 042 .026 3.671 5.152 Mz .054
Run # 51 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 52 Comp : Mean : Mean : Min : Rms :	Wind .0 Fx .630 1.706 .024 .223 2.709 4.821 Wind .0 Fx .922 3.261 003 .463	Elev 60.0 Fy .060 .021 Elev 90.0 Fy .034 .017	Vel 11.7 Fz .203 .550 030 .080 2.713 4.335 Vel 11.6 Fz 029 .106 175 .040	Mx .000 .000 .000 Mx .011 .007	My .118 .432 000 .058 3.673 5.436 3.673 5.436 My .113 .455 046 .070	Mz .050 .184 042 .026 3.671 5.152 Mz .054 .306 109 .045

Run # 53	Wind .0	Elev 30.0	Vel 11.7			
Comp : Mean :	Fx .630	Fy .131	Fz -1.282	Mx .013	My 075	Mz .014
Max : Min : Rms :	1.280 .214 .153	.032	564 -2.717 .288	.010	.043 252 .055	.117 067 .021
Gfac : Pfac :	2.032 4.251		2.120 4.992		3.379 3.221	8.233 4.777
Run # 54	Wind 60.0	Elev 90.0	Vel 11.8			
Comp : Mean :	Fx .626	Fy .062	Fz .040	Mx .005	My .098	Mz .036
Max : Min : Rms :	1.844 203 .277	.027	.238 104 .052	.003	.356 069 .055	.233 132 .045
Gfac : Pfac :	2.945 4.397		5.962 3.835		3.639 4.649	6.459 4.403
Run # 55	Wind 60.0	Elev 90.0	Vel 12.2			
Run # 55 Comp : Mean :	Wind 60.0 Fx 1.379	Elev 90.0 Fy 019	Vel 12.2 Fz .104	Mx .017	Му .154	Mz .148
Run # 55 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.379 2.966 .159 .429	Elev 90.0 Fy 019 .006	Vel 12.2 Fz .104 .304 039 .051	Mx .017 .007	My .154 .373 008 .059	Mz .148 .403 049 .071
Run # 55 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx 1.379 2.966 .159 .429 2.151 3.704	Elev 90.0 Fy 019	Vel 12.2 Fz .104 .304 039 .051 2.915 3.926	Mx .017 .007	My .154 .373 008 .059 2.419 3.741	Mz .148 .403 049 .071 2.717 3.573
Run # 55 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 56	Wind 60.0 Fx 1.379 2.966 .159 .429 2.151 3.704 Wind .0	Elev 90.0 Fy 019 .006 Elev 90.0	Vel 12.2 Fz .104 .304 039 .051 2.915 3.926 Vel 12.0	Mx .017 .007	My .154 .373 008 .059 2.419 3.741	Mz .148 .403 049 .071 2.717 3.573
Run # 55 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 56 Comp : Mean :	Wind 60.0 Fx 1.379 2.966 .159 .429 2.151 3.704 Wind .0 Fx 1.883	Elev 90.0 Fy .019 .006 Elev 90.0 Fy .066	Vel 12.2 Fz .104 .304 039 .051 2.915 3.926 Vel 12.0 Fz 112	Mx .017 .007 .Mx .011	My .154 .373 008 .059 2.419 3.741 My .141	Mz .148 .403 .049 .071 2.717 3.573 Mz .081
Run # 55 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 56 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.379 2.966 .159 .429 2.151 3.704 Wind .0 Fx 1.883 3.997 .174 .562	Elev 90.0 .019 .006 Elev 90.0 .066 .020	Vel 12.2 Fz .104 .304 039 .051 2.915 3.926 Vel 12.0 Fz 112 .034 285 .044	Mx .017 .007 .007 .011 .006	My .154 .373 008 .059 2.419 3.741 .741 .524 063 .071	Mz .148 .403 049 .071 2.717 3.573 Mz .081 .317 109 .053

Run # 57	Wind .0	Elev 30.0	Vel 11.9			
Comp : Mean :	Fx 1.235	Fy .557	Fz -2.394	Мх .232	My 148	Mz .015
Max : Min : Rms :	2.047 .510 .563	.254	750 -4.012 .543	.276	.026 380 .177	.108 082 .021
Gfac : Pfac :	1.658 1.444		1.676 2.980		2.565 1.312	7.340 4.413
Run # 58	Wind .0	Elev 60.0	Vel 12.0			
Comp : Mean :	Fx 1.121	Fy 000	Fz .572	Mx .004	Му .185	Mz .067
Max : Min : Rms :	2.070 .358 .253	.000	1.003 .237 .115	.001	.392 .019 .057	.160 002 .022
Gfac : Pfac :	1.846 3.749		1.753 3.735		2.122 3.662	2.376 4.203
Run # 59	Wind .0	Elev 60.0	Vel 11.9			
Run # 59 Comp : Mean :	Wind .0 Fx .324	Elev 60.0 Fy .027	Vel 11.9 Fz .138	Mx .005	Му .061	Mz .027
Run # 59 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .324 1.139 182 .164	Elev 60.0 Fy .027	Vel 11.9 Fz .138 .583 091 .077	Mx .005 .003	My .061 .268 045 .041	Mz .027 .141 059 .020
Run # 59 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .324 1.139 182 .164 3.510 4.952	Elev 60.0 Fy .027	Vel 11.9 Fz .138 .583 091 .077 4.213 5.765	Mx .005 .003	My .061 .268 045 .041 4.384 5.072	Mz .027 .141 059 .020 5.190 5.808
Run # 59 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 60	Wind .0 Fx .324 1.139 182 .164 3.510 4.952 Wind .0	Elev 60.0 Fy .027 .014 Elev 30.0	Vel 11.9 Fz .138 .583 091 .077 4.213 5.765 Vel 11.9	Mx .005 .003	My .061 .268 045 .041 4.384 5.072	Mz .027 .141 059 .020 5.190 5.808
Run # 59 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 60 Comp : Mean :	Wind .0 Fx .324 1.139 182 .164 3.510 4.952 Wind .0 Fx .256	Elev 60.0 Fy .027 .014 Elev 30.0 Fy 1.034	Vel 11.9 Fz .138 .583 091 .077 4.213 5.765 Vel 11.9 Fz 471	Mx .005 .003 Mx .576	My .061 .268 045 .041 4.384 5.072 My 010	Mz .027 .141 059 .020 5.190 5.808 Mz .007
Run # 59 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 60 Comp : Mean : Mean : Min : Rms :	Wind .0 Fx .324 1.139 182 .164 3.510 4.952 Wind .0 Fx .256 1.057 159 .109	Elev 60.0 Fy .027 .014 Elev 30.0 Fy 1.034 .441	Vel 11.9 Fz .138 .583 091 .077 4.213 5.765 Vel 11.9 Fz 471 .044 -1.935 .297	Mx .005 .003 .003 .576 .255	My .061 .268 045 .041 4.384 5.072 My 010 .131 170 .004	Mz .027 .141 059 .020 5.190 5.808 Mz .007 .074 074 .015

	Run # 61	Wind .0	Elev 90.0	Vel 11.7				
	Comp : Mean :	Fx .549	Fy .049	Fz 014	Mx .007	My .057	Mz .035	
	Max : Min : Rms :	1.758 270 .256	.023	.126 148 .035	.005	.247 063 .040	.236 097 .028	
	Gfac : Pfac :	3.200 4.723		10.440 3.849		4.343 4.718	6.805 7.206	
	Run # 62	Wind 60.0	Elev 90.0	Vel 12.0				
	Comp : Mean :	Fx .249	Fy .009	Fz .026	Мх .005	Му .047	Mz .032	
	Max : Min : Rms :	1.306 433 .218	.008	.286 122 .052	.005	.265 085 .045	.164 106 .027	
	Gfac : Pfac :	5.253 4.849		10.838 5.029		5.618 4.897	5.046 4.932	
	Run # 63	Wind 60.0	Elev 90.0	Vel 12.0				
	Comp : Mean :	Fx 1.591	Fy 098	Fz .196	Mx .017	Му .173	Mz .192	
	Max : Min : Rms :	4.042 .160 .486	.030	.509 .012 .069	.006	.450 005 .062	.525 028 .072	
	Gfac : Pfac :	2.541 5.045		2.594 4.542		2.591 4.424	2.735 4.635	
•	Run # 64	Wind .0	Elev 90.0	Vel 11.8				
	Comp : Mean :	Fx 2.389	Fy .037	Fz 039	Mx .012	Му .168	Mz .103	
	Max : Min : Rms :	4.642 1.212 .491	.008	.087 157 .035	.004	.383 .015 .054	.243 063 .043	
	Gfac : Pfac :	1.943 4.592		4.021 3.346		2.280 3.985	2.357	

