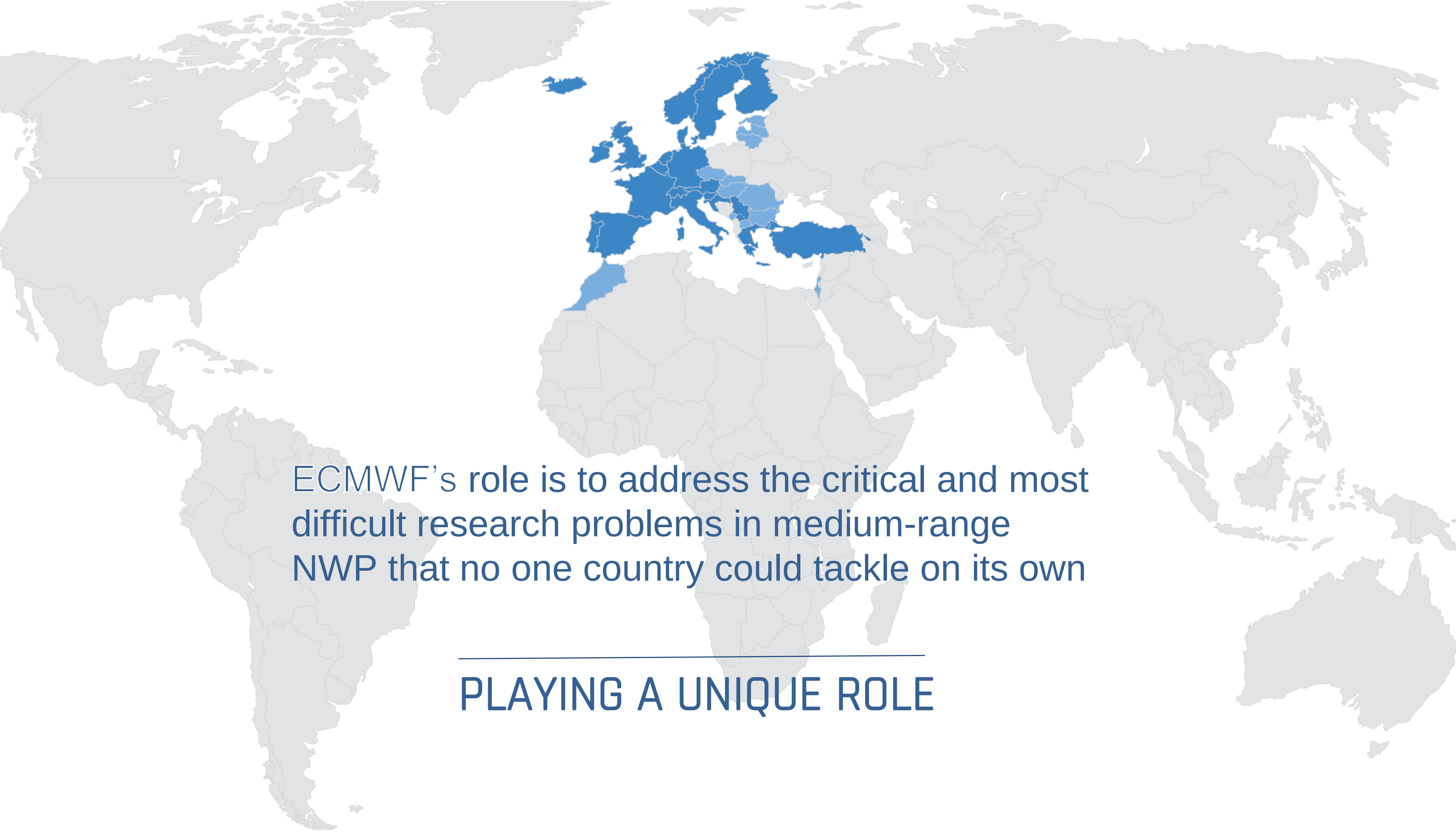
NWP SCIENCE | GLOBAL FORECASTS | SERVING METEOROLOGY | SUPERCOMPUTING | ENVIRONMENTAL SERVICES

Advancing the science to improve global forecasts:

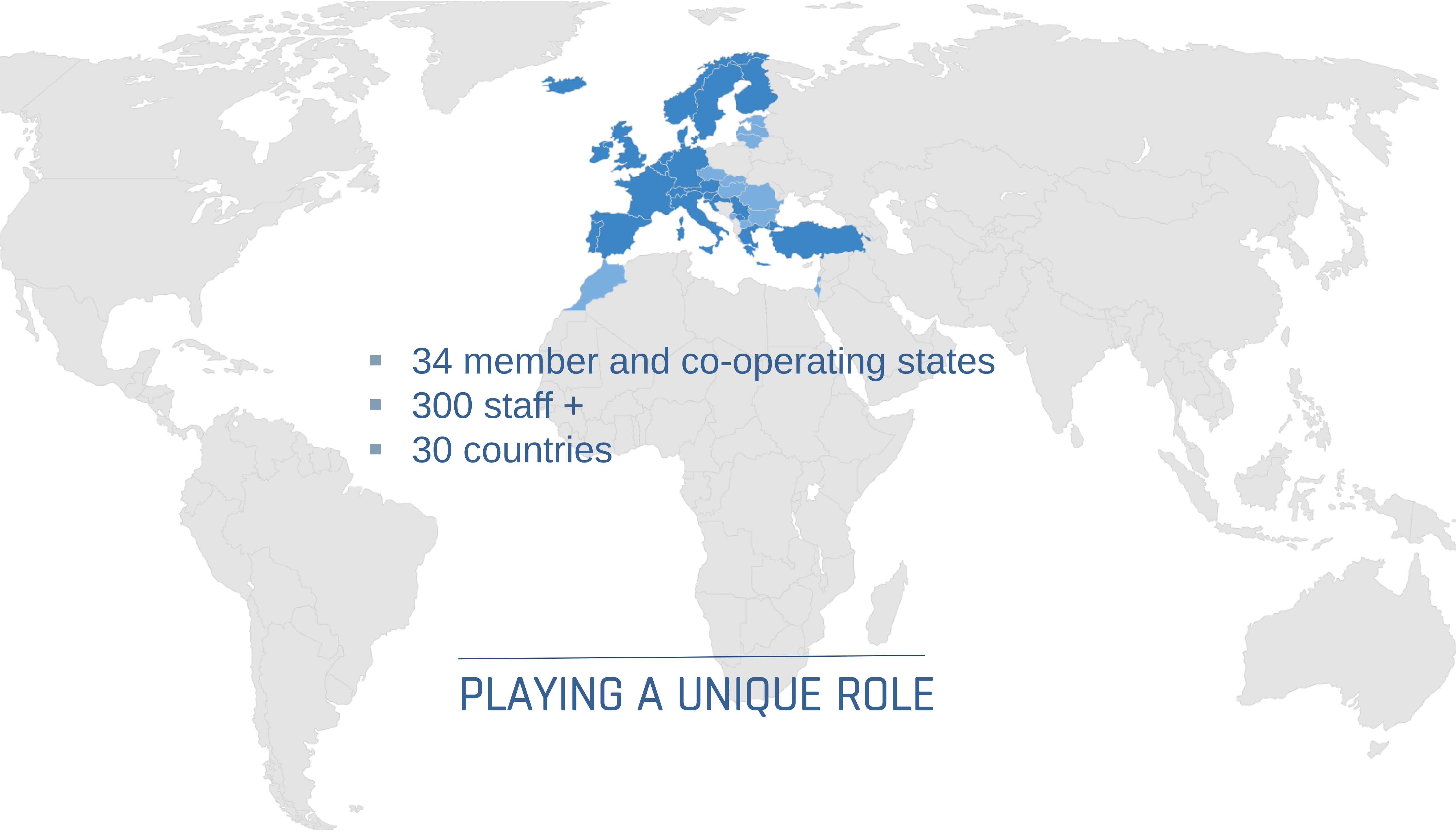
ECMWF in 2017

European co-operation at its best: **pooling resources**



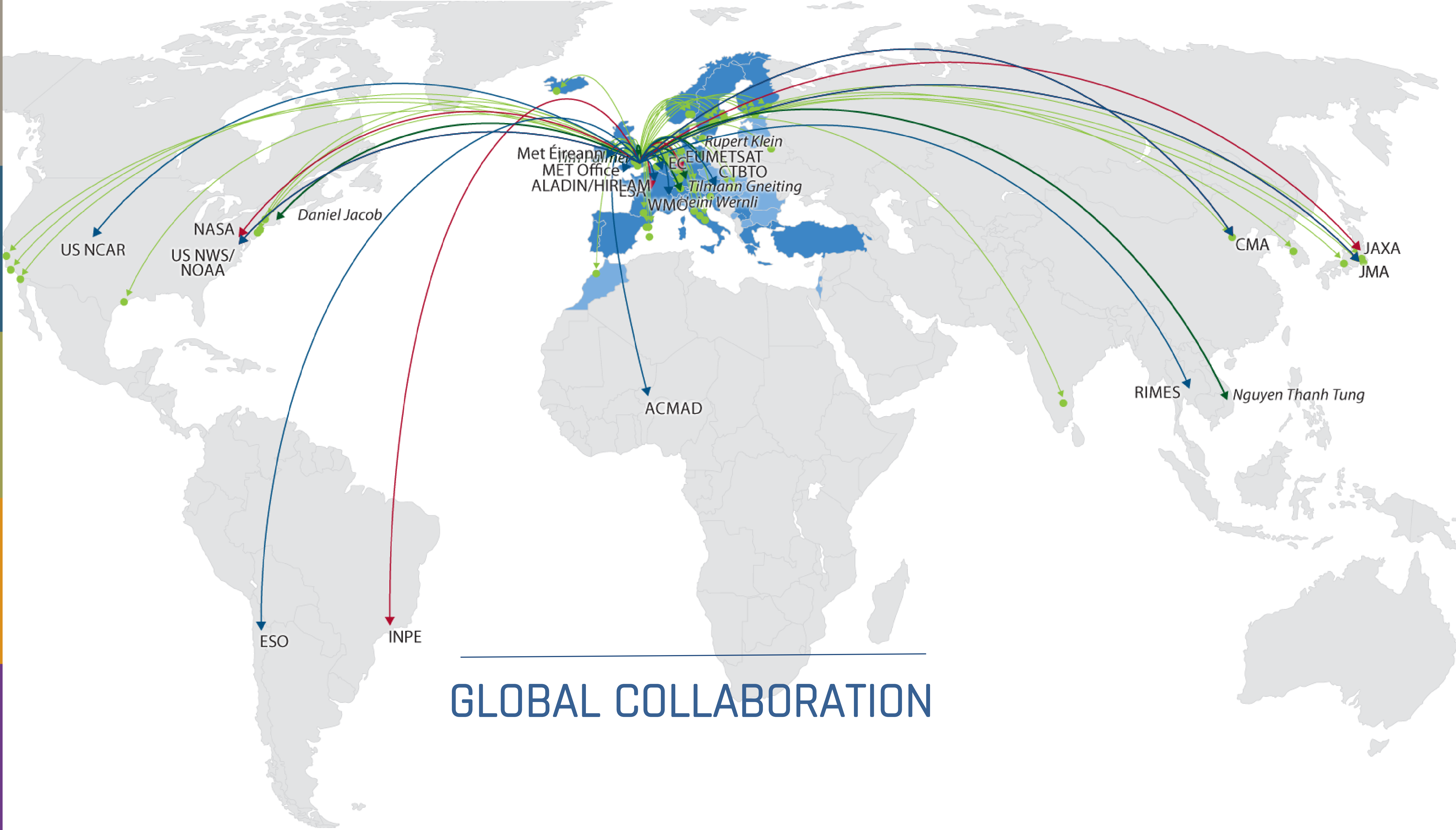
ECMWF's role is to address the critical and most difficult research problems in medium-range NWP that no one country could tackle on its own

