SRNWP BUSINESS MEETING

- The EUMETNET Forecasting Programme
  (Dick Blaauboer)
- Current coordination activities in the C-SRNWP project
  (Gergely Bölöni)
- SRNWP-Interoperability final (short) report
  (Mike Bush)
- Discussion

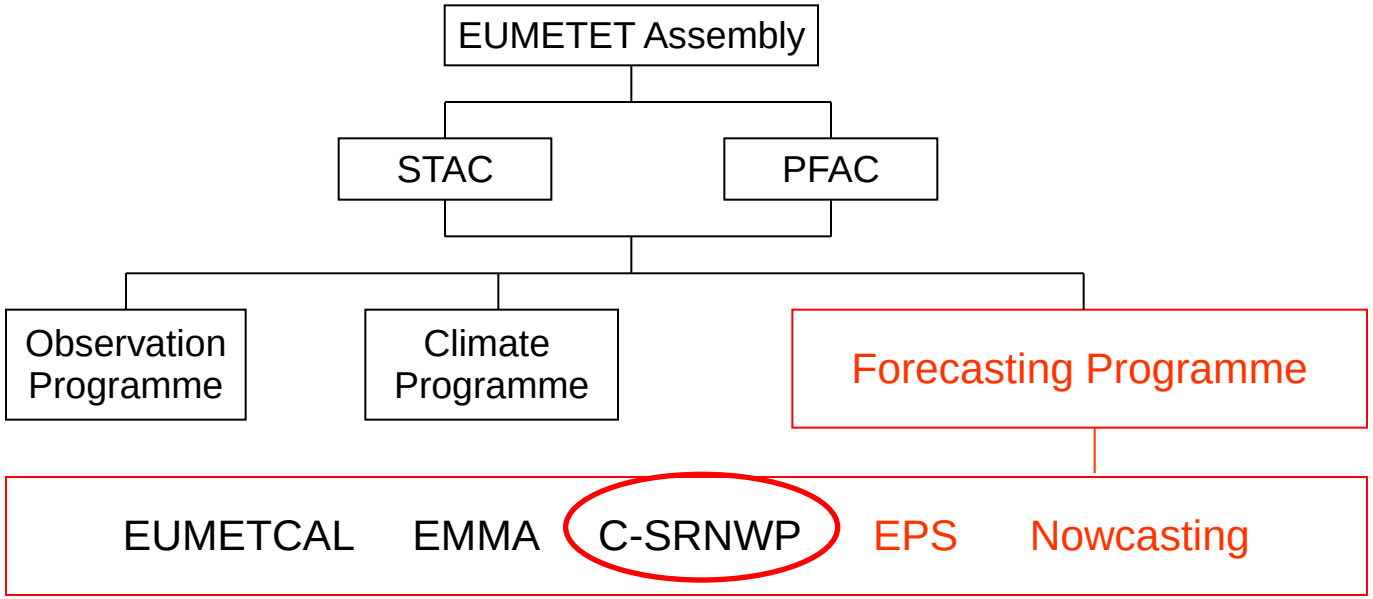
EUMETNET
European Meteorological Services Network

Current coordination activities in the C-SRNWP project

Gergely Bölöni and ET members

INTRODUCTION

EUMETNET Programme 2013-2017



Forecasting Programme (KNMI)
EUMETCAL (FMI)
EMMA (ZAMG)
C-SRNWP (OMSZ)
EPS Activity (AEMET)
Nowcasting Activity (ZAMG-KNMI)

INTRODUCTION

- C-SRNWP: coordination on short range numerical weather prediction (NWP) between 27 European meteorological institutions (from 5 modeling consortia: ALADIN, COSMO, LACE, HIRLAM, UKMO)

- Represent and communicate the interests of short-range NWP in fornt of other institutions/projects (e.g. ECMWF or EUMETNET observation programmes, i.e. OPERA, etc.)

