DESTINATION EARTH

DE_374a: HIgh Resolution forecasts for Next Generation Dynamic Line Rating computation



Funded by the European Union
Destination Earth implemented by ECMWF esa EUMETSAT

Funded by the European Union

Destin

General Public

TOP 10 LAST MONTH



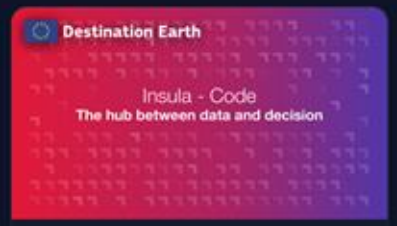
Earth Data Hub

The fastest route to access and analyse earth data. The data are pre-processed to allow browsing, interrogation, access and fast cloud-based computing through standard technologies like STAC, xarray...



DEA

Content creation service and no-code platform for DestinE storytelling and data visualization. Users can combine DEA data with their own assets to share engaging visualizations with the...



Insula Code

Insula, the Hub between Data and Decisions. Effortlessly process complex information and generate clear visualizations, transforming raw numbers into insightful maps and graphs.



NUPSI

Intuitive satellite data access and analysis service for European NUTS regions and custom areas of interest. NUPSI helps users explore, compare, and monitor Copernicus data over time...

NEW SERVICES



BETA TESTING

FloodMIND

Machine learning demonstrators deliver near real-time flood nowcasts for faster response.



BETA TESTING

Destination Earth Framework for Preparing AI-Ready Dat...

Python library for transforming EO and meteorological satellite data into AI-ready usable data.



BETA TESTING

UHEATS

Urban Heat Pilot Service.



BETA TESTING

HiReNext

High-resolution DLR forecast service for TSOs, powered by the DestinE Extremes Digital Twin.

Static Line Rating

Conservative assumptions:

- Wind speed: 0.6 m/s
- High ambient temperature
- Clear sky radiation

→ **Underutilization of capacity**

→ **Limits renewable integration**



Dynamic Line Rating

Weather-dependent capacity:

- Real-time conditions → Real-time capacity
- Studies show: +40% to +170% increase
- Critical for **renewable integration**

→ **Unlock extra transmission capacity**

More electricity can be transported by taking advantage of favourable weather (cool and windy conditions)!



Co-designed with European TSOs across 5 countries

AT APG
220 kV · Alpine Tyrol

AT Energienetze Stmk
110 kV · Complex terrain

BE Elia
150/380 kV · Belgium

FR RTE
400/225 kV · Shared use case

DE TransnetBW
380 kV · Quantile forecasts

EU ENTSO-E
Stakeholder network

Description

test multiple spans with span from ELIA

Coordinates

87 points

test-tomas-pps (87 points)

