



ENEON first workshop
Observing Europe: Networking the Earth Observation Networks in Europe
21-22 September, Paris

ConnectinGEO



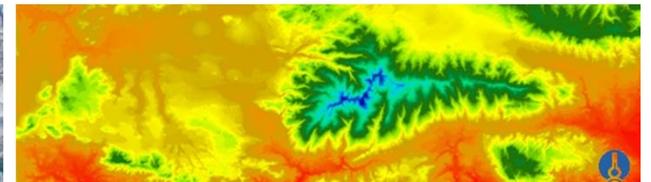
ENEON first workshop

Observing Europe: Networking the Earth Observation Networks in Europe

21-22 September, Paris

[EUMETNET]

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Questions to be answered by your network (1/3) 15

1. About your network

1.1 What network are you representing and what is your role in this network?

EUMETNET is the grouping of 31 National Meteorological Services (NMS) who operate multiple In-Situ networks. The Grouping funds the gathering of sea-based observations (surface readings and upper air soundings), aircraft-based observations. It also leverages existing networks of weather radars (compositing and single-site post-processing), wind-profilers, lidars and ceilometers, GNSS (water-vapour ZTD calculations).

1.2 What are the main objectives of the network?

Providing assimilation data to Numerical Weather Prediction centers

Providing additional data to forecasters across Europe

1.3 Who are the main contributors to your network?

All 31 Members (National Met Services) according to GDP scale.

1.4 What form of commitment do you have for the maintenance of your network?

Shipborne upper-air systems, drifting buoys and selected shipborne automatic weather stations are funded collectively, maintenance is included in the funding. The rest is funded by National Met Services

1.5 How large is your user base and who are your users?

Users are within the Membership but research and education + entities carrying out official duty can use data with only handling fees to pay (no cost for data)

Slide 2

IS1

Please, try to answer as much questions as you can...

We will gather all these answers to better focus the discussion among networks when writing the report from the workshop. Also to ease discussion during the workshop.

Ivette Serral, 06-Aug-15

Questions to be answered by your network (1/3) 15

1. *About your network*

1.6 Do you maintain a database of user needs and observational requirements?

There is no exportable database per se. Requirements are negotiated with users during programme definition phases (every 5 years) or adjusted after User Group meetings (every year) according to affordability and after decision of General Assembly

1.7 What are the costs and efforts of maintaining the network?

EUMETNET budget devoted to observations programmes is ~5M€. Efforts are also provided by Members as in-kind contributions.

Most of the continental-based (as opposed to ship or airborne) network components are funded by Members on their own budgets. Observations systems (capital expenditure+ operating costs+ personnel) account for half of the budget of a NMS.

1.8 What are your main funding sources?

Members' subscriptions for those components managed directly by EUMETNET (i.e. funded collectively)

1.9 What are the key issues for sustainability of your network running?

Affordability, value for money, user uptake (especially Num. Weather Prediction community, climate and forecasting services)

Slide 3

IS4

Please, try to answer as much questions as you can...

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Ivette Serral, 06-Aug-15

Questions to be answered by your network (2/3)

2. About data

2.1 What observations does your network collect and what products are produced?

Shipborne : Sea-level T° and P (+ wind or other parameters), vertical profile radio-soundings (P, T, U, Wind)

Airborne : T and Wind (+8 sensors with aircraft based HU)

Ground based : radar compositing (rainfall) and post-processing products, vertical wind profiles and integrated water-vapour vertical profiles

Of course the National Met Services operate their own networks that very-high density include ground based real-time networks of automatic (or increasingly rarely manual) stations + about 100 continental radio-sounding stations + thousands of climate measurement stations (usually limited to daily Rainfall and avg. T°).

2.2 What are the spatial and temporal characteristics and limits of your network?

North Atlantic + Continental Europe (know as European Composite Observing System area or EUCOS)

Radio-soundings are 2/day, surface observations can be hourly if automated (3 or 6 hourly if manual), radar composites and post-processing every 15 minutes, wind/T profiles as they come (esp. from aircraft), WV-profiles 3-hourly (?)

