

# Progress and plans at Météo-France

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# Outline

- Recent operational Arpege and Arome changes
- New NWP systems based on Arome
- Next e-suite
- Outlook on plans for the NWP systems at MF

# Arpege and Arome recent operational changes

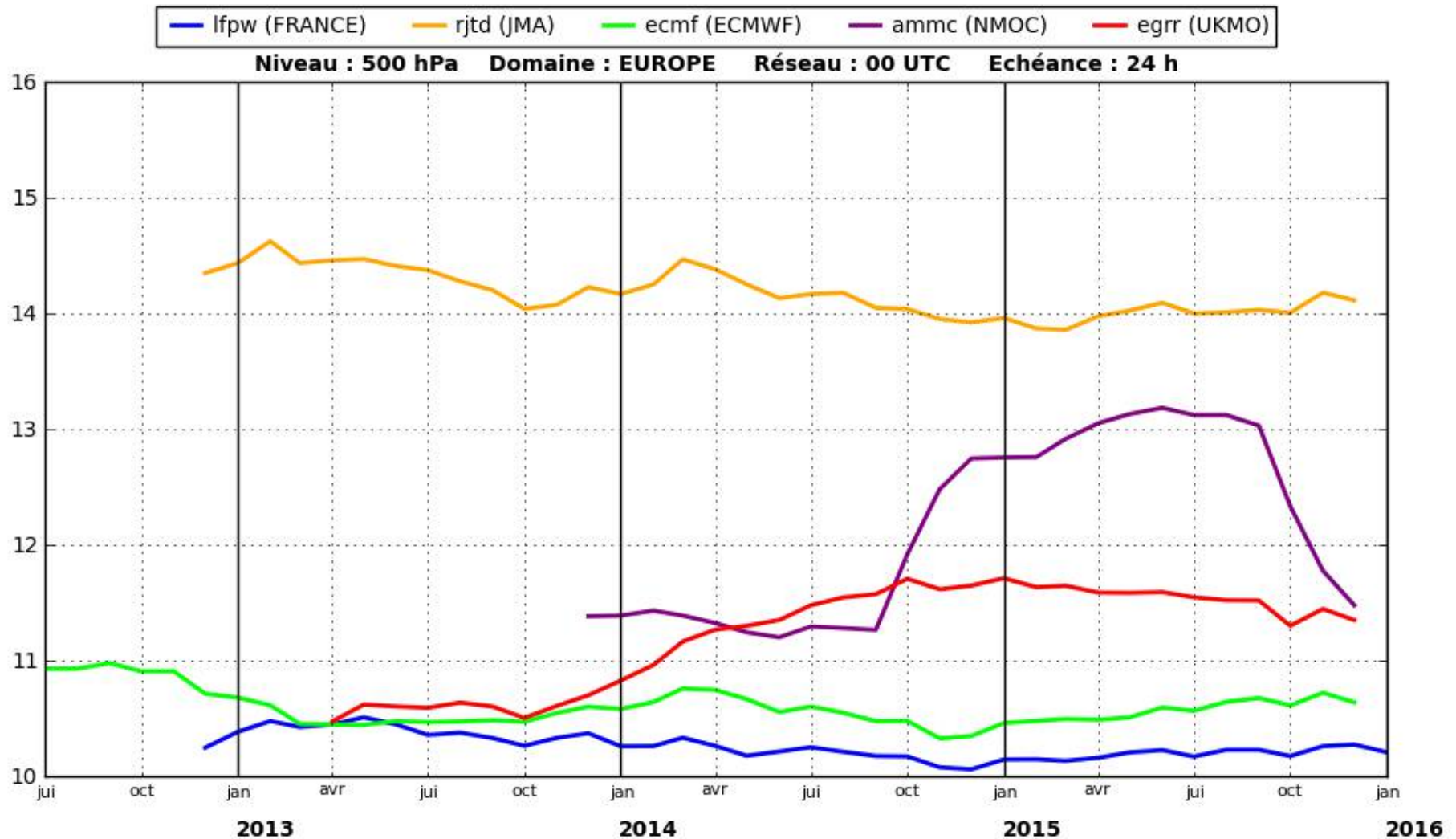
- **Higher resolution for the global model: 7.5km over Western Europe, 105 vertical levels (before: 10km/70) ; about +25% more obs used in Arpege ; operational on **13 April 2015****
- **At the same time, the resolution of Arome-France also was increased (1.3km/90 levels)**
- **This change was followed by an overhaul of the production of coupling files for Aladin partners, taking benefit of the higher resolution of Arpege (in close coordination with Aladin/PM and ACNA)**
- **Move to a more modern code version (CY41T1) ; additional observations used in Arpege ; code optimizations ; subgrid orography effects ; operational on **8 December 2015****