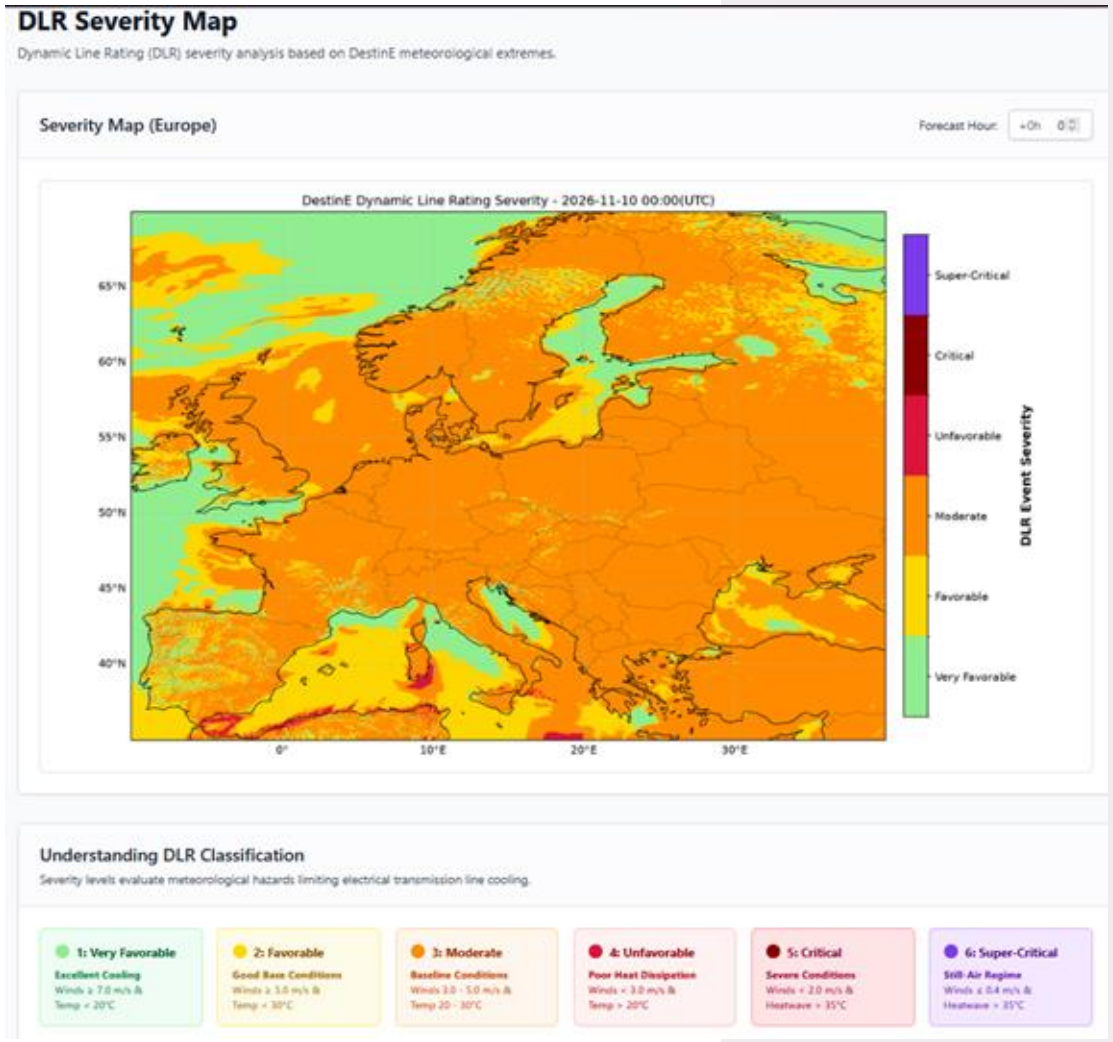


Created

Jan 6, 2026, 09:10 AM

Last Updated

Jan 6, 2026, 09:10 AM



Severity scale

6-class compound-event severity scale · ensemble-based probability

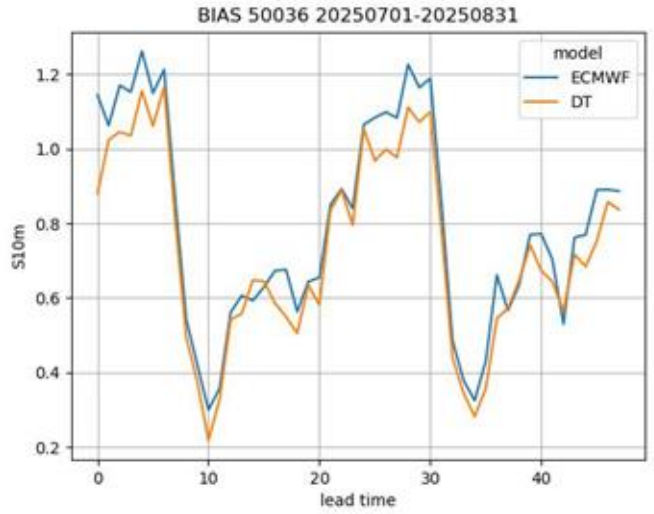
Actionable

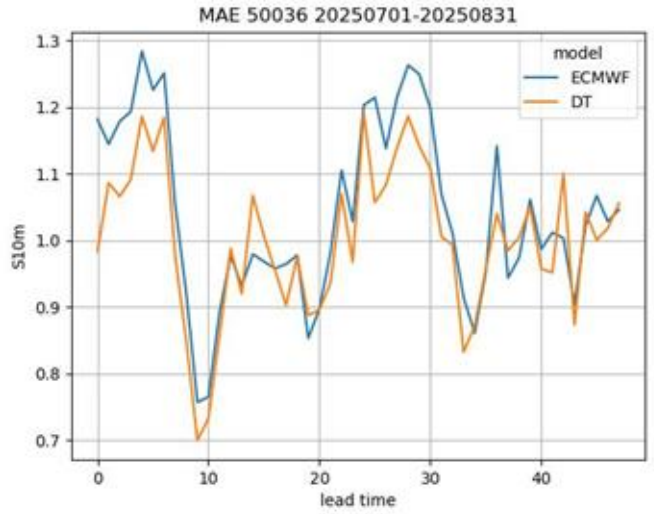
Actionable conditions — not raw meteorological fields

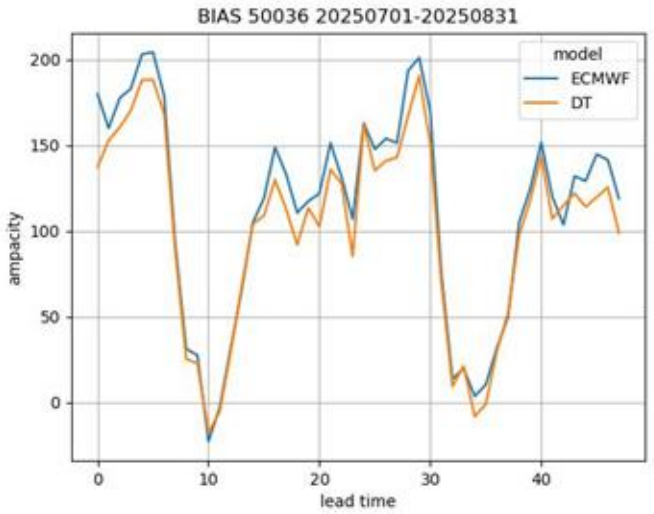
