Status of the EUMETNET C-SRNWP project

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… based on inputs from many of you …

Outline

- OPERA and NWP
- SRNWP support for EUCOS (Obs-SET)
- SRNWP data pool
- Global Lake Data Base
- Extension of the ECMWF BC project to EPS
- Physiographic data bases
- European NWP models in education / research

C-SRNWP highlights

OPERA and NWP

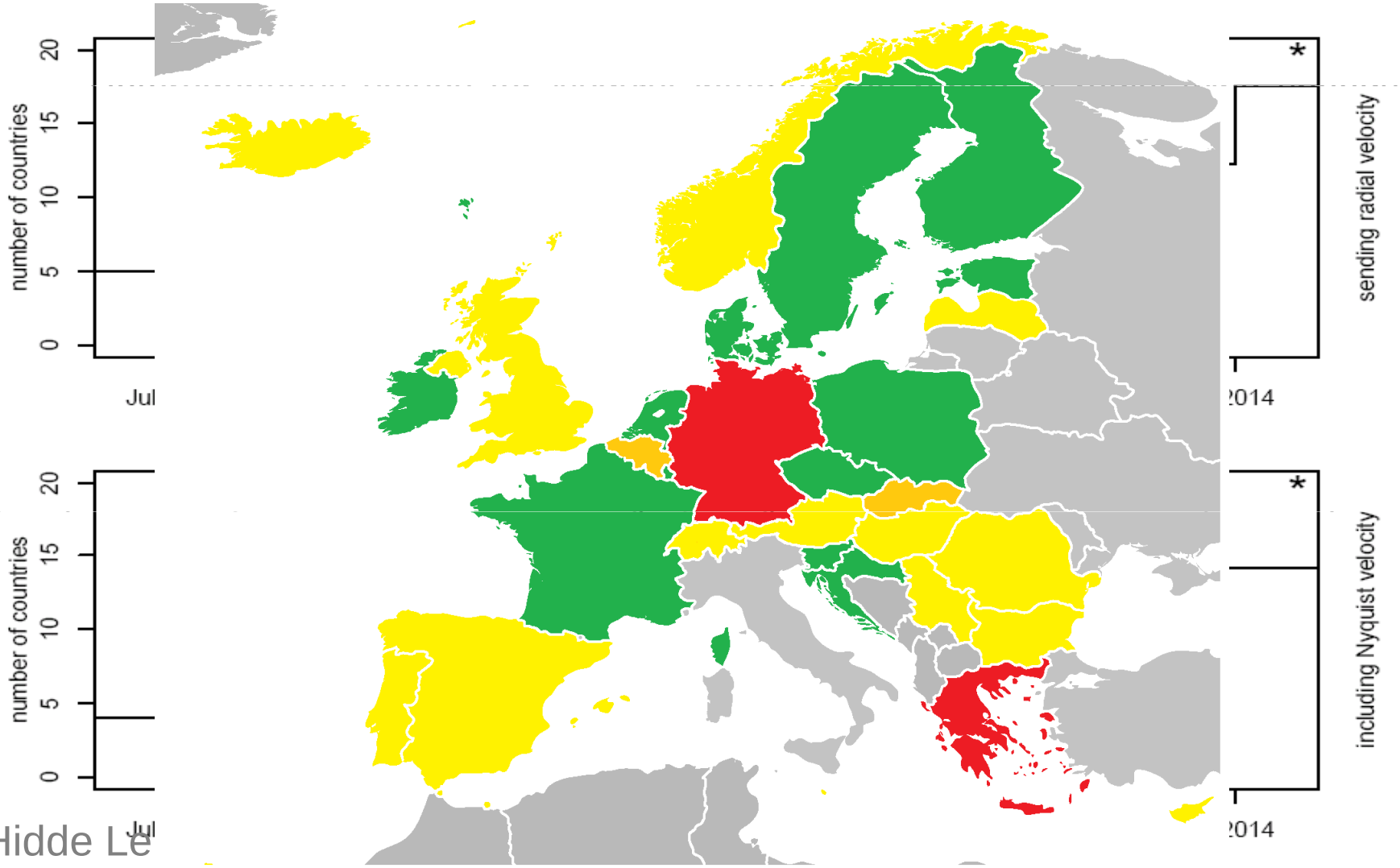
- Data are already there for testing → an „early" access to volume data (wind and reflectivity) is enabled through HIRLAM (SMHI) (same as on ODC) without operational service level → NWP centers can test the assimilation of the data

- 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 2014-2015: 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 and NWP (Doppler wind)