Run # 65	Wind .0	Elev 30.0	Vel 12.2			
Comp : Mean :	Fx 1.148	Fy .160	Fz -2.193	Mx .015	Му 171	Mz .011
Max : Min : Rms :	2.253 .460 .296	.041	925 -4.397 .569	.006	034 392 .067	.089 072 .023
Gfac : Pfac :	1.963 3.730		2.005 3.875		2.286 3.295	8.093 3.395
Run # 66	Wind .0	Elev 60.0	Vel 12.2			
Comp : Mean :	Fx 1.345	Fy 079	Fz .707	Mx .006	Му .211	Mz .080
Max : Min : Rms :	2.359 .689 .269	.016	1.142 .386 .128	.001	.427 .069 .054	.201 .001 .029
Gfac : Pfac :	1.754 3.773		1.615 3.385		2.019 3.978	2.520 4.201
Run # 67	Wind .0	Elev 60.0	Vel 12.0			
Run # 67 Comp : Mean :	Wind .0 Fx .184	Elev 60.0 Fy .054	Vel 12.0 Fz .088	Mx .010	My .023	Mz .018
Run # 67 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .184 .766 365 .125	Elev 60.0 Fy .054	Vel 12.0 Fz .088 .286 107 .051	Mx .010 .013	My .023 .202 083 .031	Mz .018 .076 020 .010
Run # 67 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .184 .766 365 .125 4.170 4.659	Elev 60.0 Fy .054	Vel 12.0 Fz .088 .286 107 .051 3.240 3.858	Mx .010 .013	My .023 .202 083 .031 8.720 5.857	Mz .018 .076 020 .010 4.167 5.859
Run # 67 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 68	Wind .0 Fx .184 .766 365 .125 4.170 4.659 Wind .0	Elev 60.0 Fy .054 .037 Elev 30.0	Vel 12.0 Fz .088 .286 107 .051 3.240 3.858 Vel 12.0	Mx .010 .013	My .023 .202 083 .031 8.720 5.857	Mz .018 .076 020 .010 4.167 5.859
Run # 67 Mean : Max : Min : Rms : Gfac : Pfac : Run # 68 Comp : Mean :	Wind .0 Fx .184 .766 365 .125 4.170 4.659 Wind .0 Fx .063	Elev 60.0 Fy .054 .037 Elev 30.0 Fy .135	Vel 12.0 Fz .088 .286 107 .051 3.240 3.858 Vel 12.0 Fz 091	Mx .010 .013 Mx .061	My .023 .202 083 .031 8.720 5.857 My .004	Mz .018 .076 020 .010 4.167 5.859 Mz .013
Run # 67 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 68 Comp : Mean : Mean : Min : Rms :	Wind .0 Fx .184 .766 365 .125 4.170 4.659 Wind .0 Fx .063 .476 284 .139	Elev 60.0 Fy .054 .037 Elev 30.0 Fy .135 .297	Vel 12.0 Fz .088 .286 107 .051 3.240 3.858 Vel 12.0 Fz 091 .254 712 .103	Mx .010 .013 .013 Mx .061 .190	My .023 .202 083 .031 8.720 5.857 My .004 .183 082 .012	Mz .018 .076 020 .010 4.167 5.859 Mz .013 .044 012 .006

Kun # 69	Wind .0	Elev 90.0	Vel 12.0				
Comp : Mean :	Fx .371	Fy .024	Fz 029	Mx .004	My .017	Mz .024	
Max : Min : Rms :	1.017 215 .135	.009	.097 156 .036	.007	.172 107 .026	.077 012 .011	
Gfac : Pfac :	2.740 4.775		5.396 3.515		10.153 5.955	3.243 4.624	
Run # 70	Wind 60.0	Elev 90.0	Vel 12.1				
Comp : Mean :	Fx .115	Fy .014	Fz .004	Mx .002	My .015	Mz .030	
Max : Min : Rms :	.670 391 .105	.012	.192 123 .041	.004	.143 113 .023	.072 020 .010	
Gfac : Pfac :	5.844 5.300		45.285 4.638		9.667 5.683	2.354 4.141	
Run # 71	Wind .0	Elev 90.0	Vel 10.9				
Run # 71 Comp : Mean :	Wind .0 Fx 1.159	Elev 90.0 Fy .104	Vel 10.9 Fz 108	Mx .005	Му .097	Mz .048	
Run # 71 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.159 3.029 .032 .434	Elev 90.0 Fy .104	Vel 10.9 Fz 108 .010 351 .046	Mx .005 .003	My .097 .367 058 .060	Mz .048 .271 232 .049	
Run # 71 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx 1.159 3.029 .032 .434 2.614 4.305	Elev 90.0 Fy .104	Vel 10.9 Fz 108 .010 351 .046 3.235 5.247	Mx .005 .003	My .097 .367 058 .060 3.798 4.542	Mz .048 .271 232 .049 5.674 4.520	
Run # 71 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 72	Wind .0 Fx 1.159 3.029 .032 .434 2.614 4.305 Wind 60.0	Elev 90.0 Fy .104 .039 Elev 90.0	Vel 10.9 Fz 108 .010 351 .046 3.235 5.247 Vel 10.9	Mx .005 .003	My .097 .367 058 .060 3.798 4.542	Mz .048 .271 232 .049 5.674 4.520	
Run # 71 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 72 Comp : Mean :	Wind .0 Fx 1.159 3.029 .032 .434 2.614 4.305 Wind 60.0 Fx 1.109	Elev 90.0 Fy .104 .039 Elev 90.0 Fy .067	Vel 10.9 Fz 108 .010 351 .046 3.235 5.247 Vel 10.9 Fz .071	Mx .005 .003 .003	My .097 .367 058 .060 3.798 4.542 My .145	Mz .048 .271 232 .049 5.674 4.520 Mz .142	
Run # 71 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 72 Comp : Mean : Max : Min : Rms :	Wind .0 Fx 1.159 3.029 .032 .434 2.614 4.305 Wind 60.0 Fx 1.109 3.332 .013 .500	Elev 90.0 .104 .039 Elev 90.0 .057 .030	Vel 10.9 Fz 108 .010 351 .046 3.235 5.247 Vel 10.9 Fz .071 .318 118 .060	Mx .005 .003 .003 .003	My .097 .367 058 .060 3.798 4.542 My .145 .467 058 .077	Mz .048 .271 232 .049 5.674 4.520 Mz .142 .476 070 .079	

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Run # 73	Wind .0	Elev 30.0	Vel 10.8			
Comp : Mean :	Fx .478	Fy .104	Fz 934	Mx 002	Му 061	Mz .024
Max : Min : Rms :	1.438 .113 .156	.034	266 -2.785 .311	.002	.078 272 .058	.124 091 .025
Gfac : Pfac :	3.006 6.138		2.980 5.942		4.460 3.652	5.278 3.979
Run # 74	Wind 15.0	Elev 30.0	Vel 10.9			
Comp : Mean :	Fx .526	Fy .080	Fz 953	Mx .040	My 059	Mz .029
Max : Min : Rms :	1.381 598 .181	.028	230 -2.456 .320	.034	242 764 .051	.168 074 .029
Gfac : Pfac :	2.627 4.738		2.579 4.706		12.867 13.793	5.881 4.875
Run # 75	Wind 30.0	Elev 30.0	Vel 10.7			
Run # 75 Comp : Mean :	Wind 30.0 Fx .487	Elev 30.0 Fy .078	Vel 10.7 Fz 899	Mx .068	My 035	Mz .055
Run # 75 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .487 1.370 151 .181	Elev 30.0 Fy .078	Vel 10.7 899 156 -2.688 .317	Mx .068 .055	My 035 150 332 .029	Mz .055 .196 036 .029
Run # 75 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx .487 1.370 151 .181 2.810 4.868	Elev 30.0 Fy .078	Vel 10.7 Fz 899 156 -2.688 .317 2.989 5.642	Mx .068 .055	My 035 150 332 .029 9.388 10.303	Mz .055 .196 036 .029 3.559 4.863
Run # 75 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 76	Wind 30.0 Fx .487 1.370 151 .181 2.810 4.868 Wind .0	Elev 30.0 Fy .078 .029 Elev 60.0	Vel 10.7 Fz 899 156 -2.688 .317 2.989 5.642 Vel 10.8	Mx .068 .055	My 035 150 332 .029 9.388 10.303	Mz .055 .196 036 .029 3.559 4.863
Run # 75 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 76 Comp : Mean :	Wind 30.0 Fx .487 1.370 151 .181 2.810 4.868 Wind .0 Fx .863	Elev 30.0 Fy .078 .029 Elev 60.0 Fy .028	Vel 10.7 Fz 899 156 -2.688 .317 2.989 5.642 Vel 10.8 Fz .323	Mx .068 .055 .055	My 035 150 332 .029 9.388 10.303 My .136	Mz .055 .196 036 .029 3.559 4.863 Mz .045
Run # 75 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 76 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .487 1.370 151 .181 2.810 4.868 Wind .0 Fx .863 1.877 .067 .267	Elev 30.0 Fy .078 .029 Elev 60.0 Fy .028 .009	Vel 10.7 Fz 899 156 -2.688 .317 2.989 5.642 Vel 10.8 Fz .323 .723 .021 .102	Mx .068 .055 .055 .013 .013	My 035 150 332 .029 9.388 10.303 0.303 My .136 .383 .011 .060	Mz .055 .196 036 .029 3.559 4.863 Mz .045 .170 065 .033

Run # 77	Wind 15.0	Elev 60.0	Vel 11.0				
Comp : Mean :	Fx .776	Fy .065	Fz .333	Mx 010	Му .121	Mz .059	
Max : Min : Rms :	1.857 182 .258	.022	.754 .000 .105	.005	.393 228 .059	.254 044 .032	
Gfac : Pfac :	2.393 4.187		2.263 3.993		3.252 4.591	4.339 6.140	
Run # 78	Wind 30.0	Elev 60.0	Vel 10.8				
Comp : Mean :	Fx .776	Fy .134	Fz .341	Mx 034	Му .114	Mz .098	
Max : Min : Rms :	2.013 .011 .244	.042	.810 .038 .101	.016	.373 121 .054	.240 .020 .035	
Gfac : Pfac :	2.592 5.063		2.376 4.632		3.258 4.789	2.449 4.003	
Run # 79	Wind 30.0	Elev 60.0	Vel 10.8				
Run # 79 Comp : Mean :	Wind 30.0 Fx .749	Elev 60.0 Fy .150	Vel 10.8 Fz .303	Mx 034	Му .111	Mz .125	
Run # 79 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .749 1.706 282 .240	Elev 60.0 Fy .150	Vel 10.8 Fz .303 .741 000 .102	Mx 034 .016	My .111 .344 098 .052	Mz .125 .289 .050 .032	
Run # 79 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx .749 1.706 282 .240 2.278 3.994	Elev 60.0 Fy .150	Vel 10.8 Fz .303 .741 000 .102 2.447 4.277	Mx 034 .016	My .111 .344 098 .052 3.114 4.527	Mz .125 .289 .050 .032 2.314 5.102	
Run # 79 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 80	Wind 30.0 Fx .749 1.706 282 .240 2.278 3.994 Wind 15.0	Elev 60.0 Fy .150 .048 Elev 60.0	Vel 10.8 Fz .303 .741 000 .102 2.447 4.277 Vel 11.0	Mx 034 .016	My .111 .344 098 .052 3.114 4.527	Mz .125 .289 .050 .032 2.314 5.102	
Run # 79 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 80 Comp : Mean :	Wind 30.0 Fx .749 1.706 282 .240 2.278 3.994 Wind 15.0 Fx .736	Elev 60.0 .150 .048 Elev 60.0 Fy .077	Vel 10.8 Fz .303 .741 000 .102 2.447 4.277 Vel 11.0 Fz .291	Mx 034 .016 Mx 015	My .111 .344 098 .052 3.114 4.527 My .116	Mz .125 .289 .050 .032 2.314 5.102 Mz .071	
Run # 79 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 80 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .749 1.706 282 .240 2.278 3.994 Wind 15.0 Fx .736 1.795 168 .230	Elev 60.0 .150 .048 Elev 60.0 Fy .077 .024	Vel 10.8 Fz .303 .741 000 .102 2.447 4.277 Vel 11.0 Fz .291 .670 .014 .093	Mx 034 .016 Mx 015 .007	My .111 .344 098 .052 3.114 4.527 My .116 .381 229 .053	Mz .125 .289 .050 .032 2.314 5.102 Mz .071 .222 005 .028	

