ECMWF – DESTINATION EARTH

AI EARTH SYSTEM COMPONENTS MODELLING

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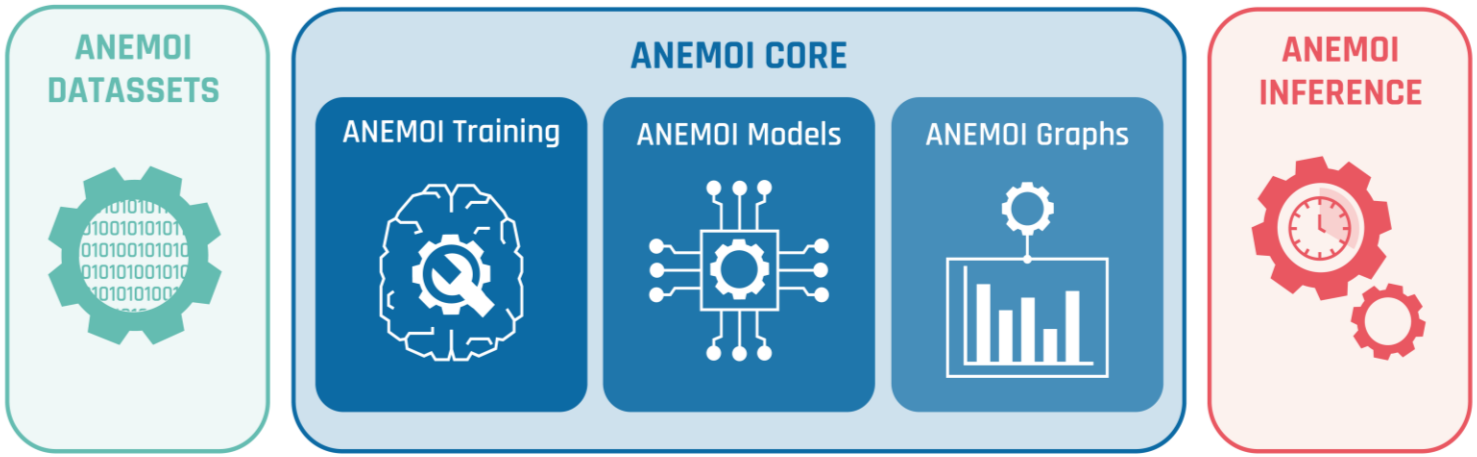
On behalf of colleagues at ECMWF and Member States

Funded by the European Union

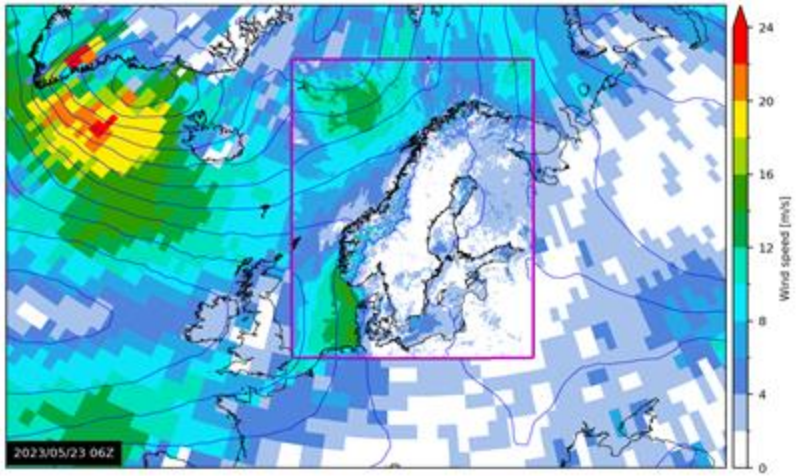
Destination Earth implemented by ECMWF esa EUMETSAT