- Enhance cooperation on NWP: share resources in operations and stimulate competition on scientific development

- Enhance cooperation between the NWP and the end user communities

INTRODUCTION

- Promote European LAM models in education and academic research
- Find „external” funding for joint NWP developments
- Membership changes: 4 members leaving (Estonia, Germany, Ireland, Latvia), 1 new member (Montenegro)
- OMSZ (Hungarian Meteorological Service) is the actual Coordinating Member (new programme phase started in Jan 2013)

ACTUAL COORDINATION ACTIVITIES

Expert Team on Data Assimilation

OPERA and NWP

- 2011-2012: a related questionnaire was prepared by OPERA for NMSs → 19 NMSs answered

- The main outcome is that for SRNWP (assimilation) 3D volume (wind and reflectivity) data are required by all NMSs (which are received at Odyssey but not re-distributed at the moment) with an appropriate QC flagging (rain, no-rain, cluttered, etc.)

- *Requirements of the OPERA project in the new phase (2013-17) have been adjusted to the needs of the short-range NWP community → a significant progress anticipated till the end of 2014 (work packages OD1, OD3)*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Data Assimilation

OPERA and NWP

- *OPERA User Group (OUG): NWP and radar experts are refining the possible resolution/frequency and the necessary metadata for enabling the quality flagging/assimilation of „Odyssey" volume radar data (wind and reflectivity) → more information is needed than for the present 2D composites (e.g. doppler wind, for reflectivity distinction between cluttered and „no-rain" data)*

- *Timely delivery of OPERA OD1 and OD3 depends a lot on the member NMSs and the radar manufacturers (e.g. for distinction between cluttered and „no-rain" data can be made only by the latter)*

- *No delay expected for radial wind assimilation from Odyssey (dependence only on member NMSs)*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Data Assimilation

OPERA and NWP

- *Delay is expected in the reflectivity QC flagging on Odyssey (dependence on member NMSs + manufacturers)*
- *First data policy arrangements for the re-distribution of volume data from Odyssey took place (last EUMETNET Assembly, November 2012): 18 NMS allow other NMSs to use their volume data for data assimilation purposes*
- *An „early" access to volume data is enabled through HIRLAM (SMHI) without operational service level → testing quality flagging locally*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Data Assimilation

Observation network design (support EUCOS, Obs-SET)

- *Collect DFS (Degrees of Freedom For Signal) and FSO (Forecast Sensitiviy to Observations) observation impact indicators from the SRNWP community → this provides useful complementary information to Observing System Experiments*

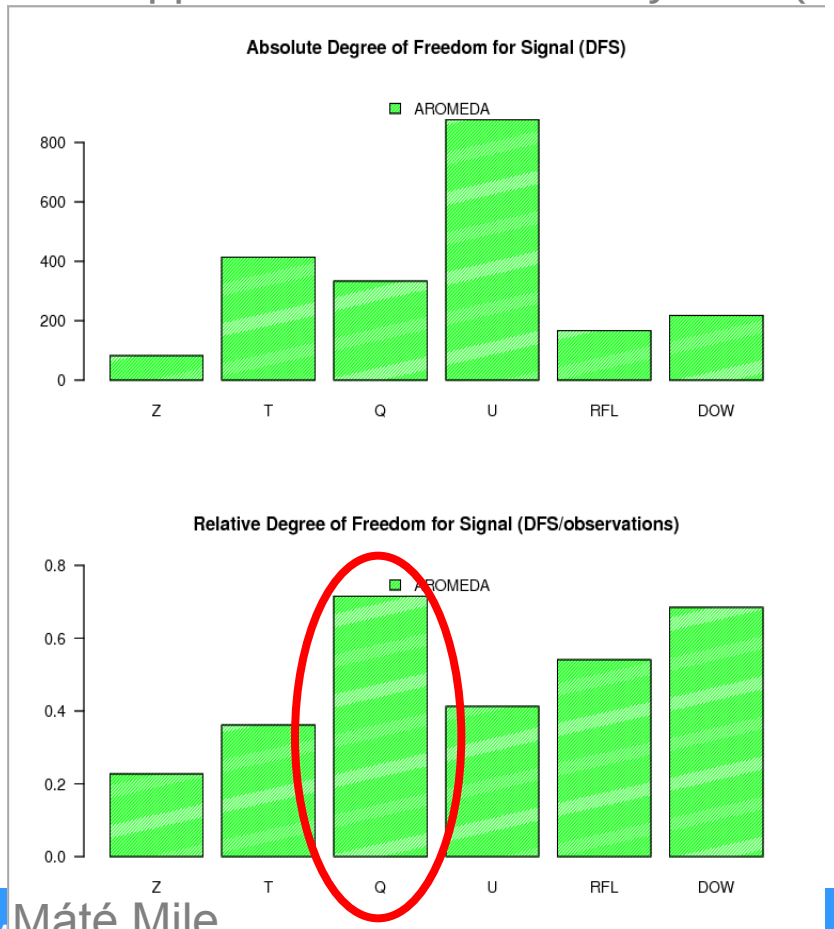
- *The above is important in order to have an influence on the priority of EUCOS observation programmes/projects from an SRNWP perspective*

