Annual Seminar 2017
Ensemble prediction: past, present and future
11 – 14 September
Welcome

ECMWF
#AS2017
ECMWF’s purpose is to develop a capability for medium-range weather forecasting and to provide such weather forecasts to the Member and Co-operating States.

ECMWF is complementary to the National Meteorological Services and works with them in research, numerical weather predictions, supercomputing and training.
Ensembles are increasingly used to provide weather services.
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ENS: EFI 2017-09-05 00 +144h

MIAMI

ECMWF EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS
Ensembles are increasingly used to provide weather services

SEAS4: El Nino SST anom

NINO3.4 SST anomaly plume
ECMWF forecast from 1 Nov 2016
Monthly mean anomalies relative to NCEP OI/v2 1881-2010 climatology

System 4

Anomaly (deg C)
ECMWF 2016-2025 strategy: goals for 2025

Forecast targets by 2025:
- Ensemble predictions of **high impact weather** up to two weeks ahead
- Seamless approach, aiming towards predictions of **large scale patterns and regime transitions** up to four weeks ahead and **global-scale anomalies** up to a year ahead

Research goals by 2025:
- Research at frontiers of knowledge in Earth-system modelling, data assimilation and predictability
- Ensemble-based analyses and predictions reaching a 5 km horizontal resolution

Together - More collaboration:
- Partnering with universities and research institutes – OpenIFS
- Pooling expertise to improve scalability of data assimilation

Continued support:
- Dedicated HPC, software, and data resources for Member States
- Advanced training
ECMWF 2016-2025 strategy: the challenge for the medium-range

(1) Prediction of high-impact weather 2 weeks ahead.

The difficulty: sharp ensembles 2 weeks ahead

6-9 days

2-5 days

High-impact weather: Hurricane Bertha

Data time: Mon 04/08/2014 12Z
The prediction of regional anomalies and regime transitions 4 weeks ahead.

The difficulty: extracting a signal 3-4 weeks ahead

European heat wave - 29 June – 5 July 2015

Forecast week 1.5

Forecast week 2.5
ECMWF 2017 Annual Seminar

During the Seminar we will be discussing:

1. The root of ensemble prediction: what were the challenges 25 years ago?
2. Ensemble initial conditions
3. Representation of model uncertainties
4. Error growth, signal propagation and scales interactions
5. End-to-end ensembles: a look into applications
6. Ensemble verification and diagnostics
7. Expanding the ensemble horizon

Enjoy the meeting!!