2.3 How is the data archived and made accessible to users?

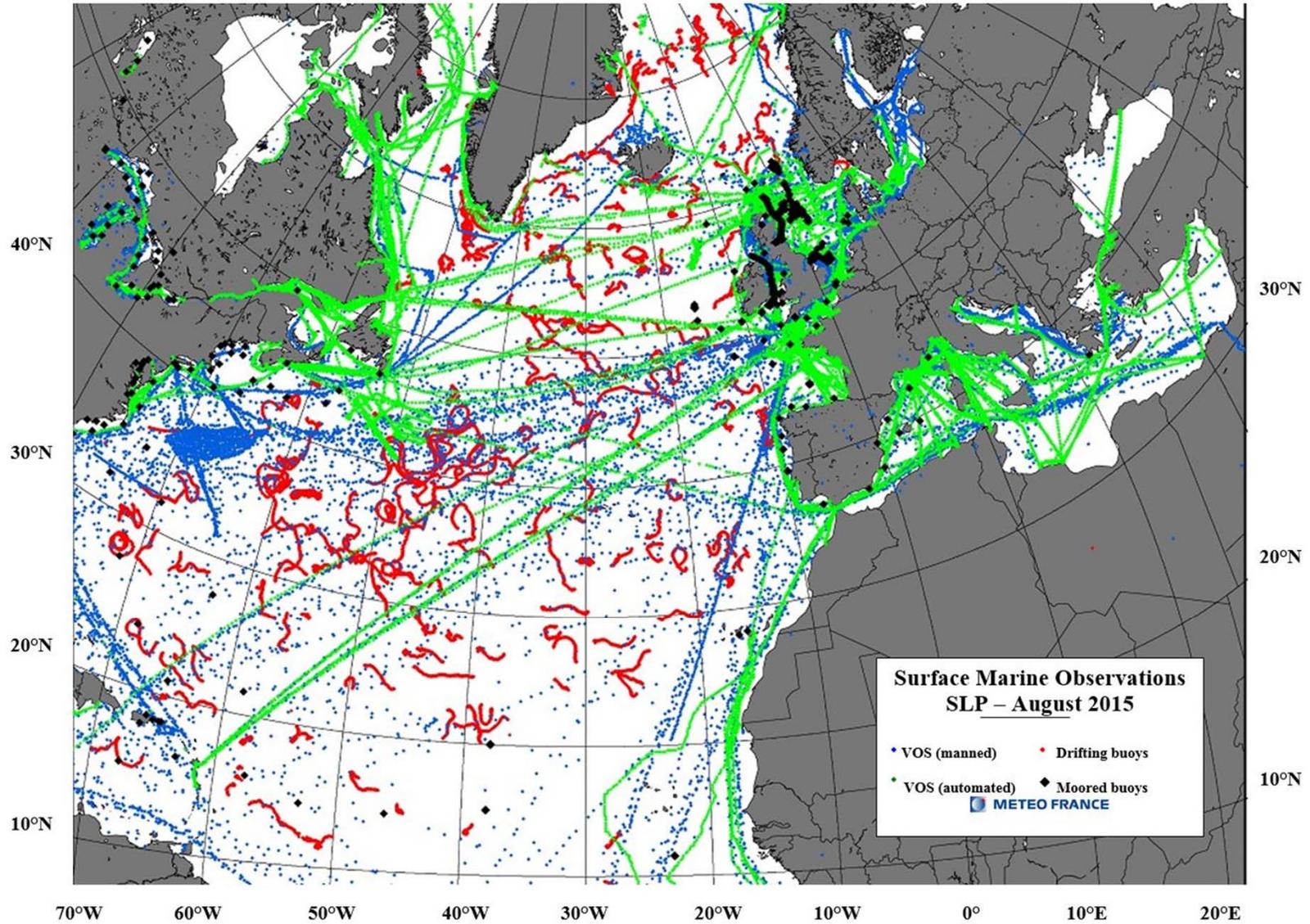
Feeds into WMO Global Telecom System and/or internal Network of Met Services and NWP global Centers. Archives are operated by Member who effectively has been designated to operate the service on behalf of the whole community.

2.4 Do you address data quality in some way?

This is in our DNA: performance goals monitoring is carried out buy the EUCOS manager; NWP assimilation algorithms perform systematic checks on quality, bias and even manage blacklists; NMS are operational service providers 24x7 and carry out systematic checks on their own networks. Data that is used for climate services is quality controlled even more so (homogenization). Metadata is managed effectively in an integrated way at national level.

