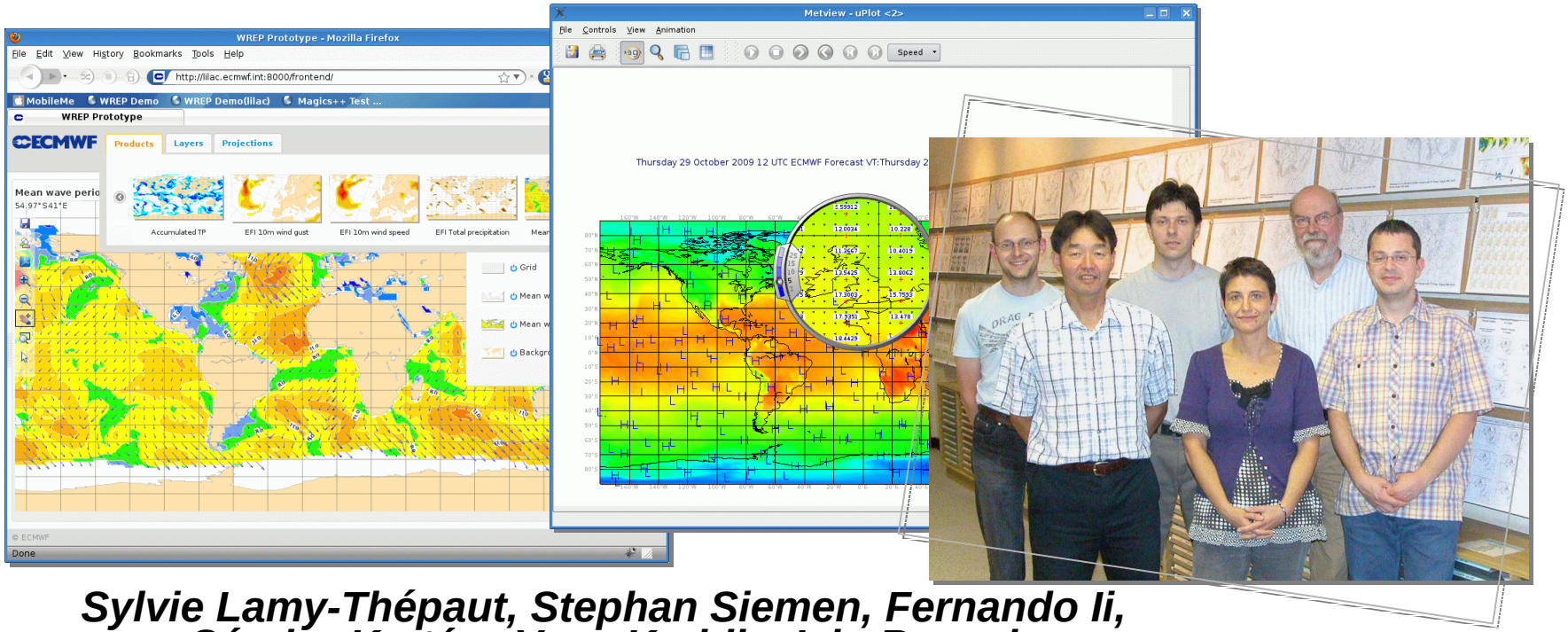
Integrating OGC web services into Metview and Magics++

Developing ECMWF's tools for OGC web services



Sylvie Lamy-Thépaut, Stephan Siemen, Fernando Ii, Sándor Kertész,Vesa Karhila, Iain Russel

Graphics Section

ECMWF

- **Where do we stand?**
- Magics++ in a WMS server
- Metview 4 as a client of a WMS server
- The next steps…

ECMWF and the OGC

- ECMWF is in the process of becoming (associated) member
- We are active members of the MetOcean DWG and in organising this Workshop

- The benefits we hope for are:
  - Easier access for our users to view our products (WMS) or even access the data (WCS)
  - Open up opportunities for our analysts and researchers to access geospatial information
  - Users of our meteorological workstation, Metview, will find it easier to have their results distributed, or easier to include other displays, independent of how the were generated

Graphics Section & OGC standards

- As the section developing visualisation and post-processing tools we are in the forefront of implementing OGC standards at ECMWF
- Our section has a long standing tradition of combining various data sources in our service-oriented meteorological workstation Metview
- External services and data sources can be easily plugged into Metview.
- Our Magics Library has been designed to be generic enough to be easily integrated with other systems.

