steadysun
by QUOS Group

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steadymet

Solar and wind power forecasts

Forecasts based on meteorological models



ABOUT

SteadyMet provides weather, solar and wind production forecasts up to 15 days ahead. This product combines several sources of Numerical Weather Predictions (NWP) data with physical models and artificial intelligence.

SteadyMet can be configured at very high resolution using the Weather Research and Forecasting (WRF) model, providing highly accurate forecasts at local scale. Steadysun is able to implement and optimize this model anywhere in the world to meet the need of high-quality day-ahead forecasts.

KEY BENEFITS

WORLDWIDE COVERAGE
Thanks to a large number of global and regional NWP data from several weather services

TAILORED OUTPUTS
In terms of weather parameters, update frequency, granularity and delivery settings

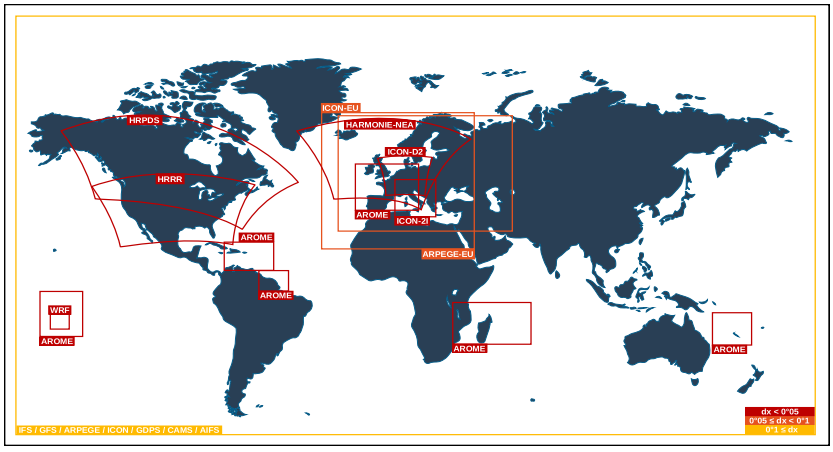
BEST-IN-CLASS SOLUTION
An approach combining ensemble predictions from the leading weather models, real-time on-site measurements and cutting-edge technologies to offer accurate probabilistic forecasts

RELEVANT FOR MICROCLIMATES
An in-house regional model at very high spatio-temporel resolution, providing realistic and precise forecasts in areas where local effects are significant and public regional weather models are not available

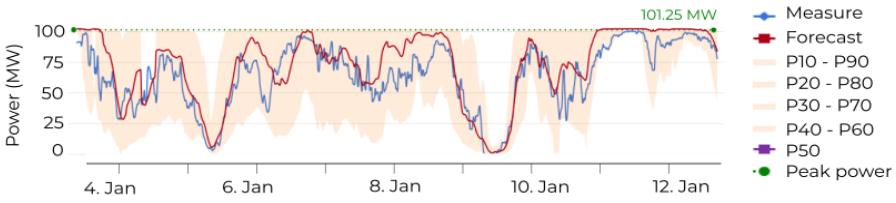
SOLUTIONS

- Plant operations
- Grid management
- Renewable energy trading
- Portfolio management
- Smart grids and smart cities

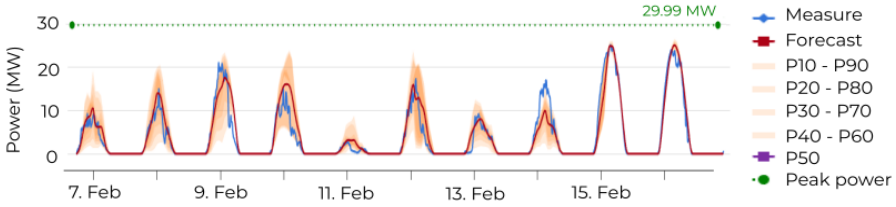
GLOBAL AND REGIONAL NWP MODELS



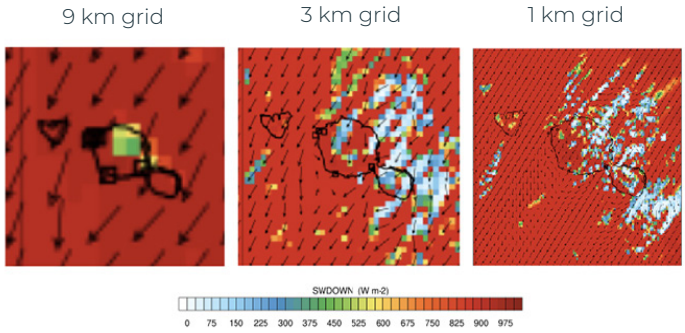
Day-ahead wind power forecasts for 1 site of 118.25MW (Eastern Europe)



Day-ahead power forecast for a 30 MWp distributed PV portfolio (tropical island)



Spatial GHI and Wind forecast using WRF model



FEATURES

Up to 1 hour
Update frequency

1 min
Maximum time step

2.5km (1km with WRF)
Max spatial resolution

Power, GHI, DNI, DHI, GTI, temperature, wind speed, wind direction, etc.
Available parameters

Site, Portfolio, City, Region or Country
Geographical coverage

PV, CSP, Onshore, Offshore
Technology

API, SFTP, etc.
Data delivery

P10, P20, ...,P80, P90
Confidence levels

METHODOLOGY

Step 1 — DATA ACQUISITION

> From several external and internal sources

> Global and Regional Numerical Weather Prediction (NWP) models

> Numerous parameters (clouds, radiation, wind speed/direction, temperature, aerosols, etc.)

Step 2 — MODELING

> Optimal combination of NWP models' outputs

> Power modeling based on physical models and plant features

> High-resolution topographical corrections (down to 90m)

> Probabilistic forecasting using physical and statistical approaches

Step 3 — OPTIMIZATION

> Based on historical and/or real-time on-site measurements

> Continuous accuracy improvements using state-of-the-art machine learning techniques

> To take into account local weather phenomena and power plants' behavior

Step 4 — DELIVERY

> Flexible sending (API, SFTP, etc.)

> Customized format (csv, txt, etc.)

> Dedicated and secured web interfaces (visualization, data analytics and warnings)

> Forecast performance monitoring

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