C-SRNWP (SHORT RANGE NUMERICAL WEATHER PREDICTION NETWORK) AND THE FORECASTING CAPABILITY AREA OF EUMETNET

Responsible member: Hungarian Meteorological Service

Period: 2008-2011

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C-SRNWP: MAIN OBJECTIVES

- Improved **scientific cooperation** between the 5 LAM Consortia (ALADIN, COSMO, HIRLAM, LACE, Met Office) in Europe for numerical weather prediction (NWP) through the initiation and execution of joint projects
  - Expert Teams and their workplans

- Enhanced **operational cooperation** through harmonisation of standards and increased interoperability between models
  - Interoperability (SRNWP-I) and verification (SRNWP-V) programmes

- Effective **diffusion of NWP knowledge** and enhanced practical cooperation in NWP
  - Thematic SRNWP workshops
  - Webpage: srnwp.met.hu
## SRNWP CONSORTIA (5) and MODELS (4)

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<th>CONSORTIA</th>
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<td>Met Office</td>
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**Remark:** ALADIN (LACE) and HIRLAM are working on code collaboration around the IFS/ARPEGE/ALADIN/ALARO/AROME (HARMONIE) code.
LIST OF EXPERT TEAMS (CROSS-CONSORTIA WORKING GROUPS)

- Data assimilation and use of observations
- Diagnostics, validation and verification (SRNWP-V)
- Dynamics and lateral boundary coupling
- Link with applications
- Physical parameterisation (upper air)
- Predictability and EPS
- Surface and soil processes (model and data assimilation)
- System aspects (SRNWP-I)
SURFACE DATA EXCHANGE FOR VALIDATION

• The COSMO consortium initiated the surface and near-surface data exchange for the validation of surface schemes of the NWP models

• The involved „supersites”: Lindenberg, Payerne, Capofiume, Sodankylaa, Cabauw, Toulouse, Cardington (Valday, Debrecen)

• The data access can be granted to SRNWP members at the http://www.cosmo-model.org/srnwp/content/default.htm webpage (already 10 users: de Morsier, Machulskaya, Mahfouf, Bush, Vogel, Calvet, Bonafe, Kangas, Samuelsson, Albergel)
LATERAL BOUNDARY CONDITION (LBC) ISSUES

• ECMWF TAC subgroup: on the update of the Optional Project on LBCs

• A possible future Optional Programme on EPS boundaries were emerged (two options)
  – Operational resolution (T639) and operational ensemble size (50+1)
  – Higher resolution (T799) and half of the operational ensemble size (24+1)

• A third proposal from the LAMEPS community
  – „VAREPS” system: High resolution (T1279 or T799) until two days and lower resolution (T639) afterwards (until 6 days)
LATERAL BOUNDARY CONDITION (LBC) ISSUES

• Next steps
  – Tests for the newly proposed option (thanks to Martin Leutbecher)
  – Scientific and user meeting at ECMWF during the spring of 2012
SRNWP-I: DELIVERABLES (1)

• D1: report about the standard output format (+list of parameters, maintenance plan)
  – Achieved (see EUMETNET portal, GRIB2 on model grids, Consortia softwares to be used → the maintenance would be easier)

• D2: Requirements and specifications of the adaptors
  – Not yet fully ready (see also EUMETNET portal)

• D3: Development of four 2-way adaptors (specific LAM format to standard format and its inverse)
  – Completed
SRNWP-I: DELIVERABLES (2)

• D4: Software for enabling any of the LAMs to use any of the global models as initial and lateral boundary conditions
  – Ongoing

• D5: Long term sustainability plan
  – Outline plan

• D6 (extra): Encoding/decoding of model outputs into GRIB2 format

→ Delay of the programme execution (the complete surface solution cannot be given during this programme phase)
Domains of 5 consortia reference models
SRNWP-V: DELIVERABLES (PREVIOUS PROGRAMME)

• All the main deliverables are completed:
  – D1: Operational verification comparison of one version of each of the 4 regional European LAM model (ALADIN, COSMO, HIRLAM, Unified Model, see at EUMETNET portal)
  – D2: Additional models to the intercomparison
  – D3: Inventory and recommendations of „new” scale selective verification methods
  – D4: Catalogue of non-GTS data sources
  – D5: Exchange methods and code for verification of severe weather forecasts (too early for completion)
Mean sea level pressure bias and RMSE
Monthly frequency biases for precipitation ≥1mm
SRNWP-V: DELIVERABLES (Phase II, just started)

- ND1: Continuation of **operational verification** comparison of one version of each of the 4 regional European LAM model (ALADIN, COSMO, HIRLAM, Unified Model)

- ND2: **Additional verification variables**: cloud amount, cloud base, visibility, wind gusts for instance

- ND3: Spatial and scale **selective verification of precipitation** using gridded daily precipitation analyses, high resolution radar data and OPERA radar composites

- ND4: Inclusion of **severe/high impact weather verification**

- ND5: **Full documentation** of the methods used in the intercomparison
SRNWP: ISSUES