- Where do we stand?
- **Magics++ in a WMS server**
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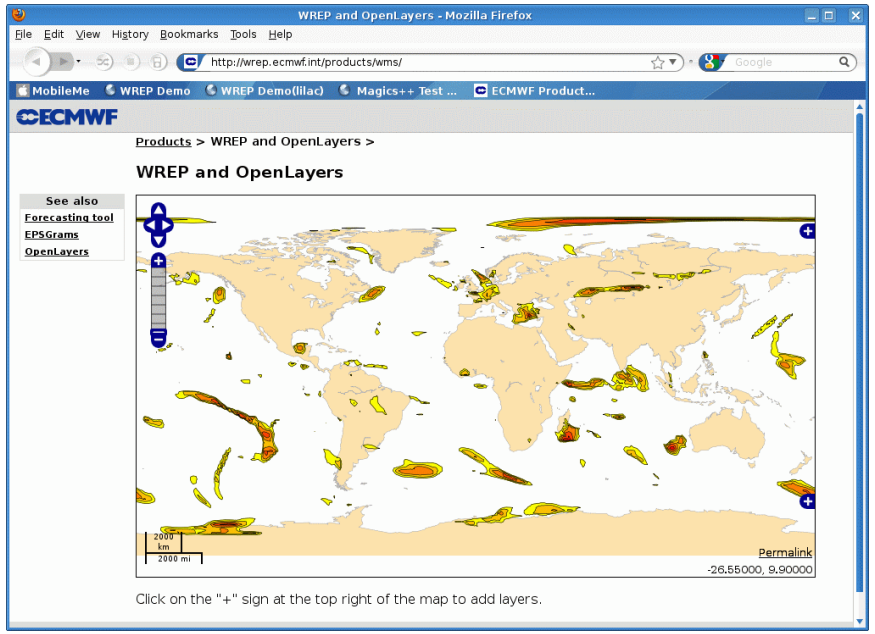
Magics++ serving maps for WMS

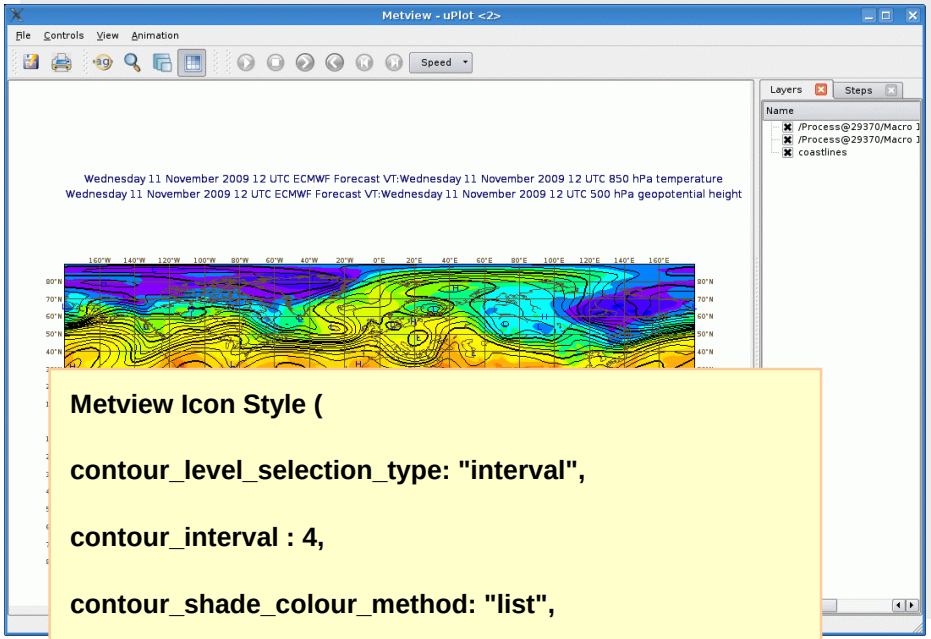
Magics++ embedded as the graphics engine of our Web- Reengineering project

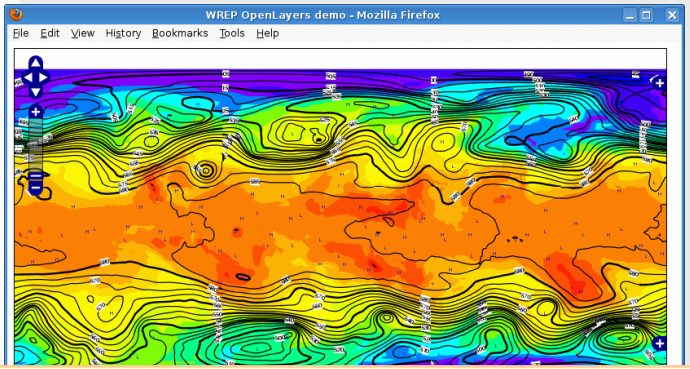
- Takes advantage of more than 20 years of experience in meteorological visualisation
  - Grib/BUFR/netCDF, Wind plotting
- Is Web-Aware
  - Web-friendly Xml-based or JSON interface : MagML
  - Produces high quality outputs e.g. svg, png
  - Generates JavaScript and metadata to navigate a map.
- Uses Terralib library (INPE/CPTEC) for the projections code



The Styling …

- A plot described in Metview can be easily translated into MagML





Metview Icon Style (

contour_level_selection_type: "interval",

contour_interval : 4,

contour_shade_colour_method: "list",

contour_shade: "on",

contour_shade_method: "area_fill",

contour_shade_colour_list: [“blue”/”green”/…/”red“]

)