# Arpege performance over recent years (WMO)

- RMSE of Geopotential at 500 hPa w/r to Radiosondes over Europe (WMO score), 24h forecast term

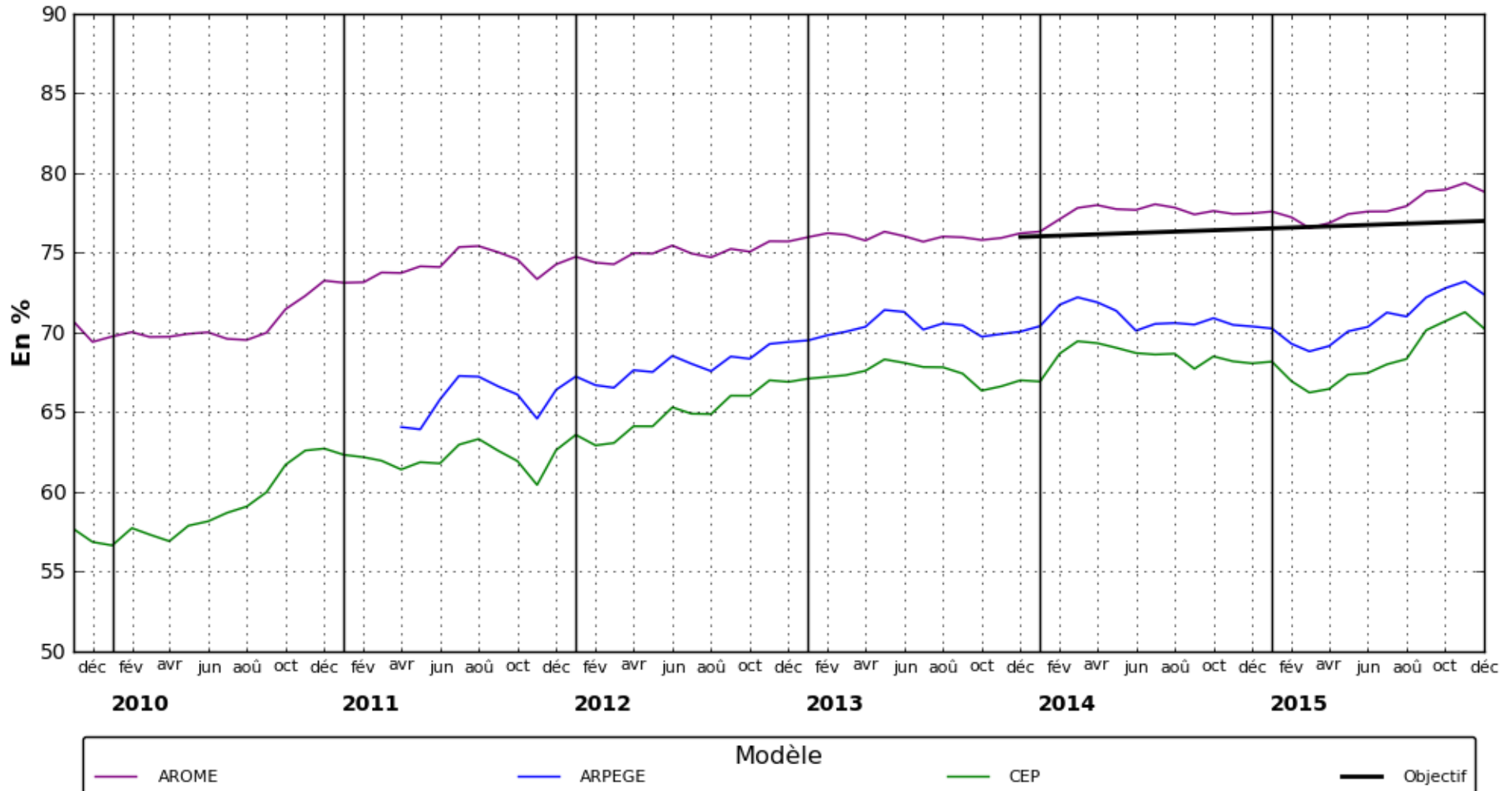
Erreur Quadratique Moyenne de prévision du géopotential (en m) par rapport aux radiosondages



