Synergie-Web

Synopsis Project

EGOWS

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mfi METEO FRANCE INTERNATIONAL

{SYNOPSIS}

METEO FRANCE
Toujours un temps d'avance

Content

Introduction

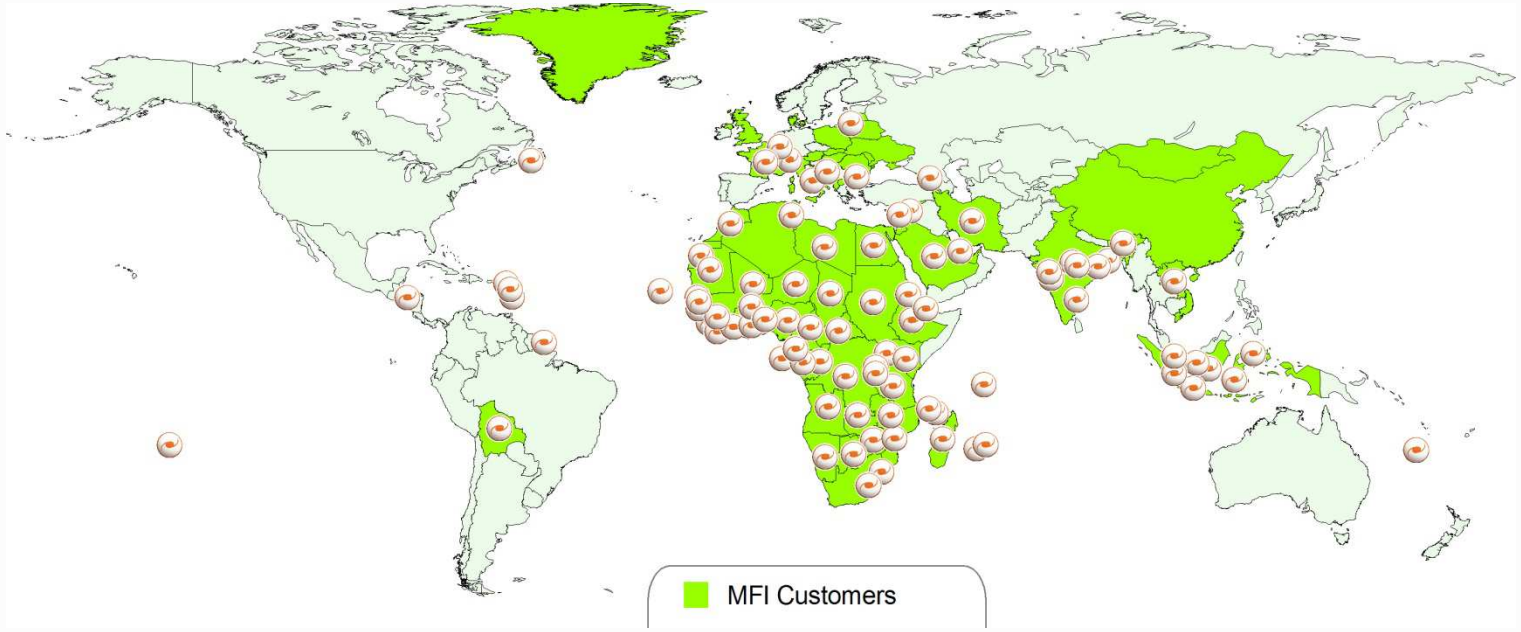
1. Change management

2. New functionalities

3. Technical issues and solutions

Conclusion

Synergie : a widely used system



- 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)

Synergie-Web : Introduction

- Project started in 2010, full version planned for 2016.
- Joint development by Météo-France and Météo- France International (MFI)
- Team : around 30 developers
- 2 main phases :
  - Visualization functionalities (end 2013)
  - Production functionalities:
    - First step : aeronautical production (end 2015).
    - Second step : all productions (end 2016)
- Used by meteorological center forecasters everywhere in France.

Why Synergie-Web ?

