



The ECMWF OpenIFS model and reduced numerical precision in weather forecasting

Glenn Carver (1), Filip Váňa (1), Simon Lang (1), Martin Leutbecher (1), Deborah Salmond (1), Peter Dueben (2), and Tim Palmer (2)

(1) European Centre for Medium-Range Weather Forecasts (ECMWF), Reading, UK, (2) Atmospheric Oceanic and Planetary Physics Department, University of Oxford, UK

The European Centre for Medium Range Weather Forecasts (ECMWF) specialises in global numerical weather prediction for up to about 2 weeks ahead (the medium range). The ECMWF OpenIFS programme maintains a version of the ECMWF forecast model (IFS) for use in education and research at Universities, National Meteorological Services and other research and education organisations. OpenIFS models can be run on HPC, desktop or laptop computers to produce weather forecasts in a similar way to the operational forecasts at ECMWF for research into a wide range of topics.

This presentation will describe the OpenIFS model and its recent upgrade, highlighting the new scientific capabilities of the model. One research area using OpenIFS is the veracity of reduced numerical precision in generating weather forecasts. Reducing precision can have minimal impact on forecast skill, lowering computational cost on current and future parallel computers. After a successful proof-of-concept study with OpenIFS, the capability to run in single precision was implemented into the ECMWF IFS model. Some results from this work will be presented in the context of ensemble forecasting.