JSON/ MagML {

"contour_level_selection_type": "interval",

“contour_interval” : 4,

"contour_shade_colour_method": "list",

"contour_shade": "on",

"contour_shade_method": "area_fill",

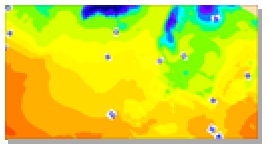
"contour_shade_colour_list": "blue/green/…/red"

}

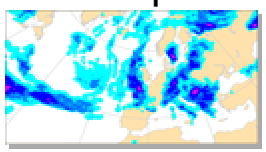
To go further in styling…

- **STYLE and customisation of STYLE**
  - **Do we really need a BLUE_CONTOUR and a RED_CONTOUR, or a contour with a colour parameter? Can SLD help?**
- **Implementation of getLegendGraphic**
- **Definition of Standard STYLES**
  - **Could help in the comparison of maps.**
  - **Could help identifying a meteorological parameter**

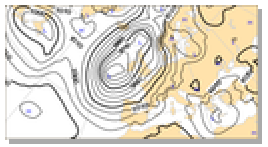
2mT?



Precip?

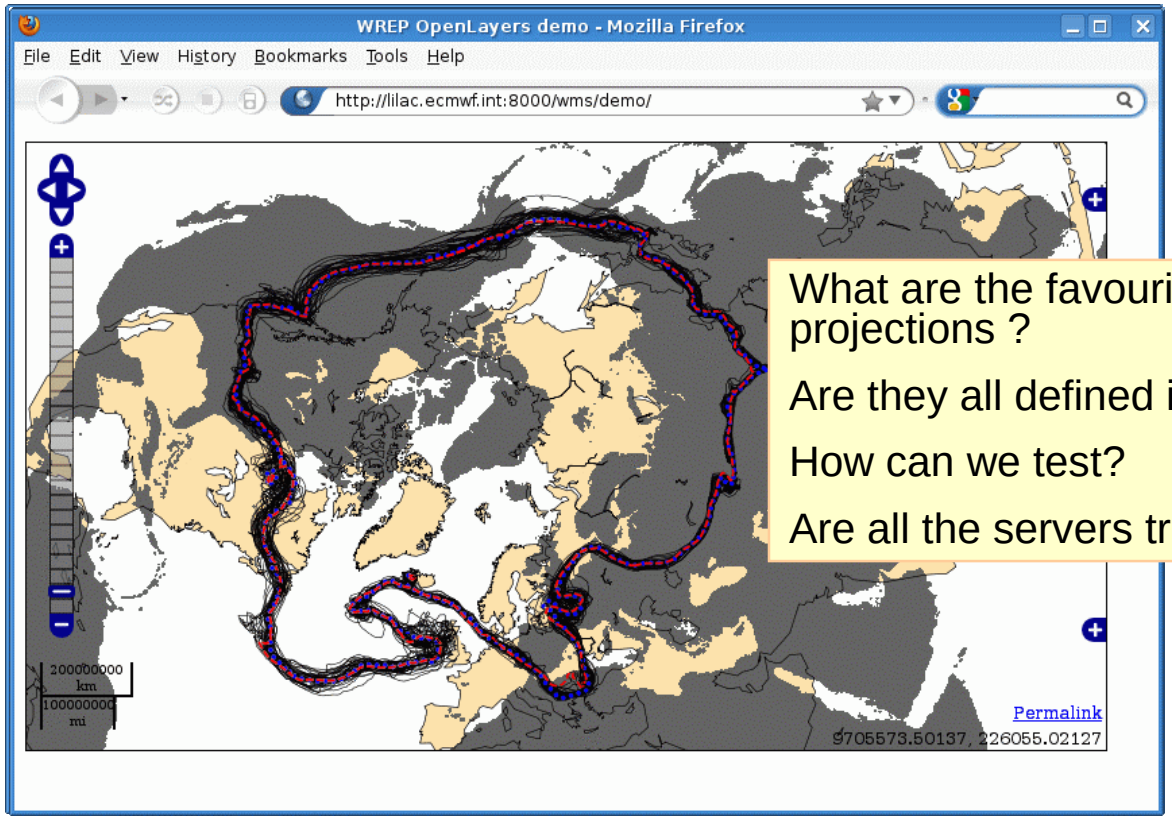


Z500 or MSL ?



The projections…

- Things are easy for EPSG:4326 (Cylindrical)
- But not so easy, when you try EPSG:32661(Universal Polar Stereographic)



What are the favourite meteorological projections ?

Are they all defined in EPSG?

How can we test?