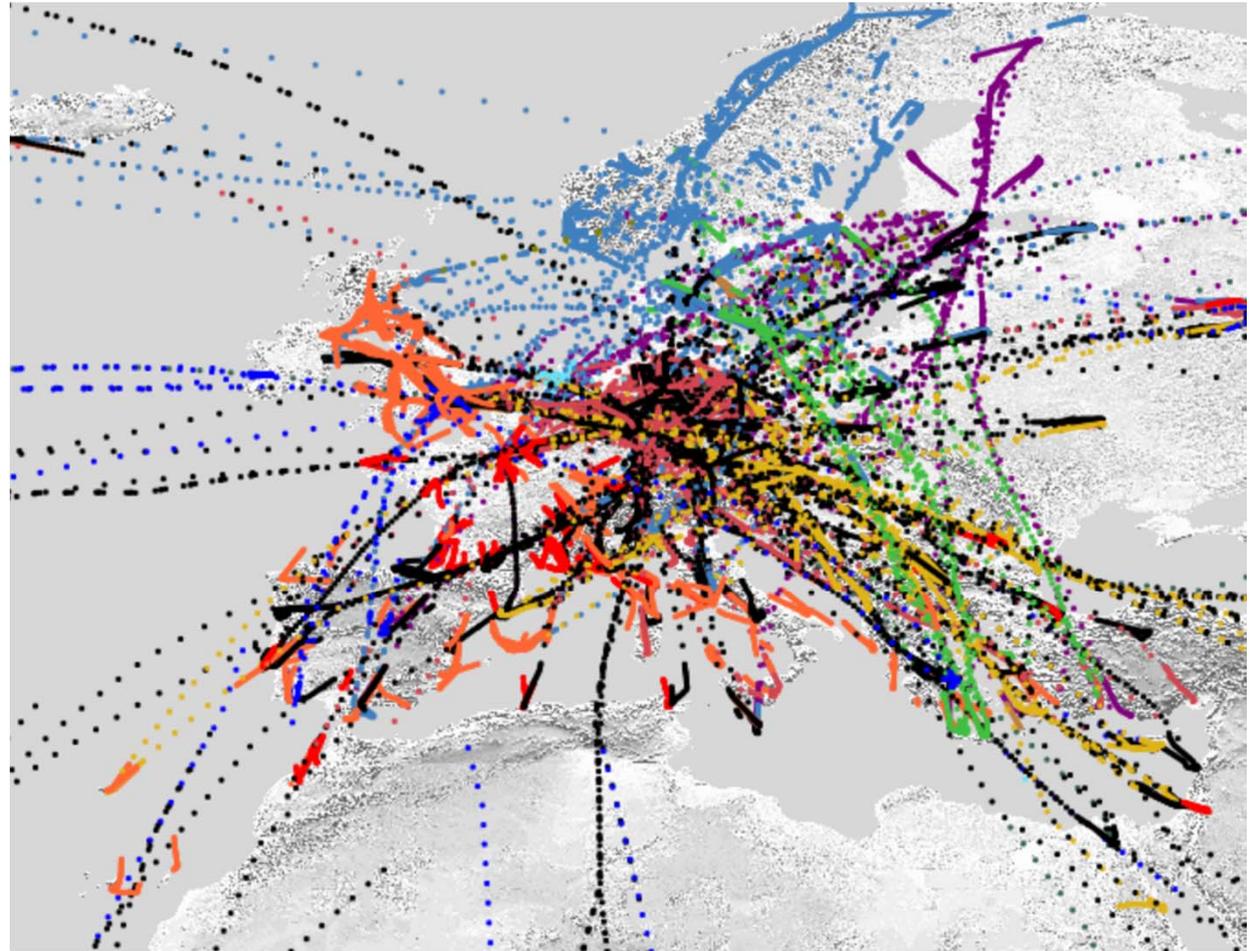
2.5 Are there risk for data continuity and how are data preservation and network continuity addressed?

This is inherent to Met Service operations. A network is a living organism and is managed that way : adds, moves, changes and deletions occur frequently. Discontinuities in data sets are inevitable. Networks are designed so redundancies can compensate loss of data. Met Services are all ISO9001 certified. We need more than a slide to explain this !

