An aerial photograph of a town, likely in the Pyrenees region, is shown from a high angle. The town is nestled in a valley, with buildings and green spaces visible. Overlaid on the image is a weather map with white contour lines representing pressure systems. The contours are labeled with values such as 1010, 1015, 1020, 1025, 1030, 1035, and 1040. A low-pressure system is visible in the lower-left quadrant, and a high-pressure system is in the lower-right. Wind vectors are shown as small arrows, indicating wind direction and speed. The background of the slide is a dark blue gradient with a stylized sun and cloud icon in the top-left corner.

French Forecasters Workstation Synergie-Next - *Synopsis Project*

A. Lasserre-Bigorry

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J. Nicolau

P. Salerno



METEO FRANCE
Toujours un temps d'avance

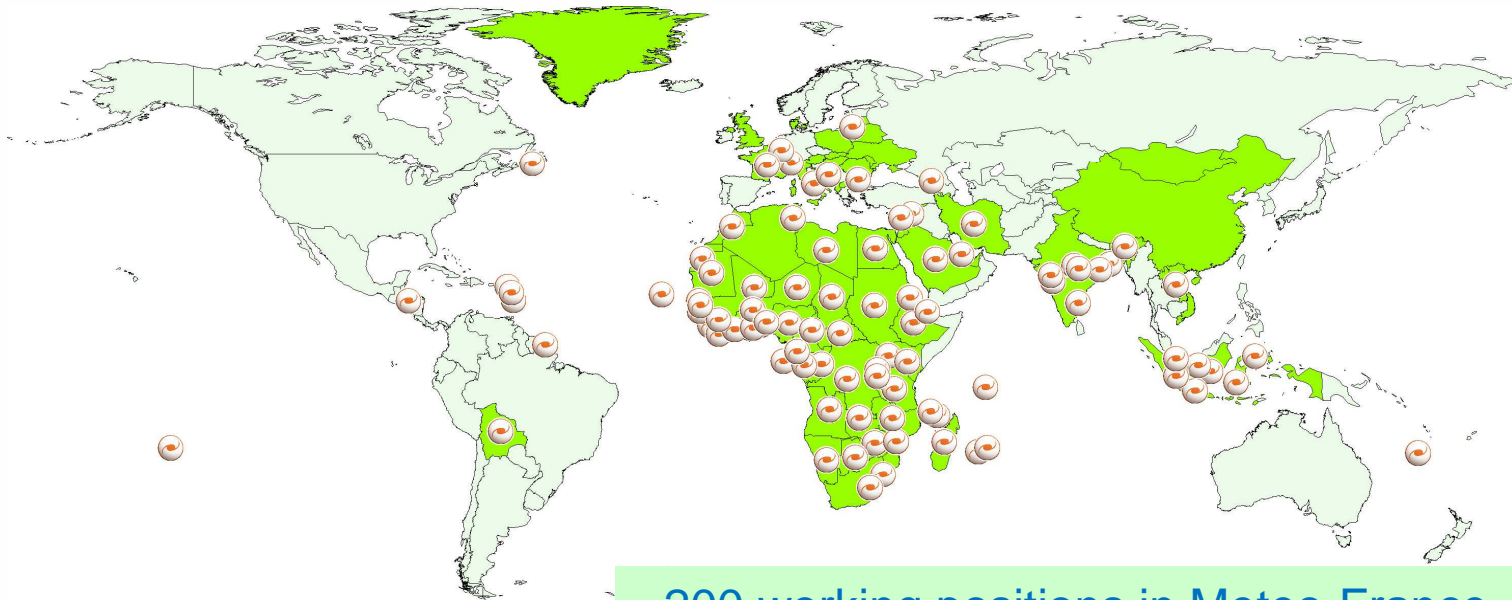
Overview

- **Context and Synopsis project**
- **Functional requirements**
- **Main functional specifications**
- **Main technical specifications**
- **Technical choice**
- **Users group**
- **Users documentation, training**
- **Calendar and ...frames**



Context

Synergie is smoothly moving to Synergie-Next.



- 200 working positions in Meteo-France and main customers (e.g. Air France, Kourou Space Centre, French forces)
- 200 positions abroad (in more than 60 countries)

A project

SYstème **N**umérique **O**rienté **P**révision, **conS**eil et **expertIS**e

(Numerical System Oriented Forecast, Advice and Expert Assessment)



Synopsis Project

Meteo-France National Project



- Started in 2010, end planned in 2015
- Joint development by Météo-France and Météo-France International (MFI) after review and technical investigation of several potential scenarios.
- Aim : a new workstation, developed in the form of interoperable services (SOA) for forecasters from
 - Météo-France
 - Institutional partners (French forces, hydrology, forest fires, ...)
 - Commercial clients (CNES, French Electricity board, ...)
 - Export with MFI



Functional requirements

- 2011
 - Version 0 of requirements (more than 100 pages)
 - Version 1 after review
- Written by a large group of forecasters
 - General/local forecasters
 - Marine/Aeronautic/hurricanes tracking forecasters
- Contains
 - Synergie functionalities
 - Plus** new functionalities
 - Minus** obsolete functionalities

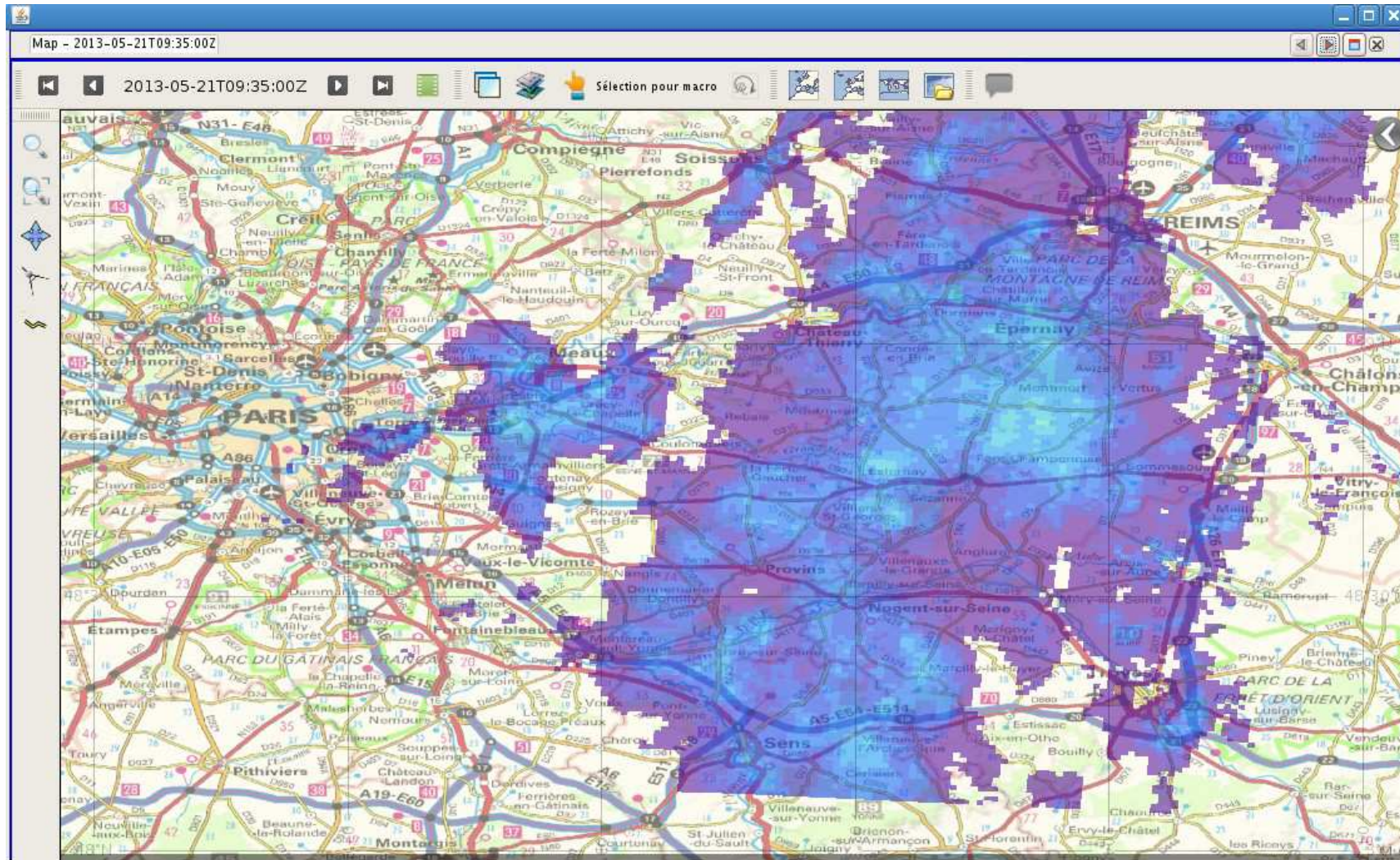


Main functional specifications

1) Interoperability

- superpose synergie-next map in foreign tools
- superpose maps from foreign tools in Synergie-next

