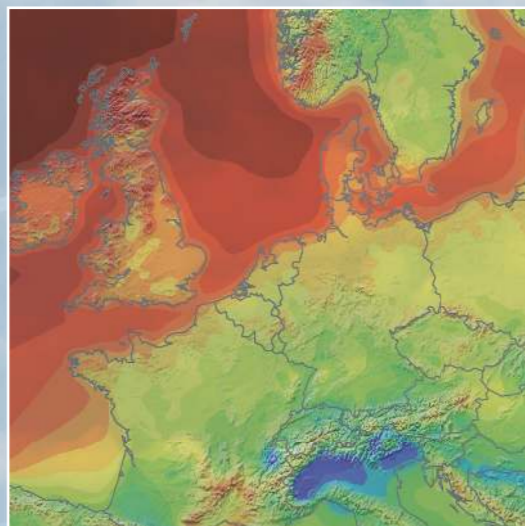


## WIND ATLAS

The anemos wind atlases form a proven indispensable data set for any investigation into wind conditions on all temporal and spatial scales from small-scale turbulence to decadal wind variations and from continental-scale wind maps to site-specific time series. The model chain of the coupled mesoscale model WRF (Weather Research and Forecasting) and the microscale model metedyn WT provides a consistent three-dimensional picture of the atmospheric state over decades with time series of 10 minute temporal and various degrees of horizontal resolution.



## MARKET VALUE AND REVENUE REPORT

The market value atlas and revenue reports combine time series of the hourly production of wind turbines with the historic electricity price at stock markets or price scenarios for the prospective revenue development. The transition from a fixed feed-in tariff for wind power to a free marketing situation requires investigations into the correlation of the energy production with the market price.



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## SERVICES

### RESEARCH

To keep the highest standard in resource assessment we regularly participate in research projects with leading industry pioneers and research institutions.

- VERIMA** Verification of a wind- and market value atlas for wind power (anemos, supported by NBank)
- Standortertrag** Estimation of the site quality based on SCADA data analysis (FGW and several consultants, supported by BMWi)
- Wind energy onshore** Formulation of a roadmap for wind atlases (anemos, IWES, enervis, BBH, supported by BMWi)
- WinBin II** Wind power onshore II, "onshore wind atlas for Germany" (anemos, IWES, ENERCON, ABO Wind, juwi Wind, OSTWIND, supported by BMWi)
- SOPCAWIND** Software for the Optimal Place Calculation for WIND farms (Universidad Del Pais Vasco, anemos, 3E, Eurohelp, GEOX, supported by EU)
- Windprofil 300** Validation of two chains of atmospheric numerical models for the simulation of the vertical wind profile (anemos, AI-Pro, Wind&Regen, WindSim, supported by Deutsche Bundesstiftung Umwelt (DBU))



## Who we are

With over 30 years of experience in wind power meteorology anemos as a private independent consulting firm provides its services to wind farm developers, private and institutional investors, financing institutions and public authorities. They all benefit from our longtime experience, research, continuous education and meanwhile more than 3500 expert reports worldwide. We have built an expert team of meteorologists, geographers and technicians as well as the computational infrastructure that allow us to operate complex atmospheric simulation models and statistical analyses. anemos is accredited according to DIN EN ISO/IEC 17025. During the pre-operational phase we provide wind maps and time series of wind speed and wind direction for site selection purposes as well as wind measurement campaigns and wind potential simulations for resource assessment and site suitability studies. Detailed SCADA-Data analyses and the anemos production index form the basis for due diligence reports after the wind farm installation. Customer-oriented service is the strength of our highly competent team.



## SITE ASSESSMENT

We operate a range of atmospheric simulation models from the simple linear model WAsP to the CFD code metedyn WT as well as the mesoscale model WRF and always apply the most suitable approach for site assessment studies in order to minimise the uncertainty and mitigate our clients' risk. Based on wind measurements and verified numerical simulations we calculate the energy yield and losses. A detailed risk analysis and transgression probability estimation are included.

## SITE SUITABILITY

We provide the information on turbulence, extreme winds, wind shear and flow inclination for site suitability investigations as well as turbine selection based on measurements and our wind atlas time series.

## DUE DILIGENCE

As part of the technical due diligence process our review of wind reports and a detailed analysis of SCADA-data facilitate decision making for lenders and investors with minimum uncertainty.

## WIND MEASUREMENTS

anemos designs wind measurement campaigns with met masts and remote sensing devices, supervises the installation, and collects and analyses the data according to IEC conformity.



## WORKSHOPS

External seminars and in-house training are offered on all aspects of wind power meteorology. Lectures are customised to the client requirements and might include state of the art site assessment methodologies and reporting requirements as well as new developments.

## AWIS

The anemos wind information system **awis** is a web tool for online access to data and products of the anemos wind, production, market value and revenue atlases. Besides the download of time series and statistics, **awis** allows the licensed user to perform a yield calculation including wake effects on time series basis. The **awis** data are based on the verified anemos wind atlas data with the proven low uncertainty.