Main functional specifications

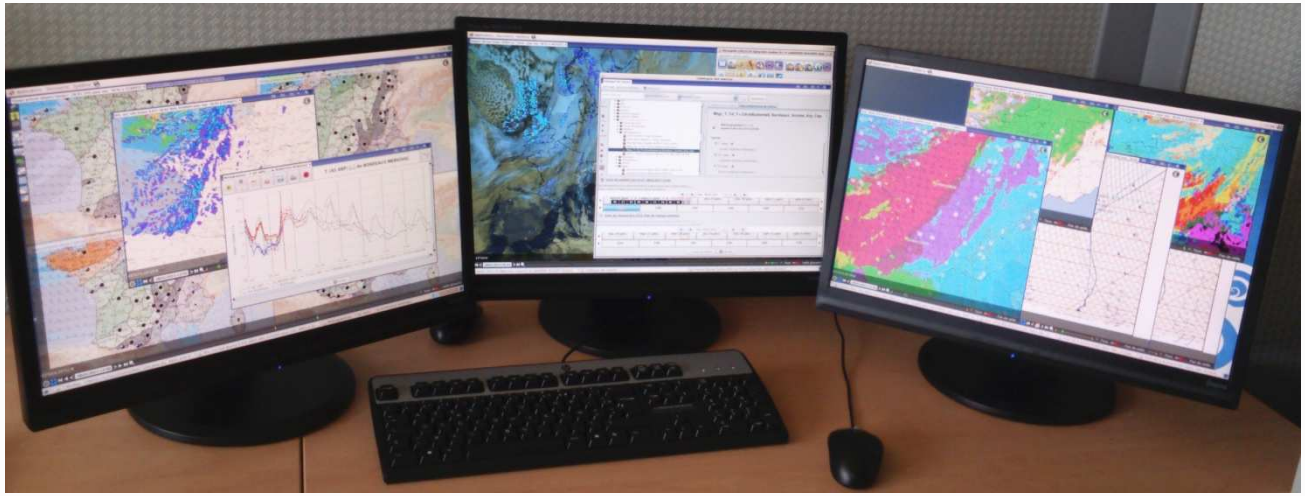
- Interoperability (Web Services, OGC)
- Unrestricted spatial navigation (zooming & panning)
- Adaptive Catalog (lot of data !)
- « Customizable » GUI (bookmarks, preferences)
- Continuous link between past and future data (seamless vision)

Main technical specifications

- SOA (Service-Oriented Architecture)
- Single and multi-platform UI
- Horizontal Scalability (enable cluster configuration or light/standalone configuration)
- Dynamic adaptation to the data flow

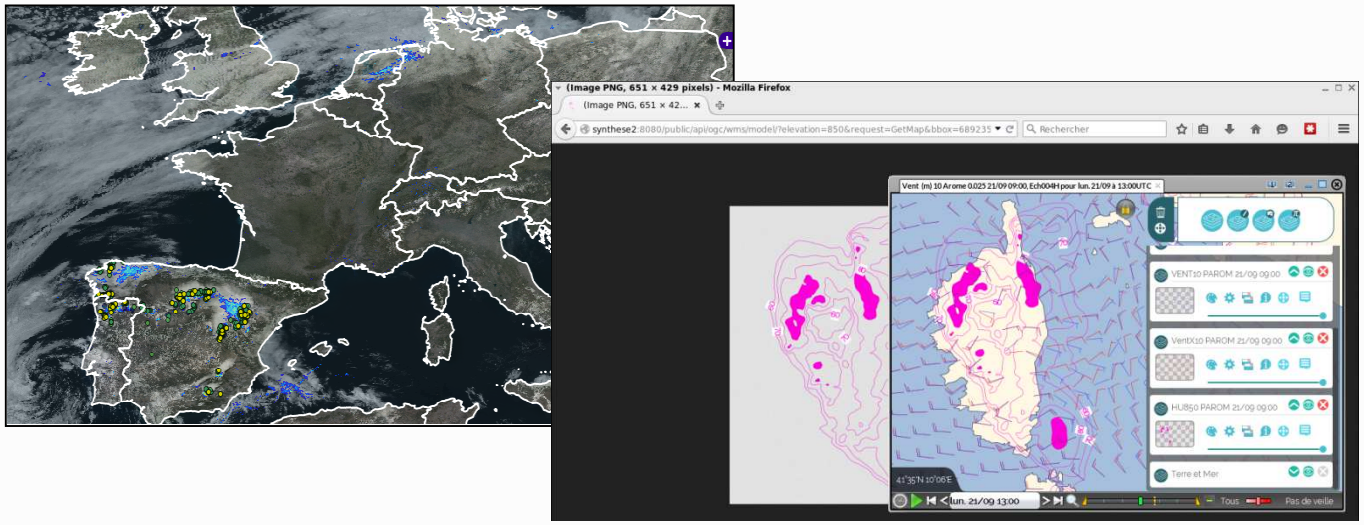
Synergie-Web : usage

- Up to 120 users simultaneously
- 600 forecasters trained
- More than 1000 users
- 250 atomic requests handled per second



