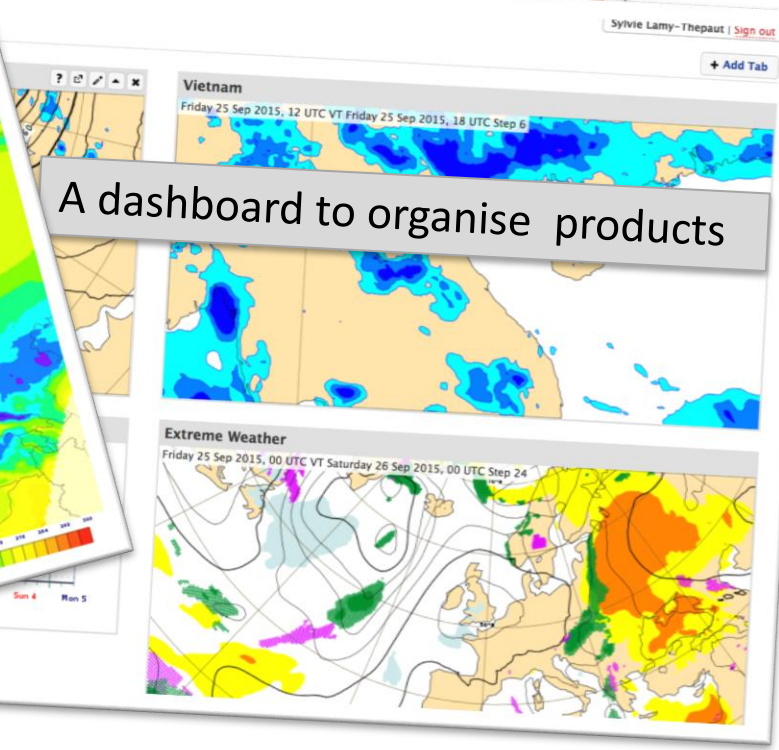
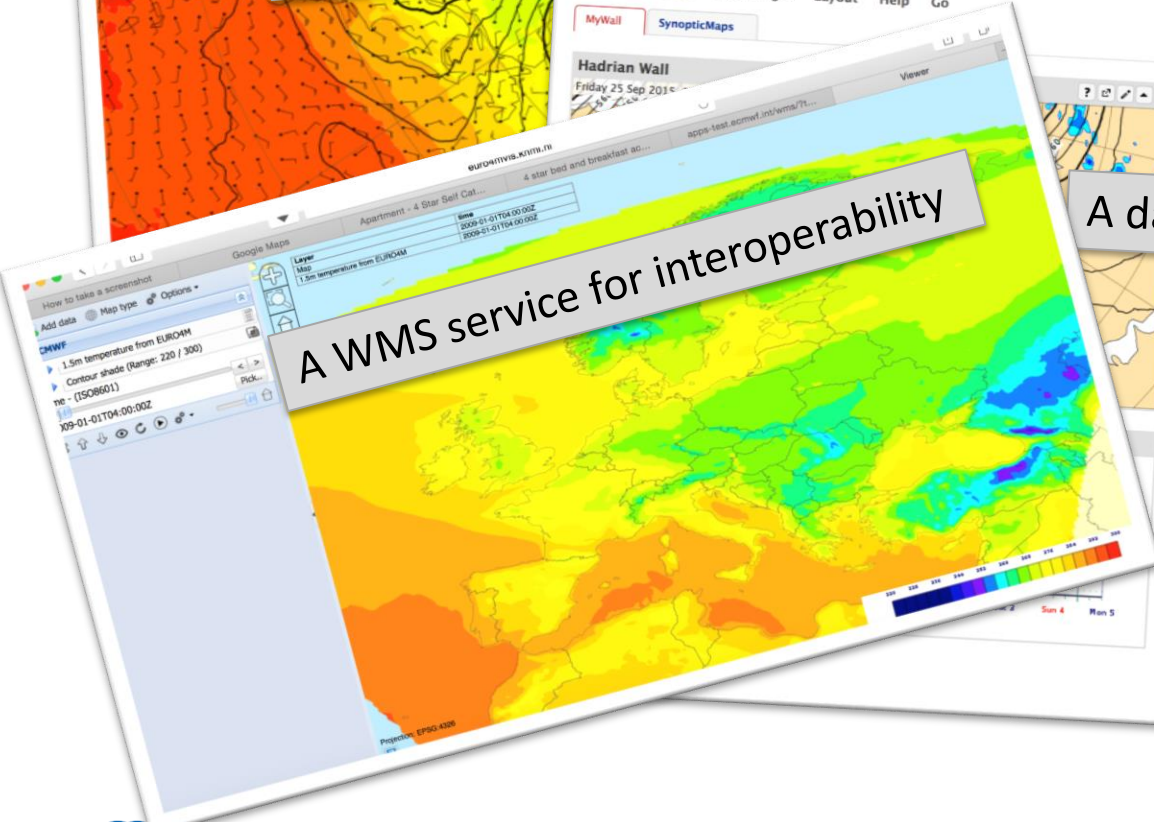