Figures: Hidde Le

C-SRNWP highlights

OPERA and NWP (Reflectivity)

- From most radars, lack of distinction between *„undetect”* (valid „dry” measurement) and *„nodata”* (unknown status: cluttered or „dry” measurement) pixels → we are throwing away valuable „dry” information

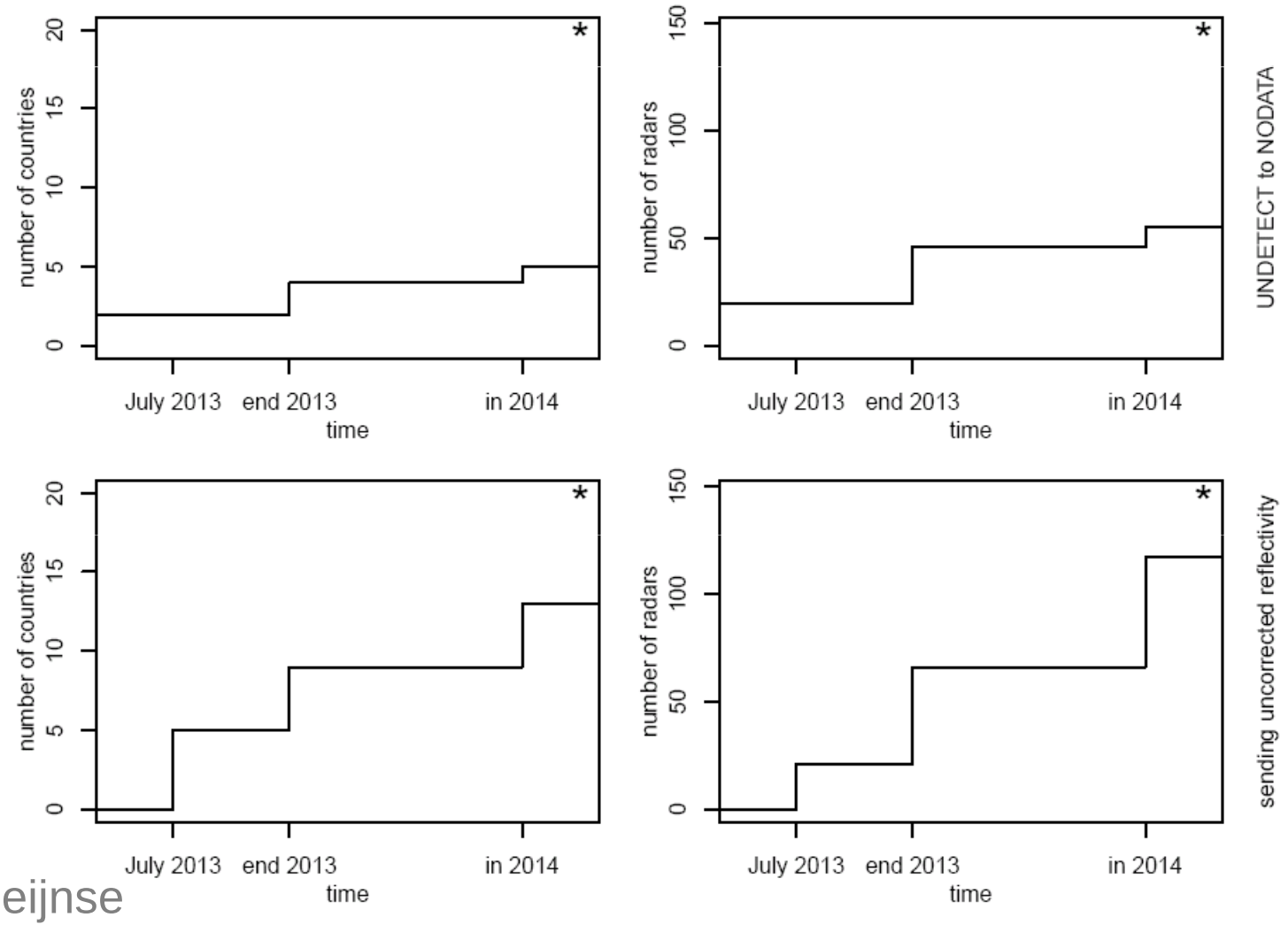
- Possible ways to handle this:

  1) Long-term: upgrade the signal processors to enable the above distinction → radar upgrades are necessary (expensive and time consuming)

  2) „Short-term”: perform clutter correction and analyse the residual to identify „undetect” → not fully reliable → better distinction if both corrected and uncorrected data are sent to ODC by partners and the residual is generated centrally there → bandwidth issues (?)