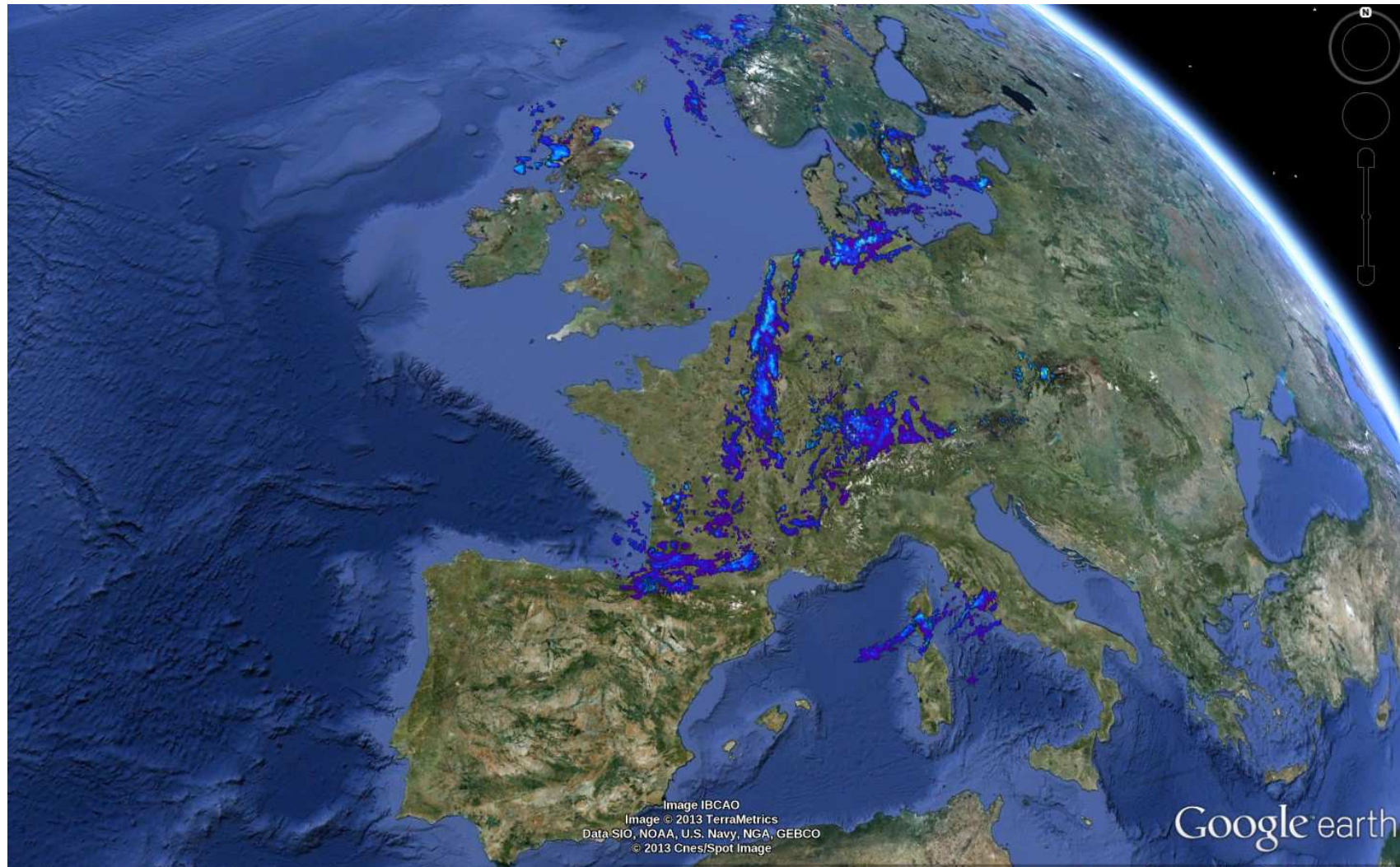
Main functional specifications



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Main functional specifications



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Main functional specifications

2) Zooming & panning free of geographic area (GIS functionalities)

- Type « Google Maps »

Dynamic cartography

- «the more you zoom in , the more you have of détails »

3) Adaptive User Interface

- **linked** to the forecaster's profile
- **adapted** to available data in the current context
 - ⇒ a necessity with explosion of number of data

Every day :

- > 1 million numerical model fields
- > 1 million observation data
- > 5000 satellite products
- > 5000 radar products

Main functional specifications

4) GUI « customizable »

Each user can customize a part of the interface :

- organize a part of the GUI to his own method of work
- « bookmark » his favorite data among many data potentially accessible



5) Continuous link between past and future data

- useful for the very short range forecast
- difficult on the technical aspect

Example :

- integration of data in the past without stopping animation only by moving the cursor

- Model forecast reflectivity follows RADAR reflectivity.

Main technical specifications

1) « OGC » Rules and SOA (Service-Oriented Architecture)

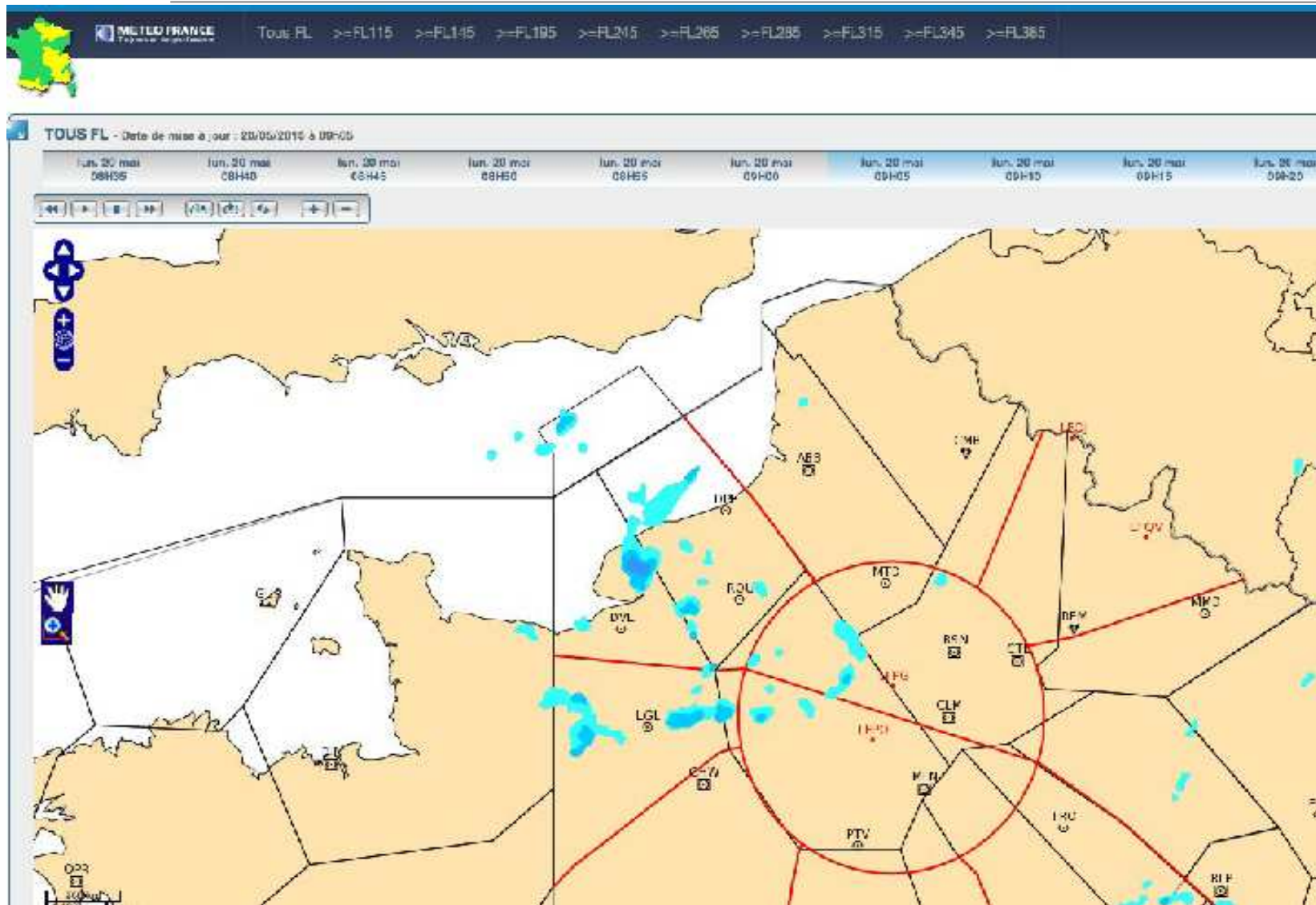
Users are forecaster but not only...

- SOA is useful to others needs :
 - Extranets
 - Production tasks
 - Spécifics applications (Navimail, Drias...)

With « OGC » rules, interoperability is done.



Main technical specifications



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Main technical specifications

2) Client GUI multi-platform and automatic deployment

Usable on flexible way from différent environments

Reduction of administration cost

=> Can be used from Synergie (old) workstation

=> Can be used from a PC



3) Flexible architecture server

- Standalone
 - Example : dataflow with furniture system like satellite reception
- Centralized clusters
 - High-disponibility
 - Supporting cascading servers

Main technical specifications

4) Horizontal Scalability and high performance

- Increase capacity of system by simply adding servers near the others servers
- « 1 draw = 1 second »



5) Dynamic adaptation to the data flow

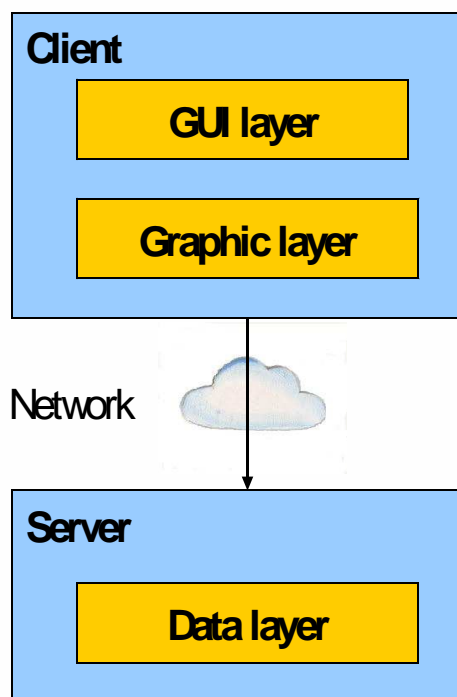
- to reduce the costs of administration
- to introduce rapidly new products

Technical choice

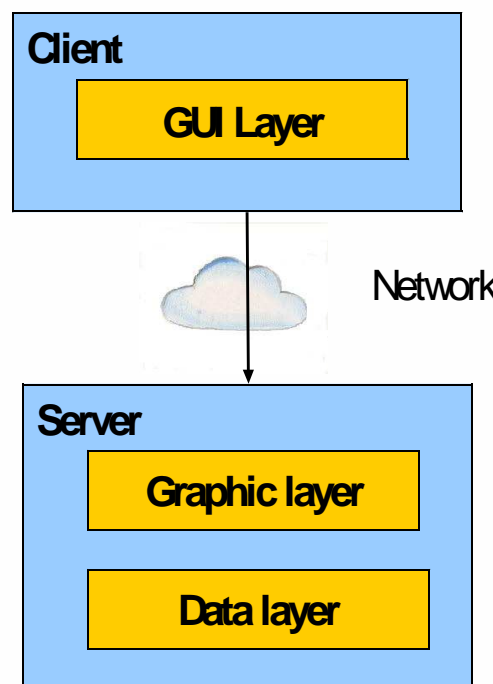
- A gravity center on the server side
- Many open source components...