Cihan Sahin, Sylvie Lamy-Thépaut, Tim Orford,
Carlos Valiente, Baudouin Raoult

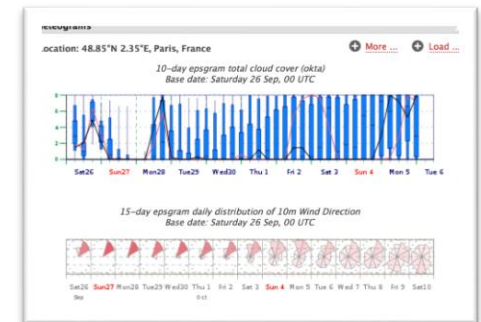
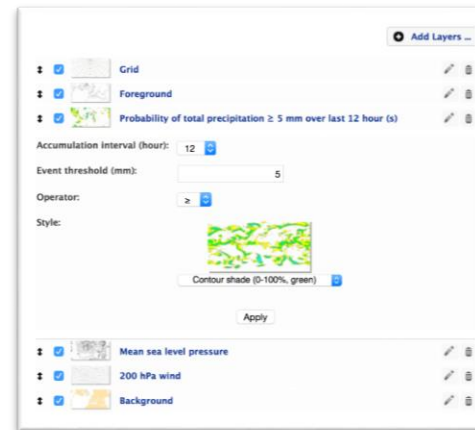
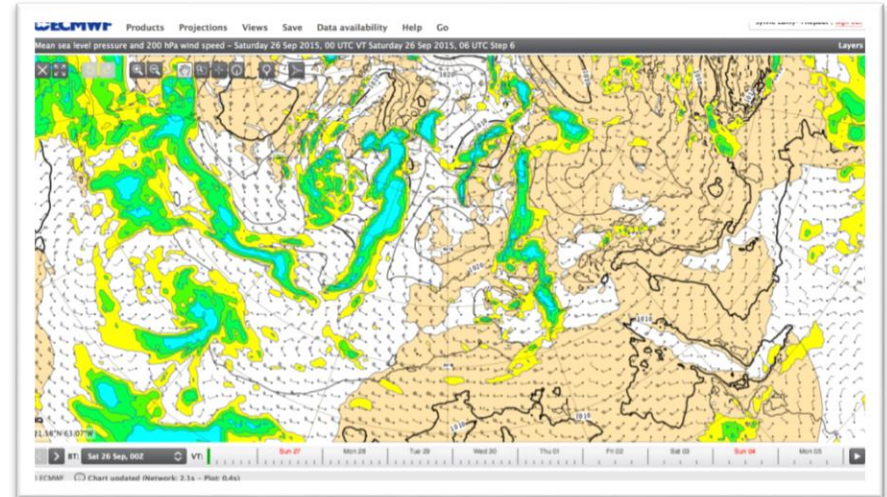
ECMWF

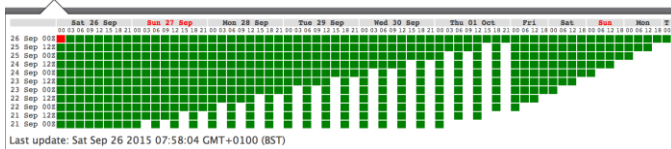
What is ecCharts?



The Challenges

- Access to high resolution forecast
- Full control of the visualisation
- Computation on the fly
- Additional graphs :
Times-series,
Meteograms
- WMS
- Operational
- Release process
- New products and next steps.





Data in ecCharts

- Use of the data in their native resolution as soon as they become available.
- More than 160 meteorological parameters are available for visualisation.
- More than 210000 fields are pushed twice a day.

The User Interface

The screenshot displays the ECMWF web interface. At the top, the navigation bar includes the ECMWF logo, menu items (Products, Projections, Views, Save, Data availability, Help, Go), and a user profile (Sylvie Lamy-Thépaud | Sign out). The main content area shows a weather map titled "Mean sea level pressure and 200 hPa". A "Filter:" input field is positioned above the map. Below the map, there are three projection thumbnails labeled "Greece", "Euro atlantic", and "France". A "Grid" control is visible with a checked checkbox. On the right side, there is a "Layers" panel with an "Add Layers ..." button and a list of layers, including "Precipitation ≥ 5 mm over last 12 hour (s)".

An "ECMWF Layers" dialog box is open in the center, allowing users to select layers to add to the current chart. It features a "Filter:" input field containing the text "tempe". The dialog lists four temperature layers:

- 700 hPa temperature (700 hPa temperature) - Add to map
- 600 hPa temperature (600 hPa temperature) - Add to map
- 500 hPa temperature (500 hPa temperature) - Add to map
- 250 hPa temperature (250 hPa temperature) - Add to map

At the bottom of the interface, there is a time navigation bar showing "BT: Sat 26 Sep, 00Z" and "VT: Sat 26 Sun 27". A footer note states "© ECMWF Chart updated (Network: 0.6s - Plot: 1.6s)".