C-SRNWP highlights

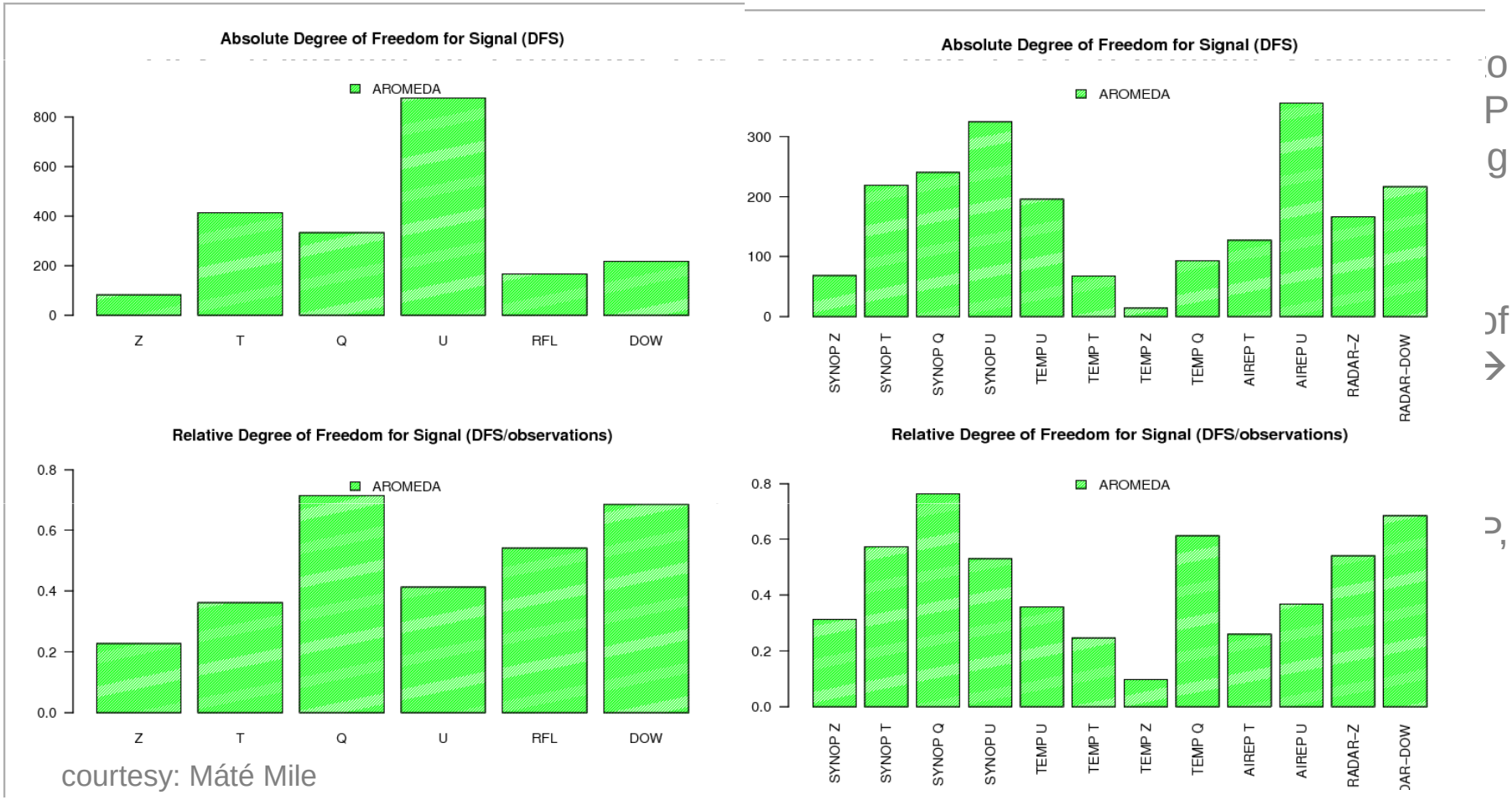
OPERA and NWP (Reflectivity)



Figures: Hidde Leijnse

C-SRNWP highlights

Observation network design (support EUCOS, Obs-SET)



courtesy: Máté Mile

C-SRNWP highlights

SRNWP data pool

- ~ 6-8 new users (Croatia, Germany, Hungary, Italy, Russia, Sweden)
- New data policy proposed through STAC/PFAC (October 2013) allowing an access to universities
- EUMETNET Assembly approved the new data policy (November 2013)
- The two non-EUMETNET data provider (ARPA-SIMC and Roshydromet) also approved the extended access (both of them answered in an official letter)
- „terms and conditions of use" of the data pool have been updated at the portal
- Complete data from Debrecen (Hungary) station