⚠ Super-Critical

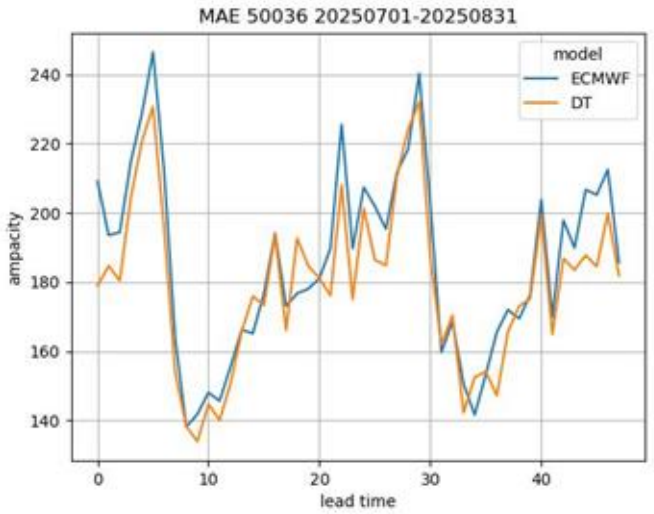
wind ≤ 0.4 m/s + T > 35°C: below IEEE still-air threshold

Wind speed (top) and ampacity verification (bottom)









Weather Cross-Section Along High Voltage Line

Weather profile across 87 coordinates along the transmission line

Refresh

Parameters: Temperature | Dewpoint Temperature | Pressure | Wind U-Component | Wind V-Component