ANEMOI – ECMWF & Member States software framework for AI models

ANEMOI OPEN SOURCE ECOSYSTEM



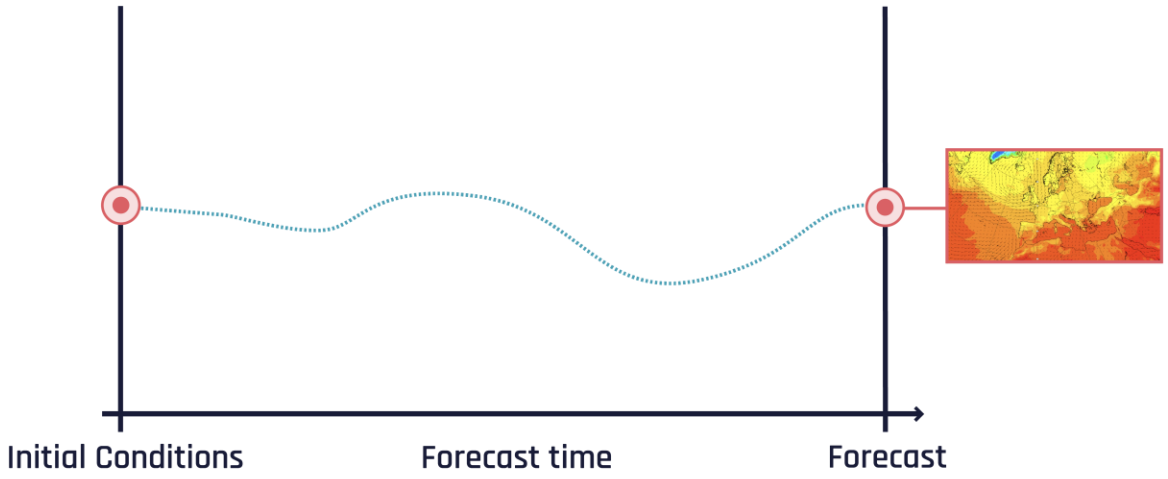
Creating successful ML-weather models (Bris - MetNo)



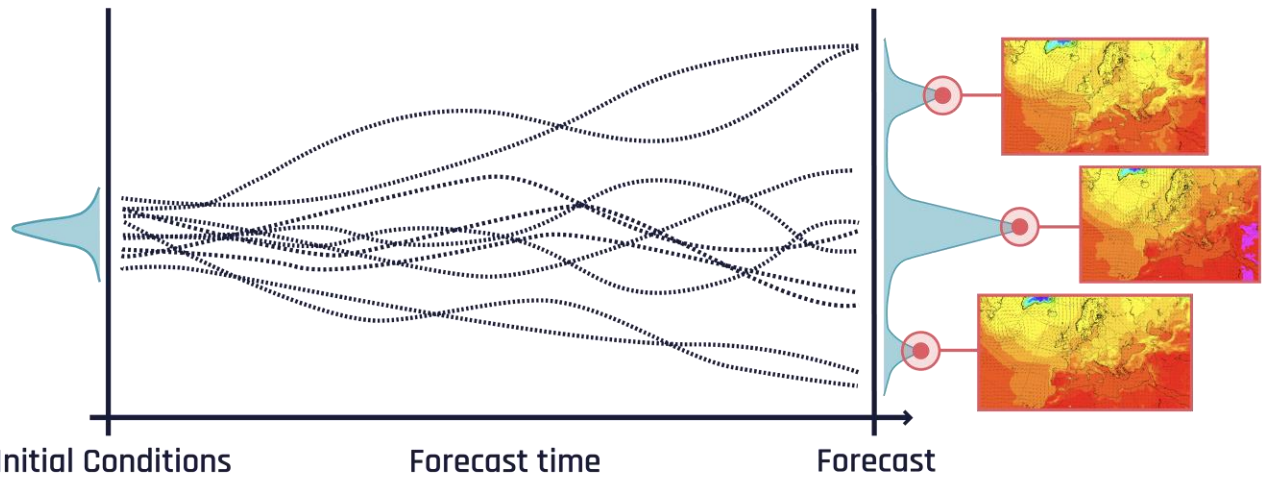
Artificial Intelligence Forecasting System (AIFS)

Operational machine learning models for medium-range weather forecasting.

Data-driven Deterministic Forecast (AIFS Single)



Data-driven Ensemble Forecast (AIFS ENS CRPS)