The User Interface

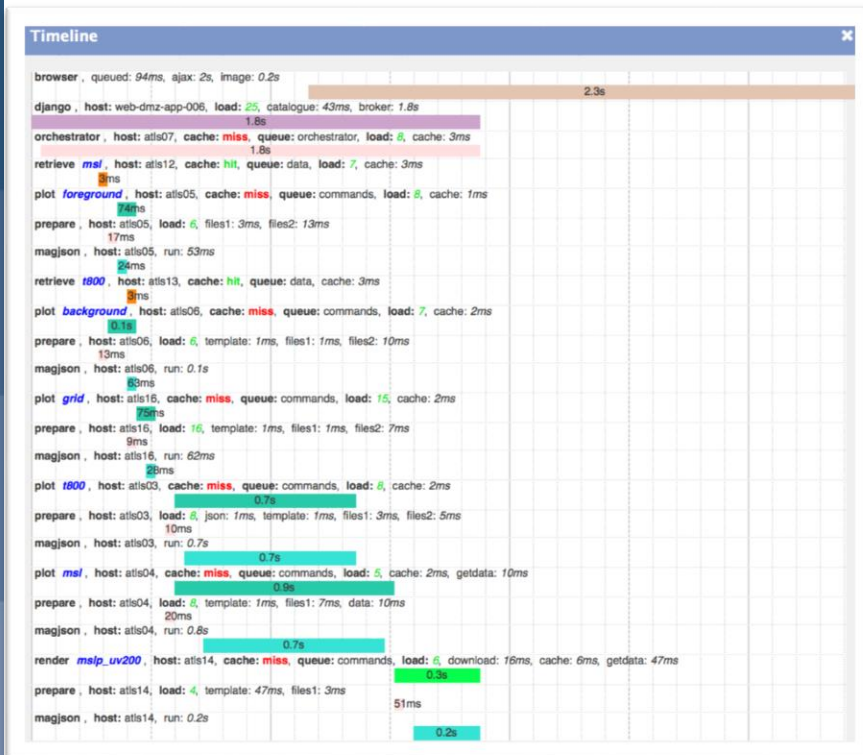
The screenshot displays the ECMWF web interface. At the top left is the ECMWF logo. The navigation menu includes 'Products', 'Projections', 'Views', 'Save', 'Data availability', and 'Help'. On the top right, the user 'Sylvie Lamy-Thepaut' is logged in with a 'Sign out' link. The main header shows the current view: 'Mean sea level pressure and 200 hPa wind speed - Saturday 26 Sep 2015, 00 UTC VT Saturday 26 Sep 2015, 12 UTC Step 12'. The background is a weather map of Europe with a color-coded pressure field and wind vectors. A 'Save Product as ...' dialog box is open in the center, containing the following fields:

- Name:** My Product
- Description:** Nice colorful product for my presentation |
- Keywords:** (empty field)

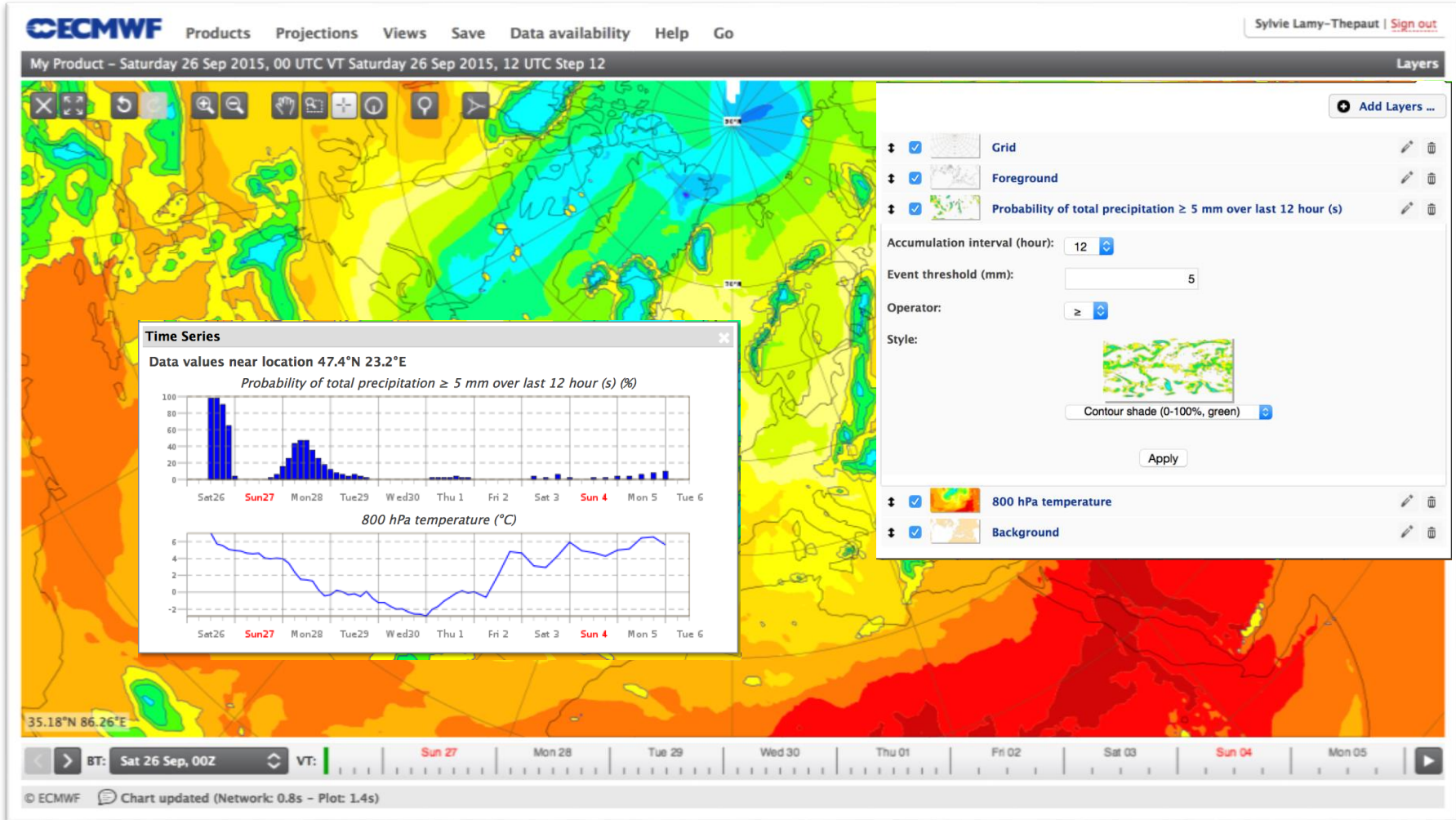
At the bottom of the dialog are 'Cancel' and 'OK' buttons. Below the map is a timeline navigation bar showing dates from 'Sat 26 Sep, 00Z' to 'Mon 05'. The status bar at the very bottom indicates 'ECMWF Chart updated (Network: 0.7s - Plot: 3.6s)'.