Run # 81	Wind .0	Elev 60.0	Vel 10.9	•		
Comp : Mean :	Fx .739	Fy .044	Fz .291	Mx .007	Му .121	Mz .055
Max : Min : Rms :	1.891 .157 .234	.014	.741 .025 .094	.003	.366 009 .053	.239 054 .028
Gfac : Pfac :	2.558 4.926		2.543 4.798		3.037 4.613	4.323 6.540
Run # 82	Wind .0	Elev 30.0	Vel 10.9			
Comp : Mean :	Fx .420	Fy .108	Fz 773	Mx 010	My 047	Mz .012
Max : Min : Rms :	1.036 013 .146	.038	128 -1.993 .273	.010	.074 187 .051	.097 077 .023
Gfac : Pfac :	2.465 4.226		2.578 4.475		3.977 2.766	8.404 3.732
Run # 83	Wind 15.0	Elev 30.0	Vel 10.8			
Run # 83 Comp : Mean :	Wind 15.0 Fx .386	Elev 30.0 Fy .048	Vel 10.8 Fz 720	Mx .026	Му 041	Mz .028
Run # 83 Comp : Mean : Max : Min : Rms :	Wind 15.0 Fx .386 1.060 449 .140	Elev 30.0 Fy .048	Vel 10.8 Fz 720 131 -1.993 .266	Mx .026 .030	My 041 193 666 .048	Mz .028 .140 064 .023
Run # 83 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 15.0 Fx .386 1.060 449 .140 2.747 4.799	Elev 30.0 Fy .048	Vel 10.8 Fz 720 131 -1.993 .266 2.768 4.783	Mx .026 .030	My 041 193 666 .048 16.453 13.177	Mz .028 .140 064 .023 5.025 4.863
Run # 83 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 84	Wind 15.0 Fx .386 1.060 449 .140 2.747 4.799 Wind 30.0	Elev 30.0 Fy .048 .017 Elev 30.0	Vel 10.8 Fz 720 131 -1.993 .266 2.768 4.783 Vel 10.9	Mx .026 .030	My 041 193 666 .048 16.453 13.177	Mz .028 .140 064 .023 5.025 4.863
Run # 83 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 84 Comp : Mean :	Wind 15.0 Fx .386 1.060 449 .140 2.747 4.799 Wind 30.0 Fx .354	Elev 30.0 Fy .048 .017 Elev 30.0 Fy .055	Vel 10.8 Fz 720 131 -1.993 .266 2.768 4.783 Vel 10.9 Fz 656	Mx .026 .030 .030 Mx .048	My 041 193 666 .048 16.453 13.177 My 013	Mz .028 .140 064 .023 5.025 4.863 Mz .052
Run # 83 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 84 Comp : Mean : Mean : Min : Rms :	Wind 15.0 Fx .386 1.060 449 .140 2.747 4.799 Wind 30.0 Fx .354 1.312 246 .142	Elev 30.0 Fy .048 .017 Elev 30.0 Fy .055 .022	Vel 10.8 Fz 720 131 -1.993 .266 2.768 4.783 Vel 10.9 Fz 656 089 -2.320 .250	Mx .026 .030 .030 .048 .048	My 041 193 666 .048 16.453 13.177 My 013 080 269 .015	Mz .028 .140 064 .023 5.025 4.863 Mz .052 .212 023 .025

Run # 85	Wind .0	Elev 90.0	Vel 10.8				
Comp : Mean :	Fx 1.161	Fy .084	Fz 063	Mx .006	Му .092	Mz .059	
Max : Min : Rms :	2.843 .041 .392	.028	.148 235 .043	.004	.365 044 .055	.265 077 .042	
Gfac : Pfac :	2.449 4.287		3.730 3.981		3.962 4.956	4.524 4.901	
Run # 86	Wind 60.0	Elev 90.0	Vel 10.8				
Comp : Mean :	Fx 1.030	Fy .029	Fz .005	Mx .015	Му .126	Mz .154	
Max : Min : Rms :	2.885 016 .448	.013	.225 203 .051	.009	.434 064 .071	.450 080 .072	
Gfac : Pfac :	2.800 4.136		41.697 4.337		3.432 4.342	2.927 4.143	
Run # 87	Wind 60.0	Elev 90.0	Vel 11.0				
Run # 87 Comp : Mean :	Wind 60.0 Fx .869	Elev 90.0 Fy .062	Vel 11.0 Fz 002	Mx .008	Му .100	Mz .108	
Run # 87 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx .869 2.588 050 .400	Elev 90.0 Fy .062	Vel 11.0 Fz 002 .215 169 .048	Mx .008 .006	My .100 .398 071 .070	Mz .108 .415 068 .066	
Run # 87 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx .869 2.588 050 .400 2.979 4.296	Elev 90.0 Fy .062	Vel 11.0 Fz 002 .215 169 .048 96.481 3.447	Mx .008 .006	My .100 .398 071 .070 3.964 4.276	Mz .108 .415 068 .066 3.832 4.646	
Run # 87 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 88	Wind 60.0 Fx .869 2.588 050 .400 2.979 4.296 Wind .0	Elev 90.0 Fy .062 .029 Elev 90.0	Vel 11.0 Fz 002 .215 169 .048 96.481 3.447 Vel 11.1	Mx .008 .006	My .100 .398 071 .070 3.964 4.276	Mz .108 .415 068 .066 3.832 4.646	
Run # 87 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 88 Comp : Mean :	Wind 60.0 Fx .869 2.588 050 .400 2.979 4.296 Wind .0 Fx 1.025	Elev 90.0 Fy .062 .029 Elev 90.0 Fy .069	Vel 11.0 Fz 002 .215 169 .048 96.481 3.447 Vel 11.1 Fz 068	Mx .008 .006 Mx .006	My .100 .398 071 .070 3.964 4.276 My .084	Mz .108 .415 068 .066 3.832 4.646 Mz .056	
Run # 87 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 88 Comp : Mean : Mean : Max : Min : Rms :	Wind 60.0 Fx .869 2.588 050 .400 2.979 4.296 Wind .0 Fx 1.025 3.326 .111 .412	Elev 90.0 Fy .062 .029 Elev 90.0 Fy .069 .028	Vel 11.0 Fz 002 .215 169 .048 96.481 3.447 Vel 11.1 Fz 068 .077 211 .038	Mx .008 .006 .006 .004	My .100 .398 071 .070 3.964 4.276 My .084 .375 056 .057	Mz .108 .415 068 .066 3.832 4.646 Mz .056 .310 095 .048	

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Run # 89	Wind .0	Elev 30.0	Vel 11.2			
Comp : Mean :	Fx .301	Fy 079.	Fz 584	Mx 009	My 030	Mz .022
Max : Min : Rms :	.856 010 .102	.027	067 -1.722 .195	.010	.068 170 .035	.088 065 .016
Gfac : Pfac :	2.841 5.431		2.947 5.847		5.604 3.949	4.083 4.182
Run # 90	Wind 15.0	Elev 30.0	Vel 11.3			
Comp : Mean :	Fx .293	Fy .046	Fz 561	Mx .025	Му 027	Mz .033
Max : Min : Rms :	.934 327 .094	.015	073 -1.927 .162	.024	107 324 .026	.100 018 .015
Gfac : Pfac :	3.189 6.790		3.436 8.460		11.868 11.497	3.069 4.492
Run # 91	Wind 30.0	Elev 30.0	Vel 11.0			
Run # 91 Comp : Mean :	Wind 30.0 Fx .319	Elev 30.0 Fy .041	Vel 11.0 Fz 569	Mx .053	Му 008	Mz .042
Run # 91 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .319 .908 166 .104	Elev 30.0 Fy .041	Vel 11.0 Fz 569 116 -1.562 .173	Mx .053 .039	My 008 033 174 .006	Mz .042 .139 009 .017
Run # 91 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx .319 .908 166 .104 2.849 5.656	Elev 30.0 Fy .041	Vel 11.0 Fz 569 116 -1.562 .173 2.744 5.746	Mx .053 .039	My 008 033 174 .006 22.068 28.492	Mz .042 .139 009 .017 3.286 5.559
Run # 91 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 92	Wind 30.0 Fx .319 .908 166 .104 2.849 5.656 Wind .0	Elev 30.0 Fy .041 .013 Elev 60.0	Vel 11.0 Fz 569 116 -1.562 .173 2.744 5.746 Vel 11.1	Mx .053 .039	My 008 033 174 .006 22.068 28.492	Mz .042 .139 009 .017 3.286 5.559
Run # 91 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 92 Comp : Mean :	Wind 30.0 Fx .319 .908 166 .104 2.849 5.656 Wind .0 Fx .688	Elev 30.0 Fy .041 .013 Elev 60.0 Fy .037	Vel 11.0 Fz 569 116 -1.562 .173 2.744 5.746 Vel 11.1 Fz .301	Mx .053 .039 Mx 003	My 008 033 174 .006 22.068 28.492 My .120	Mz .042 .139 009 .017 3.286 5.559 Mz .064
Run # 91 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 92 Comp : Mean : Mean : Min : Rms :	Wind 30.0 Fx .319 .908 166 .104 2.849 5.656 Wind .0 Fx .688 1.626 .035 .220	Elev 30.0 Fy .041 .013 Elev 60.0 Fy .037 .012	Vel 11.0 Fz 569 116 -1.562 .173 2.744 5.746 Vel 11.1 Fz .301 .662 .028 .092	Mx .053 .039 .039 	My 008 033 174 .006 22.068 28.492 My .120 .363 015 .053	Mz .042 .139 009 .017 3.286 5.559 Mz .064 .207 029 .029