Synergie

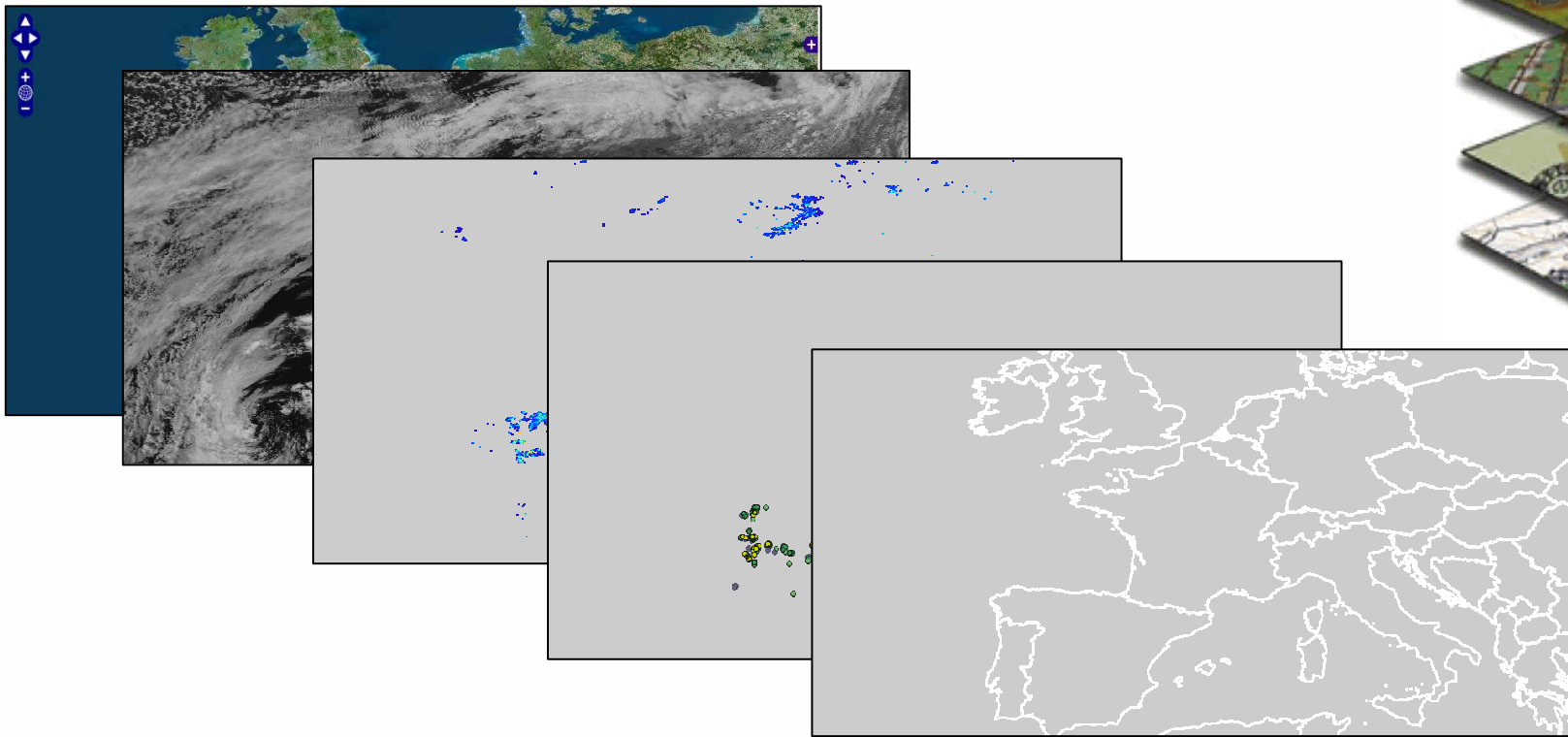
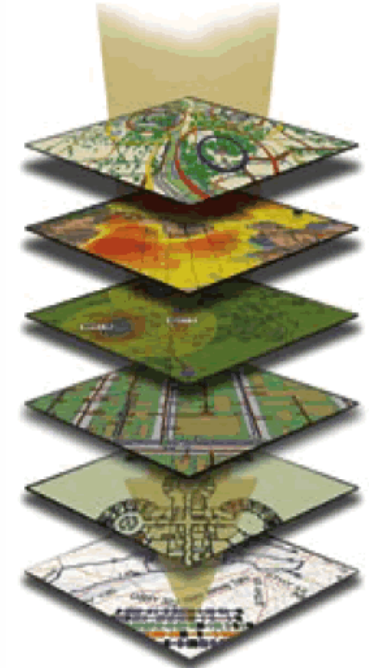
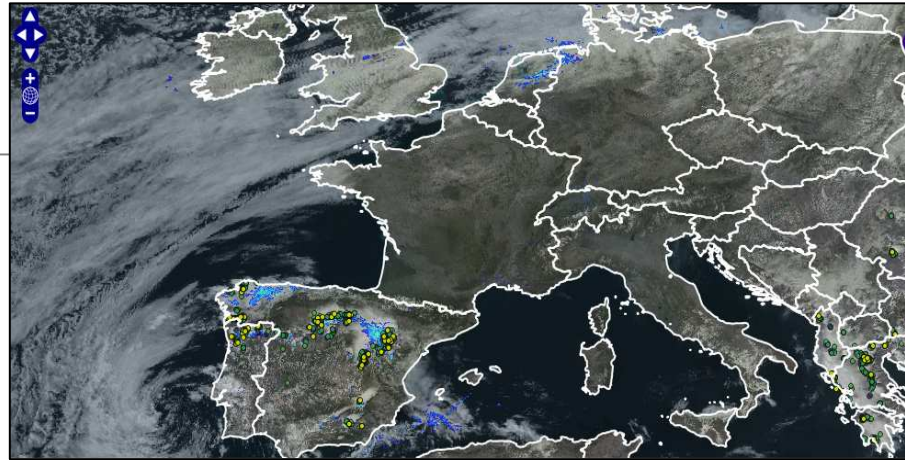


