

# Renewables Windographer™

**Windographer quickly imports virtually every data format, allows rapid quality control and statistical analyses including MCP, and exports to all common wind flow models.**

## Data Management

- Import virtually every data format including: NRG, Ammonit, Kintech, Campbell, Triton, AQSystem, ZephIR and Windcube
- Read calibration constants from raw data files and re-calibrate
- Read from and write to any SQL database
- Combine co-located anemometers, fill gaps, apply time shifts and create calculated data columns
- Extrapolate speed, direction, temperature and turbulence data to multiple heights
- “Document History” window displays complete list of modifications

## Quality Control

- Define your own flags
- Apply flags to data segments manually or automatically
- Use flags as filter criteria

## Detailed Analysis

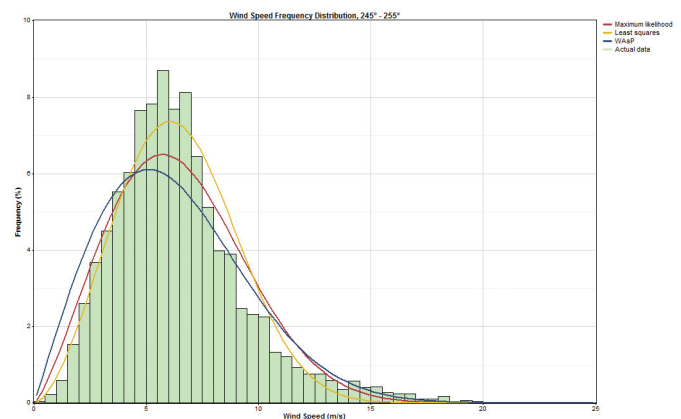
- Numerous interactive graphs and tables allow rapid analysis
- Investigate shear, turbulence, tower distortion, vertical temperature profile and long-term trends
- Estimate wind turbine energy production
- Predict extreme wind speeds
- Create a representative year

## MCP Module

- Download ERA5 and MERRA-2 long-term reference data for free
- Compare possible long-term reference data sets based on correlation and uncertainty
- Choose from several algorithms including linear least squares, variance ratio and matrix method
- Compare algorithms and settings in terms of their performance and their uncertainty
- Lengthen or scale the target data set to expected long-term conditions

## Professional Output

- Export reports to PDF
- Export multiple-height time series data to Openwind
- Export to WAsP, WindFarmer, WindSim and Meteodyn WT
- Export graphs and tables to PNG or text files



## Wind Developer Suite

Windographer is part of the Wind Developer Suite. The Wind Developer Suite is an all-inclusive bundle offering clients a range of products to support the development, assessment and operation of renewable energy projects. The suite leverages our knowledge and expertise to enable your team to do its work more productively, effectively and independently (when needed).

The Wind Developer Suite includes:

- Windnavigator
- Windographer
- Openwind
- 10 training hours



Standard



Professional



Enterprise

### Compare Editions

|   | Standard | Professional | Enterprise |
|---|----------|--------------|------------|
| Read and interpret a huge variety of data files   | ●        | ●            | ●          |
| Adjust calibration, combine collocated anemometers, and fill gaps                       | ●        | ●            | ●          |
| Define quality control flags and apply them manually based on visual inspection         | ●        | ●            | ●          |
| Analyze turbulence, wind shear and tower distortion                                     | ●        | ●            | ●          |
| Extrapolate speed, turbulence, direction and temperature data to any height             | ●        | ●            | ●          |
| Define calculated variables like ratios, shear exponent, or rotor-equivalent wind speed | ●        | ●            | ●          |
| Choose from a large library of wind turbines to compare energy output                   | ●        | ●            | ●          |
| Create professional output in graphical and tabular form                                | ●        | ●            | ●          |
| Adjust data to long term using an MCP module  |          | ●            | ●          |
| Compare multiple data sets graphically  |          | ●            | ●          |
| Automate data flagging using “flag rules”   |          | ●            | ●          |
| Automatically detect and flag the effect of tower shading                               |          | ●            | ●          |
| Download unlimited ERA5 and MERRA-2 data sets   |          | ●            | ●          |
| Import from and export to any SQL database  |          |              | ●          |

## Additional products available

### Windographer Monitor

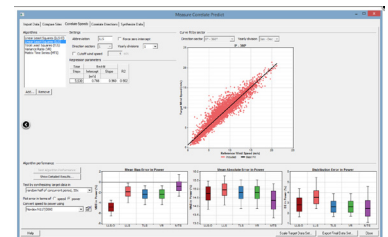
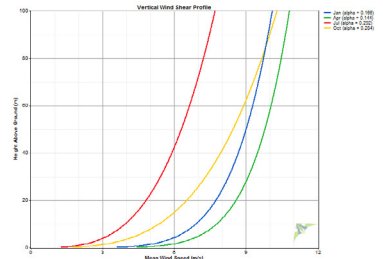
Windographer Monitor is an automated data management service that monitors folders for raw wind resource data files, imports newly-arrived data and inserts that data into a database. The software and the database reside on the customer’s server, allowing the user to control the folder scanning process, interact with the database and see the status of each monitored data set. Windographer Monitor can integrate with any SQL database that meets the specifications of Windographer Enterprise.

### Windographer Database Creator

The Windographer Database Creator is a utility program that creates a simple database (SQL Server, MySQL, or PostgreSQL) that has the structure to store wind resource data and all the metadata relevant to Windographer, including calibration data, flag data and data set history. It also immediately creates all the stored procedures the database needs to communicate with Windographer. You can expand the system over time adding tables and fields, or editing the stored procedures.

### WRF Time Series

Allows clients to better understand the wind resource and energy production potential of your complex site and to conduct measure-correlate-predict (MCP) analyses. WRF Time Series are available at 3km or 9km resolution, onshore or offshore points for 1 year of length up to 35 years.



For more information call +1 518.213.0044 or email [renewables.software.contact.us@ul.com](mailto:renewables.software.contact.us@ul.com)