Run # 93	Wind 15.0	Elev 60.0	Vel 11.1			
Comp : Mean :	Fx .687	Fy .089	Fz .316	Mx 021	Му .108	Mz .082
Max : Min : Rms :	2.132 232 .238	.031	.835 .044 .098	.010	.371 200 .053	.206 002 .032
Gfac : Pfac :	3.103 6.062		2.641 5.273		3.434 5.006	2.516 3.889
Run # 94	Wind 30.0	Elev 60.0	Vel 11.3			
Comp : Mean :	Fx .692	Fy .131	Fz .331	Mx 041	Му .107	Mz .107
Max : Min : Rms :	1.558 .012 .219	.041	.735 .047 .099	.017	.287 099 .045	.253 .005 .032
Gfac : Pfac :	2.250 3.952		2.220 4.094		2.677 3.963	2.354 4.561
Run # 95	Wind 30.0	Elev 60.0	Vel 11.3			
Run # 95 Comp : Mean :	Wind 30.0 Fx .773	Elev 60.0 Fy .156	Vel 11.3 Fz .347	Mx 043	Му .125	Mz .114
Run # 95 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .773 1.842 .012 .258	Elev 60.0 Fy .156	Vel 11.3 Fz .347 .762 .055 .110	Mx 043 .019	My .125 .362 081 .055	Mz .114 .293 .028 .036
Run # 95 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx .773 1.842 .012 .258 2.385 4.145	Elev 60.0 Fy .156	Vel 11.3 Fz .347 .762 .055 .110 2.194 3.770	Mx 043 .019	My .125 .362 081 .055 2.896 4.319	Mz .114 .293 .028 .036 2.569 4.971
Run # 95 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 96	Wind 30.0 Fx .773 1.842 .012 .258 2.385 4.145 Wind 15.0	Elev 60.0 Fy .156 .052 Elev 60.0	Vel 11.3 Fz .347 .762 .055 .110 2.194 3.770 Vel 11.2	Mx 043 .019	My .125 .362 081 .055 2.896 4.319	Mz .114 .293 .028 .036 2.569 4.971
Run # 95 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 96 Comp : Mean :	Wind 30.0 Fx .773 1.842 .012 .258 2.385 4.145 Wind 15.0 Fx .753	Elev 60.0 .156 .052 Elev 60.0 Fy .102	Vel 11.3 Fz .347 .762 .055 .110 2.194 3.770 Vel 11.2 Fz .325	Mx 043 .019 Mx 023	My .125 .362 081 .055 2.896 4.319 My .129	Mz .114 .293 .028 .036 2.569 4.971 Mz .093
Run # 95 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 96 Comp : Mean : Mean : Min : Rms :	Wind 30.0 Fx .773 1.842 .012 .258 2.385 4.145 Wind 15.0 Fx .753 1.777 257 .246	Elev 60.0 Fy .156 .052 Elev 60.0 Fy .102 .033	Vel 11.3 Fz .347 .762 .055 .110 2.194 3.770 Vel 11.2 Fz .325 .798 .001 .112	Mx 043 .019 .019 Mx 023 .010	My .125 .362 081 .055 2.896 4.319 My .129 .371 263 .057	Mz .114 .293 .028 .036 2.569 4.971 Mz .093 .216 008 .032

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Run # 97	Wind .0	Elev 60.0	Vel 11.1			
Comp : Mean :	Fx .764	Fy 927	Fz .290	Мх 579	Му .127	Mz .057
Max : Min : Rms :	1.968 .151 .416	.505	.654 .039 .096	.361	.400 .004 .079	.176 052 .030
Gfac : Pfac :	2.574 2.893		2.254 3.795		3.142 3.438	3.100 3.923
Run # 98	Wind .0	Elev 30.0	Vel 11.3			
Comp : Mean :	Fx .484	Fy .102	Fz 938	Mx .014	Му 069	Mz .027
Max : Min : Rms :	1.031 .040 .123	.026	345 -2.134 .238	.010	.057 222 .048	.104 091 .020
Gfac : Pfac :	2.132 4.448		2.275 5.021		3.222 3.214	3.850 3.772
Run # 99	Wind 15.0	Elev 30.0	Vel 11.3			
Run # 99 Comp : Mean :	Wind 15.0 Fx .503	Elev 30.0 Fy .073	Vel 11.3 Fz 990	Mx .053	Му 063	Mz .054
Run # 99 Comp : Mean : Max : Min : Rms :	Wind 15.0 Fx .503 1.099 376 .124	Elev 30.0 Fy .073	Vel 11.3 Fz 990 371 -2.272 .230	Mx .053 .030	My 063 136 481 .035	Mz .054 .126 024 .020
Run # 99 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 15.0 Fx .503 1.099 376 .124 2.184 4.808	Elev 30.0 Fy .073	Vel 11.3 Fz 990 371 -2.272 .230 2.294 5.580	Mx .053 .030	My 063 136 481 .035 7.685 11.977	Mz .054 .126 024 .020 2.352 3.714
Run # 99 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 100	Wind 15.0 Fx .503 1.099 376 .124 2.184 4.808 Wind 30.0	Elev 30.0 Fy .073 .018 Elev 30.0	Vel 11.3 Fz 990 371 -2.272 .230 2.294 5.580 Vel 11.3	Mx .053 .030	My 063 136 481 .035 7.685 11.977	Mz .054 .126 024 .020 2.352 3.714
Run # 99 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 100 Comp : Mean :	Wind 15.0 Fx .503 1.099 376 .124 2.184 4.808 Wind 30.0 Fx .490	Elev 30.0 Fy .073 .018 Elev 30.0 Fy .072	Vel 11.3 Fz 990 371 -2.272 .230 2.294 5.580 Vel 11.3 Fz 956	Mx .053 .030 .030 Mx .078	My 063 136 481 .035 7.685 11.977	Mz .054 .126 024 .020 2.352 3.714 Mz .055
Run # 99 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 100 Comp : Mean : Max : Min : Rms :	Wind 15.0 Fx .503 1.099 376 .124 2.184 4.808 Wind 30.0 Fx .490 1.083 057 .119	Elev 30.0 Fy .073 .018 Elev 30.0 Fy .072 .018	Vel 11.3 990 371 -2.272 .230 2.294 5.580 Vel 11.3 Fz 956 324 -1.853 .204	Mx .053 .030 .030 Mx .078 .039	My 063 136 481 .035 7.685 11.977 039 113 224 .020	Mz .054 .126 024 .020 2.352 3.714 Mz .055 .156 004 .020

