ECMWF EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS

Europäisches Zentrum für mittelfristige Wettervorhersage | Centre européen pour les prévisions météorologiques à moyen terme

PRESS RELEASE

embargo 00:01 Monday 12 September 2016

EUROPEAN MEDIUM-RANGE WEATHER CENTRE (ECMWF) COMMITS TO PUSHING THE LIMITS OF PREDICTABILITY IN 2025 STRATEGY

- **Prediction of high-impact weather events to be stretched to up to 2 weeks ahead with large-scale patterns and regime transitions up to four weeks ahead**
- **Global ensemble forecast resolution to increase by more than 3 times, with the grid size going from 18 km down to 5 km**

Under a new Strategy announced today, the European Centre for Medium-Range Weather Forecasts (ECMWF) is committing to extending the probabilistic skill of its high-impact weather forecasts by three to six days over the next decade. By 2025, we aim for high-impact weather events such as the windstorm Tor that hit north-western Europe in January 2016 to be predictable at an average of 10 days ahead of the event, and up to two weeks in advance. Similarly, larger-scale pattern events, such as the heatwave that affected Europe in July/August 2015, would be predictable at an average of three weeks ahead of the event, and up to four weeks in advance in certain cases.

The advances will be achieved by pushing the boundaries of research and computing to improve our description of the initial state of the forecast and our representation of the physical processes governing the Earth's fluid envelope. Key to the Strategy's success will be continued international research and computing cooperation.

ECMWF will continue its ground-breaking work on a new coupled data assimilation system to ensure the generation of a consistent Earth system state to initialise forecasts across all timescales.

ECMWF's new strategic objectives include:

- Increasing the horizontal resolution of the global 'ensemble' forecasting system to 5 km, more than three times the existing resolution.
- Developing an improved, high-resolution Earth system model to better take into account the complex interactions between the atmosphere, the ocean, sea ice and land, as well as aerosols and ozone.

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- Implementing a scalable approach to coding across numerical weather prediction (NWP) processes to meet future computing power and big data challenges.

ECMWF Director General Florence Rabier said:

“Our 2025 ambition raises the international bar. Given the greater likelihood of life-threatening climate change impacts on the Earth’s weather, we will harness rapidly advancing data availability and technology to stretch the accuracy and range of predictions further and faster.

“ECMWF is a shining example of the value of European and global cooperation in the scientific field, and one which has tangible benefits day in, day out for dozens of national economies and millions of people’s daily lives.”

The improved forecasts will mean more advance notice of high-impact weather events such as windstorms, floods and heatwaves, enabling national meteorological and emergency services to better protect lives and property.

In addition, global-scale anomalies – such as El Niño – would be predictable up to a year ahead.

Such advances will require fundamentally new scientific and computational methods, delivered by harnessing international expertise and resources.

ECMWF will also continue to provide a high-performance computing facility that allows the benefits of innovation to be realised in an energy-efficient and environmentally sustainable way.

ECMWF was established in 1975 as an independent intergovernmental organisation. It provides the data and services needed by the national meteorological services in its 34 Member and Co-operating States to provide the public with accurate weather forecast information.

Over the past forty years, ECMWF has established itself as a leader in the field of weather forecasting. With its advanced supercomputing capability, it assimilates an average of 40 million observations a day from more than 70 satellite instruments. It works in close collaboration with meteorological organisations within its Member and Co-operating States, and beyond.

Notes to editors:

1. The European Centre for Medium-Range Weather Forecasts (ECMWF) is an independent intergovernmental organisation supported by 34 states, established in 1975. ECMWF’s core mission is to produce numerical weather forecasts, carry out scientific and technical research to improve forecast skill, and to maintain an archive of meteorological data.

2. The Roadmap to 2025 document is available here: http://www.ecmwf.int/en/about/who-we-are/strategy

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