# Arome composite score and added value w/r to global models

- IP16 is a composite score based on 6h precipitation and wind gust evaluation, for Arome-France

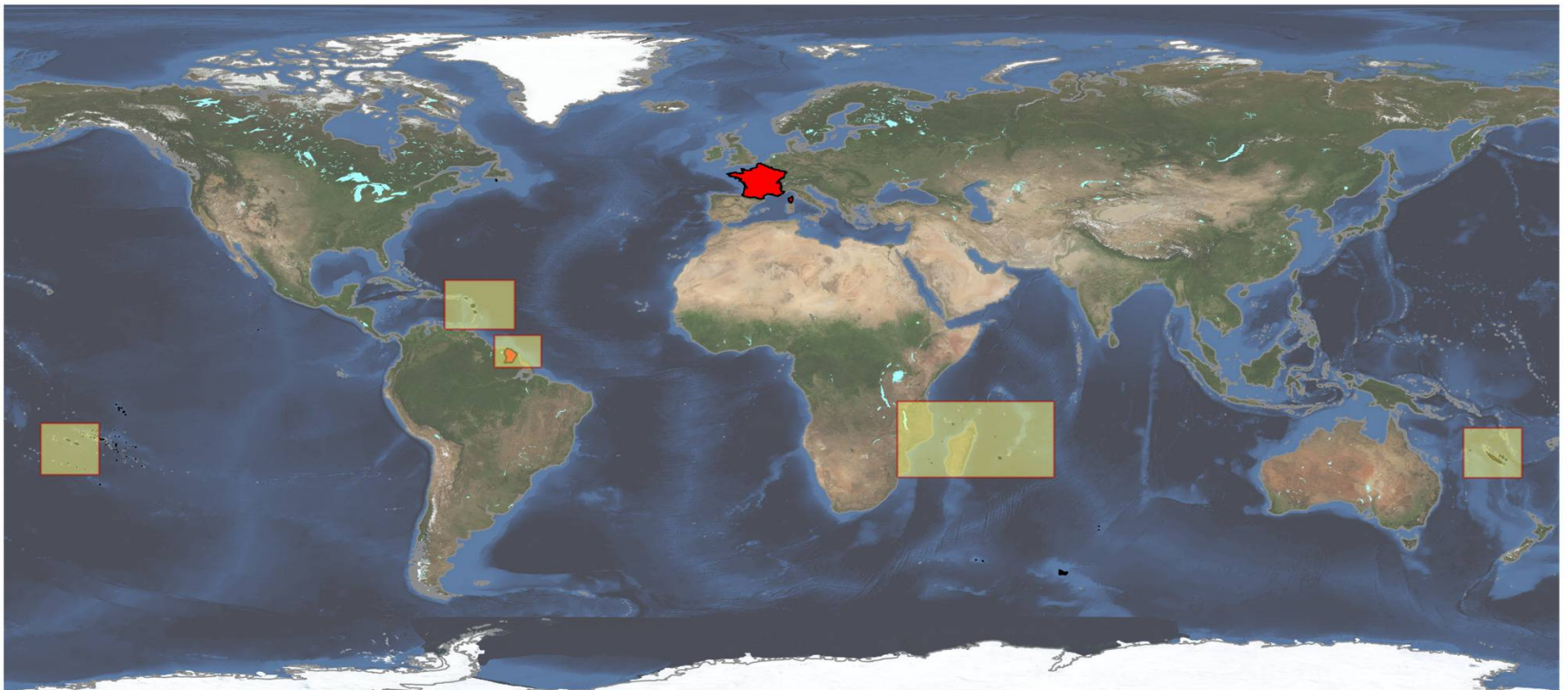
Comparaison IP16 avec les autres modèles



# Arome-Nowcasting & Arome-Overseas

**Arome-Nowcasting**: based on Arome-France 1.3km L90 on the same geographical domain : 6h forecast every hour based on 3DVar analyses. To be soon declared with operational status.