Architecture reminder

- Web Oriented Architecture (WOA)
  - SOA reshaped and simplified by RESTful concepts
- Divided in 10 main and independent modules
- Main visualizations implemented on the server side
- A map is a collection of different layers
  - Each layer is provided through WMS-like protocol



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Change processes

Management of the first deployment in 2014

GUS (alpha testers) : Synergie-Web User Group

- 40 representative (and motivated) forecasters
- 2 meetings each year since 2012.
- Organized in thematic work groups (aviation, marine, etc)

Beta testers (pilots forecasters).

Distributed training (tutor of tutors)

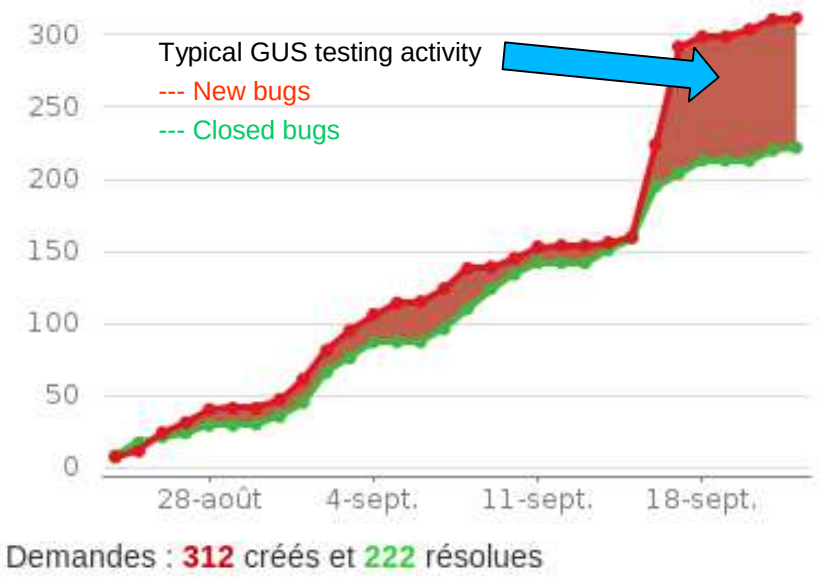
Typical GUS meeting

- Context review
  - Recent steps in software development
  - Technical issues
  - Roadmap

- Interacting with developers
  - New functionalities demonstrated by developers
  - Functionalities and ergonomics discussed in specialized groups
  - Users in operations observed by developers

Typical GUS meeting

- Testing session
  - -Intense
  - -Collective
- Requirement review
- Change management :
  - -studying impact on forecast organization



Change management

Distributed training

- 32 trainers
- 175 training sessions in 2014
- 620 trained users in 2014

Beta testing

Beta testers (pilots forcasters)

- 32 motivated users
- Testing the application in real context

Change processes

Main Issues induced by change

First version very well accepted by users

Change management still in progress

- Specialized formation for aeronautical and snow forecasters

The new architecture involves different application behavior :

- Centralized architecture involves technical challenge in regard of optimal performances (Web user experience vs Desktop experience)

- Significant increase of new functionalities and data, involves a continuous challenge for keeping User interface understandable and easy to use

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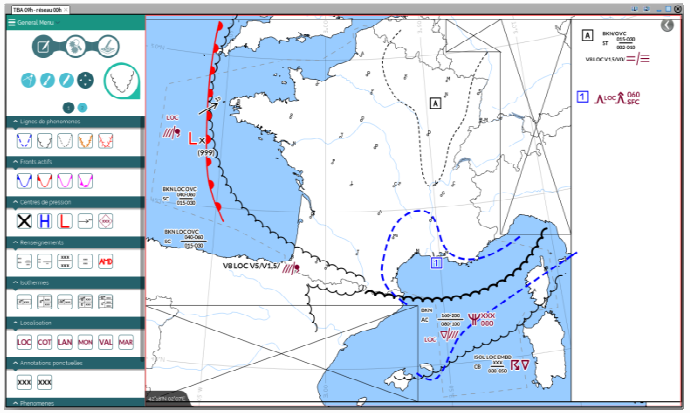
Synergie-Web version 2015