PLAYING A UNIQUE ROLE



- 34 member and co-operating states
- 300 staff +
- 30 countries

PLAYING A UNIQUE ROLE



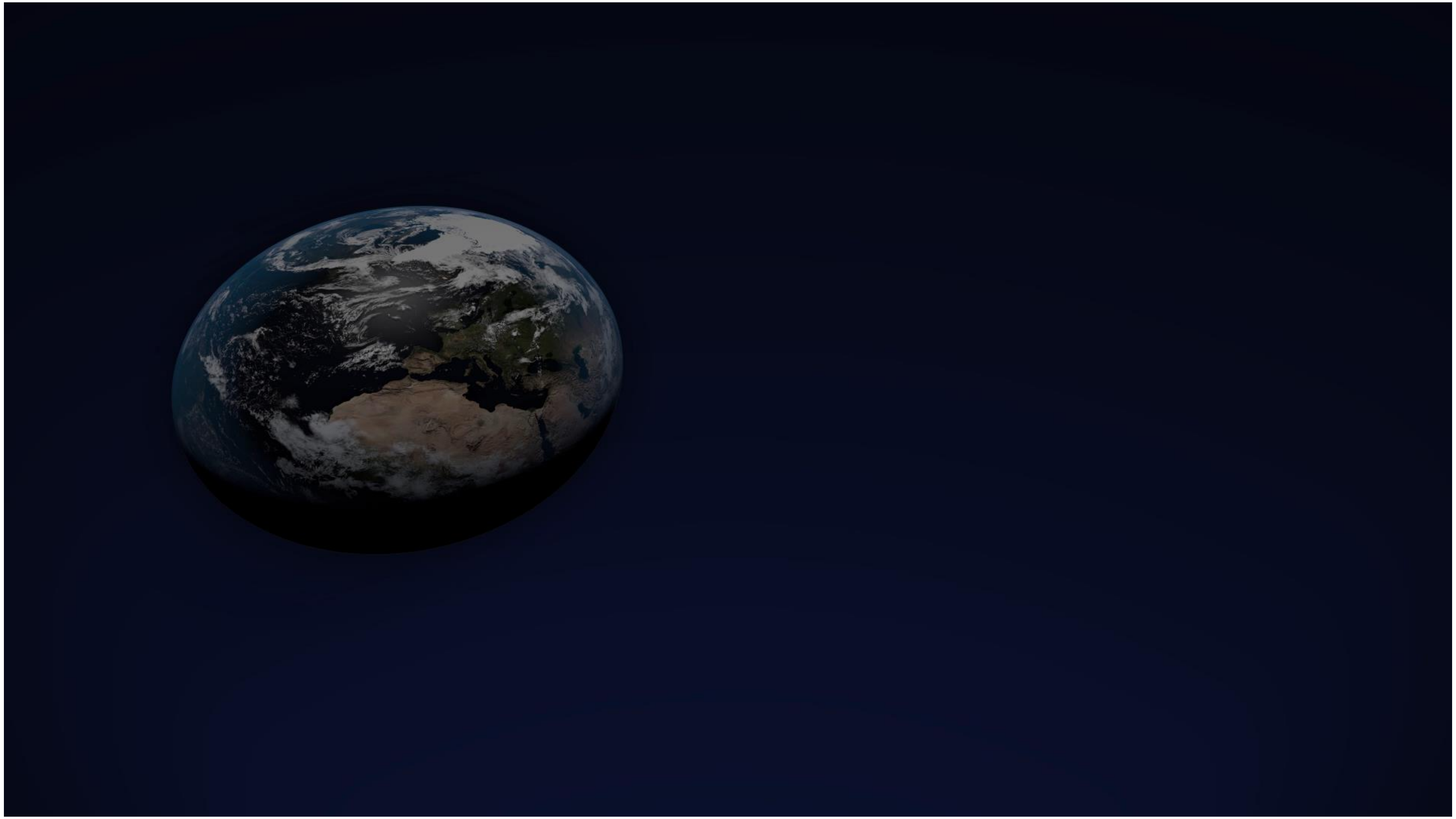
GLOBAL COLLABORATION

European co-operation at its best: **deliverables**

- Global numerical weather forecasts
- Supercomputing & data archiving
- Education & training programme

- EU activities: operation of Copernicus Climate and Atmosphere Services, contributions to the Emergency Management Service