Synergie Next

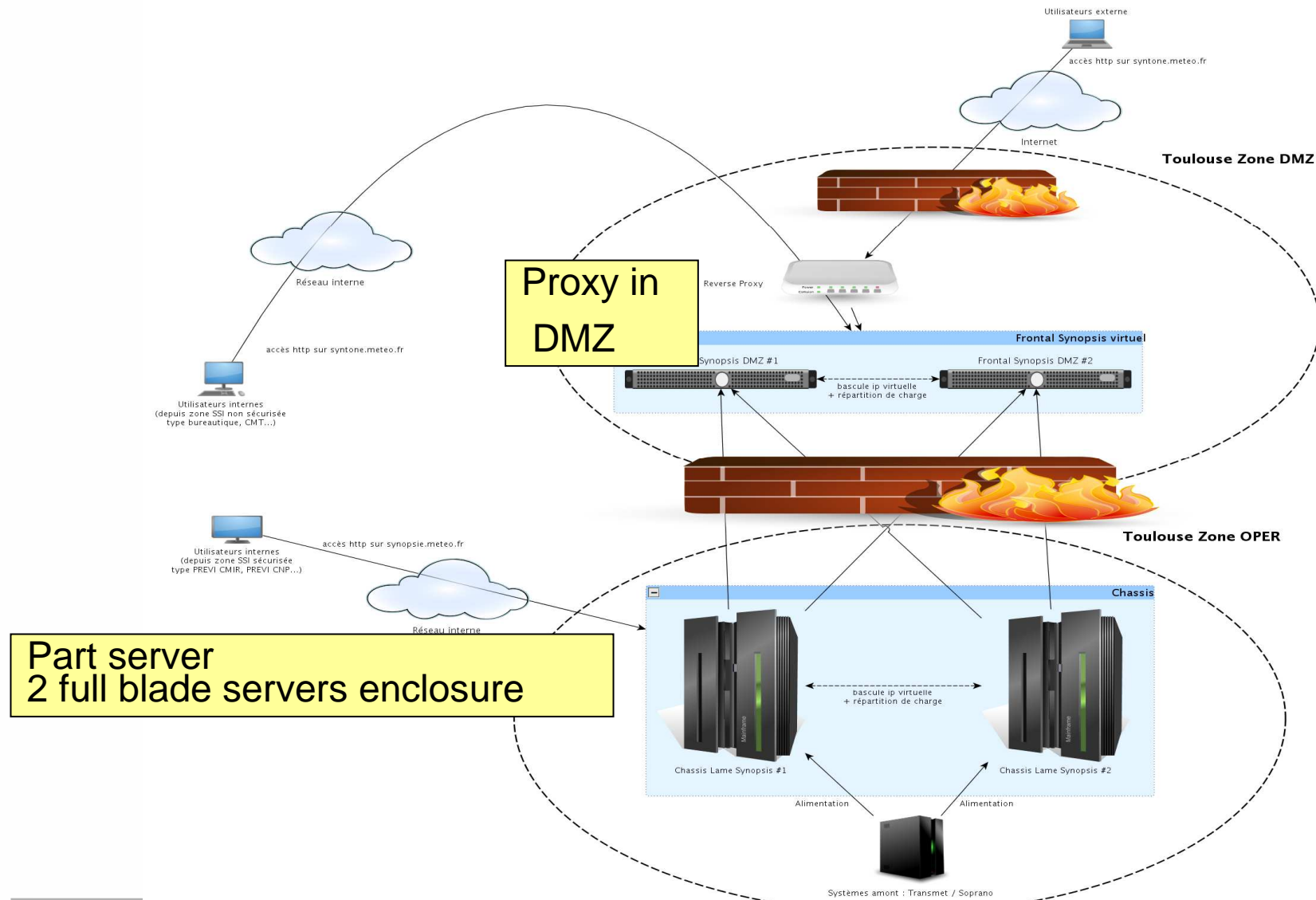




Several layers are requested from the client to the WMS server



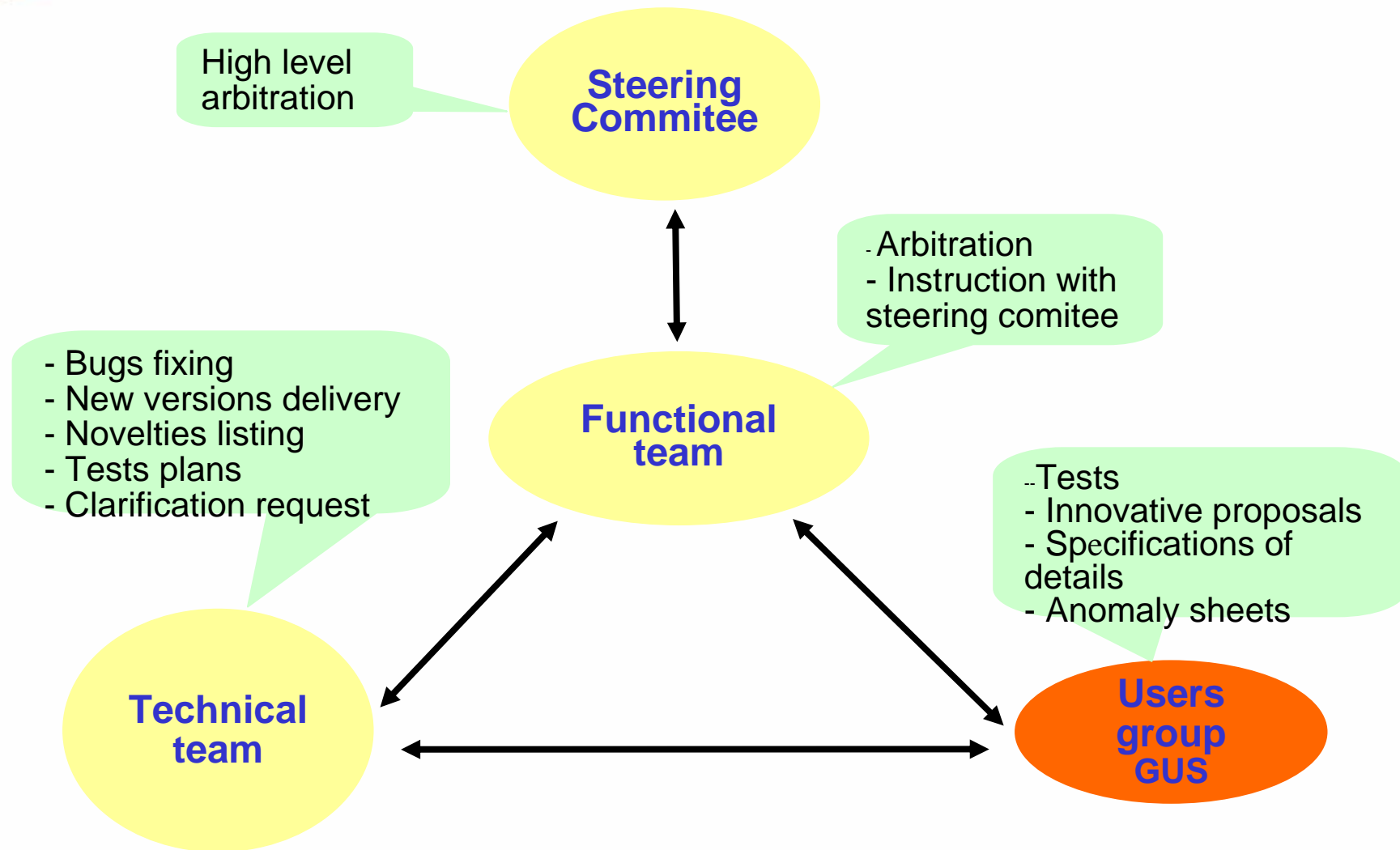
Technical choice : *Hardware infrastructure*





- Panel of users supporting the project
- Test on development versions with a test plan created by technical team : performance, ergonomics, news and non regression
- Complete anomaly sheets
- Detail some specifications upon request from developers
- Delivery of stable development version to the group every two months

Synopsis Users Group



Users documentation

- Choice of an editorial process (SCENARI/DOKIEL)
- Production process of homogeneous structured documents
- Block Writing independent from the final look
- Easy update
- Use of a documentary model which can be adapted to each client
- Easy versioning
- Different outputs (online web, pdf, ppt, ...)



Training

- Scheduled training plan with ENM



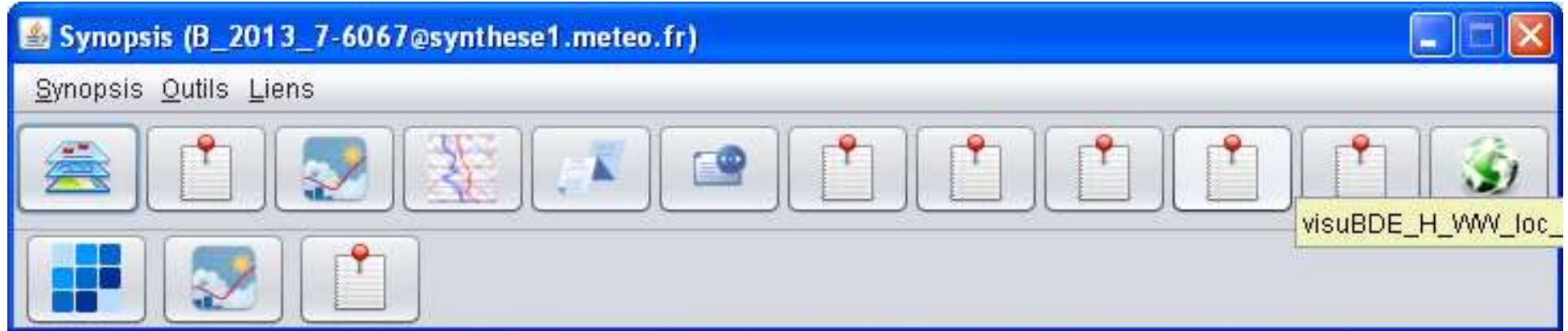
- Trainees team already gathered
- First trainees training in November 2013
- Complete training of all forecasters in 2014-2015

Timeline



- **October 2011** : Server service
eg : Products for a radar project RHyTMME
- **End of December 2013** : First release « Synergie-next » with visualization functionalities
- **2015** : First complete Synergie-next (visualization and production functionalities)

Forward with frames ...!