Behind the scenes

- Each meteorological parameter are rendered in parallel.
- Data are fetched
- Data and Style are sent to a Magics service for plotting.
- Layers are finally combined

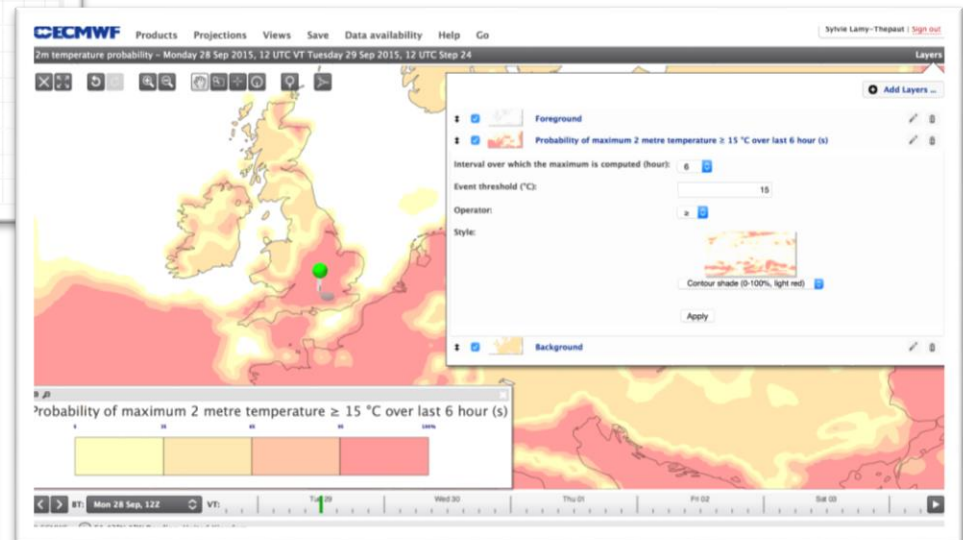
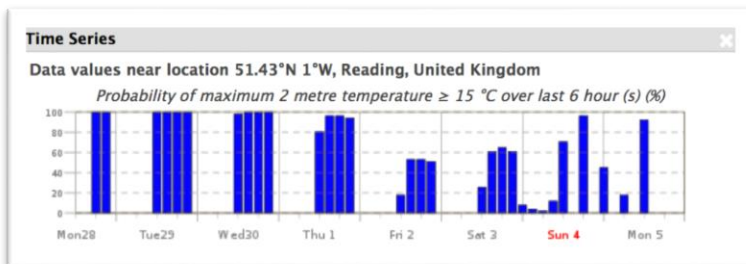
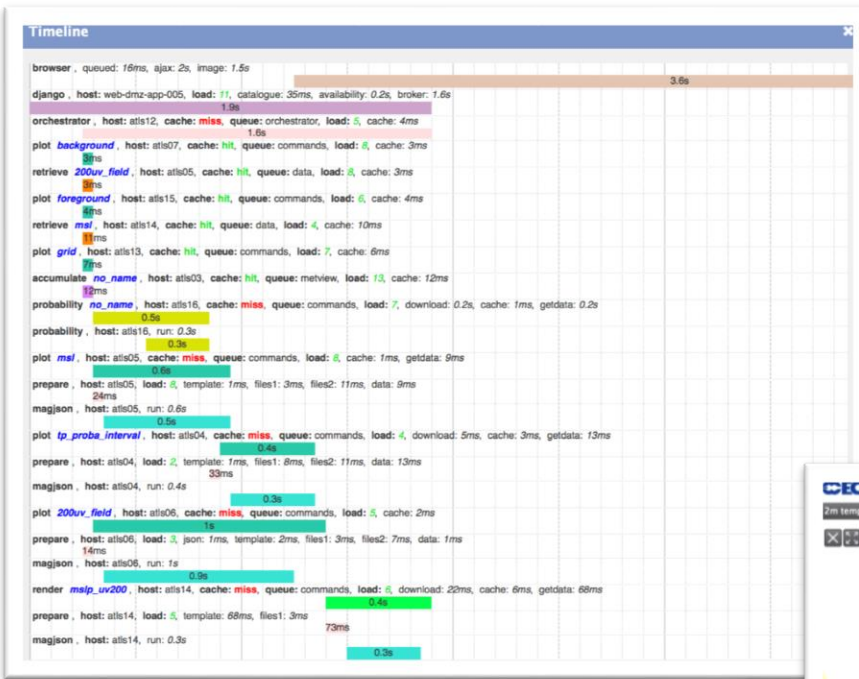


