Actual coordination activities within C-SRNWP

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with inputs from many of you...

Outline

- News from EUMETNET
- OPERA and NWP
- SRNWP support for EUCOS (Obs-SET)
- BUFR migration
- Extension of the ECMWF BC project to EPS
- SRNWP data pool
- Global Lake Data Base
- Physiographic data bases
- C-SRNWP Expert Teams

C-SRNWP highlights

News from the EUMETNET Forecasting Programme

- **Nowcasting Phase II**
  - Approved by EUMETNET Council in December 2014
  - Project name: ASIST (Application oriented analySIS and very short range forecasT environment)
  - Duration: 1 July 2015 – 31 December 2017
  - Coordinating Member: ZAMG (Austria)

- **SRNWP EPS Phase II**
  - Approved by EUMETNET Council in May 2015
  - Duration: 1 July 2015 – 31 December 2017
  - Coordinating Member: AEMET (Spain) supported by USAM (Italy) with the involvement of ARPA-SIMC (Italy)

C-SRNWP highlights

OPERA and NWP

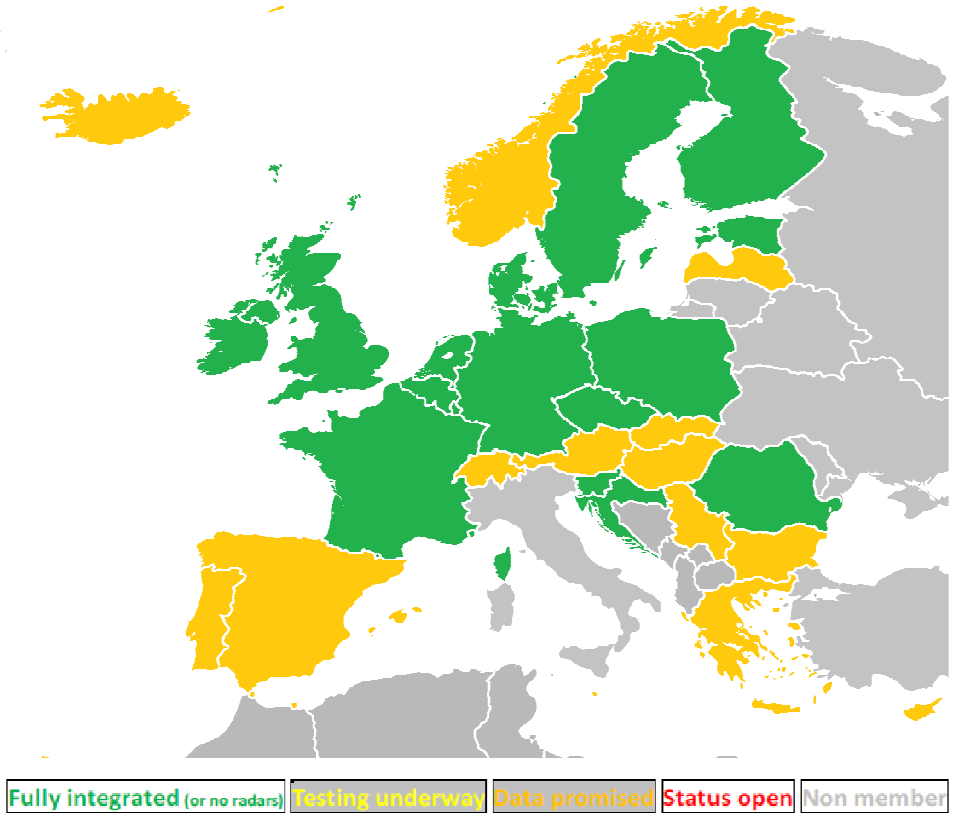
- Data are already there for testing → access to volume data (wind and reflectivity) is enabled through HIRLAM (SMHI) (same as on ODC) without operational service level → NWP centers can test the assimilation of the data

- Anticipated difficulties:
  - Doppler wind: maximum measurable speed varies between measurements. High speeds are shown as much smaller speeds. Correction (dealiasing methods) are being tested in SMHI.
  - Reflectivity: from most radars, lack of distinction between *„undetect"* (valid „dry" measurement) and *„nodata"* (unknown status: cluttered, „wet" or „dry" measurement) pixels → we are throwing away valuable „dry" information