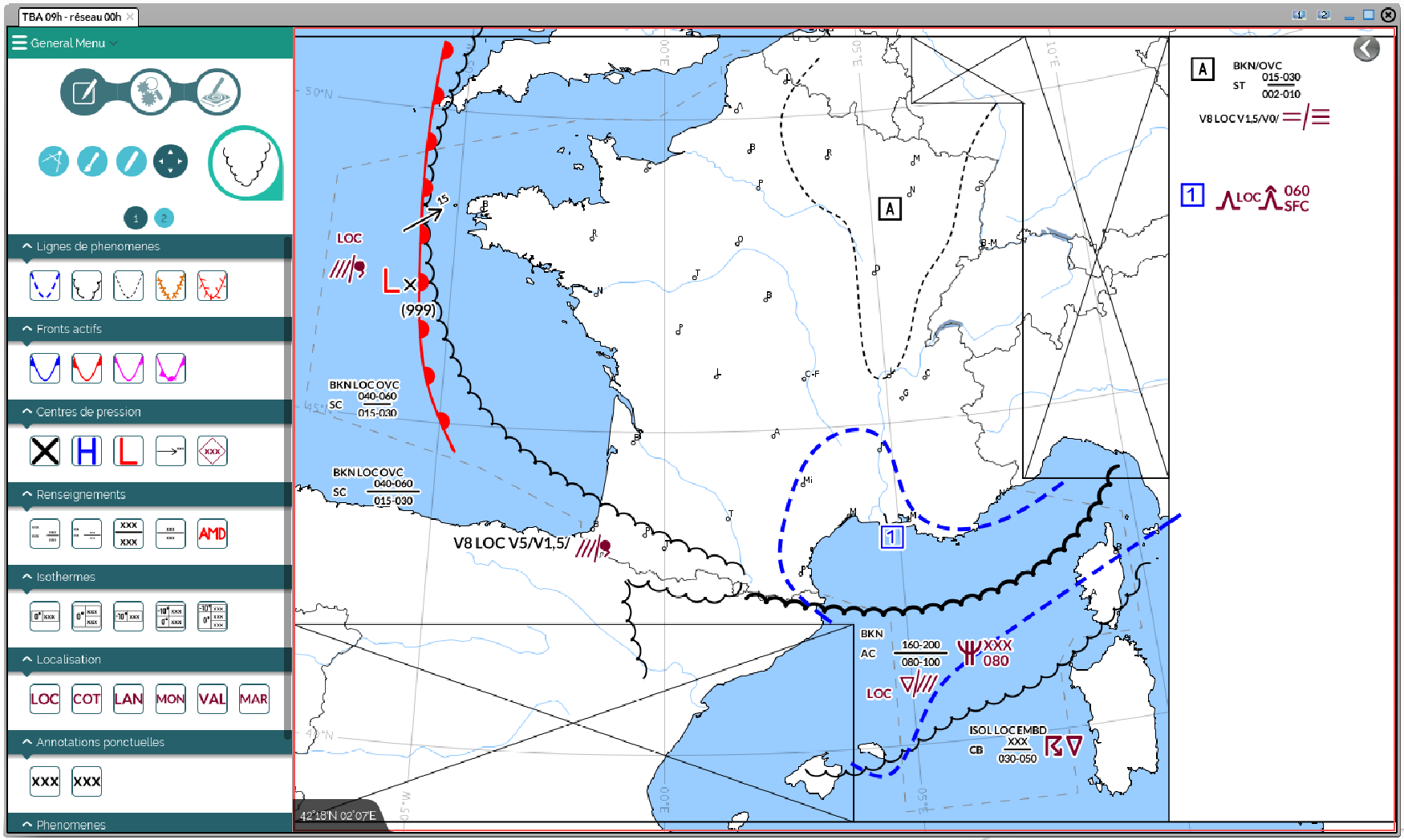
- SIGWX production
- Collaborative dashboard
- Collaboration through shared drawing layers
- Conditionnal styling
- Mathematical functions
- Alarms
- Advanced event logging

Synergie-Web version 2015 : SIGWX Production

- Pre-configurated chart (legend, symbol, etc)
- Sharing drawing layers
- Store product layers in different formats
- Production of a preview