Tools to investigate

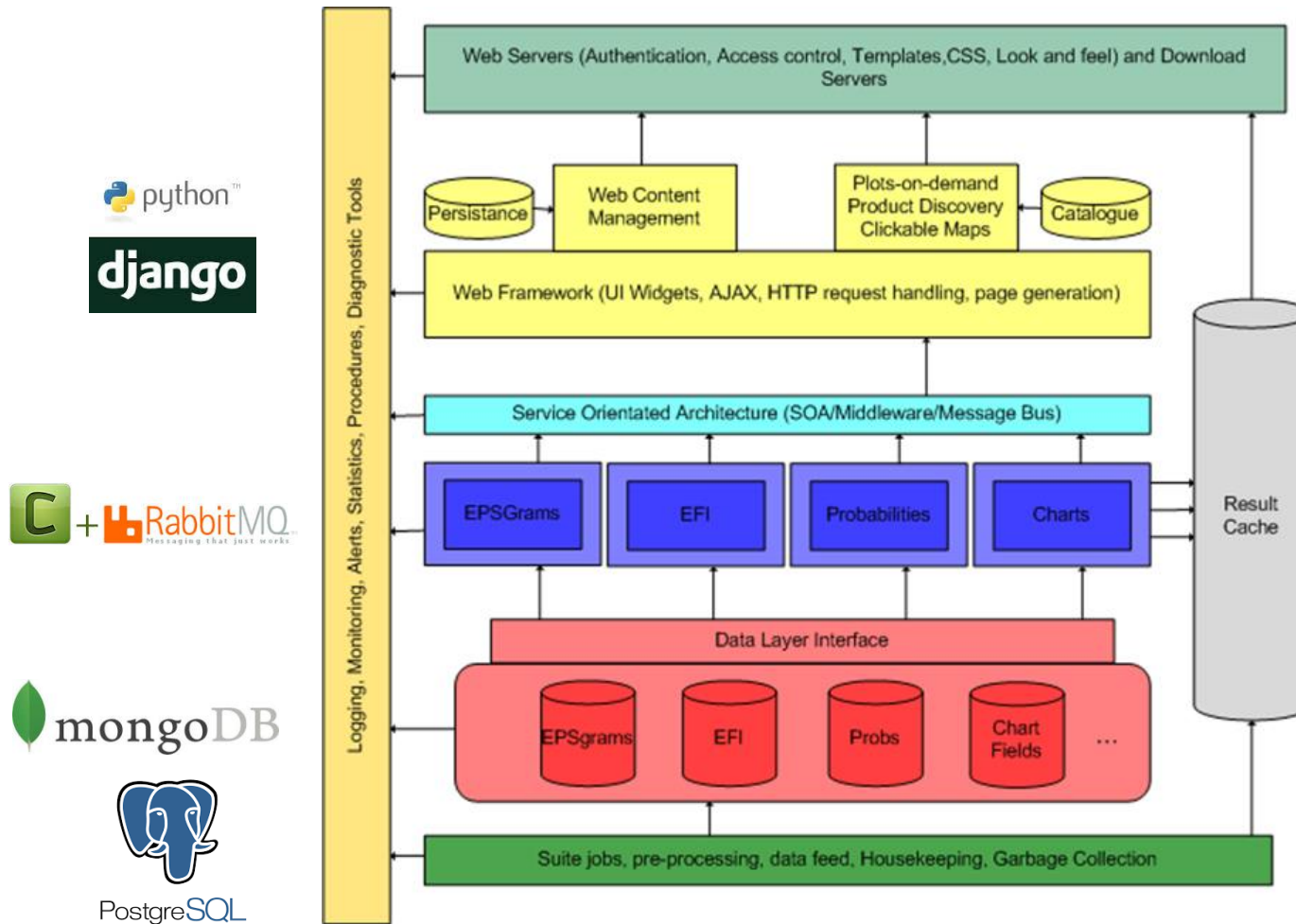


Behind the scenes

- Probabilities have to be computed first.
- Result is cached.
- Plotting as usual.