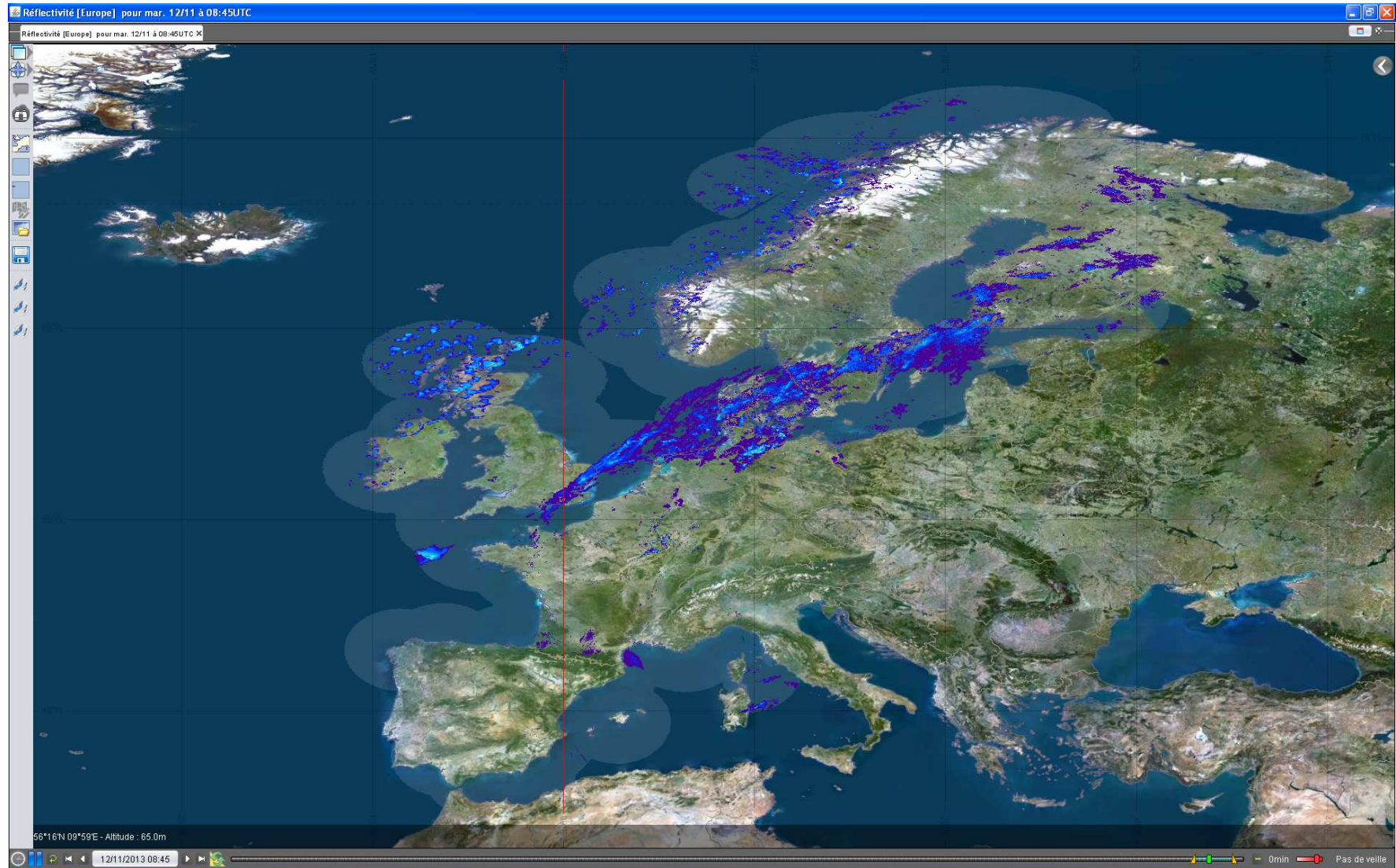


« Le catalogue »

The screenshot displays the 'Le catalogue' interface with the following sections:

- Top Bar:** Contains navigation icons (globe, wind, cloud, etc.) and a red oval highlighting a set of icons. The date and time are shown as '7 13 17 ven., 20/09/2013' and 'heure locale : 9 23 - 20/09/2013'.
- Product* TPW ISOBARIC:** A grid of parameter selection buttons including 'Favoris (0/0)', 'Autres (15/35)', and various meteorological parameters like 'ALTITUDE ISO ISOTHERM', 'CLD RAIN ISOBARIC', 'DI ISOBARIC', 'HU ISOBARIC', 'T HEIGHT', 'TPW ISOBARIC', 'UV ISOBARIC', etc.
- Niveau hauteur* 850 hPa:** A grid of pressure level selection buttons ranging from 1 hPa to 1000 hPa. '850 hPa' is selected.
- Date de validité* 20/09/2013 07:00 (Date la plus proche de maintenant):** A date and time selection interface with a calendar view showing 'ven. 20 sept.' and '07H' selected.
- Date de run: AUTO:** A date and time selection interface with a calendar view showing 'ven. 20 sept.' and '08H' selected.
- Processus: Arome 0.025:** A grid of process selection buttons including 'Favoris (0/0)', 'Ensembles Autres (70/71)', 'Ensembles CEP (0/102)', 'Principaux (10/16)', and various models like 'Aladin Cep 0.1', 'Arpege 0.5', 'CEP 0.125', etc.
- Bottom Bar:** Includes a '+ Ajoutez un paramètre [nouvelle carte]' button and a 'Fermer' button.

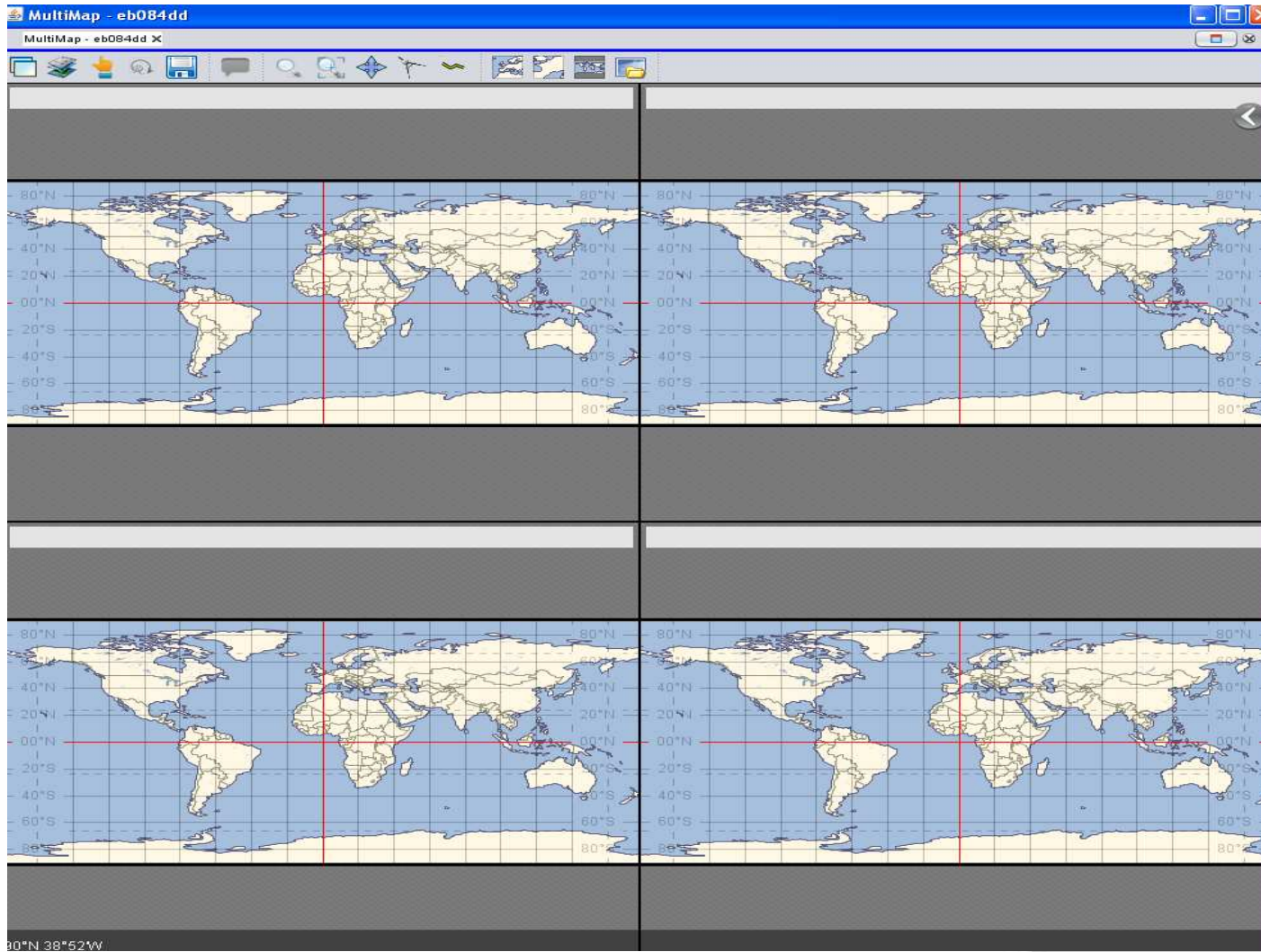
Map + Reflectivity RADAR



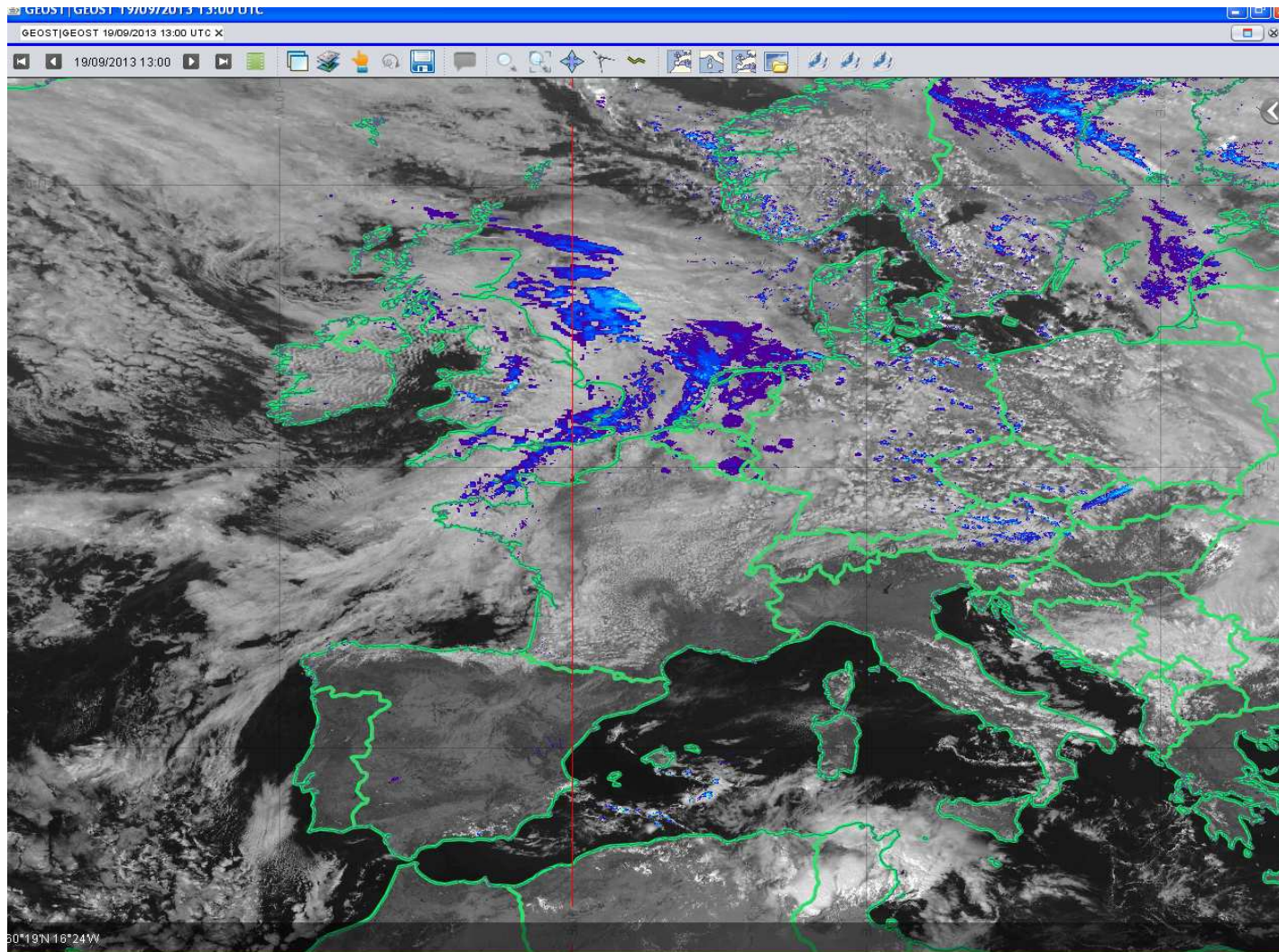
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Multimap