Plans for 2014-2015

- 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) → COSMO offered to ensure the necessary funding for 2014 and ALADIN for 2015

C-SRNWP highlights

ECMWF ENS LBCs to drive high resolution LAM EPS

- Thanks to ECMWF, 3 x 2 weeks of 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 recommends to go for option A → further tests done by SRNWP partners to evaluate the quality of 06 an 18 UTC runs → similar to 00 and 12 UTC runs
- **18 and 06 UTC runs** will require additional manpower and SBU from BC project members → **~1% increase in the contributions, 20% of SBUs** dedicated to BC project → **TAC** will decide soon **(9-10 October)** whether or not to put the propsal further to **Council**.

C-SRNWP highlights

Use of „geospatial data”

- 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)
- Coordination on the use of geospatial data is under planning (thanks to Jeanette Onvlee, Katya Kurzeneva, Laura Rontu)
- First step: survey if the subject is of interest for a critical mass of NMSs (survey already sent to consortia leaders → see the summary by Jeanette)
- Secons step: if yes, get scientists together and plan a real action (e.g. funded by COST)

C-SRNWP highlights

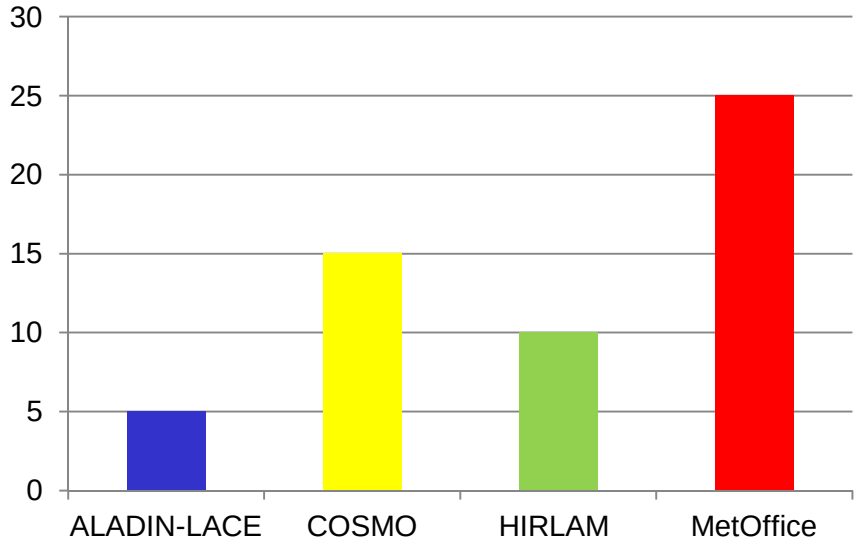
NWP models in education / academic research

- The use of our operational-like NWP models at universities (education or research) is highly important (e.g. in some countries WRF seems to be more popular at universities than the local NWP model of the NMS).
- Do we need any joint action to improve the current situation? What can we do for that?
- 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?
- Answers sent by COSMO, MetOffice, LACE, many of the ALADIN NMSs (but not all)

C-SRNWP highlights

NWP models in education / academic research
(questionnaire results in a nutshell)

Number of universities where the local NWP model is used for research or education



- Supply of NWP experts is OK, but lack of technical and scientific expertise in some specific areas (dynamics, numerics, non-atmospheric components of the Earth system)
- All consortia (except COSMO) feels a need to be competitive with other research models (e.g. WRF), which are in use by universities
- What to do then?

No necessary coordination	Workshop where NWP and universities „meet”	Make use of OpenIFS	System development for an own user friendly NWP system
MetOffice	COSMO	ALADIN HIRLAM	ALADIN COSMO HIRLAM LACE MetOffice

Thank you for your attention!

Questions are welcome!

C-SRNWP highlights

SRNWP Meetings

- Lake workshop (Spring 2015, Portugal ?)
- DA-EPS SRNWP meeting (Spring 2015, Hungary ?)
- EWGLAM/SRNWP (October 2015, Serbia)

C-SRNWP highlights

GTS Wind Gust data

- 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
- 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
- No concluding paper / recommendation yet → But EUCOS contacted MeteoSwiss directly to understand the problem more in depth

Plans for 2014:

- Provide recommendation (through Obs-SET) to NMHSs for a unified encoding of wind gust observations over Europe