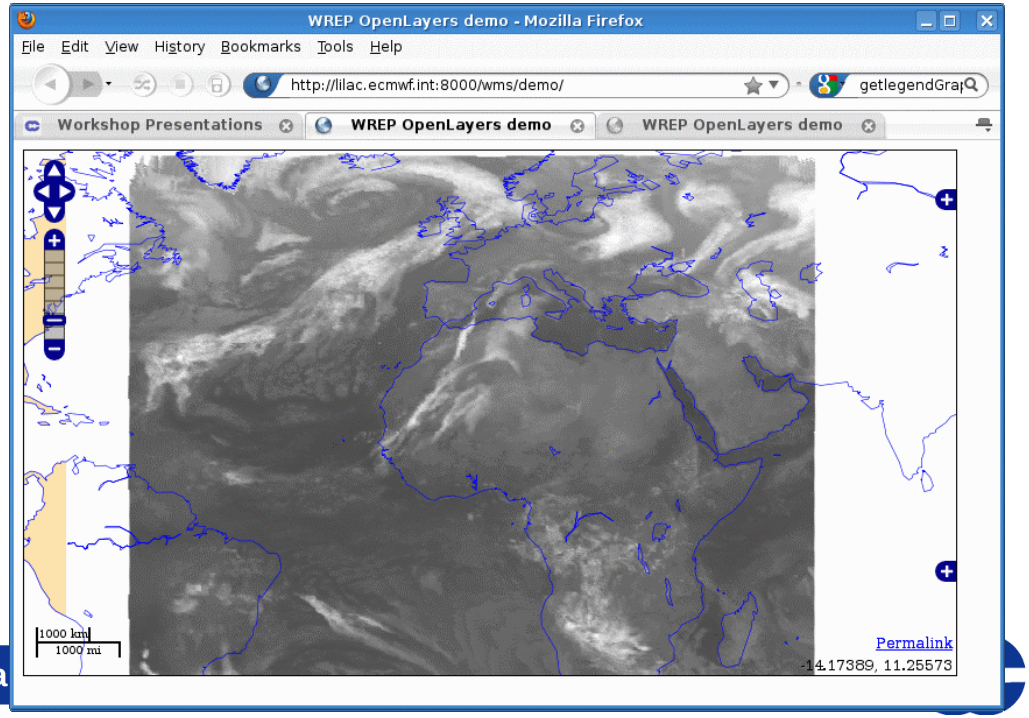
Are all the servers trustable?

TerraLib

ECMWF

The Tiling…

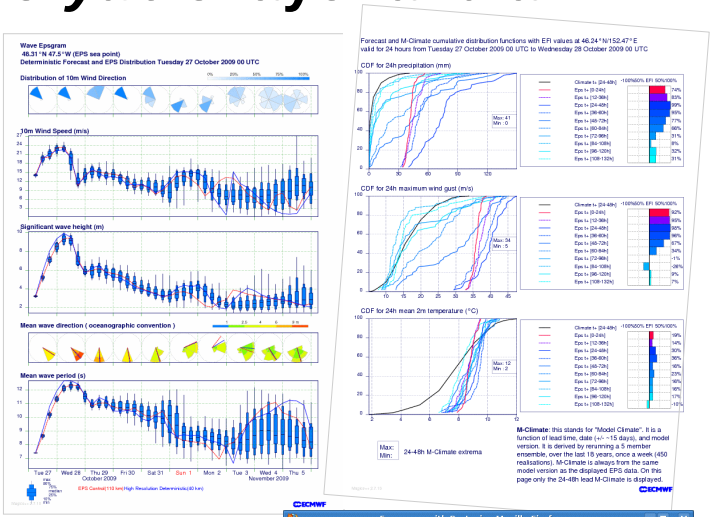
- The use of tiles could make the server more efficient and scalable
  - The requests are client driven
- The result should look like a big map
  - The STYLE has to be carefully defined to avoid border effects

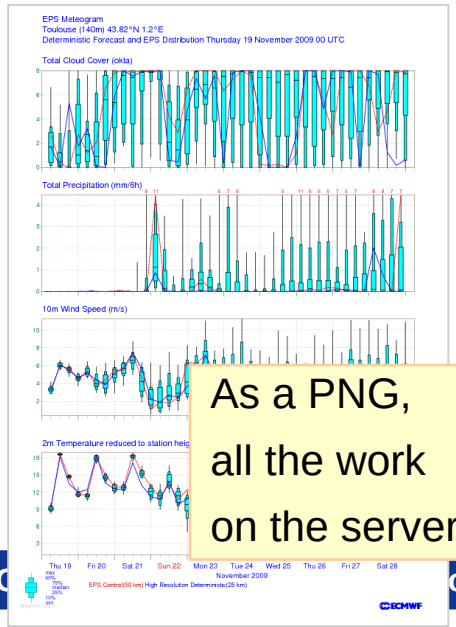


ECMWF

GetFeatureInfo…

- GetFeatureInfo is attached to a *queryable* layer and a location.
- Can we use the concept for an epsgram or an EFIgraph that are only attached to a location?
- What should we send back?