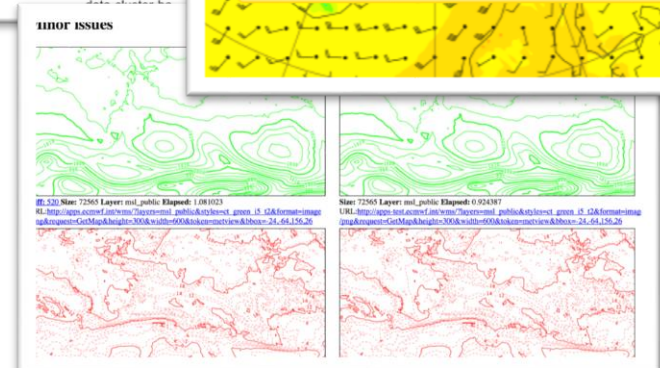
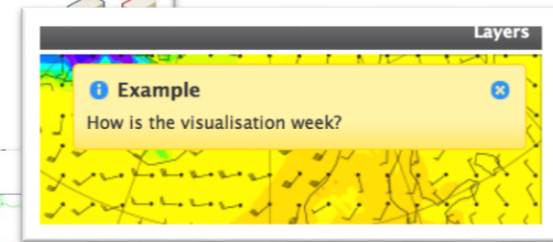
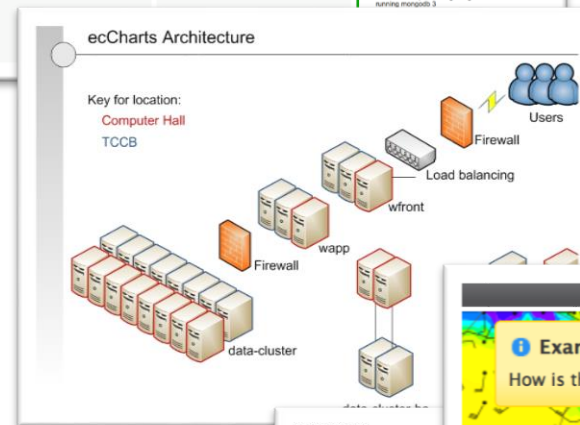
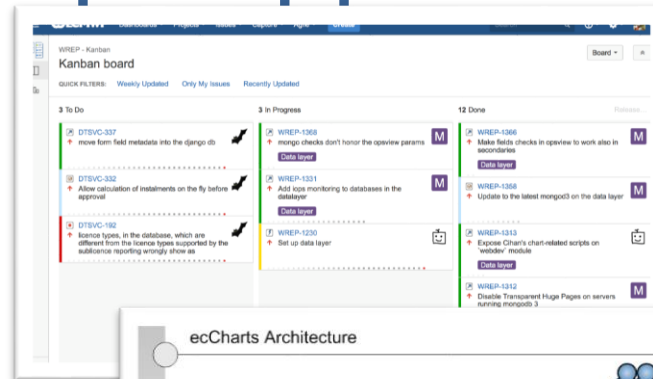


ecCharts Framework

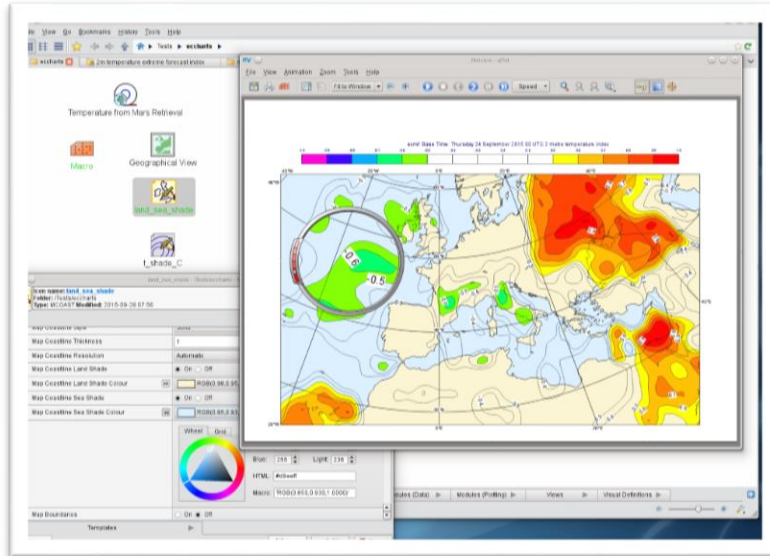


The release process: The DevOps approach

- Release every 2 weeks
- 2 Identical clusters
 - 1 in operation
 - 1 in integration
- Notifications in place
- Testing procedures
- Identify the bottlenecks