Ensemble prediction: **an overview**



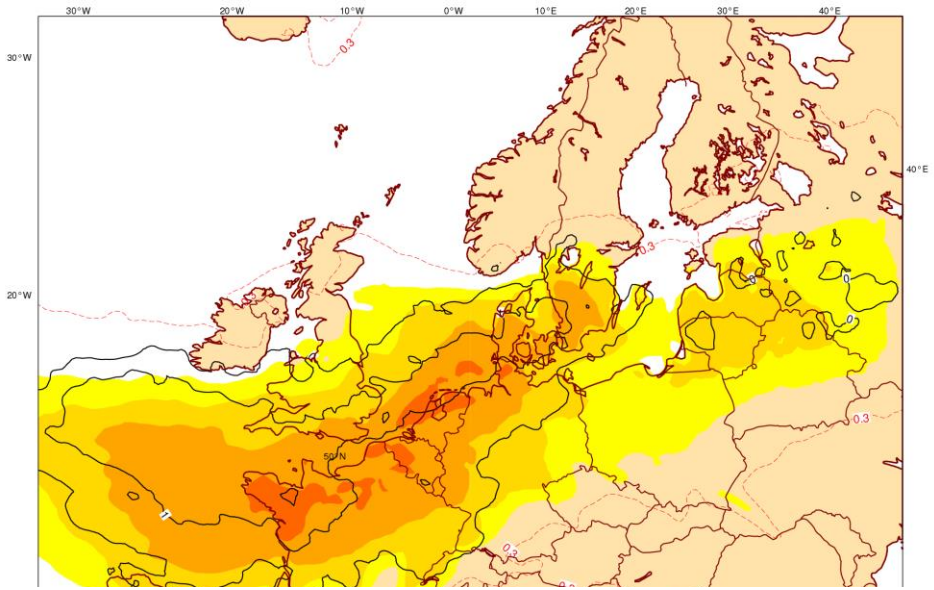
Ensemble prediction: **an overview**

Medium-Range:
Extreme forecast index (EFI)

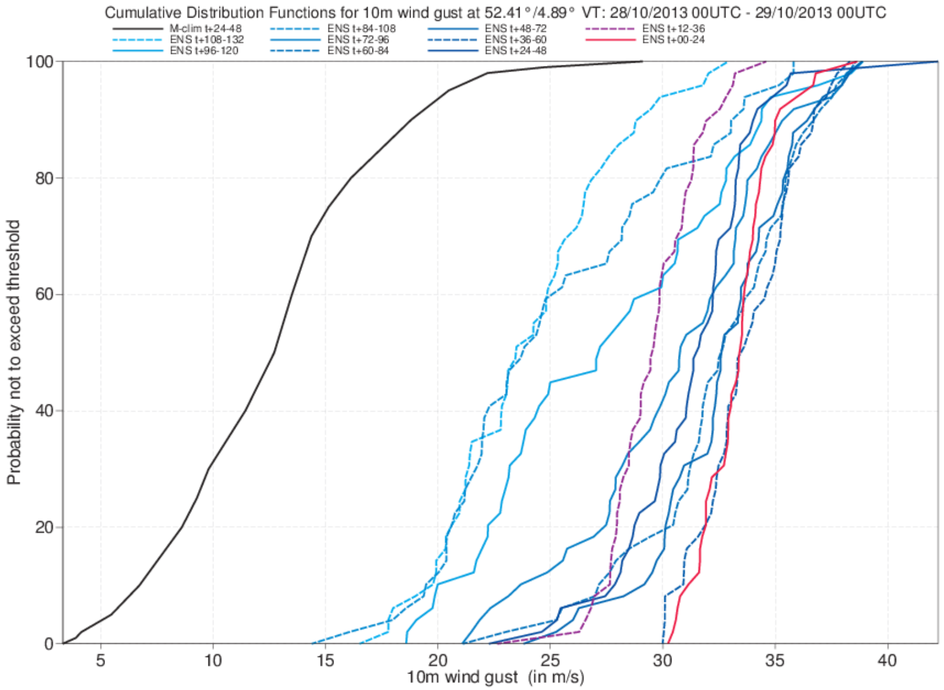
Measures the distance between

the ENS cumulative distribution

and the model climate distribution

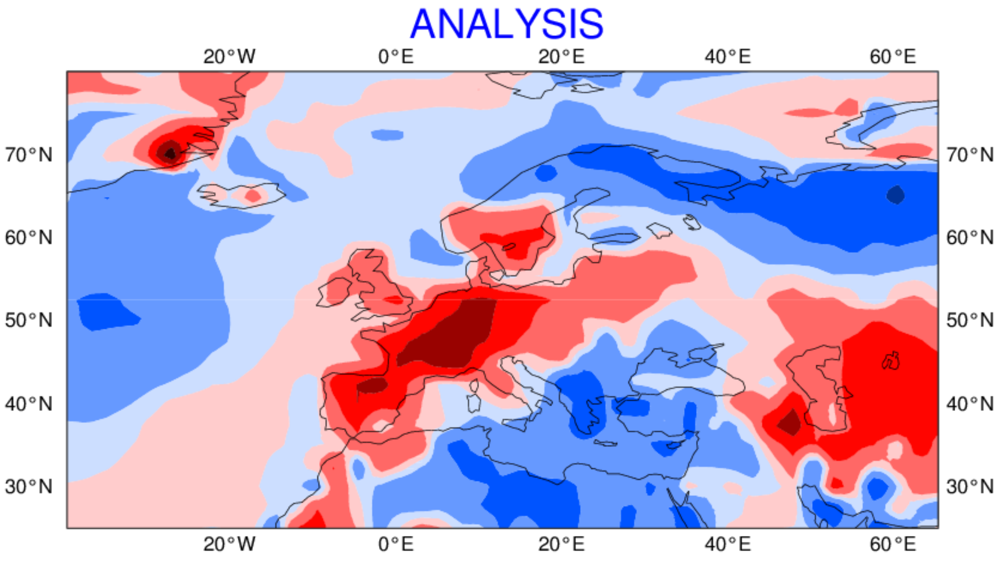


Indicates places where the ENS distribution is towards the extreme of the climate distribution