As a PNG,
all the work
on the server side…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{
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    "lon"="1.44367",
    "param"="167.128",
    "title"="Toulouse, France"
  },
  "reply"={
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    "167.128"={
      "control"=[
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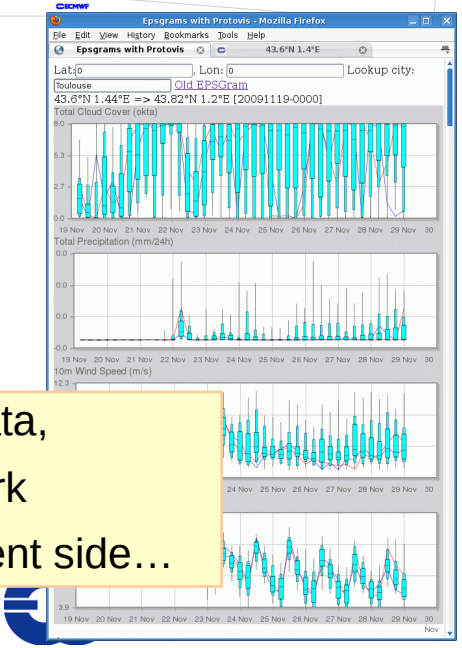
        291.851,
        287.841,
```


As raw data,
all the work