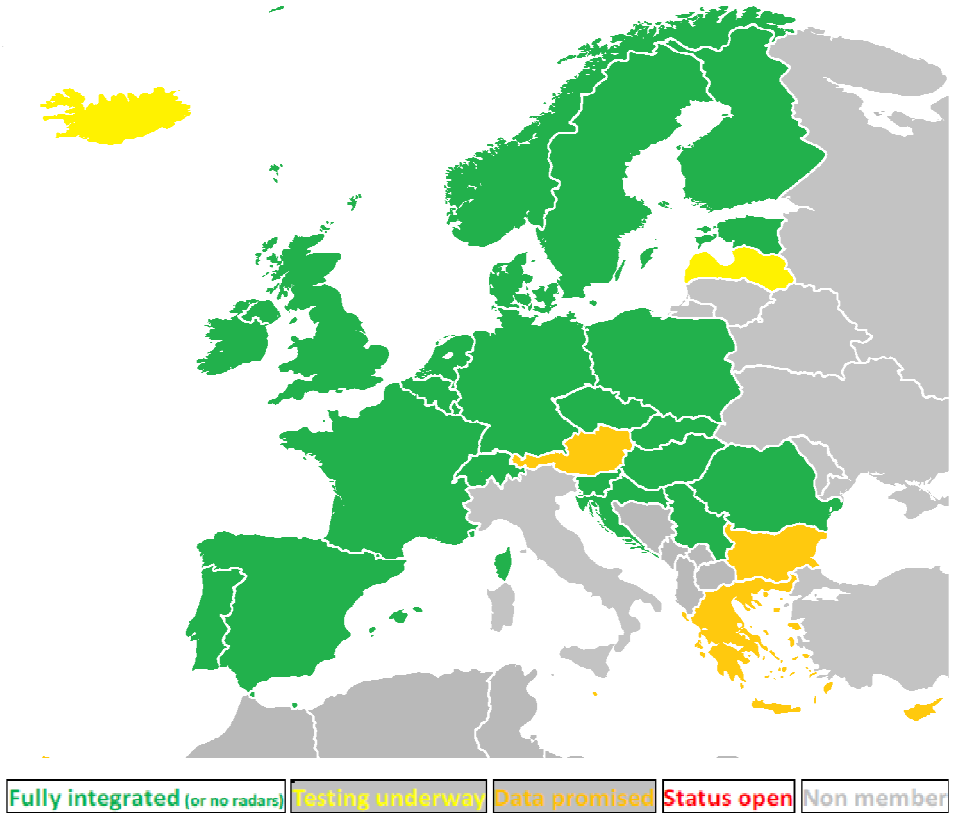
Plans for 2015/2016: collect experiences on the assimilation of volume data from ODC and local QC applications → feedback to OPERA (should be a loop)

C-SRNWP highlights

OPERA data availability



Doppler winds



Reflectivity

C-SRNWP highlights

OPERA and NWP

- ALADIN
  - Meteo-France: experiments with OPERA volume data (QC problems → raw data needed)
- COSMO
  - DWD: operational assimilation of OPERA rain rate
- LACE
  - OPERA developments are closely followed but no use of OPERA volume data yet
  - Internal radar data exchange for experiments
- HIRLAM
  - BALTRAD: Quality controlled data (BALTRAD QC Toolbox) from 10 countries (60-70 stations)

C-SRNWP highlights

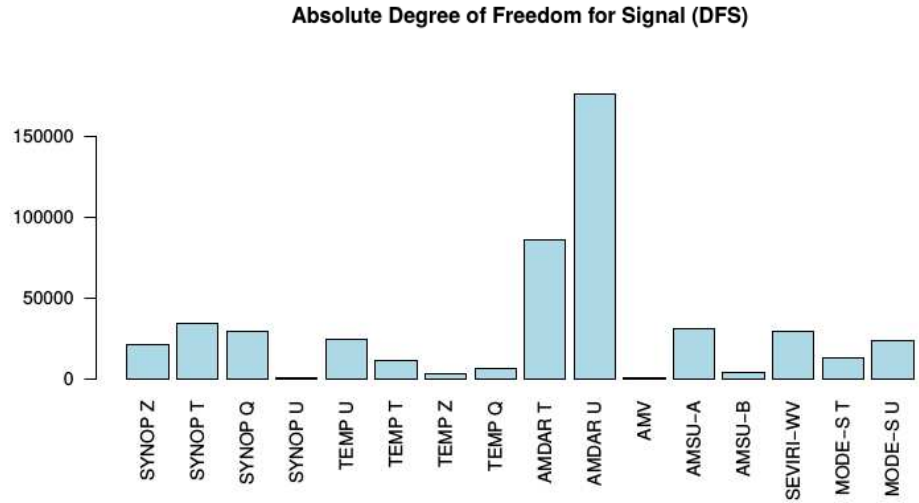
Observation network design (support EUCOS, Obs-SET)

