steadyMet /

Service / Technology Fact Sheet

Meteorological solar production forecast is the oldest and most used technology to meet forecasting needs over the next few days. Solar Energy production experiences spectacular growth at world level and forecasting requirements have become paramount. Solar production forecast essentially depends on sunlight and temperature, themselves influenced by different phenomena (clouds, fog, wind, etc.)

SteadyMet takes into account a series of parameters, making it possible to provide the finest, most efficient and advanced solar production forecast on the market.

Production forecast for the coming days is thus achieved based on meteorological models and production data available. Forecasts can be updated every 6 hours. They are based on an expert system that combines artificial intelligence, statistical and physical models. Local weather peculiarities are taken into account, and the self-learning module achieves greater accuracy.

steadyMet structure

EXPERT steadysun, configuration, optimized solution

NUMERICAL WEATHER PREDICTION

> **NOAA GFS model** for D+10 forecast

> **ECMWF IFS model** for D+2 forecast

Limited area **MESOSCALE NUMERICAL WEATHER PREDICTION SYSTEM** WRF

WEATHER PARAMETERS : GHI, surface temperature, DNI, Wind

SELF-LEARNING

> **SOLAR PRODUCTION FORECAST** from 0 to 10 days

> **TIME STEP** from one minute

> **UPDATED TWICE / DAY** (IFS) and **4 TIMES/DAY** (GFS)

* ECMWF is Europe's medium term weather forecasting centre, *GFS is a US weather forecasting model, * NOAA is the US Oceanic and atmospheric observation agency, * IFS is a forecasting model from ECMWF, * DNI (direct normal irradiance) is the amount of sun light received by a surface constantly turned towards the sun, * GHI (global horizontal irradiance) is the amount of sun light received by a horizontal surface.
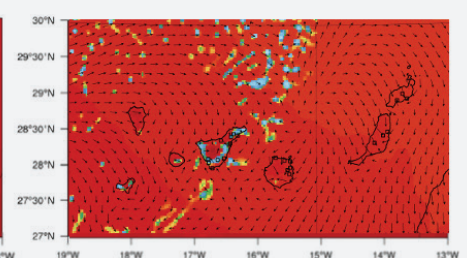
Selection and processing of meteorological data

GFS / spatial resolution ~ 50 km
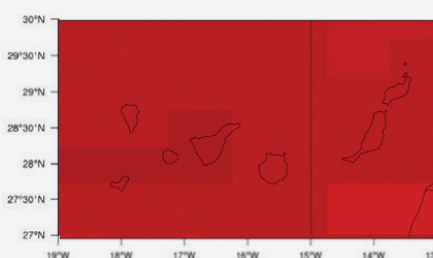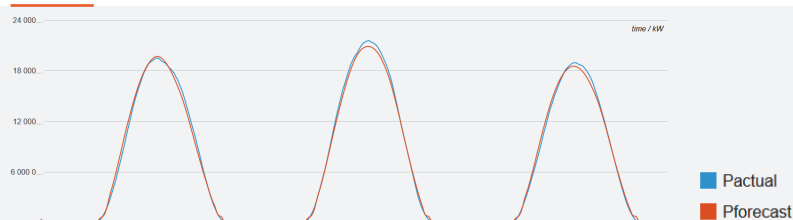
IFS / spatial resolution ~ 12 km
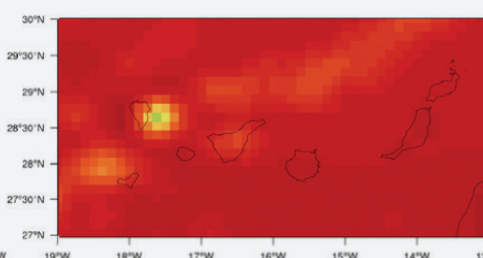
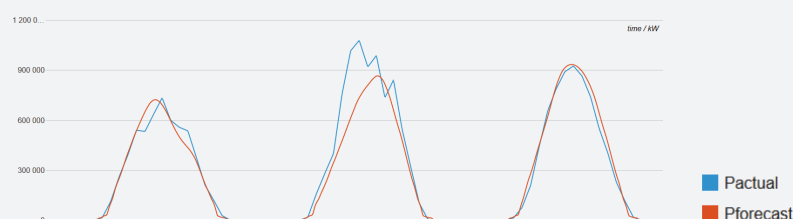**WRF** / spatial resolution ~ 3 km