on the client side…



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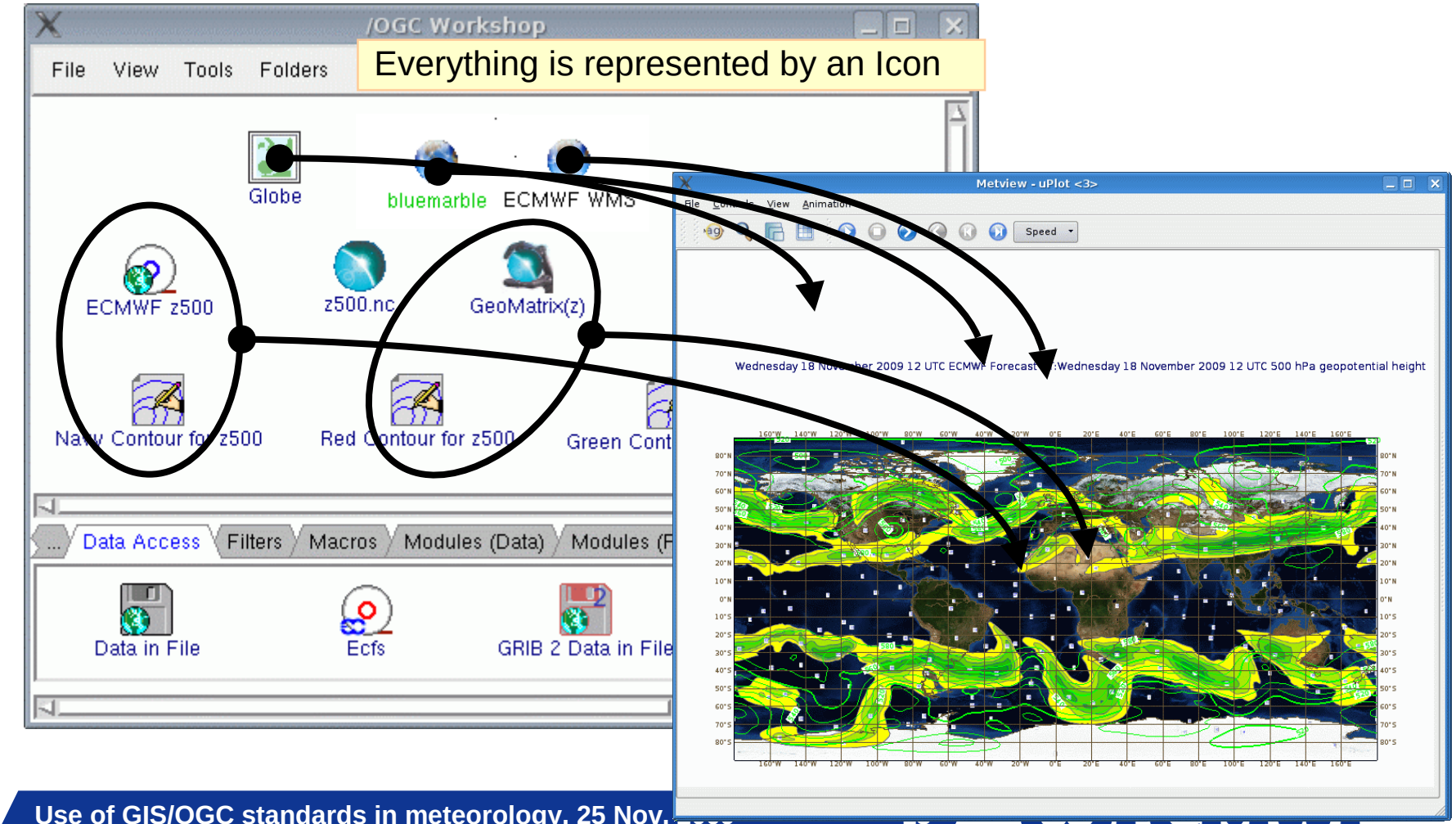
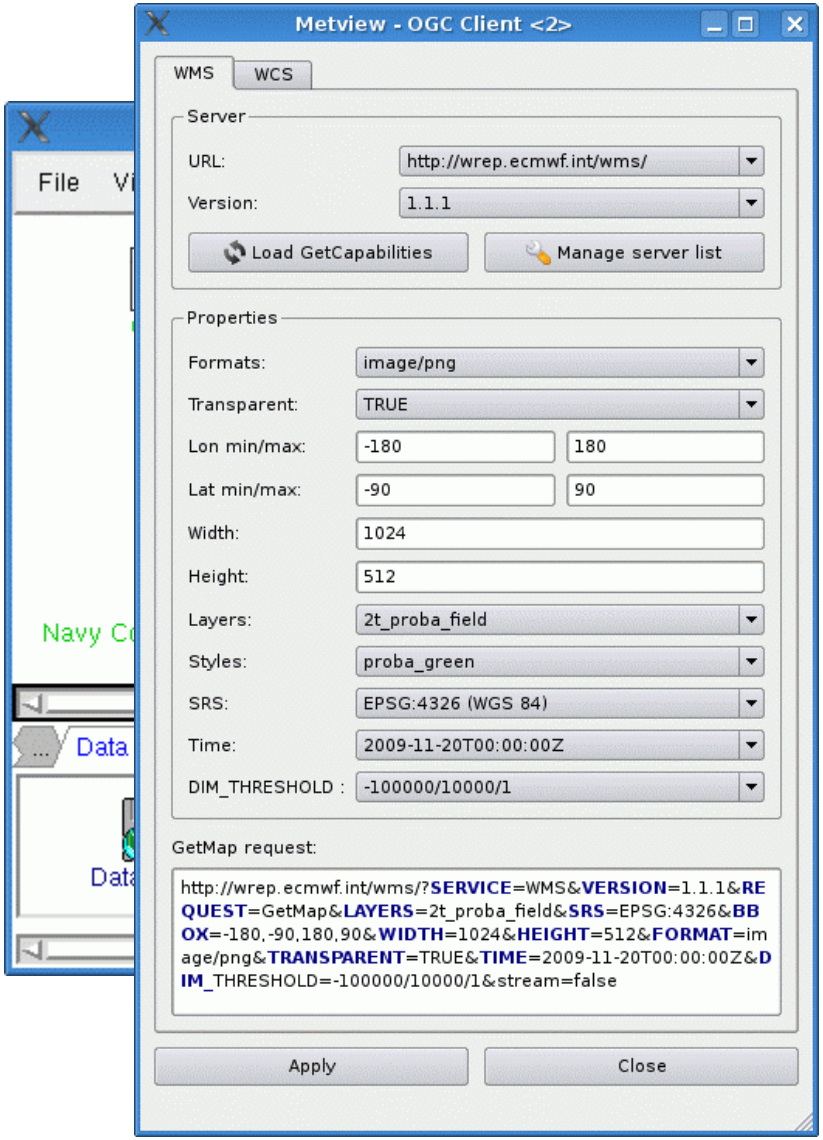
Metview 4

- **Why the concept fits well ?…**

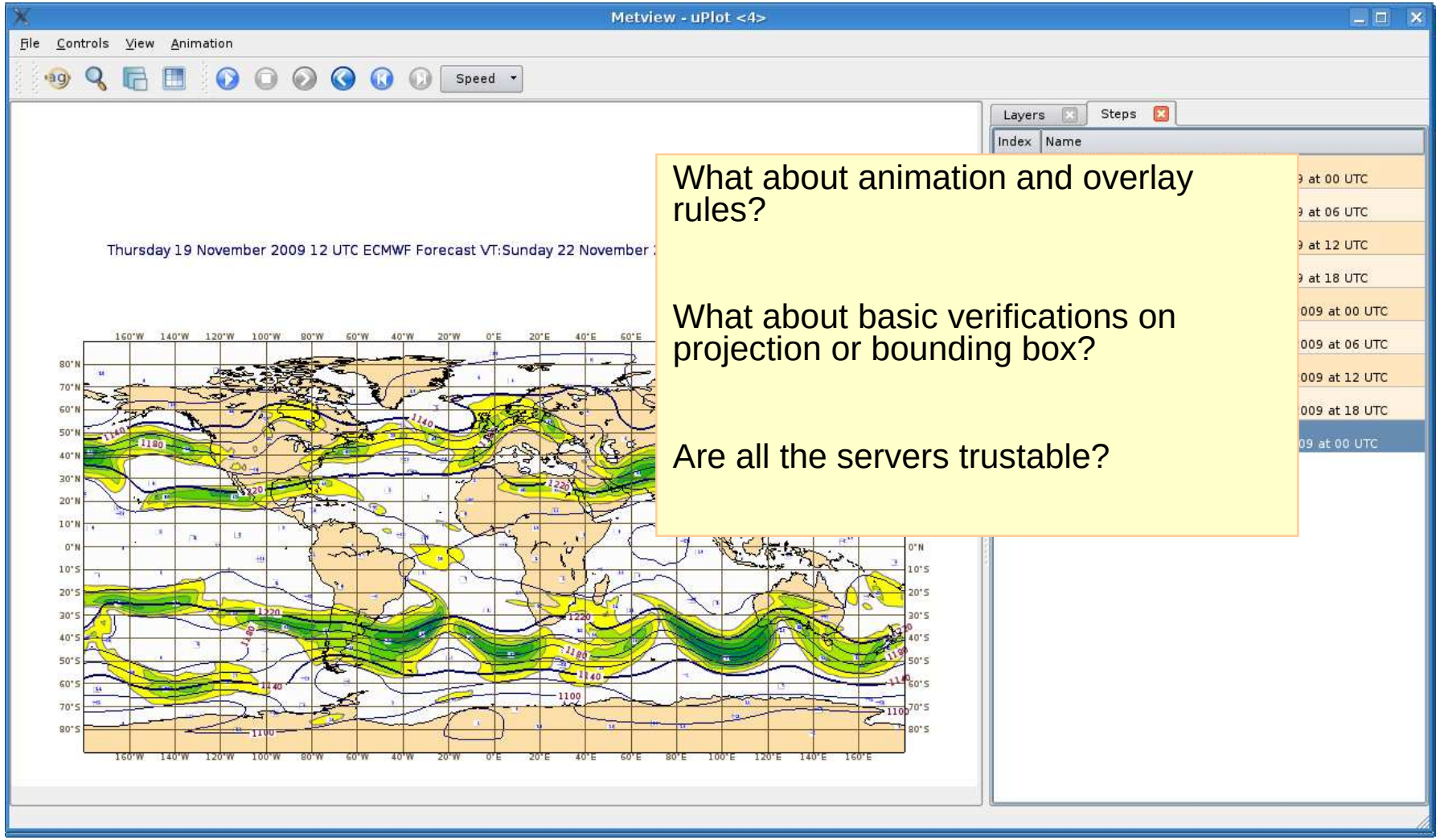


Metview4 : The OGC icon

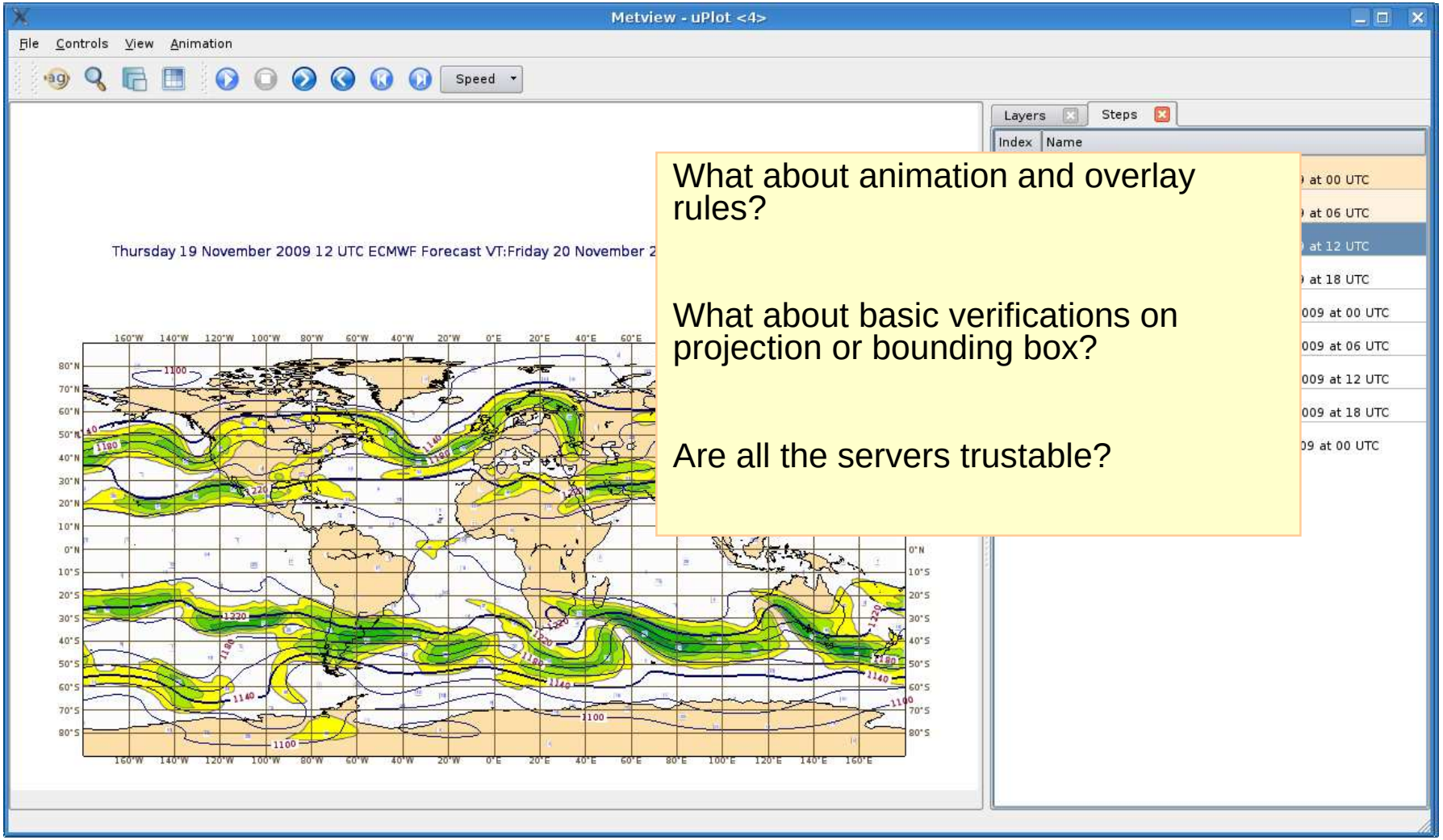


- GetCapabilities is used to build the editor dynamically.
- Fully based on Qt: both network access and XML parser
- Our concerns:
  - Response time?
  - Version support?
  - Validation of a GetCapabilities document?