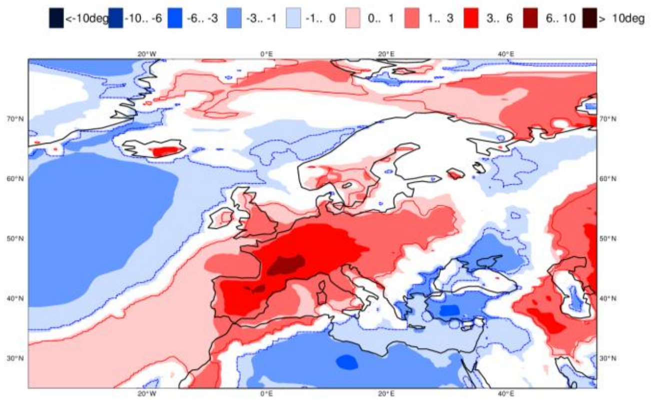


Monthly forecast:
Forecasting large scale patterns

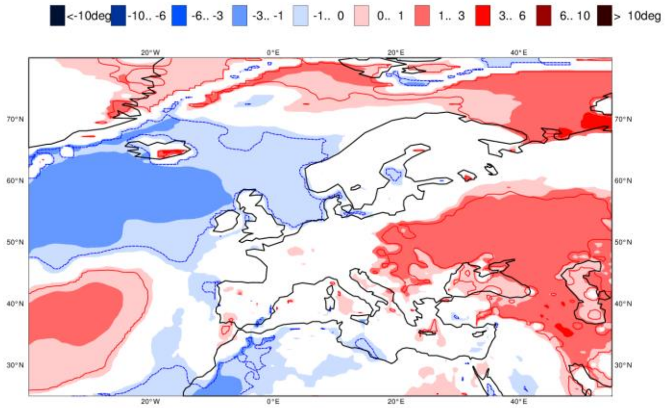
European heat wave
29 June – 5 July 2015