	Run # 101	Wind .0	Elev 90.0	Vel 11.0				
	Comp : Mean :	Fx 1.219	Fy .089	Fz 155	Mx .007	My .098	Mz .069	
	Max : Min : Rms :	3.746 .045 .494	.036	.000 389 .054	.005	.468 068 .067	.273 095 .052	
	Gfac : Pfac :	3.073 5.110		2.515 4.366		4.784 5.514	3.980 3.960	
	Run # 102	Wind 60.0	Elev 90.0	Vel 11.4				
	Comp : Mean :	Fx 1.076	Fy .093	Fz .033	Mx .005	My .144	Mz .107	
	Max : Min : Rms :	2.925 142 .471	.041	.229 162 .053	.003	.458 082 .083	.394 072 .074	
	Gfac : Pfac :	2.719 3.926		6.872 3.682		3.182 3.793	3.685 3.881	
	Run # 103	Wind 60.0	Elev 90.0	Vel 11.1				
	Comp : Mean :	Fx .934	Fy .041	Fz .017	Mx .012	My .120	Mz .123	
	Max : Min : Rms :	3.000 115 .444	.020	.236 150 .053	.007	.482 087 .073	.392 048 .063	
	Max : Min : Rms : Gfac : Pfac :	3.000 115 .444 3.211 4.651	.020	.236 150 .053 13.775 4.138	.007	.482 087 .073 4.001 4.961	.392 048 .063 3.186 4.287	
·	Max : Min : Rms : Gfac : Pfac : Run # 104	3.000 115 .444 3.211 4.651 Wind .0	.020 Elev 90.0	.236 150 .053 13.775 4.138 Vel 11.2	.007	.482 087 .073 4.001 4.961	.392 048 .063 3.186 4.287	
•	Max : Min : Rms : Gfac : Pfac : Run # 104 Comp : Mean :	3.000 115 .444 3.211 4.651 Wind .0 Fx .987	.020 Elev 90.0 Fy .085	.236 150 .053 13.775 4.138 Vel 11.2 Fz 084	.007 Mx .004	.482 087 .073 4.001 4.961 My .085	.392 048 .063 3.186 4.287 Mz .037	
	Max : Min : Rms : Gfac : Pfac : Run # 104 Comp : Mean : Mean : Min : Rms :	3.000 115 .444 3.211 4.651 Wind .0 Fx .987 3.003 .069 .384	.020 Elev 90.0 Fy .085 .033	.236 150 .053 13.775 4.138 Vel 11.2 Fz 084 .060 240 .043	.007 Mx .004 .002	.482 087 .073 4.001 4.961 My .085 .352 093 .056	.392 048 .063 3.186 4.287 Mz .037 .272 152 .040	
·	Max : Min : Rms : Gfac : Pfac : Run # 104 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	3.000 115 .444 3.211 4.651 Wind .0 Fx .987 3.003 .069 .384 3.042 5.245	.020 Elev 90.0 Fy .085	.236 150 .053 13.775 4.138 Vel 11.2 Fz 084 .060 240 .043 2.855 3.649	.007 Mx .004 .002	.482 087 .073 4.001 4.961 4.961 My .085 .352 093 .056 4.144 4.756	.392 048 .063 3.186 4.287 Mz .037 .272 152 .040 7.330 5.859	
Run # 105	Wind .0	Elev 30.0	Vel 11.2		χ.			
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Comp : Mean :	Fx .446	Fy .098	Fz 864	Мх 015	Му 048	Mz .008		
Max : Min : Rms :	1.360 .027 .169	.037	180 -2.436 .323	.016	.084 218 .051	.097 092 .023		
Gfac : Pfac :	3.047 5.398		2.821 4.862		4.598 3.320	12.259 3.834		
Run # 106	Wind 15.0	Elev 30.0	Vel 11.3					
Comp : Mean :	Fx .374	Fy .065	Fz 764	Mx .018	Му 041	Mz .027		
Max : Min : Rms :	1.075 580 .144	.025	075 -2.372 .285	.021	207 759 .049	.127 045 .021		
Gfac : Pfac :	2.874 4.854		3.105 5.641		18.385 14.543	4.703 4.819		
Run # 107	Wind 30.0	Elev 30.0	Vel 11.1					
Run # 107 Comp : Mean :	Wind 30.0 Fx .344	Elev 30.0 Fy .070	Vel 11.1 Fz 726	Mx .041	My 021	Mz .037		
Run # 107 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .344 1.081 208 .145	Elev 30.0 Fy .070	Vel 11.1 726 068 -2.122 .273	Mx .041 .051	My 021 120 238 .026	Mz .037 .154 021 .022		
Run # 107 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx .344 1.081 208 .145 3.144 5.099	Elev 30.0 Fy .070	Vel 11.1 726 068 -2.122 .273 2.923 5.122	Mx .041 .051	My 021 120 238 .026 11.375 8.222	Mz .037 .154 021 .022 4.131 5.285		
Run # 107 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 109	Wind 30.0 Fx .344 1.081 208 .145 3.144 5.099 Wind .0	Elev 30.0 Fy .070 .029 Elev 60.0	Vel 11.1 726 068 -2.122 .273 2.923 5.122 Vel 11.3	Mx .041 .051	My 021 120 238 .026 11.375 8.222	Mz .037 .154 021 .022 4.131 5.285		
Run # 107 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 109 Comp : Mean :	Wind 30.0 Fx .344 1.081 208 .145 3.144 5.099 Wind .0 Fx .650	Elev 30.0 Fy .070 .029 Elev 60.0 Fy .039	Vel 11.1 726 068 -2.122 .273 2.923 5.122 Vel 11.3 Fz .217	Mx .041 .051 Mx .016	My 021 120 238 .026 11.375 8.222	Mz .037 .154 021 .022 4.131 5.285 Mz .037		
Run # 107 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 109 Comp : Mean : Mean : Min : Rms :	Wind 30.0 Fx .344 1.081 208 .145 3.144 5.099 Wind .0 Fx .650 1.613 .079 .221	Elev 30.0 Fy .070 .029 Elev 60.0 Fy .039 .013	Vel 11.1 726 068 -2.122 .273 2.923 5.122 Vel 11.3 Fz .217 .552 055 .087	Mx .041 .051 .051 .016 .008	My 021 120 238 .026 11.375 8.222 11.375 8.222	Mz .037 .154 021 .022 4.131 5.285 4.131 5.285 Mz .037 .145 068 .027		

	Run # 110	Wind 15.0	Elev 60.0	Vel 11.3				
	Comp : Mean :	Fx .657	Fy .073	Fz .223	Мх .000	Му .102	Mz .060	
	Max : Min : Rms :	1.591 279 .226	.025	.580 042 .087	.000	.376 155 .054	.205 068 .030	
	Gfac : Pfac :	2.421 4.139		2.598 4.101		3.673 5.022	3.433 4.894	
	Run # 111	Wind 30.0	Elev 60.0	Vel 11.2				
	Comp : Mean :	Fx .653	Fy .147	Fz .277	Mx 025	Му .108	Mz .081	
	Max : Min : Rms :	1.872 151 .240	.054	.681 022 .102	.013	.408 062 .056	.216 001 .032	
	Gfac : Pfac :	2.868 5.079		2.457 3.965		3.776 5.319	2.673 4.177	
	Run #	Wind	Elev	Vel				
	112	30.0	60.0	11.3				
	112 Comp : Mean :	30.0 Fx .657	60.0 Fy .142	11.3 Fz .266	Mx 032	Му .110	Mz .086	
	112 Comp : Mean : Max : Min : Rms :	30.0 Fx .657 1.620 033 .242	60.0 Fy .142 .052	11.3 Fz .266 .638 018 .101	Mx 032 .016	My .110 .344 075 .054	Mz .086 .227 .023 .028	
	112 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	30.0 Fx .657 1.620 033 .242 2.465 3.973	60.0 Fy .142 .052	11.3 Fz .266 .638 018 .101 2.403 3.683	Mx 032 .016	My .110 .344 075 .054 3.139 4.364	Mz .086 .227 .023 .028 2.629 4.959	
•	112 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 113	30.0 Fx .657 1.620 033 .242 2.465 3.973 Wind 15.0	60.0 Fy .142 .052 Elev 60.0	11.3 Fz .266 .638 018 .101 2.403 3.683 Vel 11.2	Mx 032 .016	My .110 .344 075 .054 3.139 4.364	Mz .086 .227 .023 .028 2.629 4.959	
	112 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 113 Comp : Mean :	30.0 Fx .657 1.620 033 .242 2.465 3.973 Wind 15.0 Fx .711	60.0 Fy .142 .052 Elev 60.0 Fy .072	11.3 Fz .266 .638 018 .101 2.403 3.683 Vel 11.2 Fz .268	Mx 032 .016 Mx 012	My .110 .344 075 .054 3.139 4.364 My .129	Mz .086 .227 .023 .028 2.629 4.959 4.959	
•	<pre>112 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 113 Comp : Mean : Max : Min : Rms :</pre>	30.0 Fx .657 1.620 033 .242 2.465 3.973 Wind 15.0 Fx .711 1.739 259 .240	60.0 Fy .142 .052 Elev 60.0 Fy .072 .024	11.3 Fz .266 .638 018 .101 2.403 3.683 Vel 11.2 Fz .268 .574 .028 .089	Mx 032 .016 Mx 012 .005	My .110 .344 075 .054 3.139 4.364 My .129 .380 144 .057	Mz .086 .227 .023 .028 2.629 4.959 4.959 4.959 .073 .185 009 .028	

Run # 114	Wind .0	Elev 60.0	Vel 11.4			
Comp : Mean :	Fx .674	Fy .049	Fz .228	Mx .005	Му .115	Mz .038
Max : Min : Rms :	1.556 .096 .233	.017	.575 003 .084	.002	.332 014 .056	.195 058 .028
Gfac : Pfac :	2.307 3.778		2.529 4.159		2.878 3.880	5.144 5.674
Run # 115	Wind .0	Elev 30.0	Vel 11.3			
Comp : Mean :	Fx .457	Fy .065	Fz 862	Mx .005	My 055	Mz .025
Max : Min : Rms :	1.031 .062 .130	.019	190 -1.912 .239	.004	.060 204 .045	.106 053 .018
Gfac : Pfac :	2.256 4.423		2.217 4.388		3.725 3.335	4.199 4.597
Run # 116	Wind 15.0	Elev 30.0	Vel 11.2			
Run # 116 Comp : Mean :	Wind 15.0 Fx .458	Elev 30.0 Fy .001	Vel 11.2 Fz 862	Mx .040	Му 046	Mz .045
Run # 116 Comp : Mean : Max : Min : Rms :	Wind 15.0 Fx .458 1.001 306 .130	Elev 30.0 Fy .001	Vel 11.2 Fz 862 216 -1.860 .225	Mx .040 .031	My 046 147 356 .035	Mz .045 .131 012 .018
Run # 116 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 15.0 Fx .458 1.001 306 .130 2.185 4.165	Elev 30.0 Fy .001	Vel 11.2 Fz 862 216 -1.860 .225 2.158 4.429	Mx .040 .031	My 046 147 356 .035 7.801 8.749	Mz .045 .131 012 .018 2.876 4.668
Run # 116 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 117	Wind 15.0 Fx .458 1.001 306 .130 2.185 4.165 Wind 30.0	Elev 30.0 Fy .001 .000	Vel 11.2 Fz 862 216 -1.860 .225 2.158 4.429 Vel 11.2	Mx .040 .031	My 046 147 356 .035 7.801 8.749	Mz .045 .131 012 .018 2.876 4.668
Run # 116 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 117 Comp : Mean :	Wind 15.0 Fx .458 1.001 306 .130 2.185 4.165 Wind 30.0 Fx .410	Elev 30.0 Fy .001 .000 Elev 30.0 Fy .019	Vel 11.2 Fz 862 216 -1.860 .225 2.158 4.429 Vel 11.2 Fz 783	Mx .040 .031 Mx .051	My 046 147 356 .035 7.801 8.749 My 030	Mz .045 .131 012 .018 2.876 4.668 Mz .047
Run # 116 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 117 Comp : Mean : Mean : Max : Min : Rms :	Wind 15.0 Fx .458 1.001 306 .130 2.185 4.165 Wind 30.0 Fx .410 1.049 168 .130	Elev 30.0 Fy .001 .000 Elev 30.0 Fy .019 .006	Vel 11.2 Fz 862 216 -1.860 .225 2.158 4.429 Vel 11.2 Vel 11.2 Fz 783 227 -1.871 .215	Mx .040 .031 .031 .051	My 046 147 356 .035 7.801 8.749 My 030 105 206 .025	Mz .045 .131 012 .018 2.876 4.668 .047 .129 024 .021

