

## Release note: ERA5–The (Not So) Long Term Reference Wind Data – years 2010-2016

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**Introduction:** We know that many of our windPRO users have eagerly been awaiting the release of the ERA5 reanalysis data. The Copernicus Climate Change Service (C3S) and ECMWF are releasing the ERA5 data in an incremental schedule – and now the first large batch of ERA5 data is available in windPRO 3.1. This batch covers 7 years from the period 2010 until 2016. 2017 data will be available later this year. The ERA5 product holds many distinct advantages compared to other widely used products - such as MERRA2 and ERA-Interim – by having more data assimilated, holding significantly better vertical and horizontal resolutions - see the table and the example figures. Although 7 years of data is normally too short a period to establish a reliable long-term energy yield estimate, the higher quality data is surely a valuable alternative source to reduce uncertainties in your modelling efforts.

Parameter \ Dataset	ERA5	ERA-Interim	MERRA2
Vertical levels	137	60	72
Horizontal resolution	~31 km	~80 km	~50 km
Upper modelling level	0.01hPa (~80 km)	0.1hPa (~60 km)	0.01hPa (~80 km)
Temporal resolution	1-hourly	6-hourly	1-hourly
Release schedule	Monthly*	Monthly	Monthly
Period available (now)	2010-2016	1979-present	1980-present
Period available (at completion)	1950-present	1979-present	1980-present
Delay in data delivery	3 months *)	3 months	1-2 months

Main Characteristics of ERA5, ERA-Interim and MERRA2 Reanalysis Datasets.

\*) A preliminary version of the ERA5 data – named ERA5T – will be a weekly release.

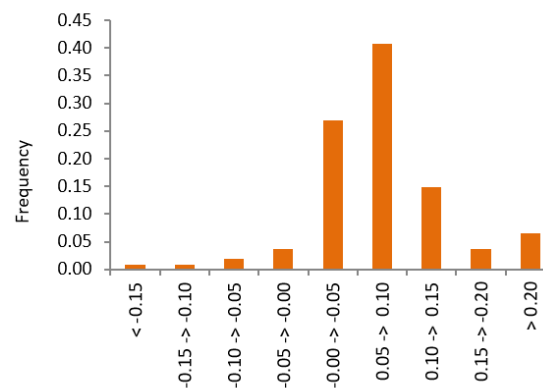
**Data Evaluation:** The hourly wind speeds from ERA5 and MERRA2 data have been compared to measured wind speeds from 108 tall meteorological masts around the globe. The masts have sensor heights ranging from 60m to 140m. The correlation has been calculated for all sites - and ERA5 data shows a significant improvement over MERRA2 – the average correlation is increased with 0.07 and the variation is also lower.

Dataset	Mean	Std. Dev.
ERA5	0.78	0.10
MERRA2	0.71	0.12

Wind-speed correlation of 108 masts

**Release Plan:** The release of the remaining parts of ERA5 is following the schedule from C3S and ECMWF. The 2017 data and a continuous update of the data will be available from 2017-Q3/Q4. The batch of data from 1979-2009 is planned at 2018-Q2, and the period until 1950 will be available in 2019. EMD will release ERA5 in windPRO as soon as it is available.

**Read More:** See the WindPRO knowledgebase - [http://help.emd.dk/mediawiki/index.php?title=ERA5\\_Data](http://help.emd.dk/mediawiki/index.php?title=ERA5_Data)



Improvement in correlation: ERA5 vs MERRA2 at 108 masts