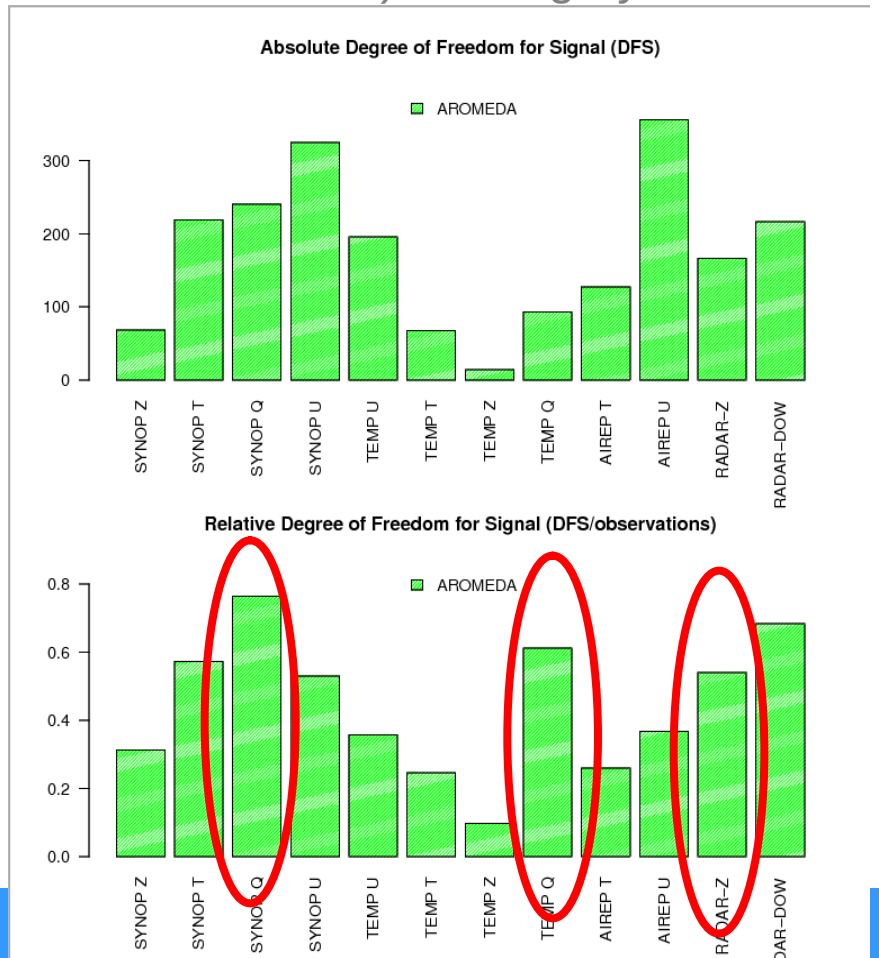
- *Review/update the EUCOS observation monitoring standards (availability, accuracy) → DA Expert Team proposed substantial decrease of the „obs-guess" RMSE targets*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Data Assimilation

DFS applied for the AROME system (dx=2.5 km, 3DVAR) in Hungary





ACTUAL COORDINATION ACTIVITIES

Expert Team on Data Assimilation

Use of AMDAR observations

- High vertical resolution data provided by E-AMDAR via GTS (17-18 May 2011)
- BUFR test dataset prepared and distributed for the SRNWP data assimilation community for the same two days for providing reference (usual resolution) for a simple impact study of the increased resolution
- *Data Assimilation Expert Team concluded that to measure the real impact, more sophisticated Observing System Experiments (OSE) should be done (funding from EUCOS would be necessary)*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Data Assimilation

Use of AMDAR observations

- *Data Assimilation Expert Team concluded that OSEs assessing the impact of humidity sensors on board aircrafts are of higher priority than those testing higher vertical resolution involving temperature and wind*