Run # 118	Wind .0	Elev 90.0	Vel 11.1			
Comp : Mean :	Fx .929	Fy .101	Fz 037	Мх .002	Му .094	Mz .049
Max : Min : Rms :	2.662 .019 .391	.043	.105 200 .037	.001	.356 073 .060	.257 113 .043
Gfac : Pfac :	2.867 4.437		5.469 4.446		3.789 4.397	5.293 4.868
Run # 119	Wind 60.0	Elev 90.0	Vel 11.1			
Comp : Mean :	Fx .836	Fy .083	Fz .064	Мх 002	Му .106	Mz .066
Max : Min : Rms :	2.858 165 .392	.039	.347 103 .058	.001	.432 116 .066	.410 126 .066
Gfac : Pfac :	3.419 5.151		5.383 4.861		4.082 4.975	6.215 5.201
Run # 120	Wind 60.0	Elev 90.0	Vel 11.1			
Run # 120 Comp : Mean :	Wind 60.0 Fx 1.077	Elev 90.0 Fy .104	Vel 11.1 Fz .097	Mx .002	Му .135	Mz .089
Run # 120 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.077 3.225 .042 .410	Elev 90.0 Fy .104	Vel 11.1 Fz .097 .443 060 .061	Mx .002 .001	My .135 .540 059 .070	Mz .089 .466 119 .071
Run # 120 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx 1.077 3.225 .042 .410 2.995 5.244	Elev 90.0 Fy .104 .040	Vel 11.1 Fz .097 .443 060 .061 4.542 5.624	Mx .002 .001	My .135 .540 059 .070 4.003 5.761	Mz .089 .466 119 .071 5.269 5.315
Run # 120 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 121	Wind 60.0 Fx 1.077 3.225 .042 .410 2.995 5.244 Wind .0	Elev 90.0 Fy .104 .040 Elev 90.0	Vel 11.1 Fz .097 .443 060 .061 4.542 5.624 Vel 11.4	Mx .002 .001	My .135 .540 059 .070 4.003 5.761	Mz .089 .466 119 .071 5.269 5.315
Run # 120 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 121 Comp : Mean :	Wind 60.0 Fx 1.077 3.225 .042 .410 2.995 5.244 Wind .0 Fx 1.116	Elev 90.0 Fy .104 .040 Elev 90.0 Fy .074	Vel 11.1 Fz .097 .443 060 .061 4.542 5.624 Vel 11.4 Fz 057	Mx .002 .001 .001 Mx .004	My .135 .540 059 .070 4.003 5.761 My .091	Mz .089 .466 119 .071 5.269 5.315 Mz .058
Run # 120 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 121 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.077 3.225 .042 .410 2.995 5.244 Wind .0 Fx 1.116 2.878 .137 .413	Elev 90.0 .104 .040 Elev 90.0 .074 .027	Vel 11.1 Fz .097 .443 060 .061 4.542 5.624 Vel 11.4 Vel 11.4 Fz 057 .115 212 .036	Mx .002 .001 .001 Mx .004 .002	My .135 .540 .059 .070 4.003 5.761 My .091 .338 065 .056	Mz .089 .466 .119 .071 5.269 5.315 5.315 Mz .058 .273 .058 .273 .094 .045

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Run # 122	Wind .0	Elev 30.0	Vel 11.3			
Comp : Mean :	Fx .592	Fy .122	Fz -1.163	Mx .019	Му 081	Mz .014
Max : Min : Rms :	1.189 .147 .144	.030	397 -2.372 .287	.012	.048 236 .052	.095 069 .020
Gfac : Pfac :	2.008 4.151		2.040 4.217		2.904 2.970	6.578 4.063
Run # 123	Wind 15.0	Elev 30.0	Vel 11.2			
Comp : Mean :	Fx .746	Fy .148	Fz -1.271	Mx .056	My 073	Mz .040
Max : Min : Rms :	1.525 941 .202	.040	490 -2.498 .285	.041	167 371 .054	.135 074 .025
Gfac : Pfac :	2.044 3.866		1.966 4.311		5.053 5.540	3.373 3.738
Run # 124	Wind 30.0	Elev 30.0	Ve] 11.2			
Comp : Mean :	Fx .697	Fy .104	Fz -1.232	Мх .092	My 056	Mz .062
Max : Min : Rms :	1.482 049 .176	.026	433 -2.613 .289	.048	127 264 .029	.182 026 .028
Gfac : Pfac :	2.126 4.451		2.120 4.773		4.731 7.131	2.915 4.336
Run # 125	Wind .0	Elev 60.0	Vel 11.5			
Comp : Mean :	Fx .793	Fy .036	Fz .351	Мх .000	Му .135	Mz .052
Max : Min : Rms :	1.881 .176 .239	.011	.849 .125 .096	.000	.338 013 .056	.190 060 .029
Gfac : Pfac :	2.370 4.548		2.416 5.190		2.508 3.607	3.680 4.787

Run # 126	Wind 15.0	Elev 60.0	Vel 11.1			
Comp : Mean :	Fx .836	Fy .088	Fz .346	Мх 021	Му .133	Mz .091
Max : Min : Rms :	1.947 114 .247	.026	.798 .038 .099	.009	.392 263 .055	.232 .010 .032
Gfac : Pfac :	2.330 4.499		2.307 4.577		2.937 4.710	2.548 4.436
Run # 127	Wind 30.0	Elev 60.0	Vel 11.5			
Comp : Mean :	Fx .833	Fy .154	Fz .392	Mx 047	Му .124	Mz .123
Max : Min : Rms :	1.946 .083 .242	.045	.813 .106 .102	.019	.344 105 .050	.318 .037 .034
Gfac : Pfac :	2.337 4.598		2.072 4.113		2.769 4.413	2.581 5.773
Run # 128	Wind 30.0	Elev 60.0	Vel 11.2			
Run # 128 Comp : Mean :	Wind 30.0 Fx .647	Elev 60.0 Fy .107	Vel 11.2 Fz .305	Mx 023	Му .100	Mz .088
Run # 128 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .647 1.620 141 .223	Elev 60.0 Fy .107	Vel 11.2 Fz .305 .753 032 .102	Mx 023 .012	My .100 .326 069 .050	Mz .088 .252 .010 .028
Run # 128 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx .647 1.620 141 .223 2.503 4.364	Elev 60.0 Fy .107 .037	Vel 11.2 Fz .305 .753 032 .102 2.467 4.404	Mx 023 .012	My .100 .326 069 .050 3.264 4.526	Mz .088 .252 .010 .028 2.875 5.764
Run # 128 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 129	Wind 30.0 Fx .647 1.620 141 .223 2.503 4.364 Wind 15.0	Elev 60.0 Fy .107 .037 Elev 60.0	Vel 11.2 Fz .305 .753 032 .102 2.467 4.404 Vel 11.1	Mx 023 .012	My .100 .326 069 .050 3.264 4.526	Mz .088 .252 .010 .028 2.875 5.764
Run # 128 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 129 Comp : Mean :	Wind 30.0 Fx .647 1.620 141 .223 2.503 4.364 Wind 15.0 Fx .749	Elev 60.0 .107 .037 Elev 60.0 Fy .050	Vel 11.2 Fz .305 .753 032 .102 2.467 4.404 Vel 11.1 Fz .313	Mx 023 .012 Mx 002	My .100 .326 069 .050 3.264 4.526 My .114	Mz .088 .252 .010 .028 2.875 5.764 Mz .053
Run # 128 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 129 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .647 1.620 141 .223 2.503 4.364 Wind 15.0 Fx .749 1.832 278 .242	Elev 60.0 Fy .107 .037 Elev 60.0 Fy .050 .016	Vel 11.2 Fz .305 .753 032 .102 2.467 4.404 Vel 11.1 Fz .313 .741 .030 .101	Mx 023 .012 .012 .002 .001	My .100 .326 069 .050 3.264 4.526 My .114 .356 148 .055	Mz .088 .252 .010 .028 2.875 5.764 Mz .053 .171 037 .029

Run # 130	Wind .0	Elev 60.0	Vel 11.1			
Comp : Mean :	Fx .781	Fy .023	Fz .268	Mx .014	Му .115	Mz .032
Max : Min : Rms :	2.040 .172 .240	.007	.689 .045 .085	.006	.452 032 .053	.193 076 .030
Gfac : Pfac :	2.613 5.251		2.568 4.941		3.931 6.327	5.978 5.416
Run # 131	Wind .0	Elev 30.0	Vel 11.1			
Comp : Mean :	Fx .595	Fy .109	Fz 986	Mx 011	Му 053	Mz .014
Max : Min : Rms :	1.507 .173 .200	.037	344 -2.607 .316	.010	.059 225 .050	.137 107 .026
Gfac : Pfac :	2.533 4.562		2.644 5.136		4.228 3.408	9.660 4.666
Run # 132	Wind 15.0	Elev 60.0	Vel 11.2			
Comp : Mean :	Fx .561	Fy .062	Fz 947	Mx .032	My 049	Mz .041
Max : Min : Rms :	1.449 381 .186	.020	263 -2.498 .286	.030	227 517 .046	.208 046 .028
Gfac : Pfac :	2.583 4.776		2.637 5.424		10.636 10.263	5.014 5.981
Run # 133	Wind 30.0	Elev 30.0	Vel 11.2			
Comp : Mean :	Fx .467	Fy 006	Fz 821	Mx .056	My 024	Mz .052
Max : Min : Rms :	1.333 116 .172	.002	186 -2.362 .277	.058	091 301 .025	.163 032 .028