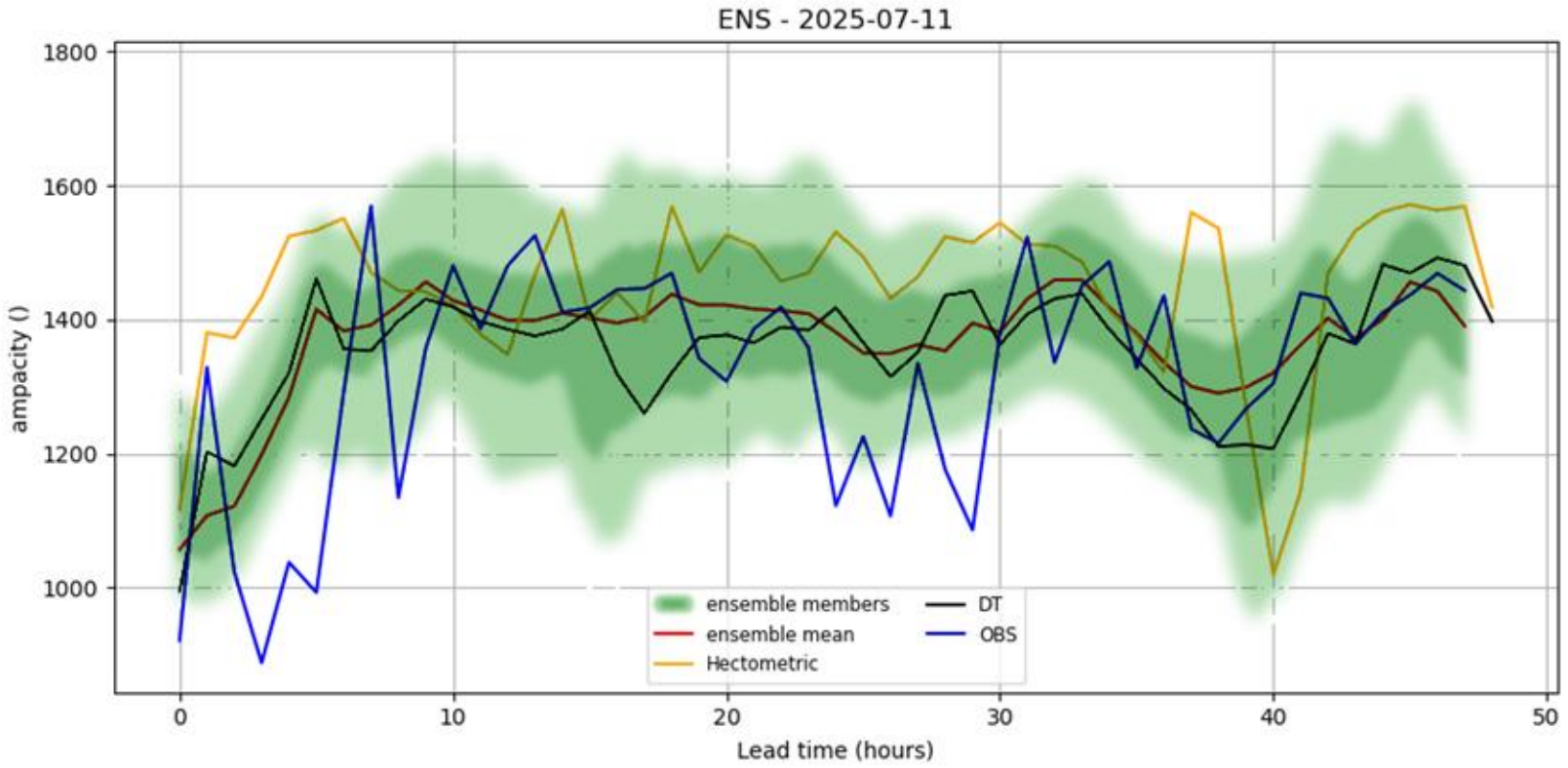
View Mode: Poles View | Time Series

Forecast Time: +0 hours

+0h +23h



Tailored services based on observational data: an opportunity for development of consultancy



The DestinE platform can be the basis for development of DLR Services can be further tuned based on provided data (if needed under NDA) to optimize model output for individual applications targeting specific cases/technologies

How HIRENEXT works: an event-triggered workflow

1 · Continental screening
Flag unfavourable DLR conditions across Europe

2 · Ampacity estimates
Based on the Destination Earth DT

12m, 10 m wind, dewpoint, radiation, pressure + DLR severity map (ampacity via IEEE 738 /

4 · Delivery
REST API and web dashboard with temporal and spatial exploration

Tailored services

Tailored services can be further developed in combination with hectometric DT.
For this we need data from the end user, to optimize usage.