- *Global OSEs over the US on the way, LAM OSEs to be performed in the case if enough humidity sensors installed on European flights (50 or preferably 100 sensors are proposed to the EUMETNET Assembly)*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Data Assimilation

Migration to BUFR radiosonds

- *The number of BUFR encoded ascents substantially increased between 2011 and 2013 over Europe (some BUFR encodings still do not include lat, lon, time information)*
- *Global studies by Environment Canada show a slight improvement due to the assimilation of „drifted soundings".*
- *Presently no studies over Europe, MetEireann did preliminary studies in 2012 (not much impact found then), several HIRLAM teams plan it*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Verification

SRNWP-V finished in 2012

- Clive Wilson's summary talk
- It would be useful to get a written document too about the outcomes.

GTS Wind Gust data to be improved:

- MeteoSwiss: it's not easy to perform wind gust verification based on gust observations on GTS: many NMSs do not provide continuously these data. What is available is not well documented: what is the period used to compute the maximum gust (1 hourly and 6 hourly data), unknown thresholds are applied, station height missing

- *Verif Expert Team: only FMI confirmed the above problem and encouraged seeking solution.*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Verification

GTS Wind Gust data to be improved:

- *A summary of the above problem was sent to EUCOS → email iteration to understand the problem*

- *EUCOS Obs-SET meeting (April 2013) : The problem will be studied by the EUCOS team and a concluding paper will be prepared by Autumn 2013 → recommendations to be prepared for NMSs to include wind gust observations to surface reports*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Predictability and EPS

ECMWF EPS LBCs to drive high resolution LAM EPS

- To drive future high resolution LAM EPS systems extra IFS EPS runs are anticipated by the SRNWP community from ECMWF on the top of the presently operational (higher resolution, 06 and 18 UTC runs) → long term expectation

- For experimental purposes ECMWF developed an „economic archive" to store EPS model level fields only over Europe, North-Atlantic, North-Africa (covering all anticipated European EPS domains) → tested for feeding the relevant models: ALADIN/ALARO, AROME, COSMO, HIRLAM

- *Agreement reached within the SRNWP ET about the test periods*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Predictability and EPS

ECMWF EPS LBCs to drive high resolution LAM EPS

- *Thanks to ECMWF, 3 x 2 weeks of high-resolution IFS EPS runs are available to drive convective-scale EPS experiments (since January 2013) → several NMSs are testing the T1279 LBCs*

- *Future actions to sum up the possible added value of high-resolution LBCs → Workshop at ECMWF confirmed (9-10 December 2013)*

- *The final goal would be to prepare proposals for IFS EPS LBC extensions (high-resolution, more runs) for ECMWF TAC 2014*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Surface Aspects

SRNWP data pool

- *Data from Debrecen (Hungary) station entered the data base (data to be completed), Correction for Cardington station is under way, 6 new users (Croatia, Germany (2), Hungary, Russia, Sweden)*

- *Data pool still not open for universities → initiative to be taken up again → a proposal for STAC/PFAC is prepared (mid October) to be put forward to the EUMETNET Assembly (November)*

- *Based on the session on surface aspects yesterday, there is a lack of manpower for R & D → good oppportunity to cooperate with universities*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Surface Aspects

Global Lake Database (and other surface data bases in general)

- ECMWF stops supporting the maintenance/development of GLDB (mainly developed by HIRLAM) from 2013 onwards → the GLDB developments are useful for NWP if lake models incorporated → *support asked from EEA (European Environment Agency) but no answer from EEA yet (new director in place since recently)*

- *The importance of giving feedback on the new physiographic (surface) data bases has been stressed during the meeting → a rewarding task for the future ET chair to collect and communicate these*

New Chair is sought!

ACTUAL COORDINATION ACTIVITIES

Expert Team on Link with Applications

Ideas for more cooperation:

- „Database" of post-processing procedures (on what level to share things?)
- Dedicated workshop on applications (renewable energy, aviation, tools for smoothing „noisy" VFR forecasts)

ACTUAL COORDINATION ACTIVITIES

Expert Team on Physical Parametrizations (Upper Air)

No Chair for a long time!

No coordination at EUMETNET SRNWP level. Is it needed?

Looking for a „coordination gap”:

- *are references for physics validations (i.e. measurement campaigns and LES results) accessible for all NWP centers (big centers may have their own references but what about smaller centers?)*
- *a forum for sharing very fine resolution experiences (turbulence grey zone, orography, etc.)*

ACTUAL COORDINATION ACTIVITIES

Expert Team on Dynamics

No Chair for a long time!