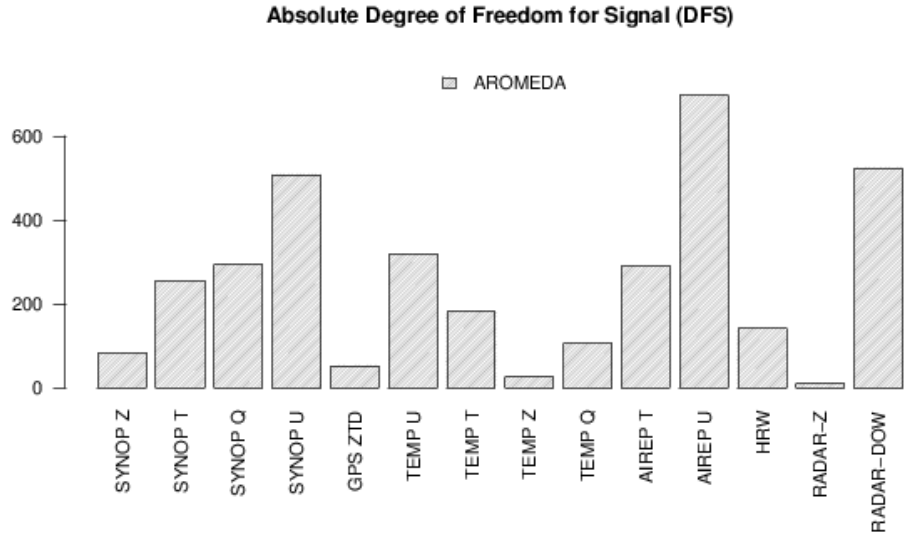
- Collect DFS (Degrees of Freedom For Signal) and FSO (Forecast Sensitivity to Observations) observation impact indicators from the SRNWP community → this provides useful complementary information to Observing System Experiments

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

C-SRNWP highlights

Observation network design (support EUCOS, Obs-SET)