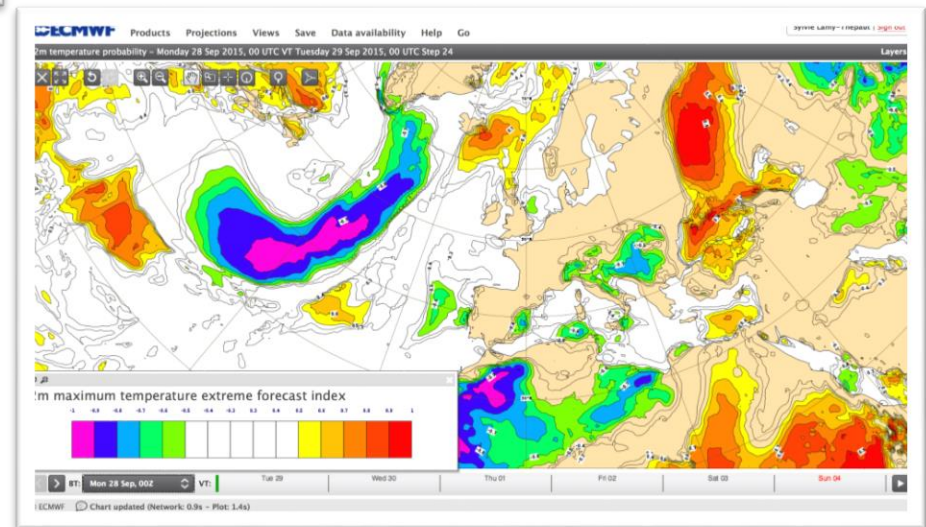


From Metview to ecCharts



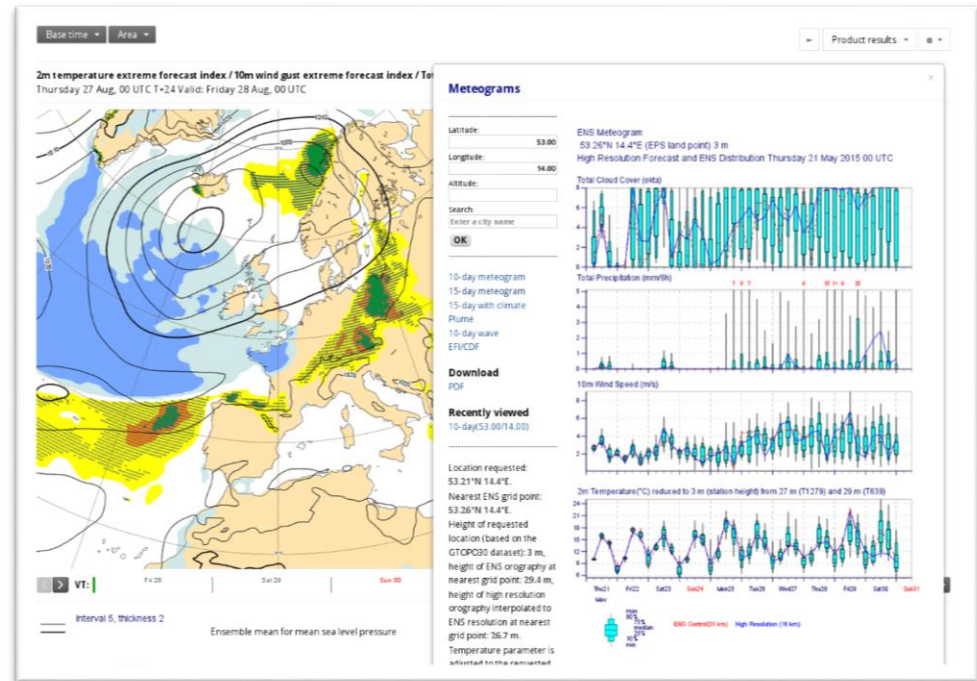
- Prototype is created in Metview
- Computations are prepared
- Styles are designed

- Data are pushed to ecCharts
- Products are added to the catalogue
- Styles are added to the library



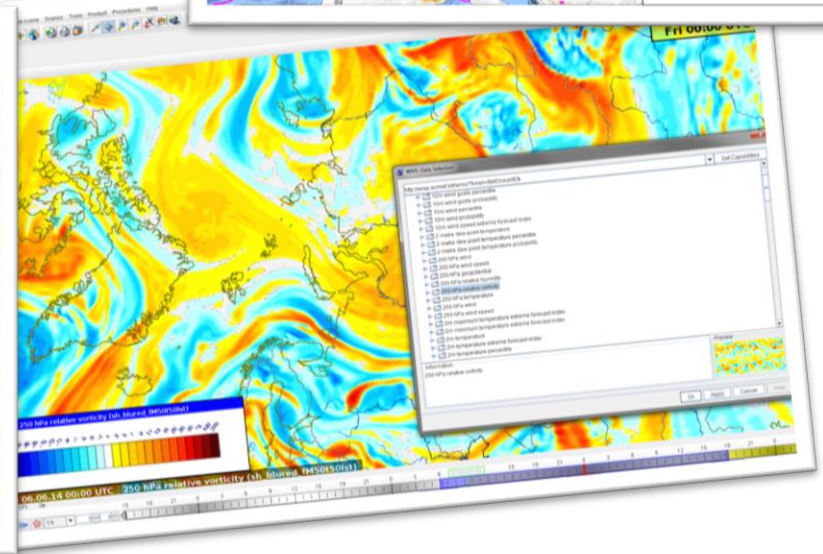
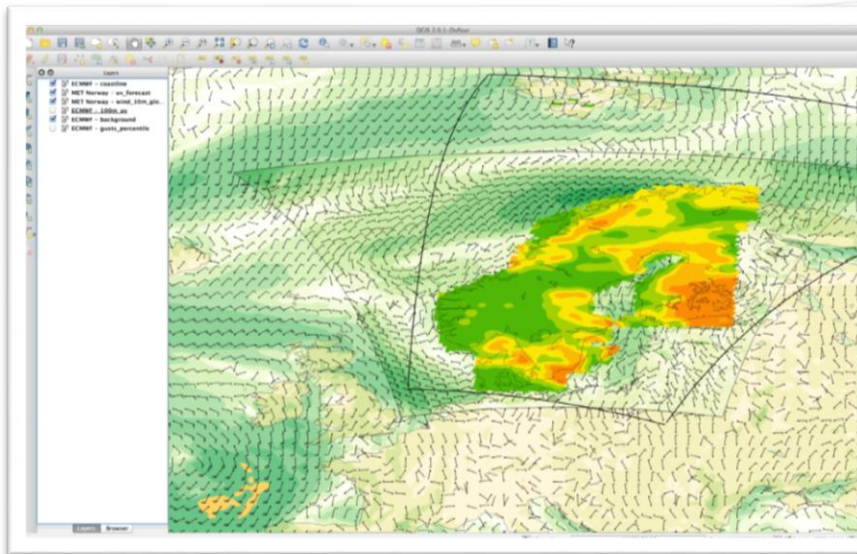
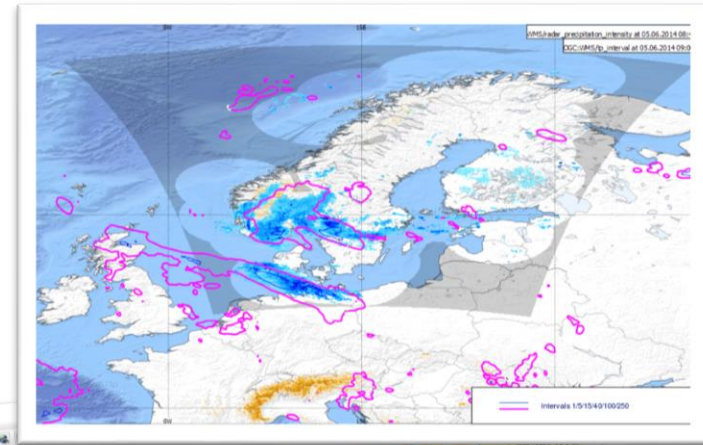
From ecCharts to WWW