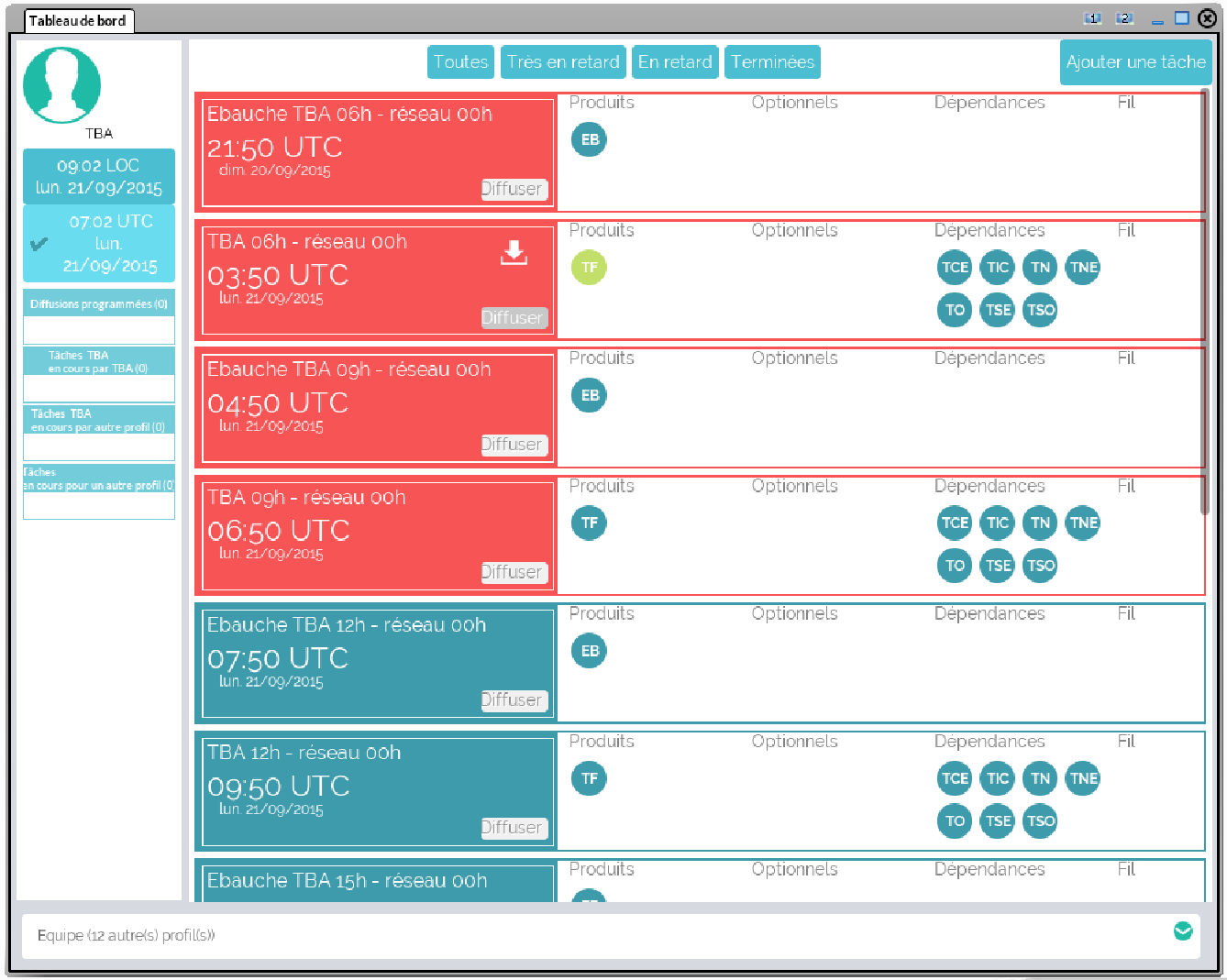
Synergie-Web version 2015 : SIGWX Production



Synergie-Web version 2015 : Collaborative dashboard

- Lists current tasks and advancement
- Shows actions of other forecasters
- Allows task sharing
- Provides access to products preview
- Handles products diffusion
- Handles products amendement