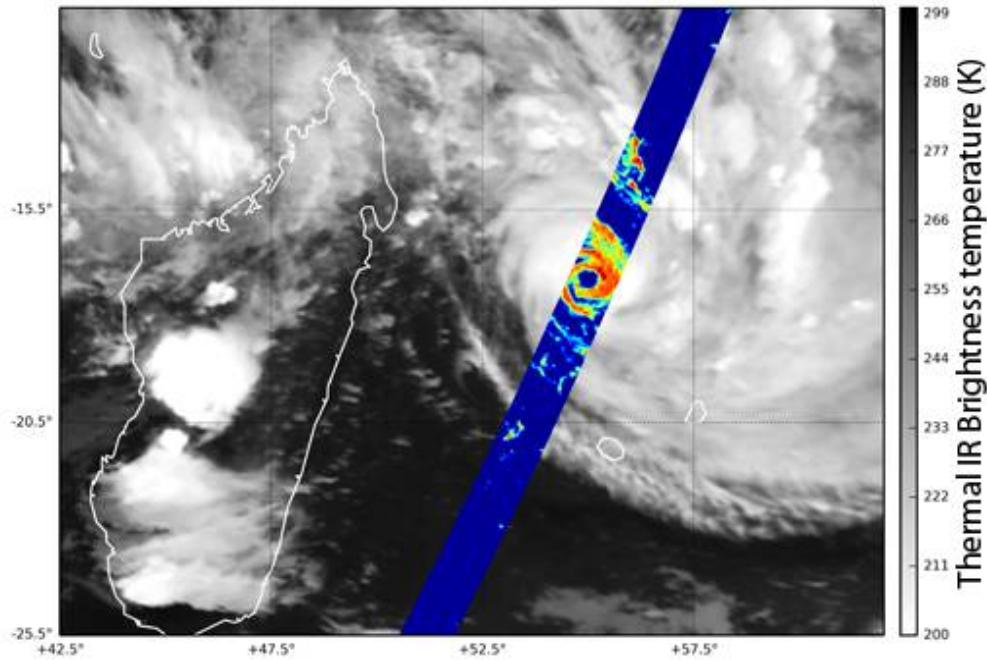
**Arome-Overseas** will replace current Aladin systems : based on Arome 2.5km L90 in dynamical adaptation. 5 domains. Pre-operational.