  - Dimensions support? -10000/10000/1
  - Time selection ? Nearest

Metview4 : getMap



Metview4 : getMap



What about animation and overlay rules?

What about basic verifications on projection or bounding box?

Are all the servers trustable?

- Where do we stand?
- Magics++ in a WMS server
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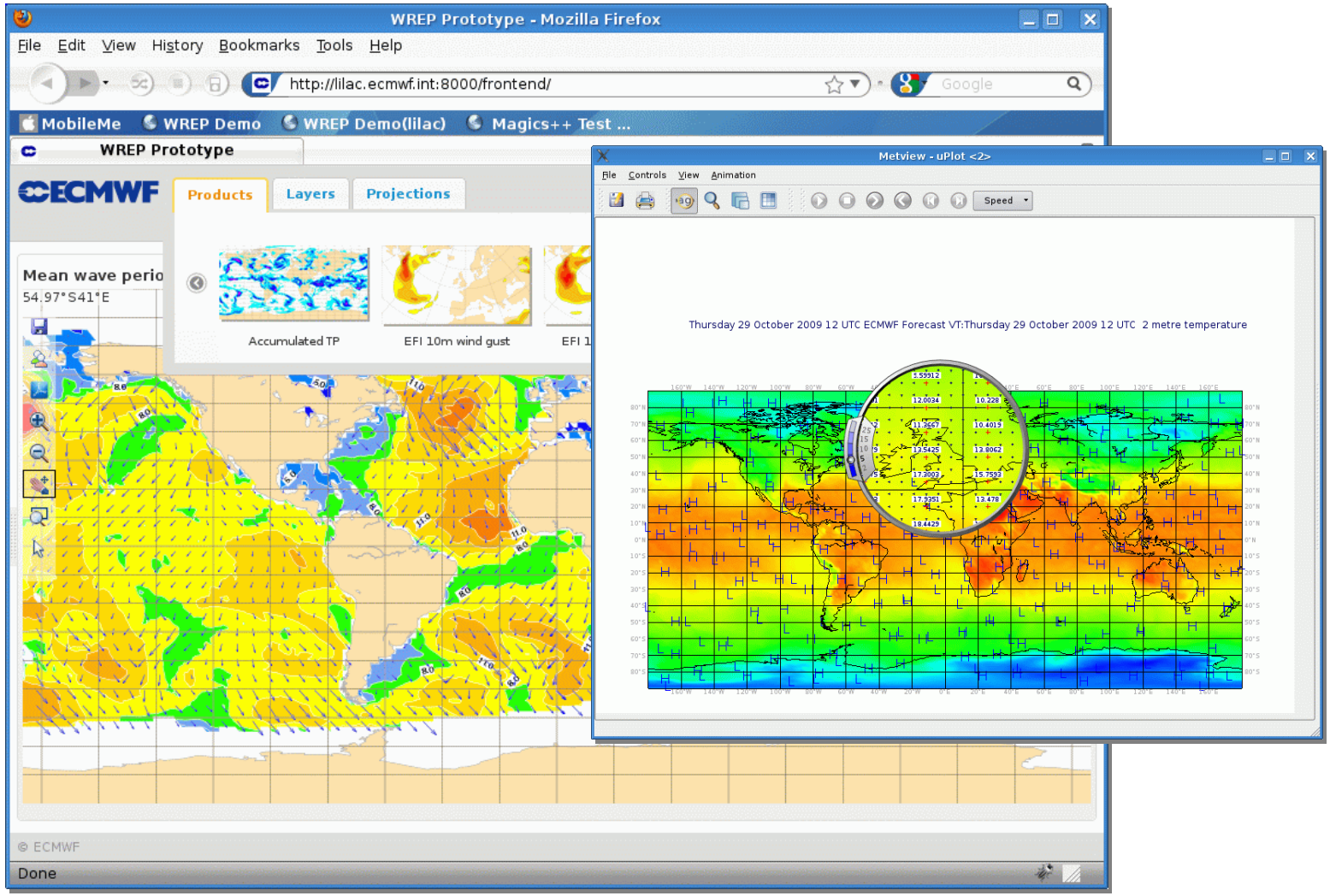
- **The next steps…**

The next steps …

- Finalise OGC membership
- Continuing trials
  - Looking for partners to test our WMS service
  - Looking for WMS/WCS services to test in our Metview client
  - Looking for a best practice guide of the use of OGC standards
- Hosting EGOWS 2010 we will aim to take an active lead in cross-workstation support for OGC compliance testing in meteorology

Thank you!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Projections
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Accumulated TP
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