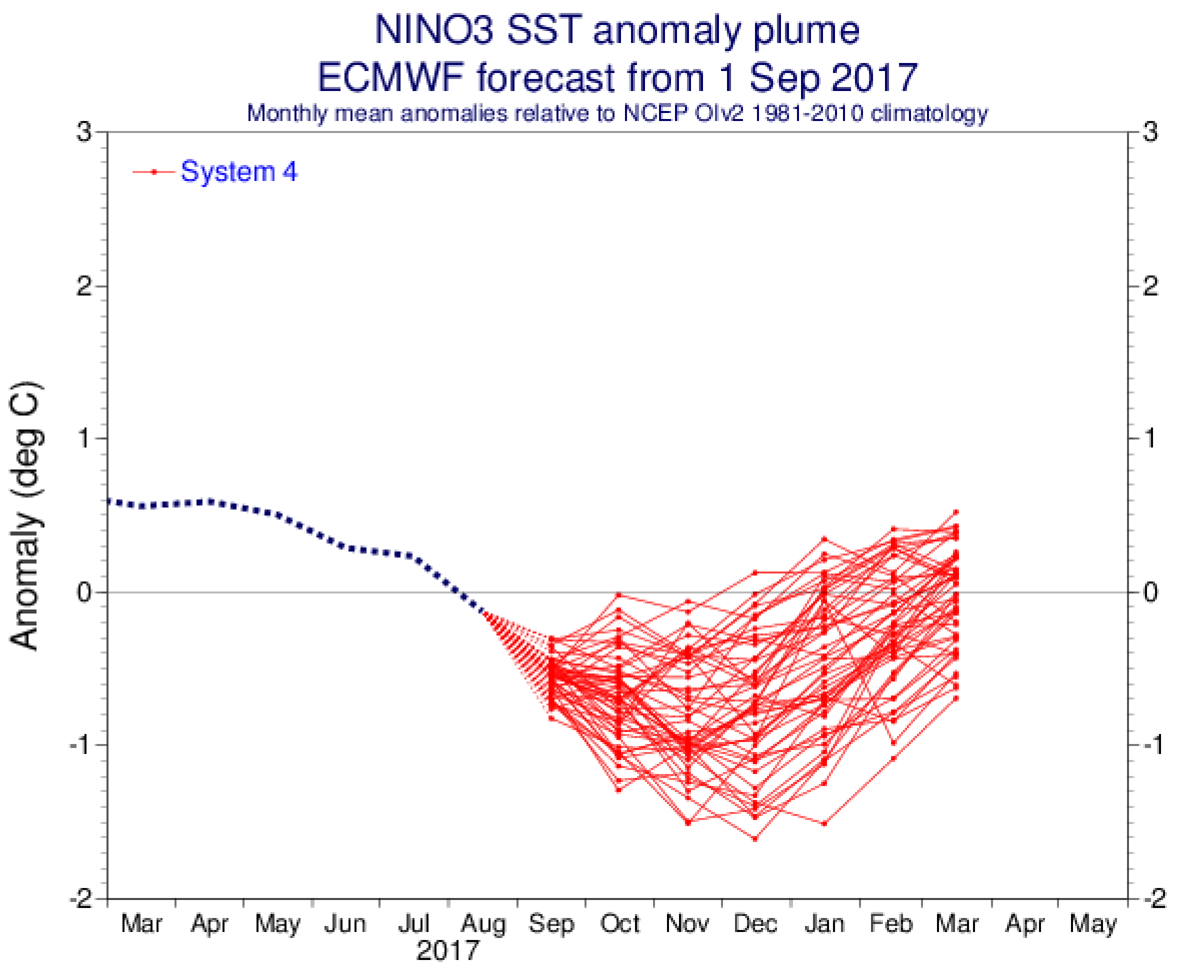
Forecast week 1.5



Forecast week 2.5

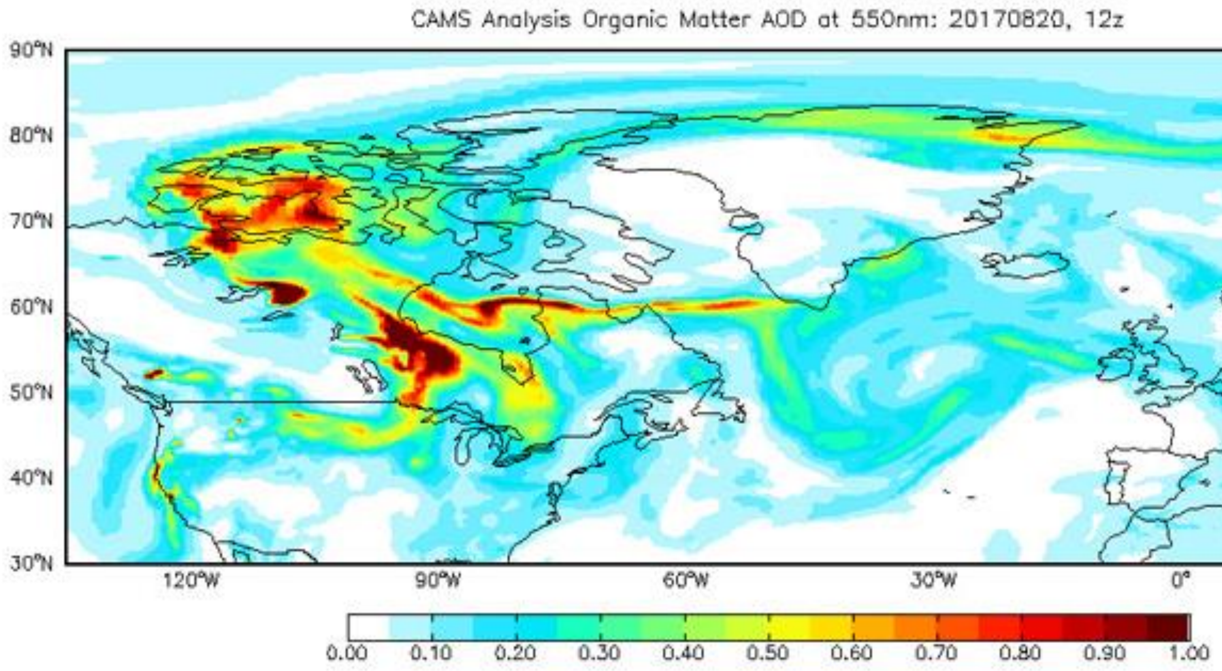


Seasonal: El Nino
Supporting planning activities



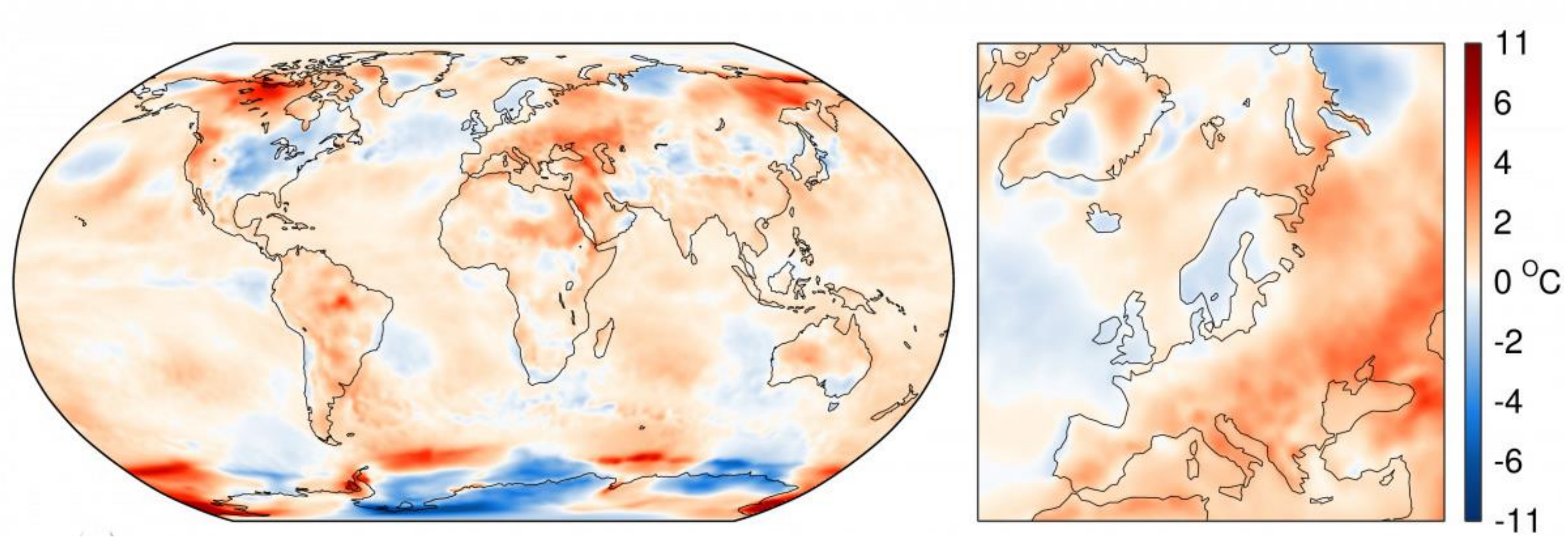
ECMWF working with the EU to forecast fires