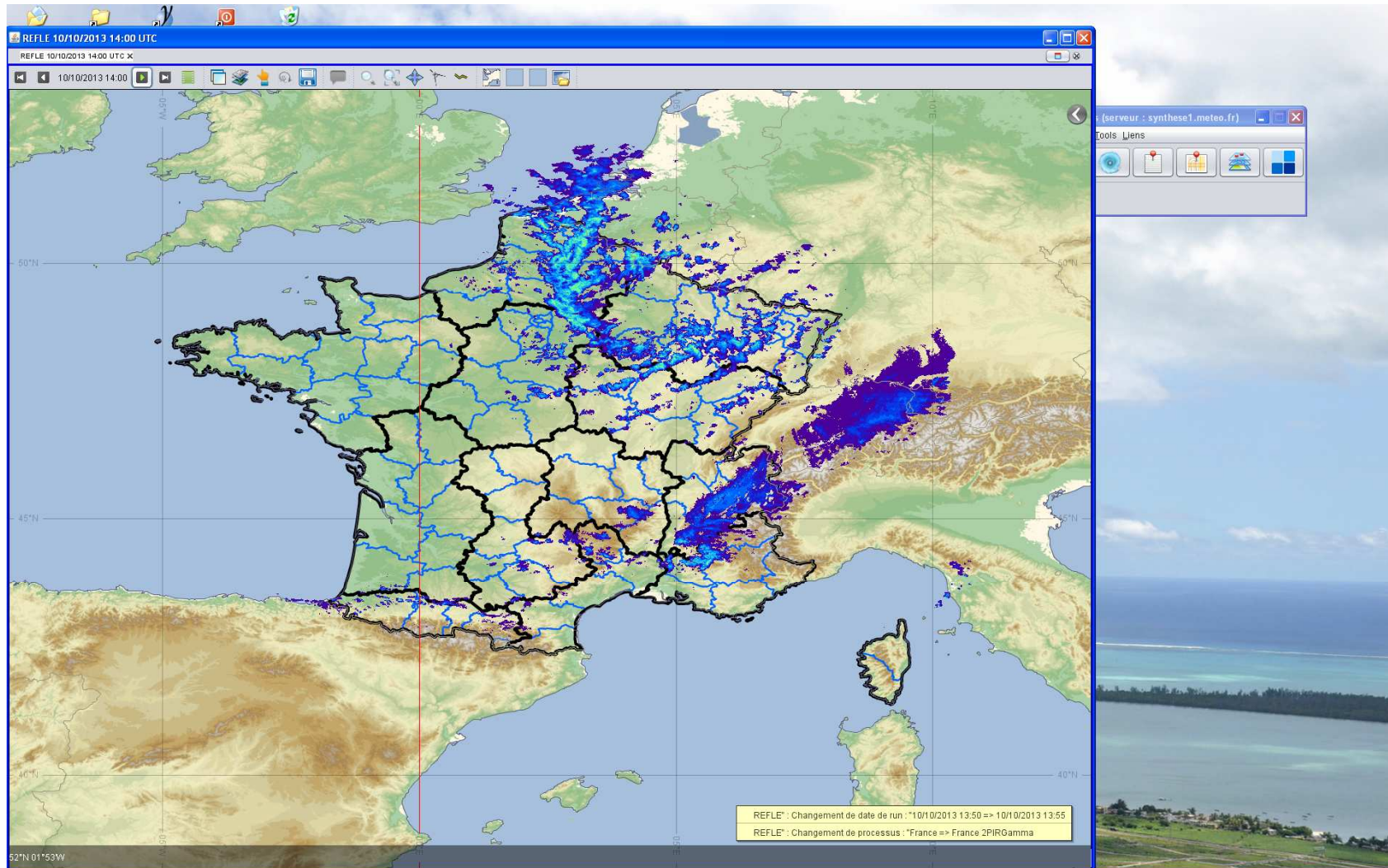
Satellite and reflectivity RADAR



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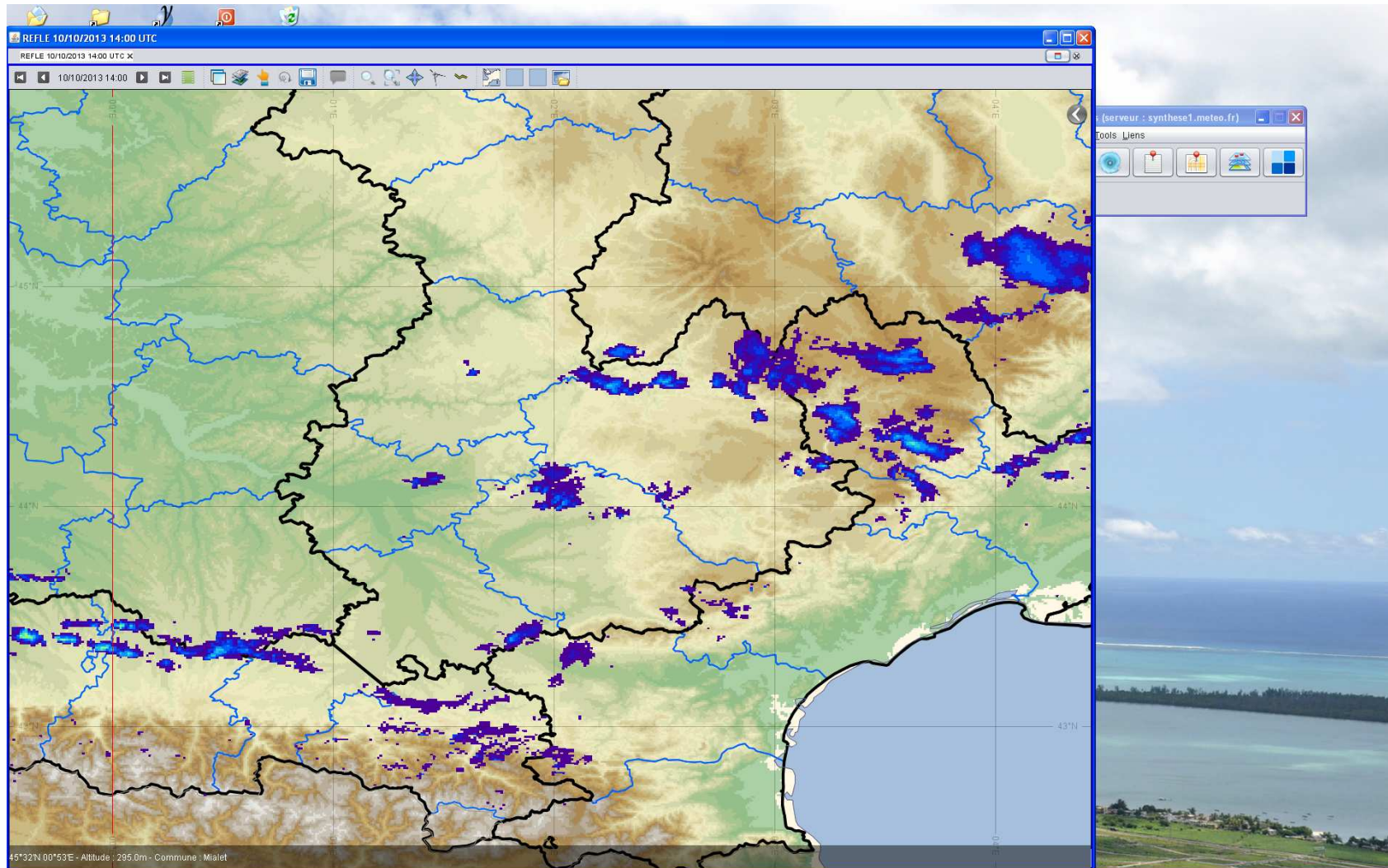
The more