AI forecasts ready in minutes rather than hours

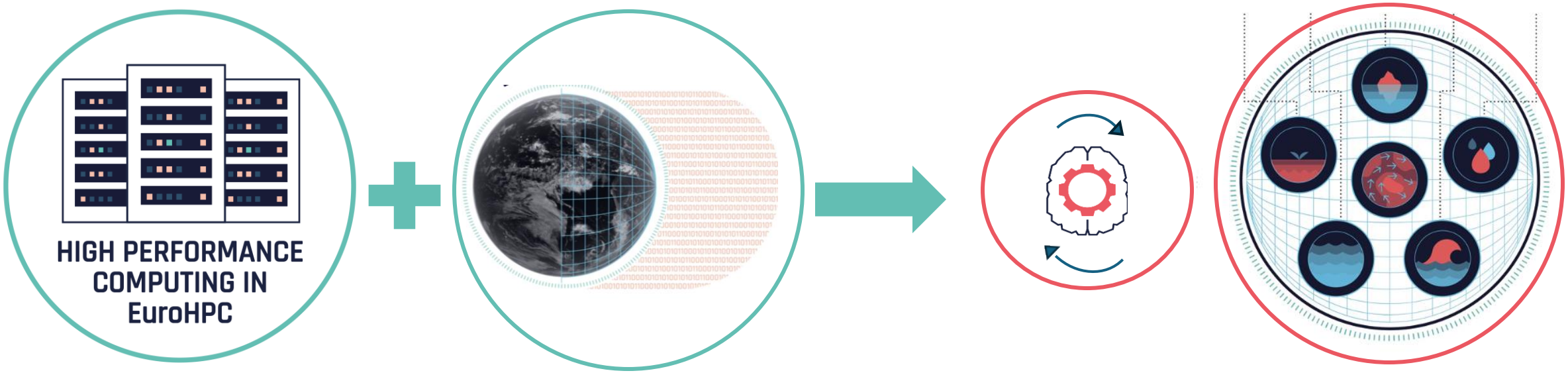
Developing new AI Earth system models

Digital twin data & EuroHPC power the AI revolution