• At the moment there is no chairperson for the physics ET

• C-SRNWP PM is asked to act as Interim Forecasting Capability Programme Manager (resource difficulties)

• SRNWP-V: summary of verification results to be „published” soon

• SRNWP-I: a follow-on proposal should be prepared

• Pushing OPERA to produce 2D and 3d radar data with proper quality control at the OPERA Data Hub (already in 2012?)
EUMETNET FORECASTING ROADMAP
(UNTIL 2020)
INTRODUCTORY REMARKS

• EUMETNET adopted its (high-level) strategy last year
  – Improved efficiency with shared services
  – Collective investment in science, technology and skills
  – Essential partnership with EU/EC

• The next step is to produce roadmaps for observations, climate, **forecasting**, aviation and EU

• Drafting Teams were established for these „capability areas”
  – Forecasting Roadmap Drafting Team members: Massimo Ferri (chair, STAC), Vesa Nietosvaara (EUMETCAL), Michael Staudinger (EMMA), Clive Wilson (SRNWP-V), Rachel North (SRNWP-I), Jeanette Onvlee (HIRLAM), Piet Termonia (ALADIN), Marco Arpagaus (COSMO), Fredrik Linde (Sweden), Ilda Novo (Portugal), Adrian Broad (PFAC), Jose Antonio Garcia-Moya (Spain), Andras Horanyi (C-SRNWP); Massimo Capaldo („external support”)
HIGH-LEVEL GOALS ALREADY DEFINED BY THE ASSEMBLY

• F1: Throughout the decade EUMETNET will support Members in ensuring that they always have **highly skilled forecasters** through shared training and shared best practise

• F2: EUMETNET will assist members and their modelling Consortia to **develop their forecast models and processes** in order to produce the best possible short term forecasts for their clients

• F3: EUMETNET will have facilitated through a strategic discussion among Members, the **identification and initiation of projects for collaboration, harmonisation and coordination** in support of more efficient forecasting systems and improved regional and short range weather forecasts
TASKS OF THE DRAFTING TEAM

• Identification of priorities between existing (C-SRNWP, SRNWP-I, SRNWP-V, EMMA, SATREP, EUMETCAL) and proposed new programmes

• Propose programmes (with their rationale, resource requirements) in the period of 2013-2020

• Identify cross-cutting issues with the other EUMETNET capability areas
HIGH PRIORITY AREAS

• Protection of past investments

• Improved communication with users and understanding their requirements

• Severe and high impact weather forecasting to be improved via
  – Better nowcasting (also addressing developments of advanced applications for key customers)
  – High resolution EPS forecasts to address the reliability of convection permitting forecasts and improvement their accuracy

• Enhanced coordination (Forecasting Capability Area)
PROPOSED HIGH PRIORITY NEW PROGRAMMES

• Nowcasting: as extension of SRNWP towards ultra-short range
  – 0.3 FTE as programme manager

• Short range ensemble prediction: based on the tools already developed by SRNWP-I and SRNWP-V (including the interpretation of uncertainty information by the forecasters – through EUMETCAL)
  – Phase I: feasibility study
  – Phase II: demonstration project

• (Regional climate modelling – should be part of the Climate Roadmap)
# Forecasting Roadmap Summary

## Forecasting goals
- **F1** - To support Members in ensuring that they always have highly skilled forecasters through shared training and shared best practice.
- **F2** - To assist Members and their modelling consortia to develop their forecast models and processes in order to produce the best possible short term forecasts for their clients (avoiding duplication of activities with the consortia and ECMWF).
- **F3** - To facilitate through a strategic discussion among Members, the identification and initiation of projects for collaboration, harmonisation and coordination in support of more efficient forecasting systems, and improved national and short-range weather forecasts.

## Key activities or deliverables

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## Roadmap Key
- List of key activities (or deliverables) during 2011-2020
- Explanation of the rationale for the activities and possible options for delivery that will need to be considered
- Proposed timetable for delivery of the activities
- Resources needed
- Likely risks
- Definition of constraints and dependencies

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**Evaluation of the rationale for the activities and possible options for delivery that will need to be considered**

- **A** - Approval of Programmes
- **B** - Call for Proposals
- **C** - Selection of Responsible Member

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**Forecasting Programmes Budget Distribution**
SRNWP - RECENT STAGE: TRANSITION

• SRNWP-V programme is accepted until the end of 2012

• SRNWP-I is valid until the end of 2011 (just prolonged without new resources and deliverables)
  – Continuation proposal should be prepared until autumn

• C-SRNWP is valid until the end of 2011: no decision yet on its prolongation or its transformation to the EUMETNET Forecasting Capability Programme
(FORECASTING) ROADMAP: NEXT STEPS

• The roadmap should be accepted until the end of the year → the priorities will be clarified

• Full programme proposals should be ready until spring 2012 (preliminary ones until this autumn)

• The new (updated) programmes (in agreement with the roadmaps) can start at the beginning of 2013
Thank you for your attention!