Synergie-Web version 2015 : Collaborative dashboard

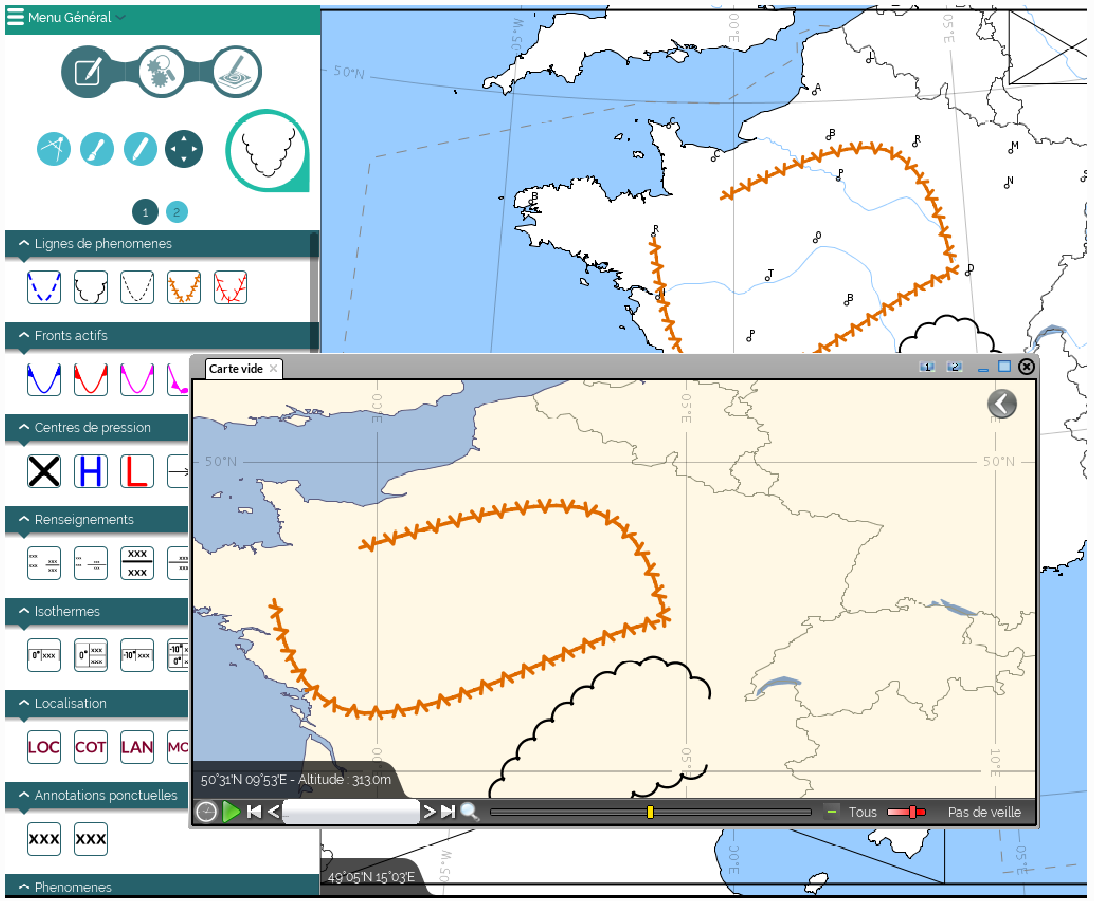


Synergie-Web version 2015 : Shared drawing layers

- Local sharing through local event bus
- Distant sharing uses chat protocol xmpp