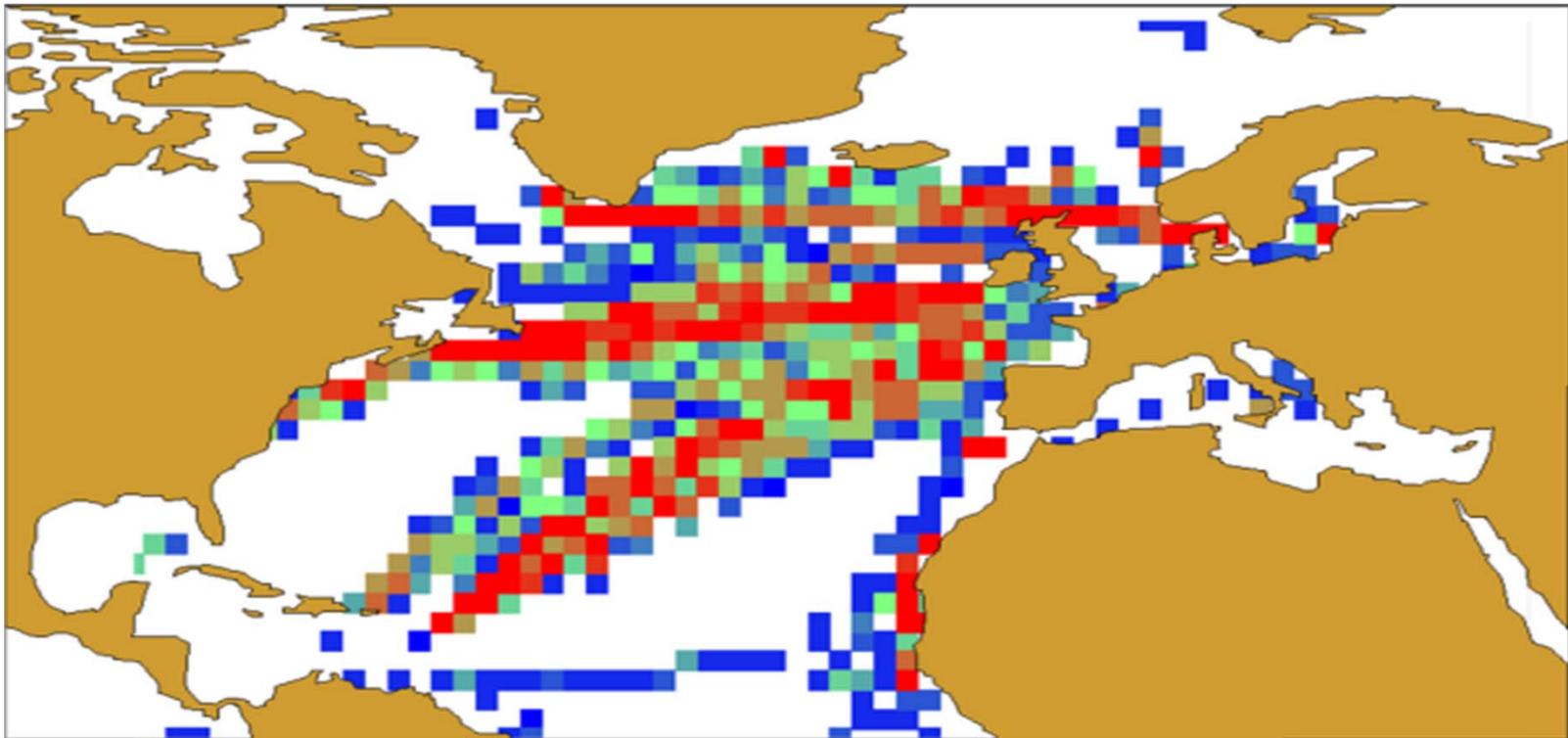


E-AMDAR Aircraft
based
readings of Wind
and Temp
15 airlines are
currently enrolled
Humidity being
explored
Budget 1.3M€