Run # 134	Wind .0	Elev 90.0	Vel 11.1				
Comp : Mean :	Fx 1.054	Fy .065	Fz 102	Mx .006	My .082	Mz .049	
Max : Min : Rms :	3.023 .130 .396	.024	.019 276 .042	.004	.434 095 .054	.284 171 .040	
Gfac : Pfac :	2.868 4.966		2.701 4.155		5.278 6.465	5.800 5.798	
Run # 135	Wind 60.0	Elev 90.0	Vel 11.2				
Comp : Mean :	Fx 1.064	Fy .051	Fz .047	Mx .005	My .132	Mz .146	
Max : Min : Rms :	3.226 039 .469	.023	.276 104 .056	.002	.434 064 .072	.433 001 .064	
Gfac : Pfac :	3.031 4.604		5.818 4.101		3.283 4.206	2.959 4.466	
Run # 136	Wind 60.0	Elev 90.0	Vel 11.2				
Run # 136 Comp : Mean :	Wind 60.0 Fx 1.646	Elev 90.0 Fy .103	Vel 11.2 Fz .102	Mx .005	Му .193	Mz .206	
Run # 136 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.646 3.399 .471 .480	Elev 90.0 Fy .103	Vel 11.2 Fz .102 .288 058 .046	Mx .005 .002	My .193 .453 .010 .069	Mz .206 .461 041 .075	
Run # 136 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx 1.646 3.399 .471 .480 2.065 3.652	Elev 90.0 Fy .103	Vel 11.2 Fz .102 .288 058 .046 2.827 4.011	Mx .005 .002	My .193 .453 .010 .069 2.350 3.762	Mz .206 .461 041 .075 2.236 3.400	
Run # 136 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 137	Wind 60.0 Fx 1.646 3.399 .471 .480 2.065 3.652 Wind .0	Elev 90.0 Fy .103 .030 Elev 90.0	Vel 11.2 Fz .102 .288 058 .046 2.827 4.011 Vel 11.0	Mx .005 .002	My .193 .453 .010 .069 2.350 3.762	Mz .206 .461 041 .075 2.236 3.400	
Run # 136 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 137 Comp : Mean :	Wind 60.0 Fx 1.646 3.399 .471 .480 2.065 3.652 Wind .0 Fx 1.447	Elev 90.0 Fy .103 .030 Elev 90.0 Fy .055	Vel 11.2 Fz .102 .288 058 .046 2.827 4.011 Vel 11.0 Fz 149	Mx .005 .002 .Mx .005	My .193 .453 .010 .069 2.350 3.762 My .098	Mz .206 .461 041 .075 2.236 3.400 Mz .074	
Run # 136 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 137 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.646 3.399 .471 .480 2.065 3.652 Wind .0 Fx 1.447 3.613 .180 .456	Elev 90.0 .103 .030 Elev 90.0 .055 .017	Vel 11.2 Fz .102 .288 058 .046 2.827 4.011 Vel 11.0 Fz 149 .103 392 .066	Mx .005 .002 .002 Mx .005	My .193 .453 .010 .069 2.350 3.762 My .098 .601 201 .066	Mz .206 .461 041 .075 2.236 3.400 Mz .074 .355 109 .049	

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Run # 138	Wind .0	Elev 30.0	Vel 11.2			
Comp : Mean :	Fx .934	Fy .104	Fz -1.578	Mx .042	Му 108	Mz .042
Max : Min : Rms :	2.027 .171 .291	.032	279 -3.672 .528	.029	.083 363 .075	.175 088 .034
Gfac : Pfac :	2.169 3.757		2.326 3.965		3.374 3.387	4.183 3.960
Run # 139	Wind 15.0	Elev 30.0	Vel 11.2			
Comp : Mean :	Fx .982	Fy .073	Fz -1.639	Mx .096	Му 086	Mz .074
Max : Min : Rms :	2.029 486 .303	.022	519 -3.438 .529	.059	185 571 .053	.231 074 .038
Gfac : Pfac :	2.065 3.448		2.097 3.399		6.613 9.143	3.138 4.174
Run # 140	Wind 30.0	Elev 30.0	Vel 11.2			
Run # 140 Comp : Mean :	Wind 30.0 Fx .979	Elev 30.0 Fy .157	Vel 11.2 Fz -1.625	Mx .137	Му 057	Mz .096
Run # 140 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .979 1.972 023 .285	Elev 30.0 Fy .157	Vel 11.2 Fz -1.625 562 -3.254 .476	Mx .137 .071	My 057 109 473 .029	Mz .096 .217 018 .036
Run # 140 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 30.0 Fx .979 1.972 023 .285 2.014 3.485	Elev 30.0 Fy .157	Vel 11.2 -1.625 562 -3.254 .476 2.003 3.419	Mx .137 .071	My 057 109 473 .029 8.318 14.177	Mz .096 .217 018 .036 2.250 3.300
Run # 140 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 141	Wind 30.0 Fx .979 1.972 023 .285 2.014 3.485 Wind .0	Elev 30.0 Fy .157 .046 Elev 60.0	Vel 11.2 -1.625 562 -3.254 .476 2.003 3.419 Vel 11.5	Mx .137 .071	My 057 109 473 .029 8.318 14.177	Mz .096 .217 018 .036 2.250 3.300
Run # 140 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 141 Comp : Mean :	Wind 30.0 Fx .979 1.972 023 .285 2.014 3.485 Wind .0 Fx .946	Elev 30.0 Fy .157 .046 Elev 60.0 Fy .065	Vel 11.2 -1.625 562 -3.254 .476 2.003 3.419 Vel 11.5 Fz .378	Mx .137 .071 	My 057 109 473 .029 8.318 14.177 My .155	Mz .096 .217 018 .036 2.250 3.300 .050
Run # 140 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 141 Comp : Mean : Mean : Max : Min : Rms :	Wind 30.0 Fx .979 1.972 023 .285 2.014 3.485 Wind .0 Fx .946 2.086 .221 .271	Elev 30.0 Fy .157 .046 Elev 60.0 Fy .065 .018	Vel 11.2 -1.625 562 -3.254 .476 2.003 3.419 Vel 11.5 Fz .378 .864 .134 .101	Mx .137 .071 .071 	My 057 109 473 .029 8.318 14.177 My .155 .376 .010 .059	Mz .096 .217 018 .036 2.250 3.300 3.300 Mz .050 .178 057 .031

	Run # 142	Wind 15.0	Elev 60.0	Vel 11.2				
	Comp : Mean :	Fx 1.041	Fy .082	Fz .393	Mx 021	Му .156	Mz .112	
	Max : Min : Rms :	2.054 082 .274	.022	.762 .123 .093	.008	.361 142 .057	.269 003 .040	
	Gfac : Pfac :	1.973 3.700		1.937 3.952		2.315 3.604	2.410 3.947	
	Run # 143	Wind 30.0	Elev 60.0	Vel 11.7				
	Comp : Mean :	Fx .978	Fy .350	Fz .367	Mx 067	My .147	Mz .112	
	Max : Min : Rms :	1.797 .019 .256	.092	.662 .090 .096	.022	.309 074 .048	.244 .005 .036	
	Gfac : Pfac :	1.837 3.201		1.805 3.076		2.102 3.358	2.174 3.607	
	Run # 144	Wind 30.0	Elev 60.0	Vel 11.2				
	Comp : Mean :	Fx .595	Fy .212	Fz .218	Mx 029	Му .096	Mz .060	
	Max : Min : Rms :	1.834 192 .216	.077	.628 027 .082	.015	.356 096 .051	.210 032 .027	
	Max : Min : Rms : Gfac : Pfac :	1.834 192 .216 3.080 5.741	.077	.628 027 .082 2.873 4.984	.015	.356 096 .051 3.696 5.057	.210 032 .027 3.487 5.570	
÷	Max : Min : Rms : Gfac : Pfac : Run # 145	1.834 192 .216 3.080 5.741 Wind 15.0	.077 Elev 60.0	.628 027 .082 2.873 4.984 Vel 11.2	.015	.356 096 .051 3.696 5.057	.210 032 .027 3.487 5.570	
•	Max : Min : Rms : Gfac : Pfac : Run # 145 Comp : Mean :	1.834 192 .216 3.080 5.741 Wind 15.0 Fx .605	.077 Elev 60.0 Fy .107	.628 027 .082 2.873 4.984 Vel 11.2 Fz .207	.015 Mx 007	.356 096 .051 3.696 5.057 My .095	.210 032 .027 3.487 5.570 Mz .048	
•	Max : Min : Rms : Gfac : Pfac : Run # 145 Comp : Mean : Mean : Min : Rms :	1.834 192 .216 3.080 5.741 Wind 15.0 Fx .605 1.587 321 .212	.077 Elev 60.0 Fy .107 .037	.628 027 .082 2.873 4.984 Vel 11.2 Fz .207 .622 .000 .078	.015 Mx 007 .004	.356 096 .051 3.696 5.057 My .095 .367 144 .050	.210 032 .027 3.487 5.570 Mz .048 .181 046 .026	