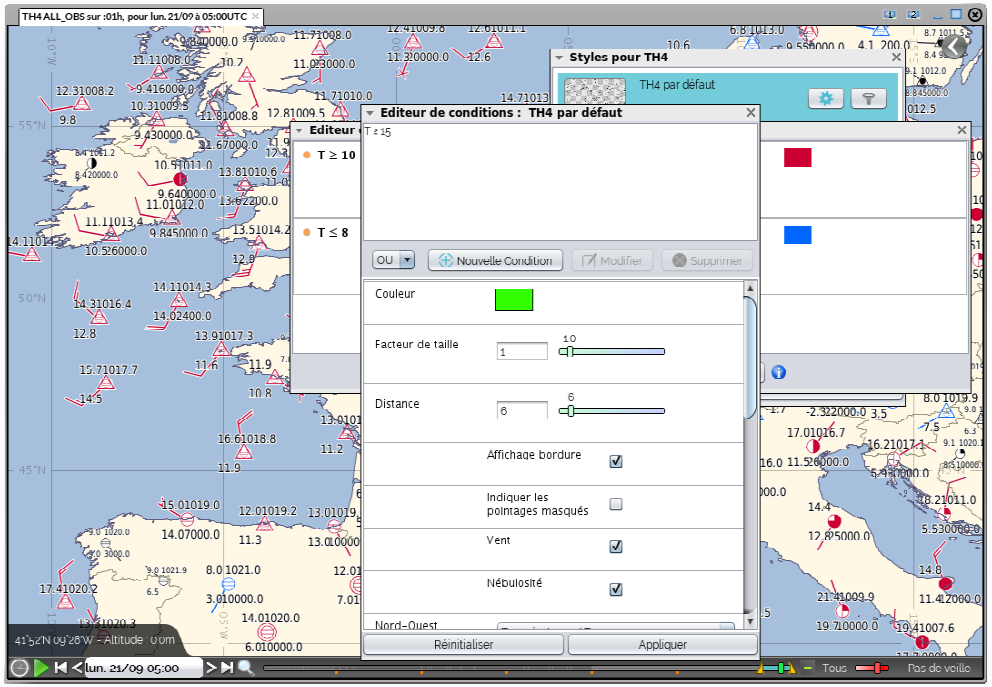
  - a shared layer is a chat room

- Loose coupling and conflict detection



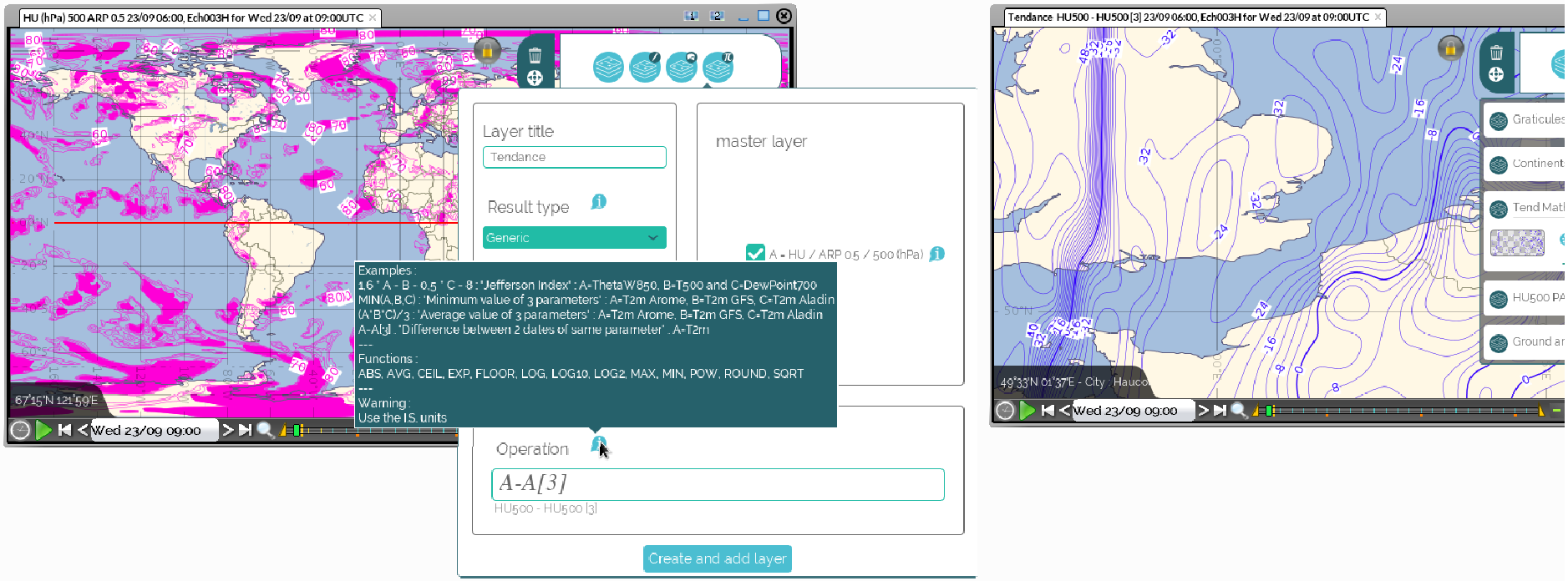
Synergie-Web version 2015 : Conditional Styling

- Dynamically configured by the server
- Using an mathematical expressions editor
- Multiple cross-parameters conditions
- Modifiable style for multiple elements



