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## Offshore wind resource estimation from satellite-based wind speed maps

C. B. Hasager<sup>1</sup>, B. R. Furevik<sup>2</sup>, O. Rathmann<sup>1</sup>, M. Nielsen<sup>1</sup>

<sup>1</sup>Risø National Laboratory, Frederiksborgvej 399, Postboks 49, DK-4000 Roskilde, Denmark, Phone: +45 4677 4677, Fax: +45 4677 5688, [charlotte.hasager@risoe.dk](mailto:charlotte.hasager@risoe.dk)

<sup>2</sup>Nansen Environmental and Remote Sensing Center, Edv. Griegsvei 3A, N-5059 Bergen, Norway. Phone: +47 5529 7288, fax: +47 5520 0050, [Birgitte.Furevik@nersc.no](mailto:Birgitte.Furevik@nersc.no)

Offshore wind resource estimation by use of satellite-based wind speed and wind direction maps is investigated for a site in the North Sea, Denmark. The results will be compared to classical wind resource modelling. A series of around 60 geo-located satellite wind speed and wind direction maps will be derived from ERS-2 SAR Earth Observation data. The maps will be input to an offshore wind resource calculation programme. This software is in development and is based on the WAsP method, however with some modifications due to the different kind of wind speed observation-type compared to classical mast observations. The wind speed information in ERS-2 SAR wind speed maps have a certain grid resolution, e.g. 400 m by 400 m. Dependent upon the actual wind direction, it is then necessary to area-average wind speeds in the upwind area in the vicinity of a prospected wind turbine/ wind farm. Furthermore the statistics with only few samples, compare 8760 (hourly thru a year) with less than 100 is adressed. The accuracy of an offshore satellite-based wind resource maps is not yet fully known, however is thought to be useful in remote areas e.g. in feasibility studies. The satellite SAR observations are available for many sites worldwide, hence only office work will in fact be needed to obtain offshore wind resource maps from satellite SAR.