Power of world class HPC

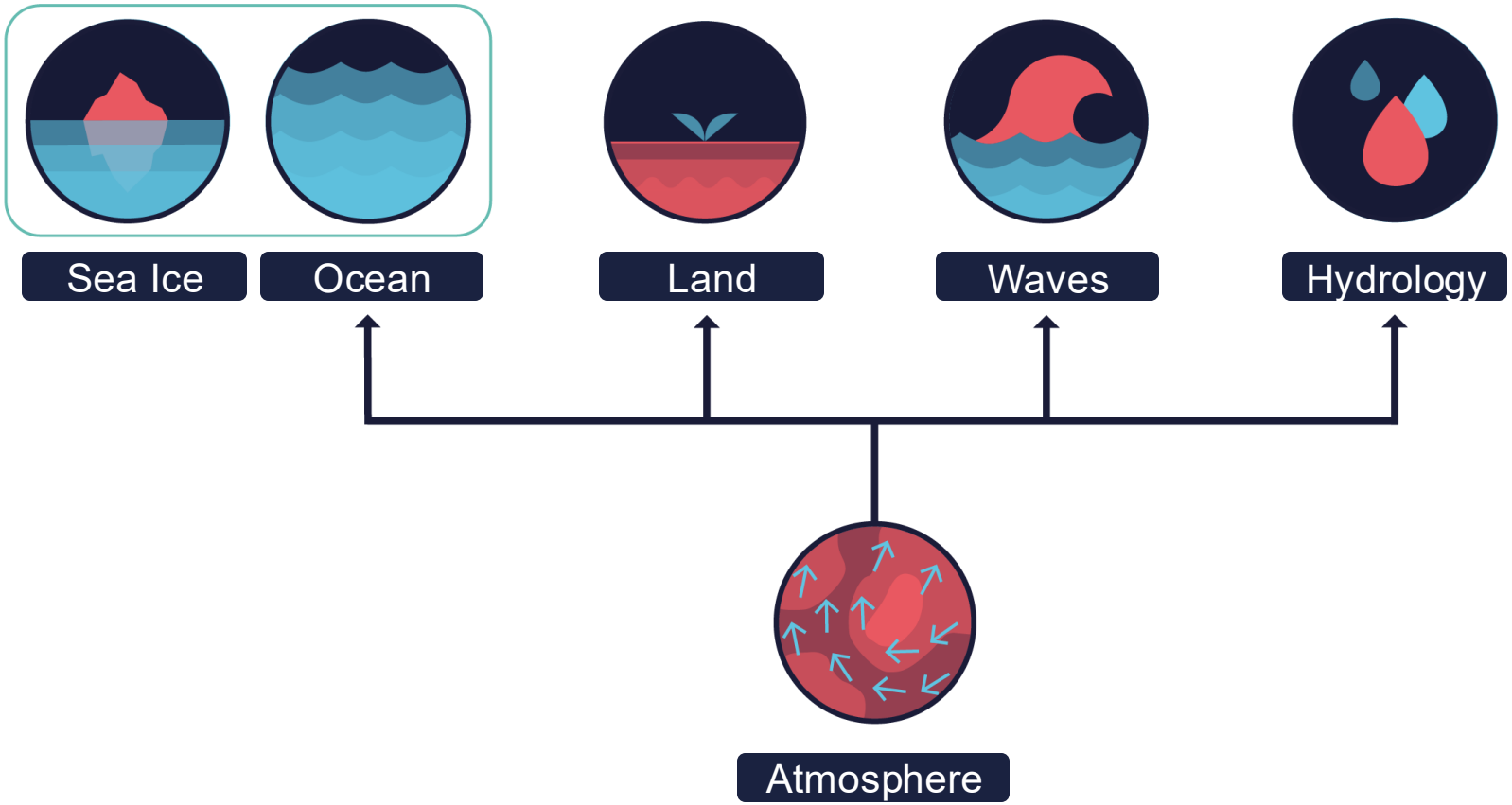
Digital Twins data

AI models

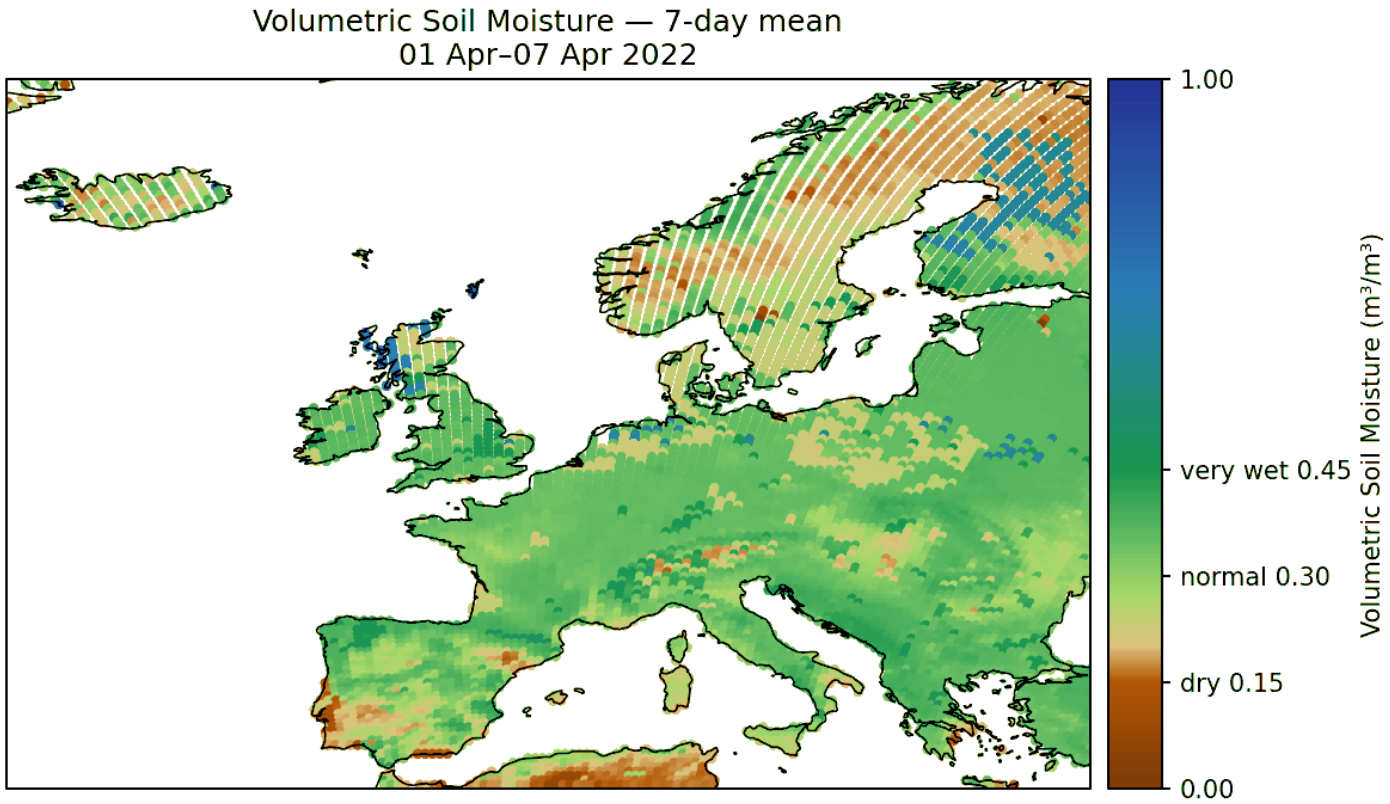


BUILDING AI EARTH SYSTEM COMPONENTS