Coverage over
24h
17 Sept. 2015

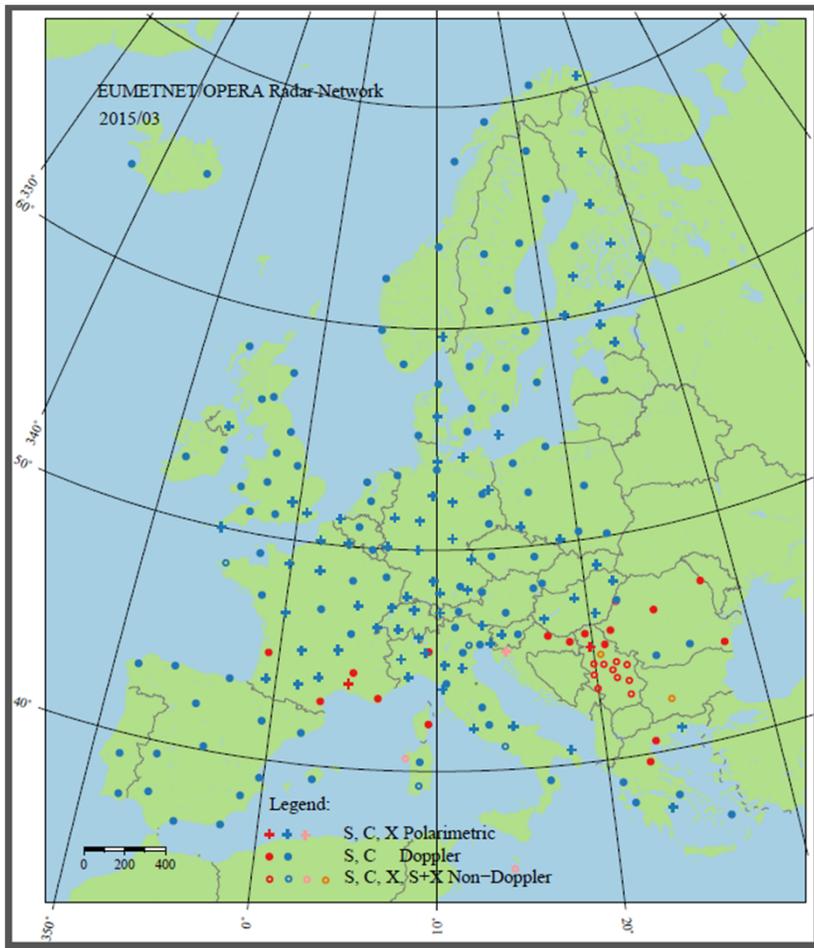


E-ASAP : shipborne radiosoundings, 18 ships enrolled, budget of 1.5M€



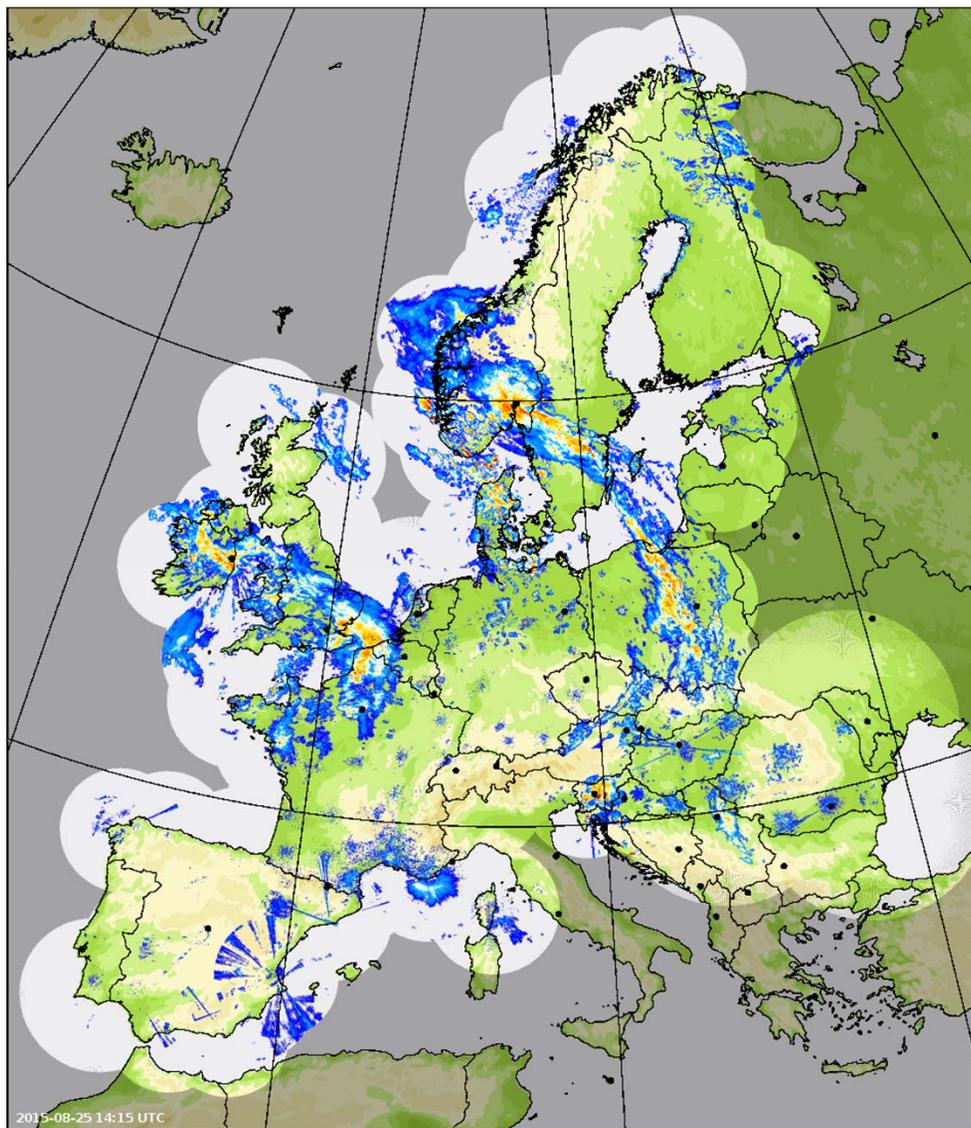
Density of soundings on a 2x2° Lat/Lon grid. Three main sailing routes are visible in the North Atlantic (along the red dots).