Run # 146	Wind .0	Elev 60.0	Vel 11.3			
Comp : Mean :	Fx .611	Fy .064	Fz .181	Mx .007	My .097	Mz .031
Max : Min : Rms :	1.710 105 .213	.023	.626 073 .078	.004	.299 027 .049	.138 093 .025
Gfac : Pfac :	2.801 5.152		3.450 5.730		3.080 4.084	4.485 4.231
Run # 147	Wind .0	Elev 30.0	Vel 11.2			
Comp : Mean :	Fx .419	Fy .080	Fz 809	Мх 015	Му 045	Mz 001
Max : Min : Rms :	1.103 .065 .163	.031	197 -2.392 .323	.018	.084 216 .054	.105 131 .024
Gfac : Pfac :	2.631 4.201		2.958 4.897		4.780 3.188	114.279 5.315
Run # 148	Wind 15.0	Elev 30.0	Vel 11.2			
Comp : Mean :	Fx .458	Fy .046	Fz 856	Mx .015	My 047	Mz .035
Max : Min : Rms :	1.216 349 .172	.017	204 -2.435 .311	.017	180 740 .054	.140 065 .026
Gfac : Pfac :	2.654 4.396		2.845 5.084		15.844 12.868	3.981 4.006
Run #						
149	Wind 30.0	Elev 30.0	Vel 11.2			
149 Comp : Mean :	Wind 30.0 Fx .411	Elev 30.0 Fy .060	Vel 11.2 Fz 772	Mx .034	My 034	Mz .035
149 Comp : Mean : Max : Min : Rms :	Wind 30.0 Fx .411 1.205 127 .164	Elev 30.0 Fy .060	Vel 11.2 772 160 -2.227 .286	Mx .034 .041	My 034 166 325 .040	Mz .035 .166 037 .026

Run # 150	Wind .0	Elev 90.0	Vel 11.1				
Comp : Mean :	Fx .904	Fy .079	Fz 072-	Mx .003	Му .076	Mz .044	
Max : Min : Rms :	2.516 011 .357	.031	.027 242 .038	.002	.326 071 .054	.218 113 .040	
Gfac : Pfac :	2.784 4.516		3.384 4.528		4.269 4.651	4.970 4.368	
Run # 151	Wind 60.0	Elev 90.0	Vel 11.3				
Comp : Mean :	Fx .904	Fy .023	Fz .024	Mx .004	Му .108	Mz .111	
Max : Min : Rms :	2.635 .052 .365	.009	.269 130 .046	.002	.411 075 .061	.356 005 .049	
Gfac : Pfac :	2.916 4.744		11.303 5.343		3.818 5.009	3.204 5.023	
Run # 152	Wind 60.0	Elev 90.0	Vel 11.3				
Run # 152 Comp : Mean :	Wind 60.0 Fx 1.892	Elev 90.0 Fy .039	Vel 11.3 Fz .045	Mx .014	Му .181	Mz .231	
Run # 152 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.892 3.849 .472 .515	Elev 90.0 Fy .039 .011	Vel 11.3 Fz .045 .194 073 .038	Mx .014 .005	My .181 .441 019 .060	Mz .231 .493 .026 .066	
Run # 152 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind 60.0 Fx 1.892 3.849 .472 .515 2.034 3.798	Elev 90.0 Fy .039	Vel 11.3 Fz .045 .194 073 .038 4.282 3.878	Mx .014 .005	My .181 .441 019 .060 2.444 4.354	Mz .231 .493 .026 .066 2.134 3.938	
Run # 152 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 153	Wind 60.0 Fx 1.892 3.849 .472 .515 2.034 3.798 Wind .0	Elev 90.0 Fy .039 .011 Elev 90.0	Vel 11.3 Fz .045 .194 073 .038 4.282 3.878 Vel 11.4	Mx .014 .005	My .181 .441 019 .060 2.444 4.354	Mz .231 .493 .026 .066 2.134 3.938	
Run # 152 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 153 Comp : Mean :	Wind 60.0 Fx 1.892 3.849 .472 .515 2.034 3.798 Wind .0 Fx 2.018	Elev 90.0 Fy .039 .011 Elev 90.0 Fy .135	Vel 11.3 Fz .045 .194 073 .038 4.282 3.878 Vel 11.4 Fz 174	Mx .014 .005 Mx .006	My .181 .441 019 .060 2.444 4.354 My .133	Mz .231 .493 .026 .066 2.134 3.938 Mz .096	
Run # 152 Comp : Mean : Min : Rms : Gfac : Pfac : Run # 153 Comp : Mean : Max : Min : Rms :	Wind 60.0 Fx 1.892 3.849 .472 .515 2.034 3.798 Wind .0 Fx 2.018 3.500 .967 .446	Elev 90.0 Fy .039 .011 Elev 90.0 Fy .135 .030	Vel 11.3 Fz .045 .194 073 .038 4.282 3.878 Vel 11.4 Fz 174 048 319 .040	Mx .014 .005 .005 .006	My .181 .441 019 .060 2.444 4.354 My .133 .331 000 .050	Mz .231 .493 .026 .066 2.134 3.938 Mz .096 .223 018 .037	

Run # 154	Wind .0	Elev 30.0	Vel 11.5			
Comp : Mean :	Fx 1.168	Fy .180	Fz -2.193	Mx .013	Му 173	Mz .009
Max : Min : Rms :	2.102 .513 .262	.040	-1.039 -3.897 .490	.004	054 364 .060	.097 071 .023
Gfac : Pfac :	1.800 3.568		1.777 3.477		2.103 3.181	10.826 3.766
Run # 155	Wind .0	Elev 60.0	Vel 11.3			
Comp : Mean :	Fx 1.329	Fy .116	Fz .540	Мх 006	Му .203	Mz .061
Max : Min : Rms :	2.339 .608 .267	.023	.916 .270 .103	.002	.407 .069 .052	.163 018 .028
Gfac : Pfac :	1.760 3.776		1.697 3.642		2.006 3.958	2.659 3.686
Run # 156	Wind .0	Elev 60.0	Vel 11.2			
Run # 156 Comp : Mean :	Wind .0 Fx .501	Elev 60.0 Fy .064	Vel 11.2 Fz .169	Mx .010	Му .081	Mz .034
Run # 156 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .501 1.144 .012 .149	Elev 60.0 Fy .064 .019	Vel 11.2 Fz .169 .421 065 .054	Mx .010 .005	My .081 .252 027 .038	Mz .034 .110 046 .013
Run # 156 Comp : Mean : Max : Min : Rms : Gfac : Pfac :	Wind .0 Fx .501 1.144 .012 .149 2.283 4.323	Elev 60.0 Fy .064 .019	Vel 11.2 Fz .169 .421 065 .054 2.488 4.667	Mx .010 .005	My .081 .252 027 .038 3.090 4.477	Mz .034 .110 046 .013 3.285 5.907
Run # 156 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 157	Wind .0 Fx .501 1.144 .012 .149 2.283 4.323 Wind .0	Elev 60.0 Fy .064 .019 Elev 30.0	Vel 11.2 Fz .169 .421 065 .054 2.488 4.667 Vel 11.3	Mx .010 .005	My .081 .252 027 .038 3.090 4.477	Mz .034 .110 046 .013 3.285 5.907
Run # 156 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 157 Comp : Mean :	Wind .0 Fx .501 1.144 .012 .149 2.283 4.323 Wind .0 Fx .390	Elev 60.0 Fy .064 .019 Elev 30.0 Fy .083	Vel 11.2 Fz .169 .421 065 .054 2.488 4.667 Vel 11.3 Fz 675	Mx .010 .005 Mx 021	My .081 .252 027 .038 3.090 4.477 My 030	Mz .034 .110 046 .013 3.285 5.907 Mz 003
Run # 156 Comp : Mean : Max : Min : Rms : Gfac : Pfac : Run # 157 Comp : Mean : Max : Min : Rms :	Wind .0 Fx .501 1.144 .012 .149 2.283 4.323 Wind .0 Fx .390 .928 007 .130	Elev 60.0 Fy .064 .019 Elev 30.0 Fy .083 .028	Vel 11.2 Fz .169 .421 065 .054 2.488 4.667 Vel 11.3 Fz 675 127 -1.669 .204	Mx .010 .005 .005 021 .020	My .081 .252 027 .038 3.090 4.477 My 030 .113 139 .028	Mz .034 .110 046 .013 3.285 5.907 Mz 003 .041 076 .014

Run # 158		Wind .0	Elev 90.0	Vel 11.6			
Comp Mean	:	Fx .776	Fy .042	Fz 110	Mx .004	My .056	Mz .036
Max Min Rms	•	1.572 .240 .190	.010	018 231 .030	.003	.216 046 .036	.100 065 .016
Gfac Pfac	•	2.027 4.197		2.093 4.065		3.884 4.511	2.733 4.005
Run # 159		Wind 60.0	Elev 90.0	Vel 11.1			
Comp Mean	:	Fx .647	Fy .009	Fz .004	Mx .008	My .063	Mz .079
Max Min Rms	:	1.913 .032 .192	.003	.154 116 .037	.004	.263 056 .033	.193 .008 .021
Gfac Pfac	:	2.959 6.598		43.108 4.057		4.152 6.068	2.460 5.357

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16. Abstract (Limit: 200 wo	ords)				
A major intent of	this study was to	define wind load red	uction factors for parabolic		
dish solar collec	tors within a field	protected by upwind	collectors, wind protective		
fences, or other	blockages. This inf	formation will help re	esearchers improve the econ-		
omy of parabolic	collector support st	ructures and drive m	vering tosts on model selles		
tors placed in a	modeled atmospheric	wind in a boundary-1	aver wind tunnel. A second		
objective of the	study was to confirm	m and document a sense	sitivity in load to level of		
turbulence, or gu	stiness, in the appr	roaching wind. A key	y finding was that wind-load		
reduction factors	for forces (horizor	ntal and vertical) we	re roughly similar to those		
for flat heliostat	ts, with some forces	s significantly less	than those for flat shapes.		
nowever, load redu	t The lack of 1	oad reduction could	be attributed to collector		
shape, but specifi	ic flow features res	ponsible for and meth	nods to induce a load reduc-		
tion were not expl	.ored.	L			
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