Operating the Copernicus Atmosphere Monitoring Service



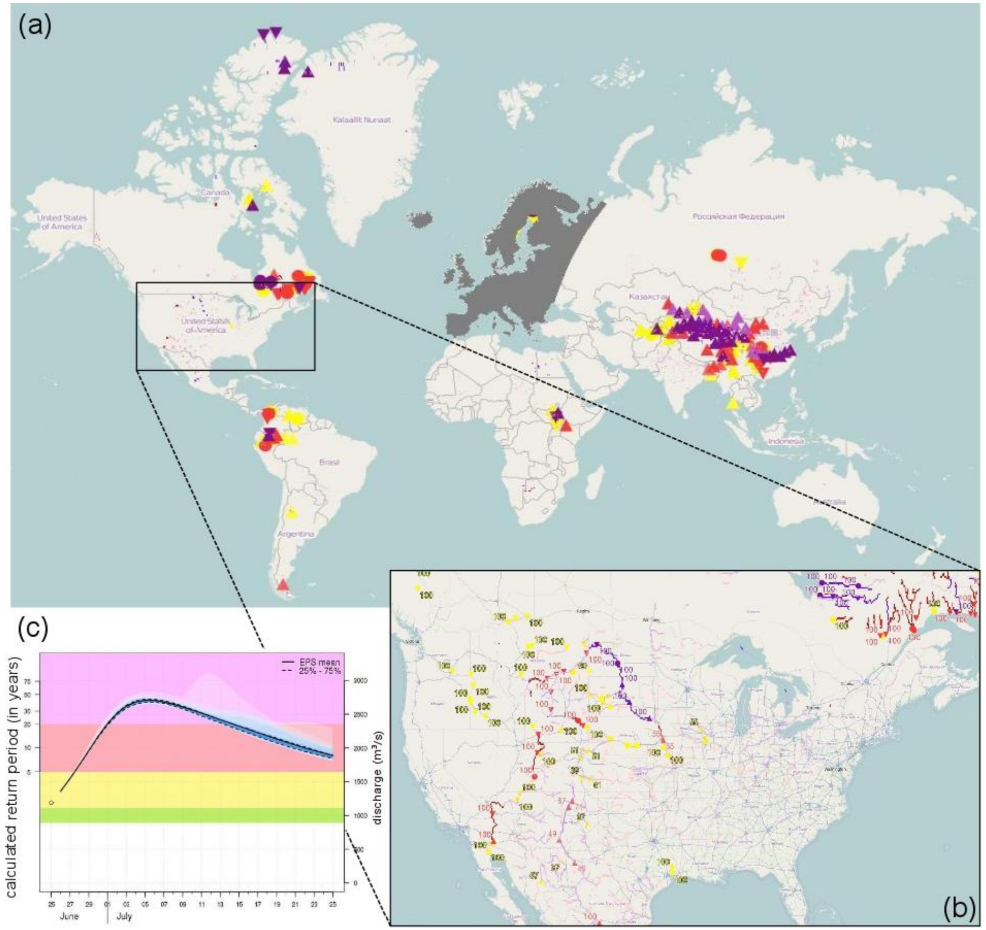
ECMWF working with the EU to monitor climate change

Operating the Copernicus Climate Change Service



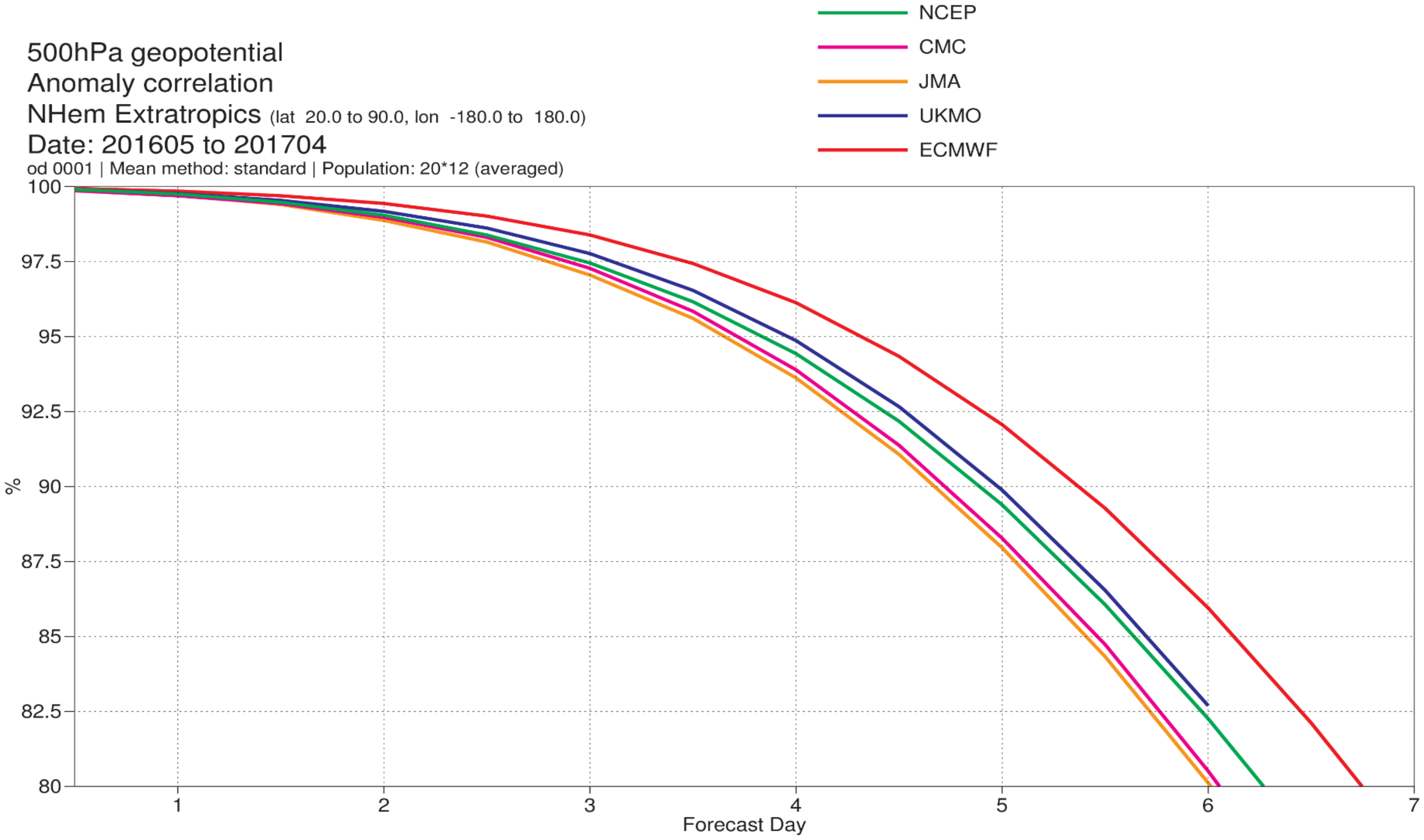
ECMWF working with the EU to forecast flooding