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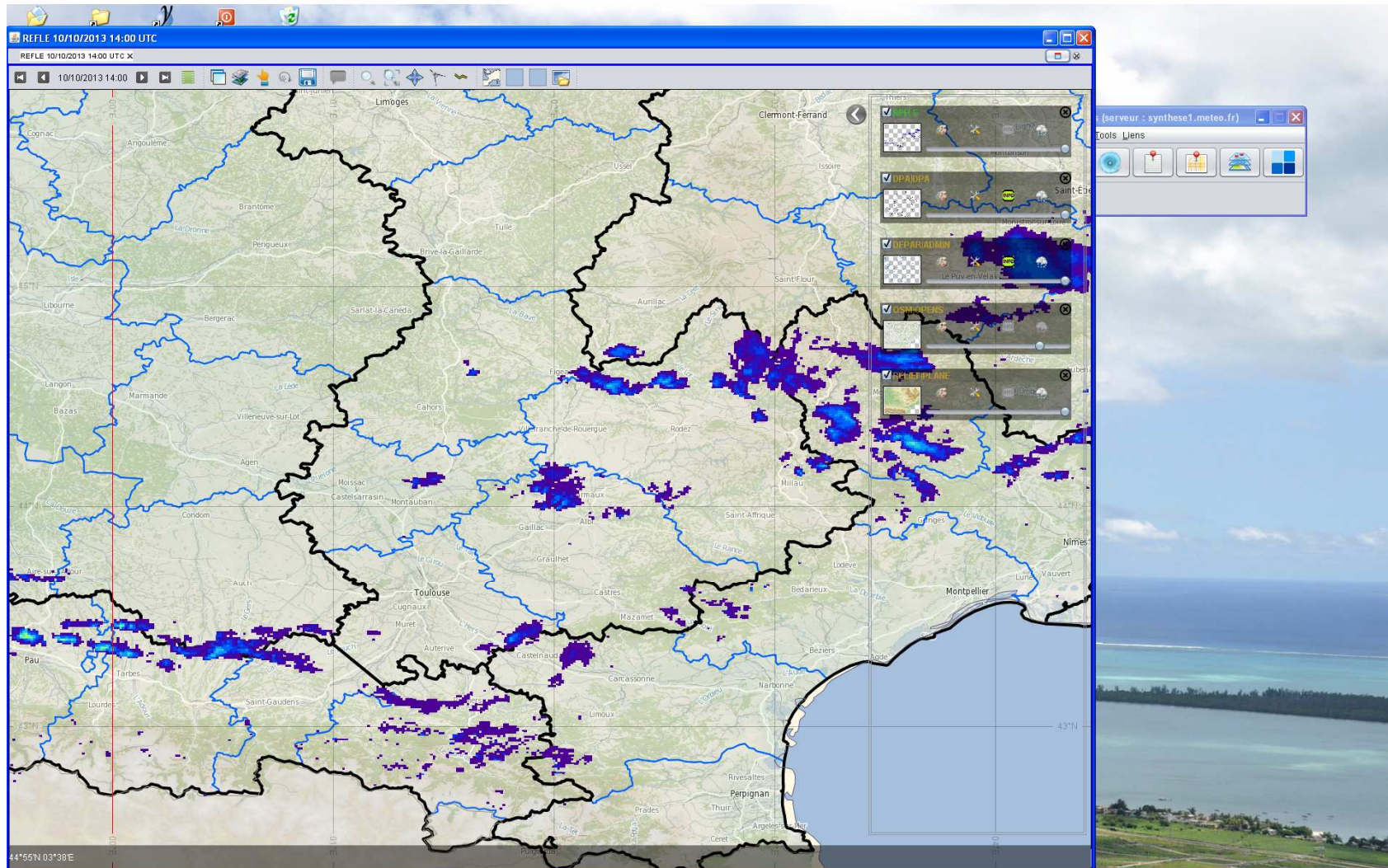
You zoom in...



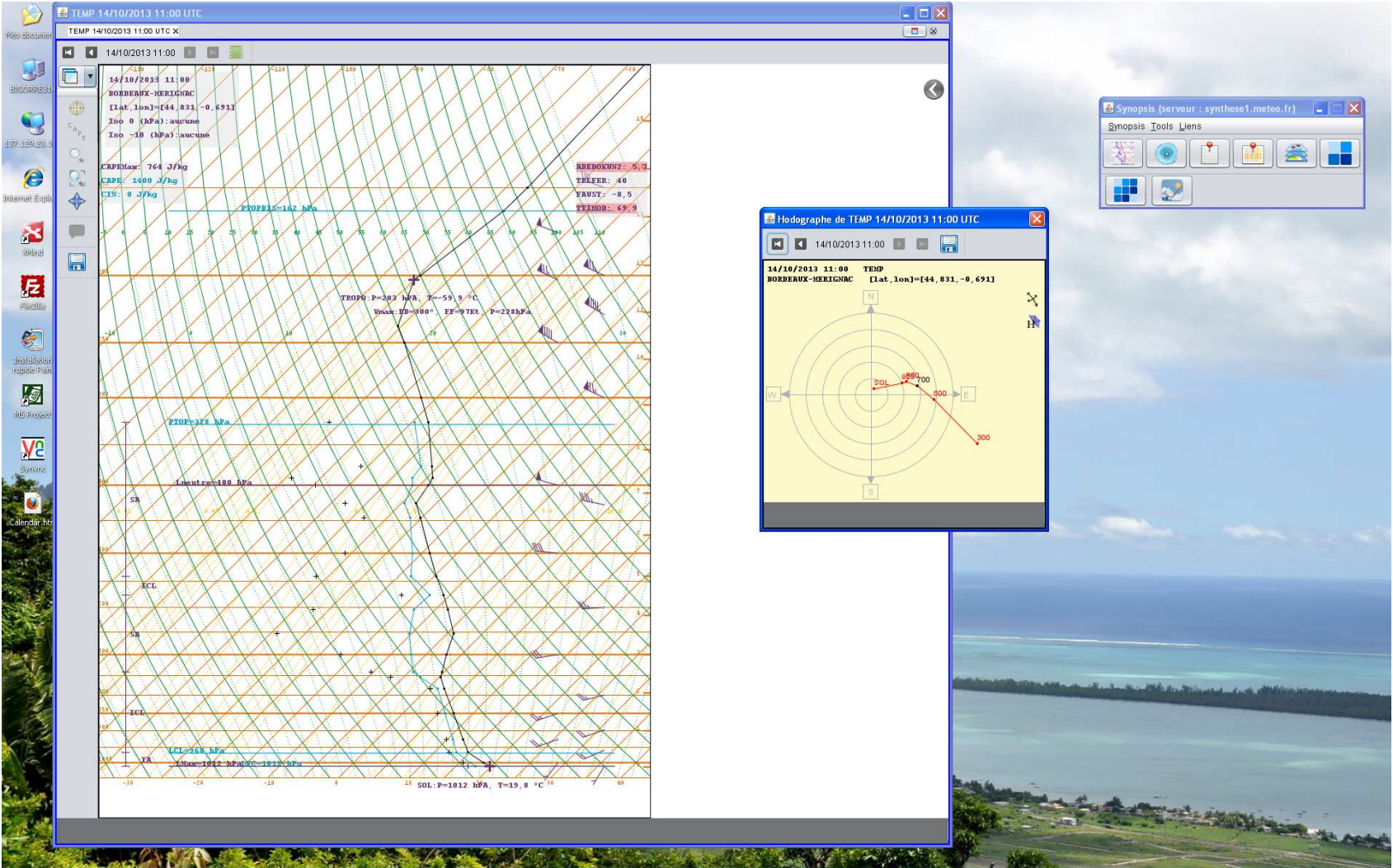
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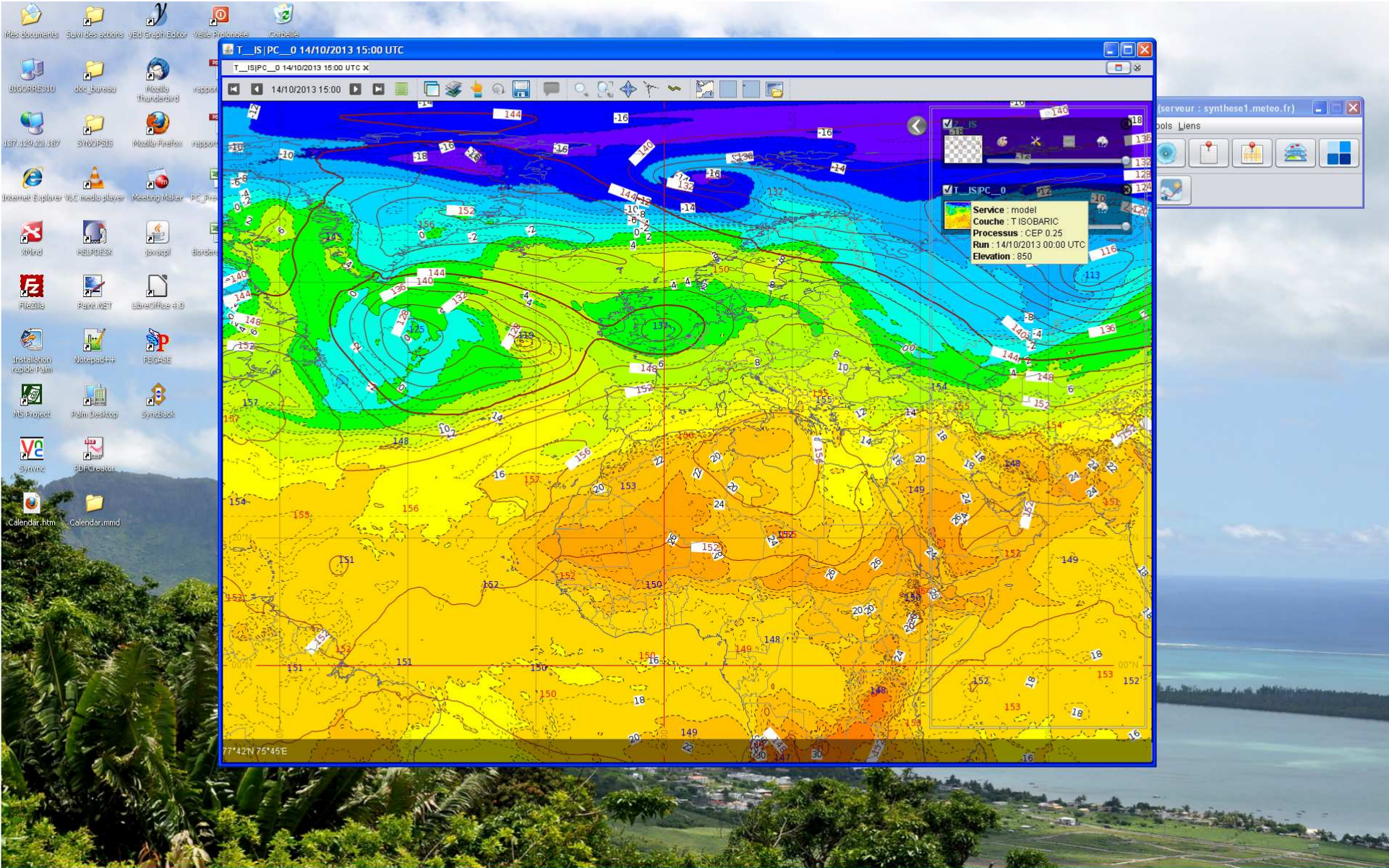
The more you see geographic details