OPERA programme : weather radars



Network of Weather radar profiles

Figure : Weather radars operated by the OPERA members and by their partners. The map is based on the contents of the OPERA radar database in March 2015



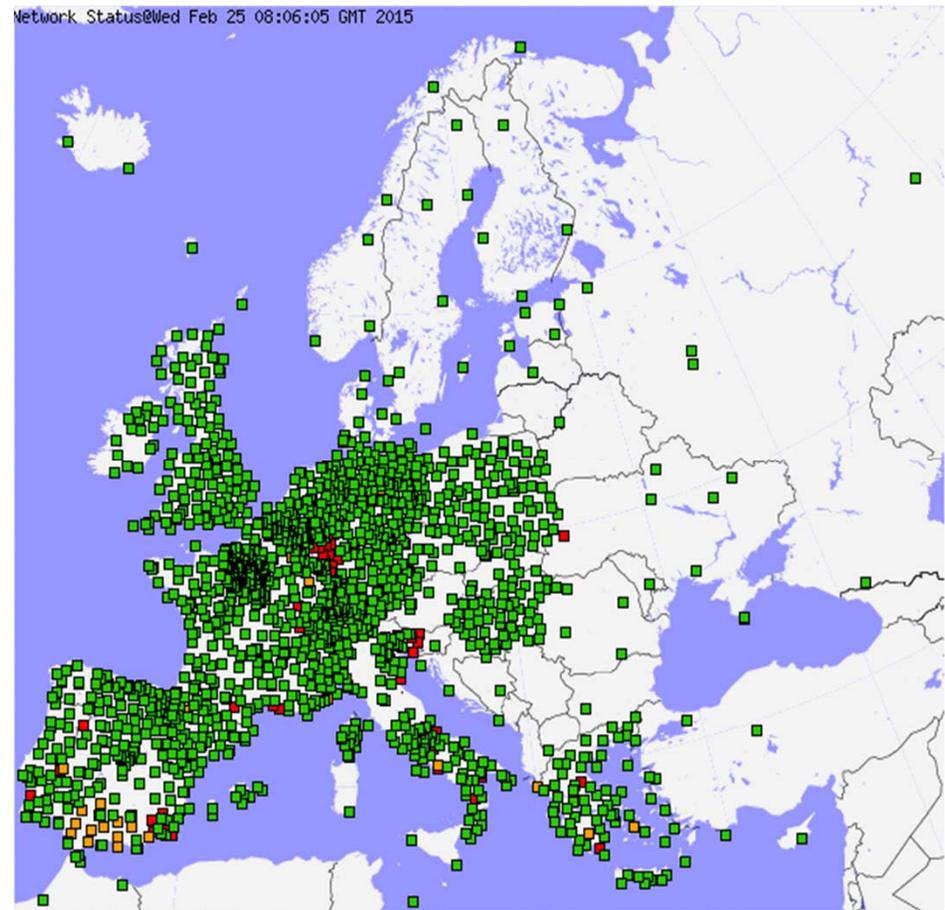
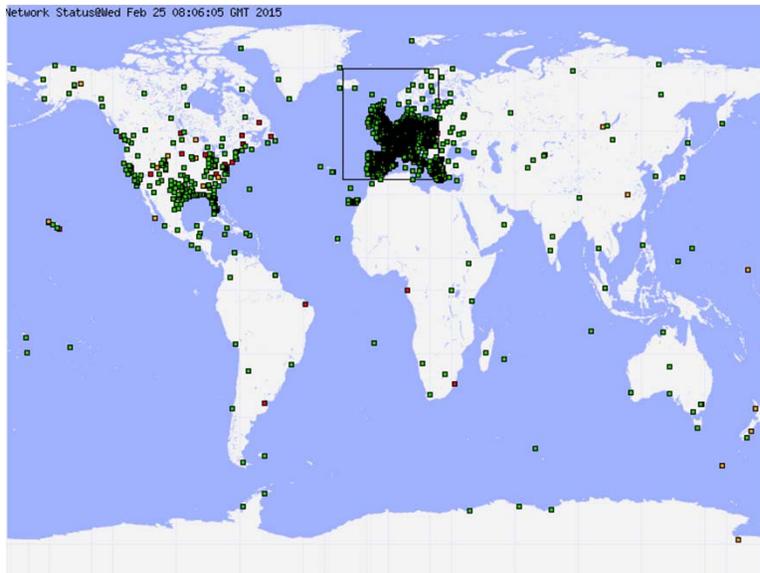
OPERA Composite