- Reuse ecCharts framework for WWW Charts.
- Use of the native resolution
- Enable clickable features



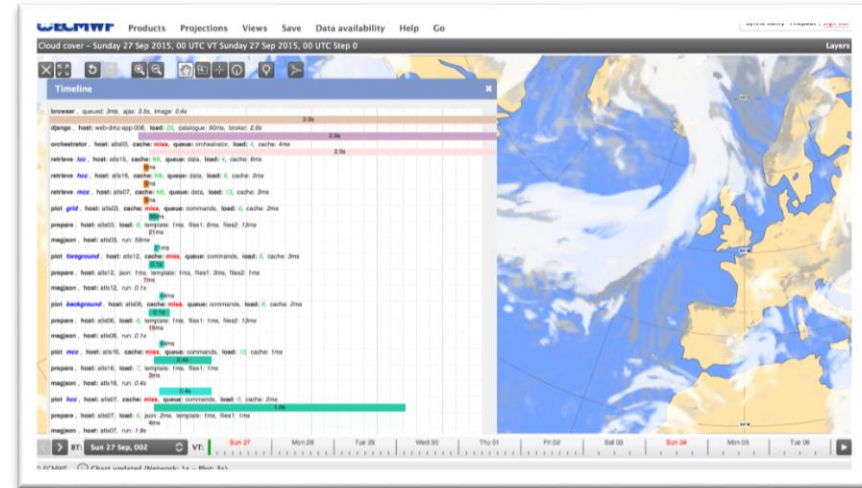
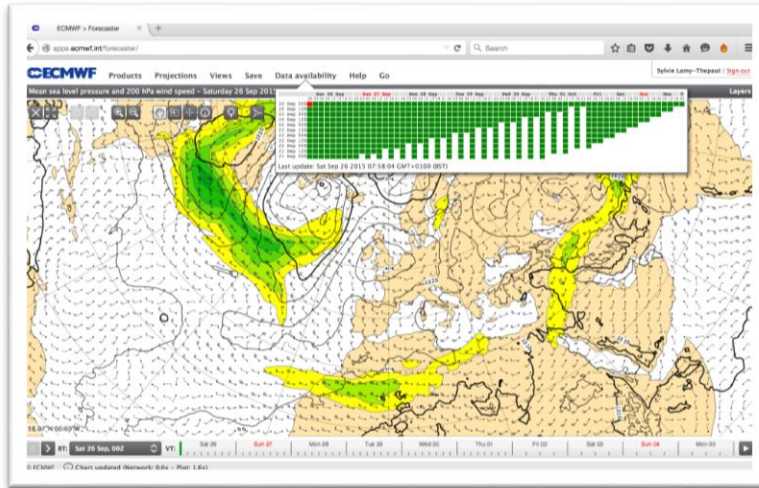
Interoperability: ecCharts WMS

- All ecCharts layers are available to our users.
- Coming soon :
getCapabilities 1.3

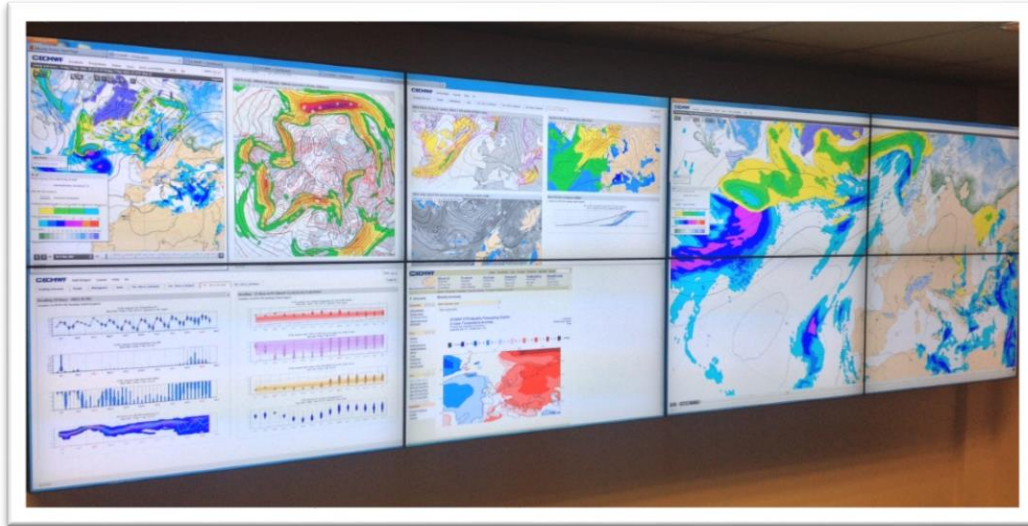


The present and the future

- Solid Framework
- Rapid release cycle
- Easy introduction of new products



- Add new services, extend to esuite
- Extends the use of the ecCharts framework to WWW



Thank you!

eccharts-support@lists.ecmwf.int.