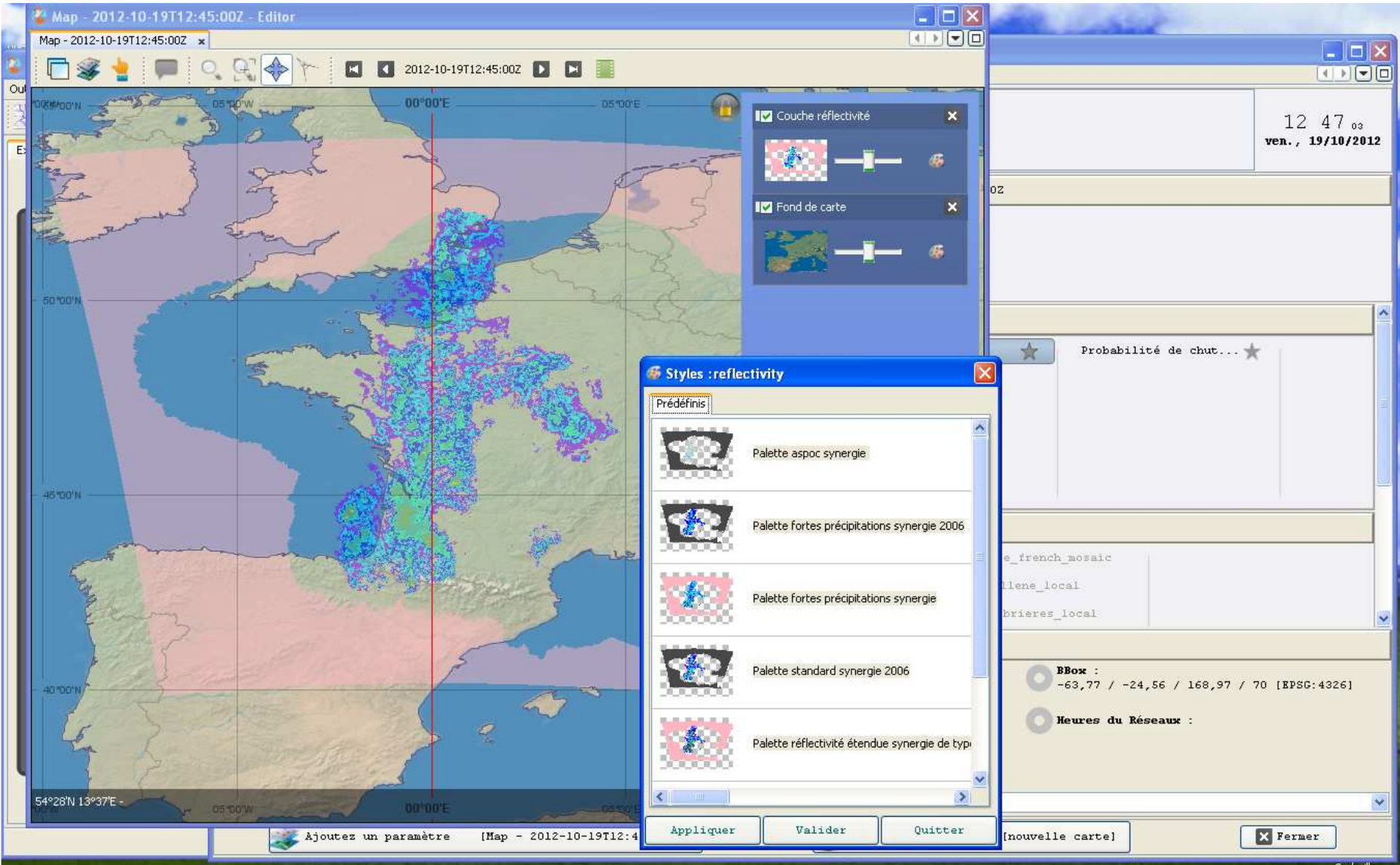
Sounding



Model



Radar



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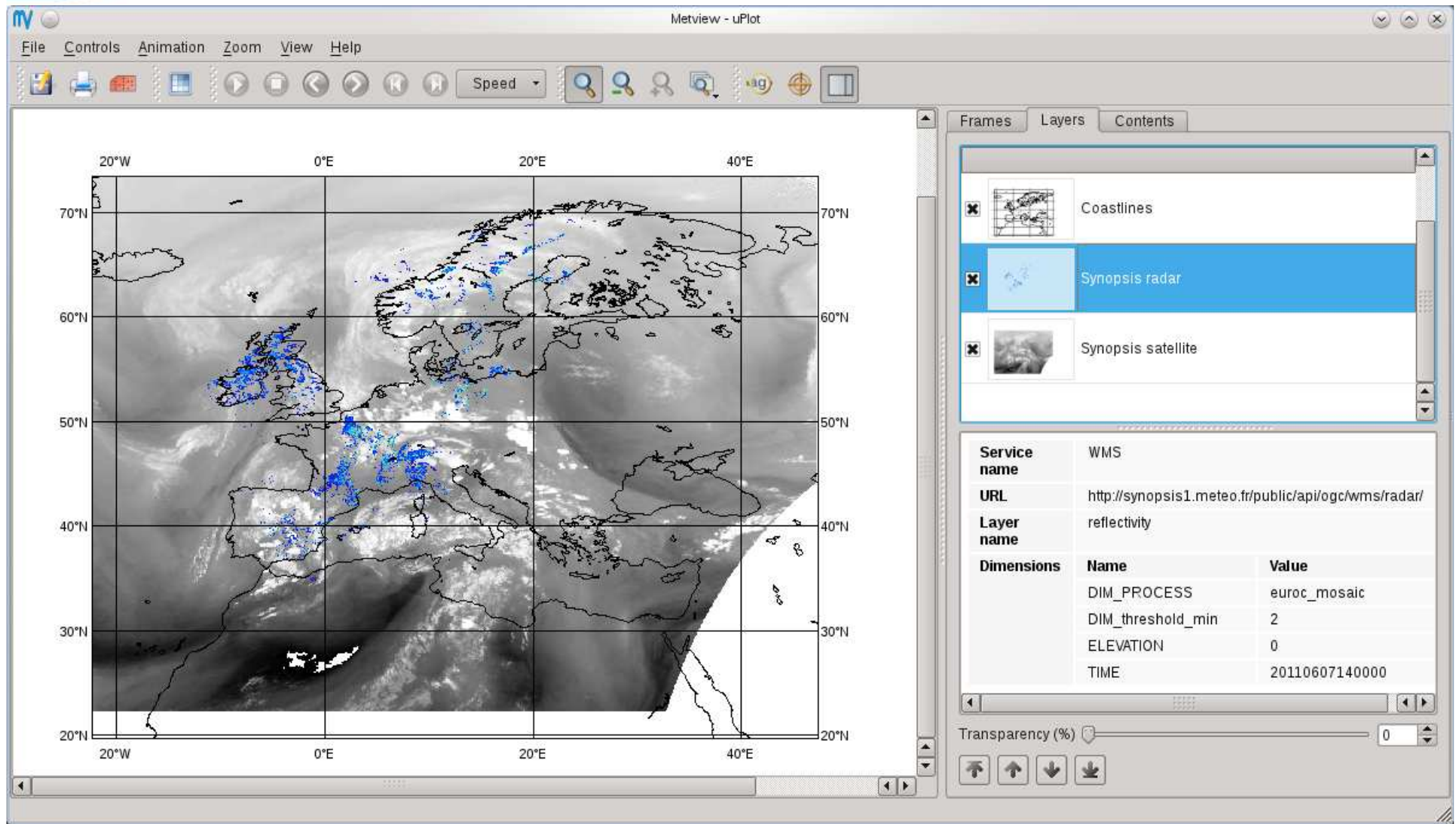
Synergie-Next server for our clients web site

The screenshot displays the Météo-France website interface. At the top, there is a navigation menu with options like 'Carte de surveillance', 'Bulletins', 'Observation', 'Prévisions', 'Prévision Routière', 'Radar', 'Satellites', and 'Superposition Radar/Satellite'. Below this, a 'SATELLITE VISIBLE' section is active, showing a timeline of satellite images from 09H15 to 12H00 on October 24th. The main content area features a satellite image of France with a 'SATELLITE VISIBLE' overlay. A 'Réglages' (Settings) dialog box is open, allowing users to adjust the opacity of layers: Relief (100%), Ombrage relief (30%), Villes et Routes (100%), and Satellite visible (50%). The website also includes a search bar, a home button, and a 'Connexion' link.

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Synergie-Next with Metview





Thanks for your attention !

