

## 27<sup>th</sup> EUMETNET Council

### Future of NWP in Europe

#### Background

At 24<sup>th</sup> EUMETNET Council held in April 2005 at Basle, Switzerland, the Met Office presented a vision for Numerical Weather Prediction in Europe which sought to:

- encourage collaboration to make best use of existing capabilities;
- integrate our capabilities e.g. to provide enhanced products and services
- make the best possible products available for all NMHSs to use (particularly for disaster mitigation and hazard warning).

Council decided that the Met Office should liaise with ECMWF to organise a 1-day seminar on the future of NWP. A Working Group would then review the conclusions and come up with a plan of action and programme proposal.

A scoping meeting was held in November 2005 at Exeter, established a Working Group, and agreed the following vision statement: **The European Meteorological Infrastructure will evolve and strengthen its skills and capabilities to enable the meteorological services within Europe to provide the best meteorologically related environmental forecast possible.**

An NWP vision workshop was held on 15-17 March 2006 at ECMWF, jointly organised by ECMWF and the Met Office, including participation of 36 delegates, invited from all EUMETNET and EUMET members, from European modelling consortia, and from ECMWF and EUMETSAT.

The workshop identified a number of existing areas where there is potential for increased efficiencies through better cooperation, and new areas where we have the opportunity to bring skills together, and work in a more efficient and effective way.

The Working Group identified a set of common themes by which the NWP vision could be implemented in the coming years. For each theme, a number of concrete proposals emerged, which will be the subject of future consideration by the WG. The themes are:

- interoperability

- improved framework for collaboration
- socio-economic impacts
- European interactive multi-model LAM
- adapting to enhanced NWP capability
- “quick wins”

### **Next steps**

The different themes will be further analysed by groups of experts, and may result in opportunities for developing NWP-related projects. The source of funding for these activities will need to be identified, but it is likely that EUMETNET Council will be approached to provide enabling funding for some of the themes.

The proposals identified as “quick wins” will be carried out under the leadership of the SRNWP programme manager within the coming year.

The WG will identify high priority actions and develop a work plan, to be undertaken within the coming year.

Further plans to undertake the remaining proposed actions will be considered at the next SRNWP meeting in October 2006, and presented to the spring 2007 meeting of EUMETNET Council.

The provisional list of proposals agreed by the WG is attached at annex 1.

## **Annex 1: Provisional proposals agreed by the WG**

### **Interoperability**

This theme will create increased levels of interoperability between the different modelling systems used within Europe, as well as with users and suppliers outside of meteorology. It will promote the use of industry standards, develop common formats and harmonise the specification of output parameters to facilitate

- Easy exchange of data both within the EMI and with the external user/supplier community
- Use of each other's data as backup
- The creation of multi-model systems

Concrete proposals:

1. Agree a common methodology for the provision of LBCs taking into account scientific constraints
2. Define a common interface with post-processing, harmonise parameters and agree the formats needed, particularly for multi-model ensembles
3. Evaluate more general use of ECMWF software tools
4. Develop a common approach to the framework for running NWP systems taking account of that being developed by the climate community (PRISM)

### **Improved framework for collaboration**

This theme will build on and widen the scope of the SRNWP programme to take a holistic view of NWP activities (from short-range to seasonal timescales) within Europe. It will enable the realisation of a shared NWP vision.

Concrete proposals:

1. Further develop the NWP vision through regular meetings such as the NWP vision workshop Reading, March 2006
2. Initiate the reorganisation and strengthening of the SRNWP programme (by the definition of specific projects in a similar way to EUMETNET ECSN), possibly with an early project, with a view to developing a full programme proposal by spring 2007

### **Socio-Economic Impacts**

This theme will enable better focus on end user benefits through improved ability to understand and respond to the needs of customers. It will engage with the WMO initiatives of THORPEX and GEOSS, and with academia, on social-economic impacts; develop coordinated responses to GMES initiatives; and develop verification

techniques to understand the value and limitations of the entire end-to-end process from weather forecasting to decision making

Concrete proposals:

1. Develop better working relationships with academia and non-meteorological organisations, e.g. through seed funding of socio-economic impact studies.
2. Link 1 to GMES opportunities and possible FP7 projects
3. Collect experiences from experts already involved in socio-economic studies, e.g. through the WMO socio-economic benefit conference in 2007
4. Initiate a project to enable us to work closer on verification of models and user benefits
5. Set up a forum for knowledgeable customers to identify well defined products with end users

### **European interactive multi-model LAM**

This theme links with the THORPEX Grand Global Ensemble (TIGGE) initiative and if successful will establish a joint ensemble system to enable the best regional predictions for Europe. Issues for further discussion include the approach to be adopted for a demonstration system (centrally run system as being demonstrated by INM or based on contributions run in NMSs); the establishment of a database of ensemble data for research; engagement in the European Regional Committee for THORPEX

Concrete proposals:

1. Develop independent validation of existing multi-model systems of all types
2. Evaluate the potential for multi-model ensembles to give the best predictions for Europe
3. Engage in THORPEX discussions on the specification of TIGGE-LAM, to ensure that European requirements are being met. Agree interoperability needs (such as integration area) and initiate a European LAM component of TIGGE on the timescale of TIGGE phase 1, based on 1 and 2 above.

### **Adapting to the enhanced NWP capability**

This theme will enable informed investment decisions for infrastructure at the EMI level. Issues for further discussion include EUCOS alignment with future developments in NWP; observation targeting; evolution of telecommunication and HPC infrastructures.

Concrete proposals:

1. Define NWP requirements for observations (for initial conditions and validation) for the next phase of EUMETNET observing programmes, in particular EUCOS, by 2009

### **Quick wins**

This theme identifies a number of practical steps to delivering early benefits. These will be led by the SRNWP programme manager.

Concrete proposals:

1. Identify a common format for the exchange of a limited set of products for the benefit of forecasters.
2. Set up an information hub for the organisation of GRIB codes.
3. SRNWP programme will define at its next general meeting a draft programme proposal for spring 2007