**June 2020**

FLORIS Version 2.1.1 Released

Thanks to user feedback on the recent [FLORIS 2.0 release](#), the NREL wind farm controls research team has implemented several important updates in version 2.1.1 of the software. If you have cloned the repository from GitHub, you can now download the update with "git fetch && git merge" from the master branch. Alternatively, you can update your Python Package Index (PyPI) installation with "pip install floris --upgrade" or your Conda installation with "conda update floris" to access these enhancements.

Python 3.6 Compliance
An issue that prevented FLORIS usage with Python 3.6 has been resolved.
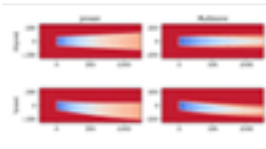
Additional Example Input Files
Users interested in examples of how to configure FLORIS to run the Jensen or Multizone model can now access additional JSON input files and an example.

Distribution through Conda
FLORIS is now fully distributed through Conda via Conda-Forge in addition to the PyPI.
See https://floris.readthedocs.io for more information.

Specified Wind Height
FLORIS 2.0 added capabilities for heterogenous inflow and multiple-turbine-type farms. This required changing the "height where the wind speed is specified" value from set automatically as the turbine hub-height to an additional free parameter set in the JSON. However, to avoid a common error, we now default the value in the input file to -1 for the case that the hub-height is desired. When changing the hub-height of a turbine in software,

the user has the option to change the specified wind height to match, or to not (default).

Automatic Formatting and Linting

We have incorporated pre-commit hooks utilizing the black and isort packages for automatic and consistent code formatting throughout the code base. We have also added the flake8 linter to further validate code contributions against the PEP8 style guide.
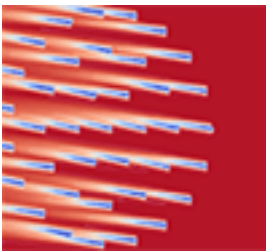
Gauss Curl Hybrid and Turbulence Intensity Combination Models

Valuable feedback from the research community led to additional research and a minor reformulation of the gauss-curl hybrid model which, while producing results consistent with past findings, better describes the underlying physical phenomena. For more details see the upcoming revised version of the discussion paper: https://wes.copernicus.org/preprints/wes-2020-3/

Note these changes and the change to the turbulence combination model referred to in the next block required updating the default parameter tunings in the example JSON and within software.

Additional Bug Fixes

We upgraded the code linked to CCBlade for a new API. We also made minor corrections to the energy ratio function and added missing documentation. The Ishihara Qian wake velocity and wake turbulence models were corrected to work with other recent code changes. The wake-added turbulence intensity (TI) calculation was modified to recover desired behavior from FLORIS 1.0, now focusing on the nearest upstream turbine's effect.

We would like to encourage users to update FLORIS once more for these small, but significant, improvements. Again, we are very open to and appreciative of our user community's feedback. If you have additional input or no longer wish to receive updates on FLORIS, please send an email to floris@nrel.gov.