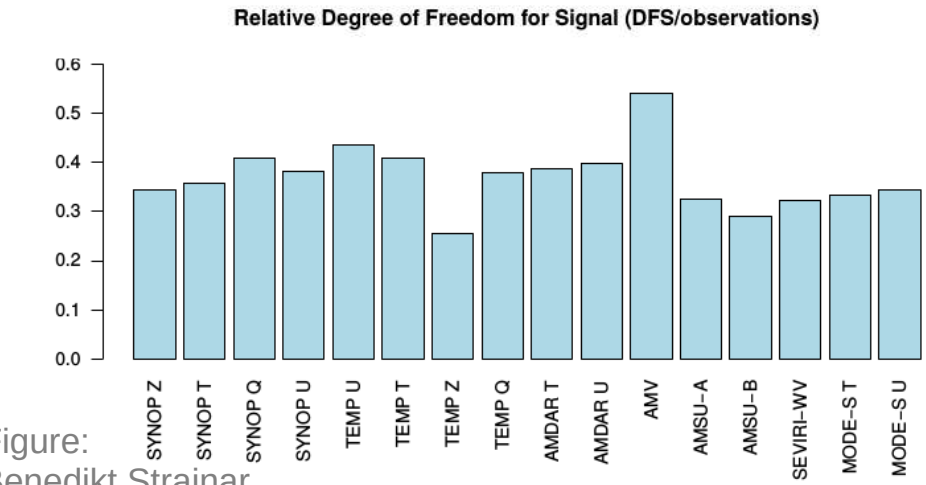


Figure: Benedikt Strajnar

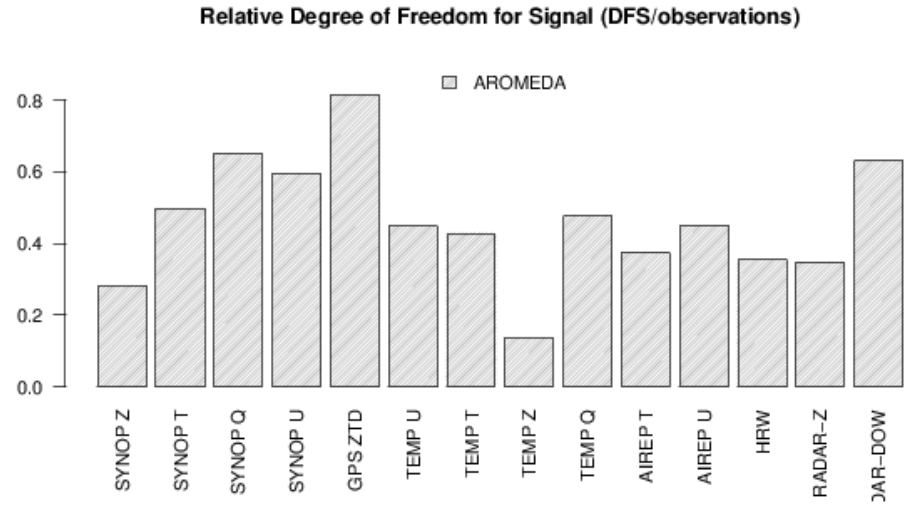


Figure: Máté Mile

Analysis sensitivity to observations

Summary

- Top 3 observations: Radar, SYNOP and AMDAR (TEMP is also important)
- Radar „works” well only in rainy regimes, while GNSS ZTD has a large impact both in rainy and dry regimes!
- The difference between absolute and relative DFS shows that there is a huge potential for LAMs in increasing the amount of humidity-related observations (RH2m from surface stations, AMDAR humidity, GNSS ZTD, radar Z).
- The high importance of AMDAR wind and temperature gives an impression that AMDAR humidity and Mode-S observations would make a large influence on the analysis.

C-SRNWP highlights

TAC to BUFR migration

- Questionnaire sent in January 2015: replies from all consortia and ECMWF
- ECMWF maintains wiki page: https://software.ecmwf.int/wiki/display/TCBUF/

- General conclusions:
  - Several countries assimilate SYNOP in BUFR format
  - Only few countries assimilate radiosoundings in BUFR format → technical problems when generating BUFR message (simple conversion from TEMP to BUFR, not real BUFR message)
  - AMDAR BUFR assimilation still in progress

C-SRNWP highlights

ECMWF ENS LBCs to drive high resolution LAM EPS

- Thanks to ECMWF, high-resolution (T1279) IFS ENS runs were available to drive convective-scale EPS experiments (since January 2013) → several NMSs were testing the T1279 LBCs
- Workshop to discuss the results and prepare a proposal (ECMWF, 9-10 December 2013) to the TAC Subgroup of the BC project → 2 options proposed for IFS EPS LBC extensions (high-resolution, more runs)
    - A: 2 extra runs of IFS ENS (at 06 and 18 UTC) with present resolution (including the planned upgrade in 2015), 6 days forecast range, 50+1 members, hourly output (this last also for the operational 00 and 12 UTC runs)
    - B: 2 extra runs of IFS ENS (at 06 and 18 UTC) with present resolution (included the planned upgrade in 2015), 50+1 members up to a 3 day forecast range, then 20 + 1 members up to 6 day forecast range, hourly output (this last also for the operational 00 and 12 UTC runs)
- TAC subgroup reviewed the above proposal and recommended to go for option A
- 18 and 06 UTC runs will require additional manpower and SBU from BC project members → ~0.5% increase in the contributions, 20% of SBUs dedicated to BC project → TAC decided to put the proposal further to Council → Council approved (December 2014)
- **Real time test data** (3h output until 5.75 forecast range, no archiving) **is now available**
- 1h output with new IFS cycle

C-SRNWP highlights

SRNWP data pool

- 7 new users (3 from universities) since May 2014 (Germany, Finland, Italy, Switzerland)
- New data policy proposed through STAC/PFAC (October 2013) allowing an access to universities
- EUMETNET Assembly approved the new data policy (November 2013)
- „terms and conditions of use" of the data pool have been updated at the portal
- Complete data from Debrecen (Hungary) station

Plans for 2015-2016

- Promote the data to universities (through the NMHSs)

Global Lake Data Base

- A budget is necessary to maintain and further develop this data base (important for surface modeling in NWP) → LACE offered to ensure the necessary funding for 2015

C-SRNWP highlights

Use of „geospatial data" at high resolution

- Higher resolutions → stronger and stronger dependence on „geospatial forcing" (***orography*** like ASTER, SRTM, GTOPO30, GMTED2010, ***soil texture*** like HWSD, ***land-use*** like Ecoclimap, Corine, Globcover)

- Web meeting December 2014
  - Participants from COSMO, HIRLAM, ALADIN, LACE
  - Topics discussed:
    - Setting up common workspace/wiki pages
    - Revival of SRNWP Surface Expert Team
    - Coordinated sensitivity studies

C-SRNWP Expert Teams

8 C-SRNWP Expert Teams

- Data Assimilation
- Diagnostics, validation and verification
- Dynamics and lateral boundary coupling
- Link with applications
- Physical parameterisation (upper air)
- Predictability and EPS
- Surface and soil processes
- System aspects

EUMETNET
European Meteorological Services Network

Thank you for your attention!

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