OPERA composite image
25 August 2015 1415UTC.
Radio disturbances in one of the
Spanish radars; clutter in others

Water Vapour

GNSS ZTD or integrated WV

Status map on Feb. 25, 2015 from the E-GVAP validation site.



Questions to be answered by your network (2/3)

2. About data

2.6 What are the conditions (licenses) for sharing your data and products with users?

Data that is fed on to the WMO/GTS is freely available (all of the shipborne stuff for example). Other data (like radar composites) is available under license depending on the owner's national data policy : usually free if official duty or research (no redistribution possible), otherwise available commercially (PSI directive)

2.7 What key interface standards are used in making data and products available?

WMO/WIGOS BUFR and OGC/INSPIRE (not necessarily everywhere yet)

2.8 Are there known observational requirements that your network is not meeting?

Yes, but they are not affordable (or cost-benefit ratio is insufficient) or technically too challenging. It is already difficult to address the present needs while national budgets are under heavy pressure.

2.9 Are there observations that are needed but not captured by your network or by other networks that you have access to or products that are not generated?

You will always find gaps (mostly geographical) but the density of the in-situ observing networks over most of Europe is higher than anywhere else in the world. The in-situ networks are essential complements to Satellite-based EO

Questions to be answered by your network (3/3)

3. About a network of networks

3.1 What coordination and collaboration interfaces do you have with other networks?

Inherently EUMETNET manages a network of networks (we call it composite observing system) based on the collaboration of its 31 members. NMSs collaborate at national level with most network operators/owners (energy, agriculture, roads, etc.)

3.2 Is your network contributing to GEO(SS) and if so, what is this contribution?
Could ConnectinGEO help to enhance your contribution to GEOSS?

Through WMO standards (GTS, WIS, WIGOS) of course.

3.3 Are there additional interfaces that would be desired and what would be the main benefits of these interfaces?

Not in the present (or near future) situation. Full WIGOS implementation is a challenge for many countries where funding and/or capacity is limited.

3.4 Do you think that your network could benefit from the existence of an ENEON or a similar network?

3.5 From your point of view, how should an ENEON be organized and managed?