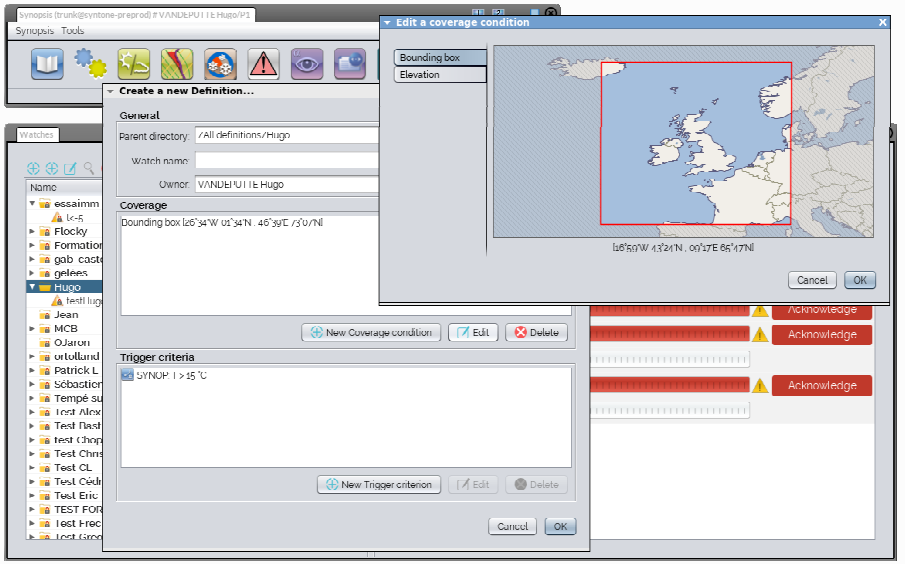
Synergie-Web version 2015 : Mathematical functions on layers

- Define a formula using layers on a map
- A new field is computed on the server
- The field is automatically on the map
- The field is added in the server capabilities



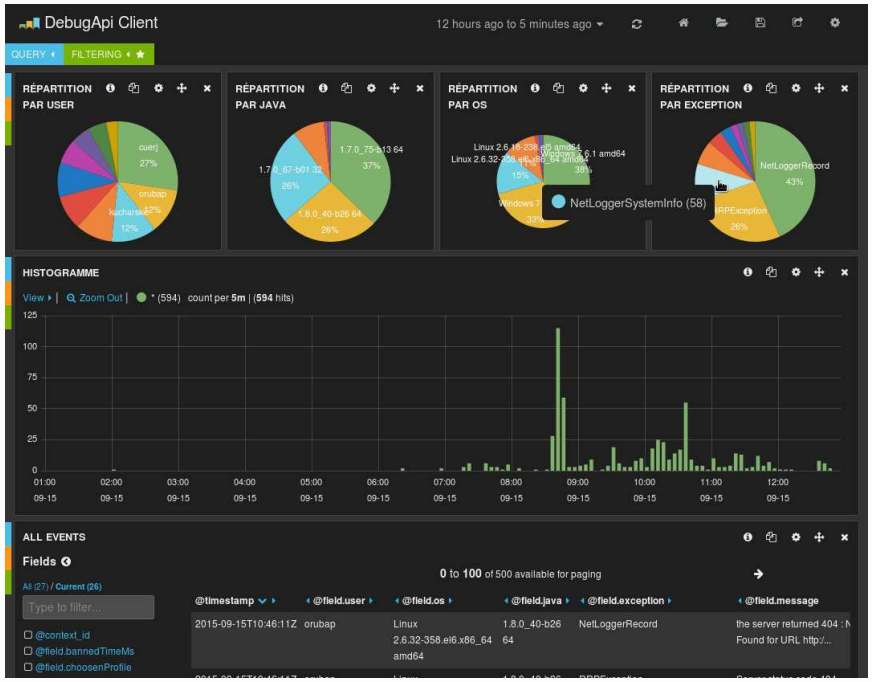
Synergie-Web version 2015 : Alarms

- Created by users
- Registred on server
- Active after one subscription
- Detecting new events
- Acknowledges are local
- Using elasticsearch on server side



Synergie-Web version 2015 : Advanced event logging

- Local file logging
- Critical events are logged on the server, including stack traces
- Details about remote configuration are associated
- Kibana interface is provided for log filtering and analysis



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Some examples of technical issues and solutions

- Performances issues because of XML encoding (WMS GetCapabilities): use of the protobuf protocol instead for internal interface
- Extensive use of JSON for non WMS exchanges
- WebRenderer component replaced by JavaFx WebView and WebEngine
- Javaws instability : development of a pure java launcher providing similar functionalities
- Java 8 : bugs of unknown origin in Swing components : rewriting of this components.

Conclusion

Conclusion

- First version very well accepted by users
- New version 2015 is currently in testing and will be deployed in november
- Change management still in progress (Specialized formation for aeronautical and snow forecasters)
- Next version 2016 target is to replace the current operational system (Synergie)
- Synergie-Web version 2016 will be the first version for abroad customers (MFI).
- Important developments are already in progress for this next version, the discussions of this workshop will hopefully help a lot !

Thank you for your attention