Contribution to Copernicus Emergency Management Service



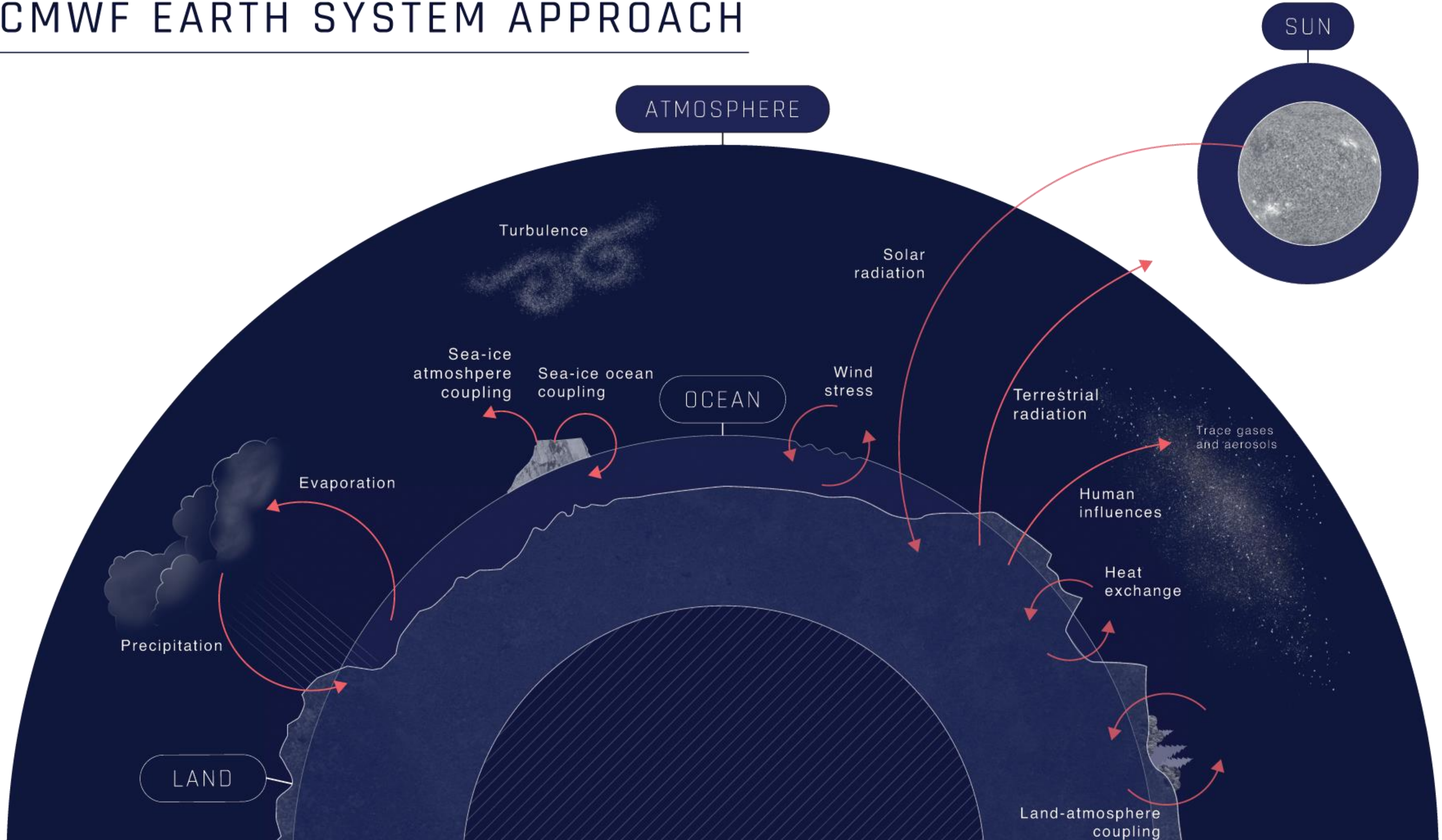
Snapshot of today: **correlation above 80% up to 7 days**

100%



80%

ECMWF EARTH SYSTEM APPROACH



ECMWF and the use of satellite observations

- ECMWF collaborates with space agencies for satellite data requirements, monitoring and assimilation

- More than 98% of observations are coming from satellites

- ECMWF involved in SMOS since 2007

- Operational use of SMOS TB in the IFS for monitoring purpose ; showed very interesting potential for flood cases (eg in Morocco in February 2017)

- Operational production of the SMOS near real time neural network level 2 soil moisture product for ESA. This product is very beneficial for the hydrology and NWP communities

- Soil moisture data assimilation research supports model developments

- We also look at L-band potential for wind analysis and at SMOS sea ice products

THE STRENGTH OF A COMMON GOAL