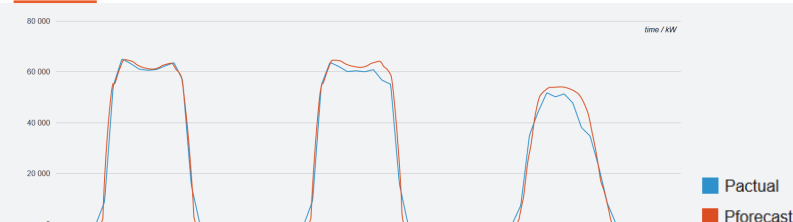Downward Short Wave Radiation Flux (W/m^2)

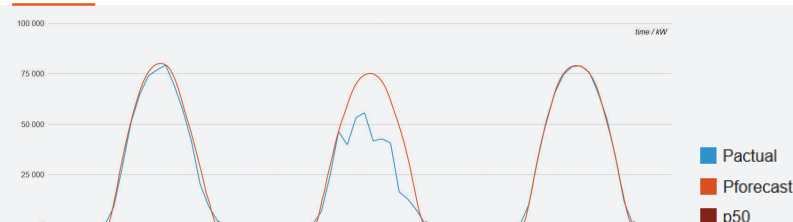## Forecast D+3, over the whole of Germany for TSO and traders

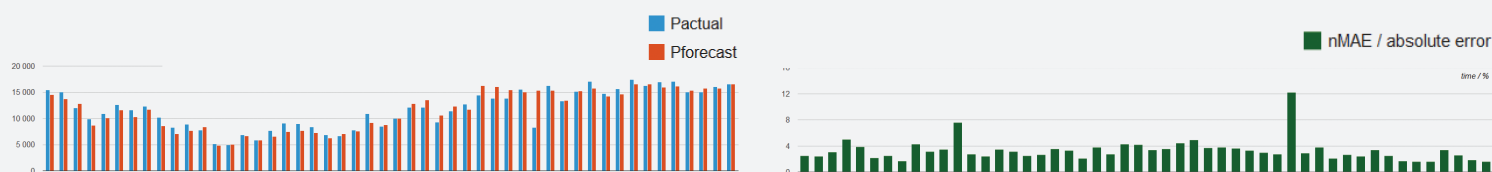## 36 hours Forecast, for a region in Italy (1,450MW)

D + 3 Forecast, for an operator with an 80MW power plant with 1 axis tracker in South Africa

Forecast up to 25 hours, for an island in the Atlantic Ocean (100MW)

Production & forecast history (data over one year)

FEATURE	AVAILABILITY
Forecast at country level	☀
Forecast at regional level	☀
Forecast at town level	☀
Forecast at site level	☀
Forecast for a portfolio (stations spread over a territory)	☀
DNI (Direct Normal Irradiance) forecast	☀
GHI (Global Horizontal Irradiance) forecast	☀
GTI (Global Tilted Irradiance) forecast	☀
Temperature forecast	☀
Production forecast	☀
Time horizon up to 15 days	☀
Time horizon up to 6 hours	☀
Time horizon up to 60 minutes	☀
Update 4 times / day	☀
Update 96 times / day	
Update 1440 times / day	
Time step from one minute	☀
Suitable for all PV technologies	☀
Suitable for CPV (Concentrated Photovoltaic) technology	☀
Suitable for CSP (Concentrated Solar Power) technology	☀
Including 1-axis tracking	☀
Including 2-axis tracking	☀
Percentiles (P10, P20, P30, P40, P50, P60, P70, P80, P90)	☀

Steadysun offers a range of upgradable solutions to meet your future needs.
We invite you to discover our short-term forecasting solution **SteadySat** and our quasi real-time forecast solution **SteadyEye**.