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## **Introduction**

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The planned biennial *Workshop on Meteorological Operational Systems*, to be held at ECMWF 12-16 November 2007, will be the eleventh in the series.

The workshop will review the state of the art of meteorological operational systems and address future trends in the use of medium-range forecast products, data management and meteorological visualisations on workstations.

### **1. USE AND INTERPRETATION OF MEDIUM AND EXTENDED RANGE FORECAST GUIDANCE**

The ECMWF forecasting system provides users with operational forecast guidance twice daily for the medium range, including a high-resolution deterministic forecast run at 25km resolution (T799) and an Ensemble Prediction System (EPS) run at 50km (T399). In autumn 2006, the VarEPS system was introduced, extending the EPS range to 15 days, with the portion from 10-15 days run at a reduced 80km resolution (T255). ECMWF also runs a coupled atmosphere-ocean forecasting system to provide longer-range predictions, providing operational forecasts once a week for a month ahead and once a month out to seven months. A new seasonal forecasting system was implemented in spring 2007. Following the extension of the daily medium-range forecasts to 15 days, ECMWF intends to unify the VarEPS and monthly forecast systems. Products for the unified system will be developed during 2007 to meet user requirements.

These changes to the forecasting systems will be presented at the workshop, together with developments in the field of products and verification for severe weather. It is expected that users of the ECMWF forecasts will report on their approach to medium and extended range weather forecasting, including the use and application of ECMWF products. It is planned to address the issue of severe weather forecasting in a working group, and contributions from other operational centres addressing, in particular, the prediction and verification of severe weather will be welcome.

### **2. OPERATIONAL DATA MANAGEMENT SYSTEMS**

Traditionally, the operational meteorological community has collaborated through the WMO to establish standard ways of exchanging data. Dedicated telecommunication lines were built to transport data bulletins securely and efficiently.

During the last decades the Internet has developed into a serious alternative to the operational data exchange networks, allowing fast and relatively reliable point to point communications. The academic world has developed its own data formats and transport mechanisms suitable for their large environmental data sets. Also commercial companies are making use of web based technologies.

All of these developments pose many challenges to the meteorological community such as:

- how can we use this new wealth of available infrastructures, tools and services? and
- how do we make our own data available to new communities?

This workshop is an opportunity to share experiences and plans regarding the resolution of interoperability problems and the adoption of new standards and tools, such as service oriented architectures or geographical information systems, in the field of national and international data exchange and processing. These issues will be discussed further in the working group.

### 3. METEOROLOGICAL VISUALISATION APPLICATIONS

The design of the user interface is a very important factor in how much a user can gain out of their visualisation applications. The developments in recent years in desktop APIs and web technologies, including GUIs, are now finding their way into a new generation of meteorological graphics packages. These offer many new ways of interacting with data. The appearance of web frameworks allows the development of more interactive web applications. Such developments may be discussed in a working group.

Higher resolution model output and observational data leave users wishing to zoom further into plots. This will require more GIS information for orientation and more navigational control over the graphics. Another consideration is how best to manage and make use of the ever increasing amount of satellite data available.

Developments in this area for interactive and batch production of meteorological plots will be presented and demonstrated at an exhibition. New meteorological visualisation applications and updates to existing applications will also be presented.