No coordination at EUMETNET SRNWP level. Is it needed?

ACTUAL COORDINATION ACTIVITIES

Expert Team on System Aspects

List of European model configurations

- *Updated on the SRNWP website (11 updates)*
- *Have a look at:* http://srnwp.met.hu/C_SRNWP_project/Eumetnet_List.html

New Chair is sought!

ACTUAL COORDINATION ACTIVITIES

Expert Team on System Aspects

SRNWP-I finished in 2012

LAM initial and boundary conditions → LAM forecast

	ALADIN & HIRLAM	COSMO	UM
ALADIN & HIRLAM	■		
COSMO		■	■
UM			■

Global initial and boundary conditions → LAM forecast

	ECMWF	ARPEGE	DWD ICON	UM
ALADIN & HIRLAM	■	■		
COSMO	■		■	■
UM	■			■

- *All consortia are able to provide their outputs in GRIB2 → enables to develop additional **necessary** converters*

ACTUAL COORDINATION ACTIVITIES

Promote the use of European models in education and research

- *the use of our operational-like NWP model frameworks in education is highly important (e.g. WRF seems to be more popular at universities than the local NWP model of the NMS)*

- *June 2013: brainstorming with the EUMETCAL PM, FPM, and the OpenIFS team → we need to learn the needs and strategies of different consortia*

- *September 2013: Questionnaire sent out to consortium heads: what is the current involvement of NMSs (operational NWP models) in education? Is there a benefit from research at universities in NWP models? What can we do to improve?*

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SRNWP-Interoperability final report

Mike Bush

SRNWP-I 2012: Headlines

- The following documents have been put on the EUMETNET portal:
  - "SRNWP-I: Adaptor software maintenance regime" (deliverable E)
  - "SRNWP-I: Real examples of how the consortia are using the adaptor software" (deliverable R).
- At the 9th EUMETNET EIG Assembly meeting, held in Slovenia in November 2012, the Assembly approved the proposed licensing policy for the SRNWP-I software and documentation (deliverable L).

SRNWP-I 2012: Headlines

- The full implementation of the still missing adaptors, for those grids whose description is available at the end of the program (December 2012), is now primarily a matter of time and resources in the consortia.
- More specifically the achievements at the end of this program should provide any consortium with the necessary input knowledge in order to complete the panel of its grid conversion possibilities if the need arises, for instance in future programmes.

SRNWP-I 2012: Benefits delivery

- All consortia have the following common benefits:
- - trigger for use of GRIB2 in each system
- - specific documentation for all grids and field descriptions as exist in the consortia's NWP systems
- - know-how building about the methods for converting the corresponding gridded fields from one model system to another

SRNWP-I 2012: Real examples of how the consortia are using the adaptor software

- COSMO: DWD runs a Boundary Condition Ensemble System (BCEPS), which provides the boundaries for the convection-permitting COSMO-DE-EPS. In BCEPS global data are taken from GME (DWD, still Grib1), IFS (mixed Grib2/Grib1), GSM (JMA, Grib2) and GFS (NCEP, Grib2) and are processed by the COSMO-adaptor INT2LM.
- UKMO: ECMWF IFS data retrieved from the MARS archive can now be used to directly initialise limited area models. This functionality is being used routinely for the EU funded EURO4M project (http://www.euro4m.eu/).

SRNWP-I 2012 List of assets

Consortia	**Inventory of Acquired knowledge** **Foreground IPR**
ALADIN/HIRLAM	Changes to the change of geometry code, including ability to read/write GRIB2
COSMO	INT2LM / FieldExtra: Changes to INT2LM and FieldExtra to read and process additional grids / data from other models in Grib2: Unified Model, Aladin, Hirlam
Met Office	A new ACTION added to Fieldcalc called GRIBIFY and DEGRIBIFY and ability to handle GRIB2. Translation table changes to accommodate GRIB-API parameter id. Changes to the Reconfiguration executable to handle the new fieldsfile.
All consortia	Documentation that describes the consortia's model grids, geometries and fields and the physical aspects of any field conversions implemented. Also a description of the contents of the test data files.

THANKS FOR YOUR ATTENTION
QUESTIONS ARE WELCOME