Within Destination Earth

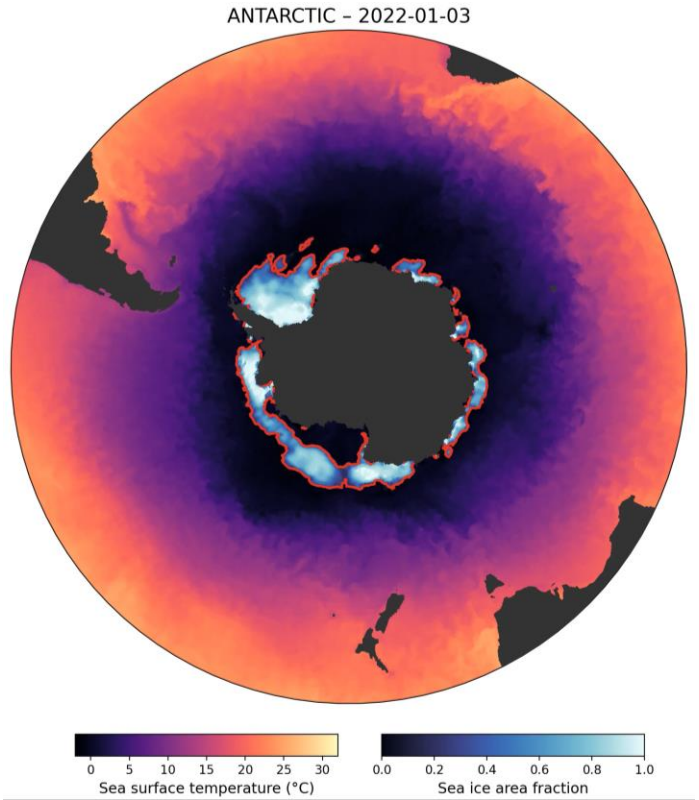


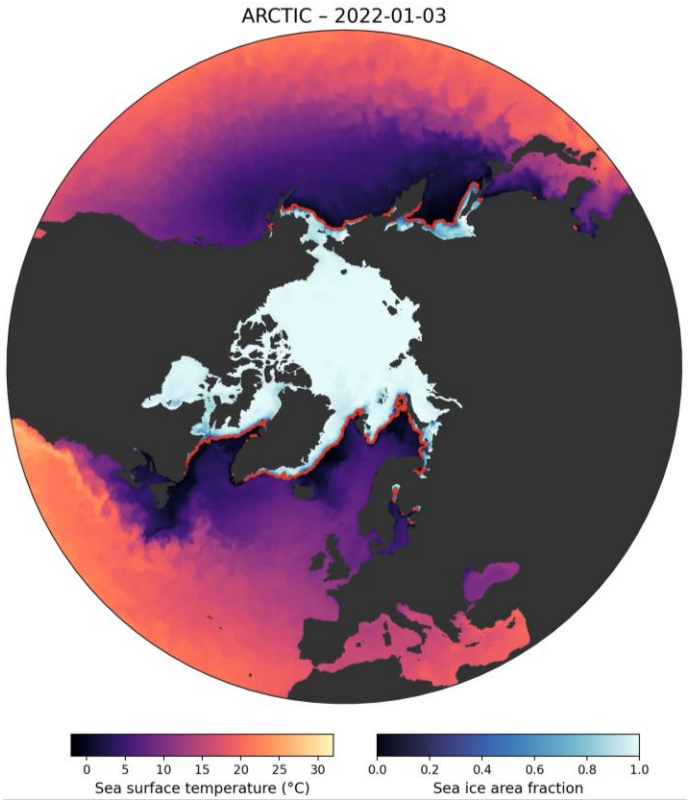
SOIL MOISTURE



Blog post on data-driven emulator aiLand:

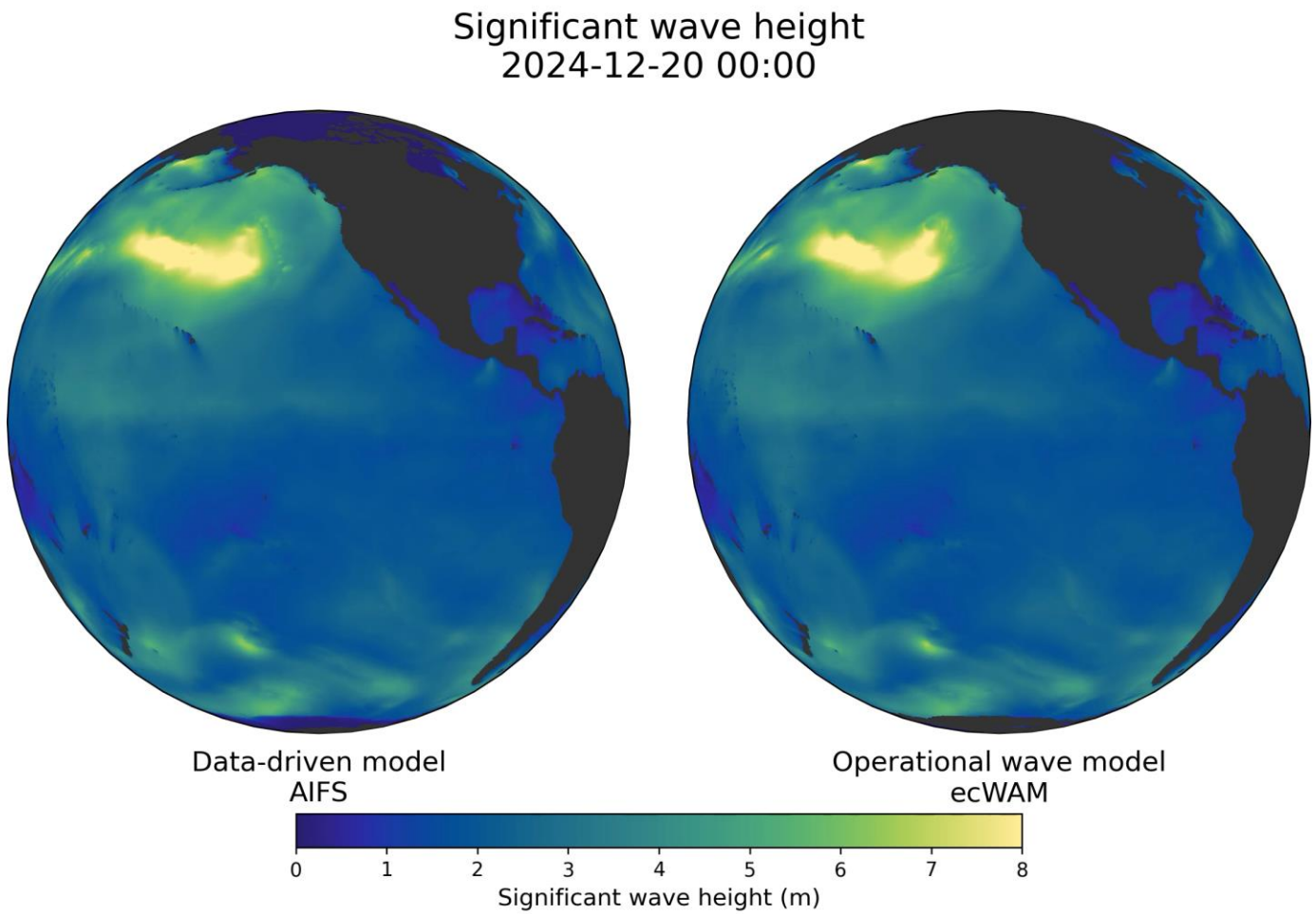
SEA SURFACE TEMPERATURE AND SEA ICE CONCENTRATION





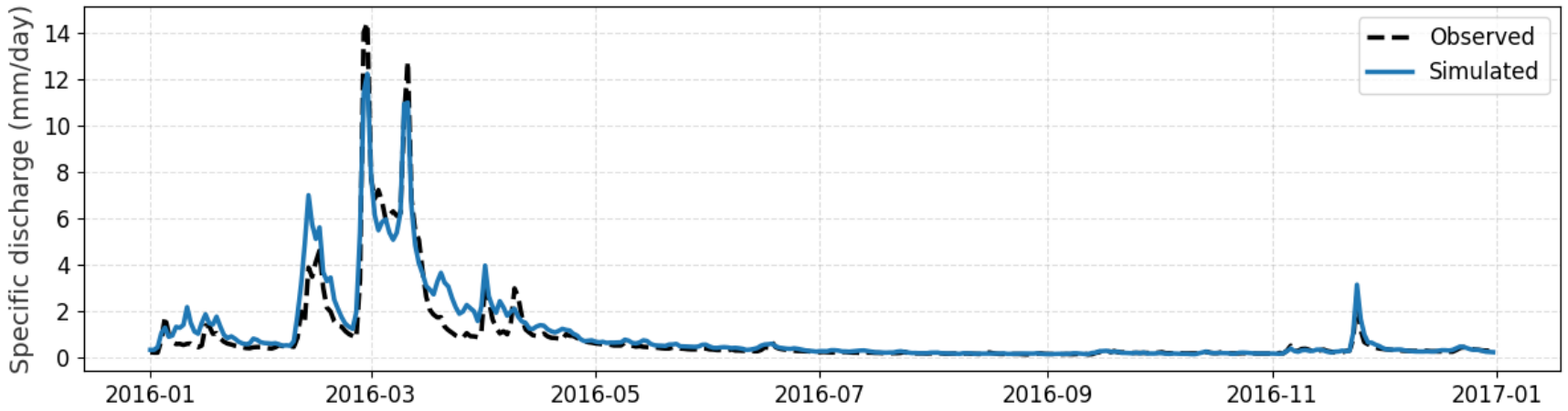
Blog post on data-driven sea-ice forecasts:

SIGNIFICANT WAVE HEIGHT



Blog post on data-driven wave forecasts:

RIVER DISCHARGE

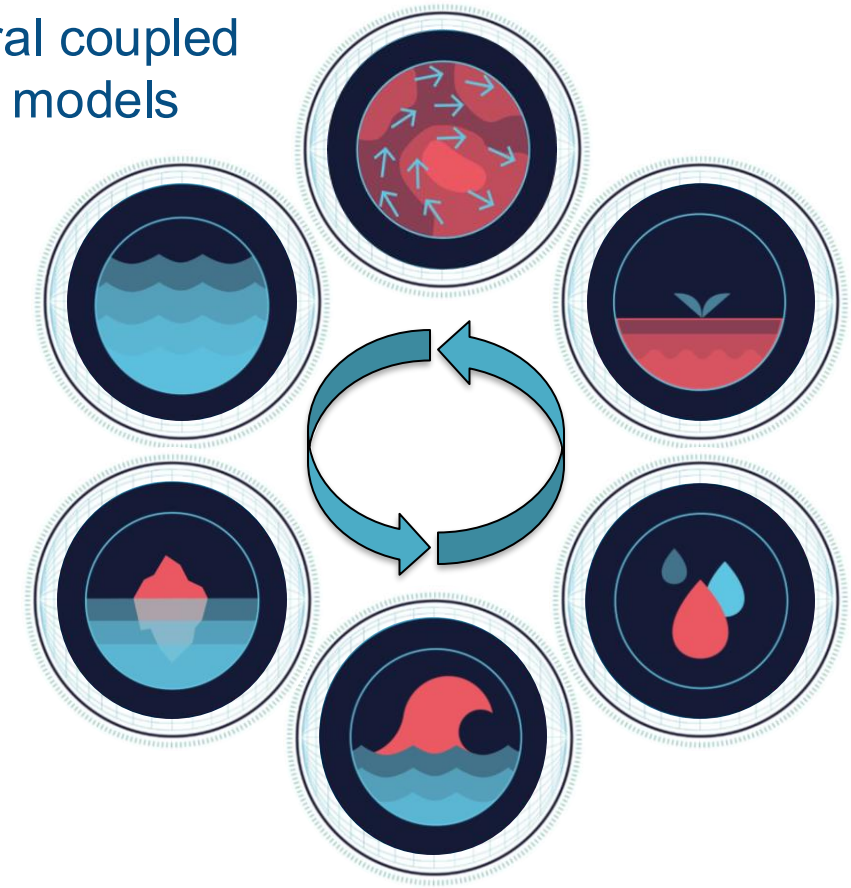


Discharge simulations for a basin in Spain.

Blog post on hydrology here:

Combining AI Earth System Model Components

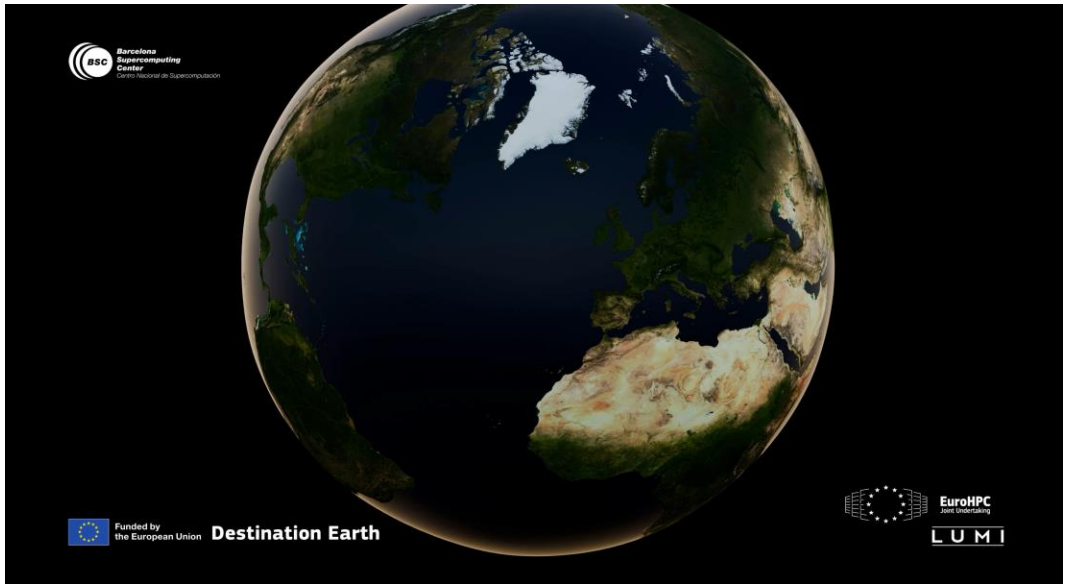
Several coupled ML models



”Coupled Earth system model"

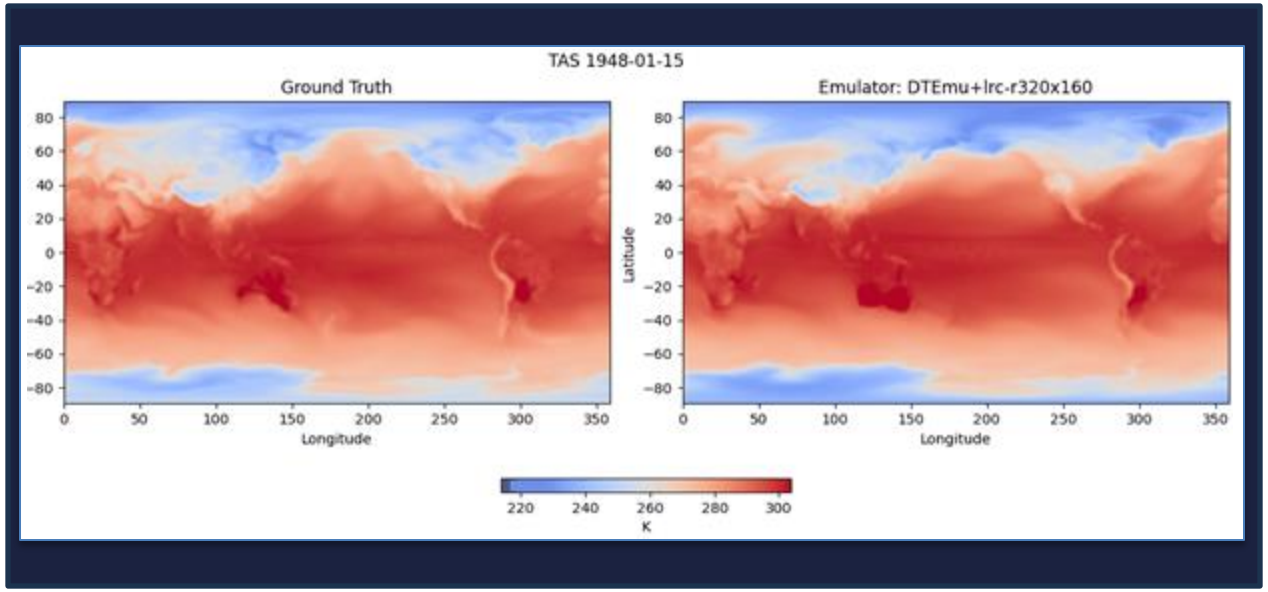
Extending AI models to climate

Climate Digital Twin



Climate model

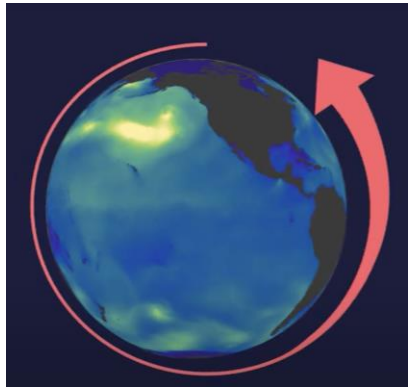
Climate emulator



AI models enhance prediction capabilities

AI Models Enabling Faster, Cost-Efficient Simulations.

Improved predictions



Enhanced interactivity

More details on AI activities in DestinE