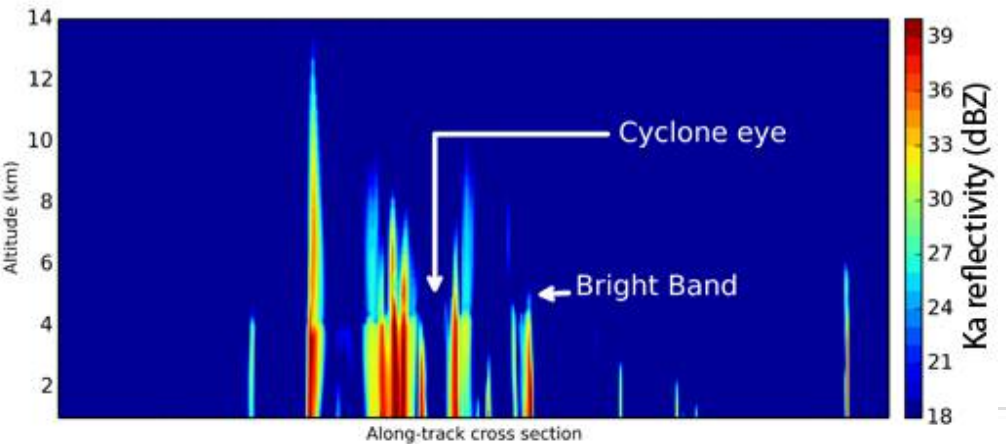
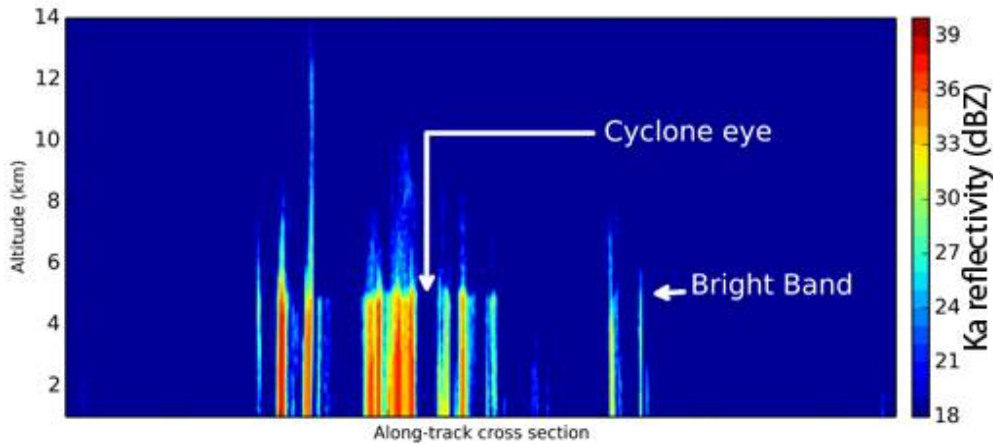
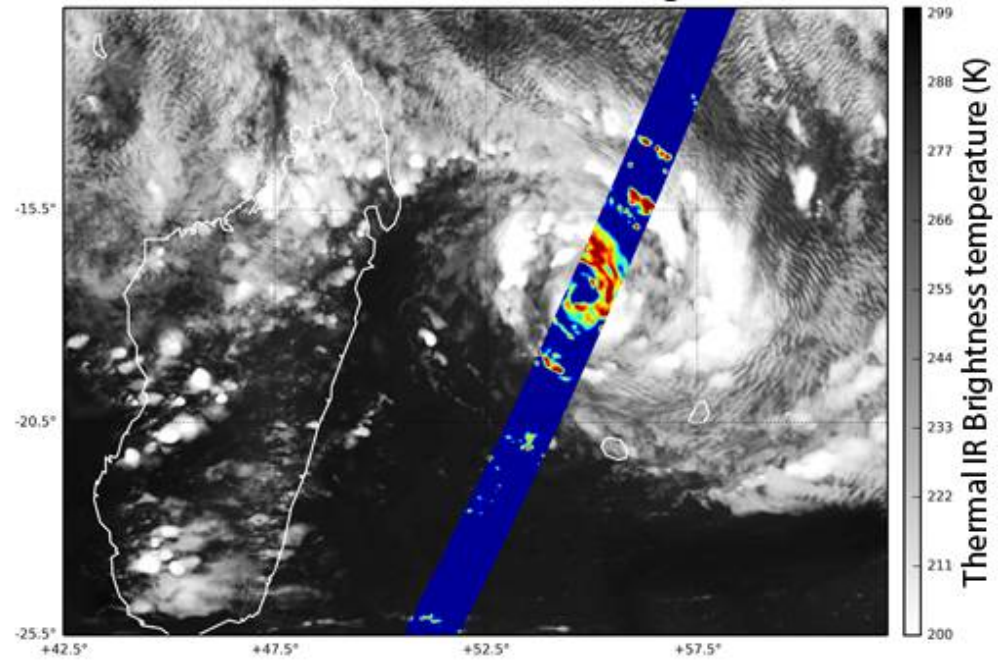


# Arome - Overseas

GPM Core and Meteosat observations



AROME +16h forecast range



(M.Borderies, G. Faure, P. Chambon)

# Plans 2016; outlook 2017-2018

- HPC at MF: migration to BULL Phase 2 computers (Jan-Sept 2016)
- Transfer to operations of the Arome-EPS (2.5kmL90, 12 members, twice a day)
- Next e-suite : starting mid 2016 (CY42\_op1 ou CY43t1\_op1 ?) : New convection scheme + Surfex in Arpege; operational switch beginning of 2017

2017-2018 and beyond:

- Arpege new resolution: about 5km over Western Europe ; very likely also an increase of the horizontal resolution of the Arpege EDA and EPS systems
- Extend the use of the ensemble approach for convective scale NWP: Arome-EDA, Arome-EPS 4times/day
- New satellites (China, JPSS1); scatterometer (ScatSat); Lidar winds from ADM-Aeolus; preparation for using IRS/MTG; (Arome) radar data from OPERA; MODE-S; all-sky microwave radiances
- Work towards improved physics aspects for Arome: microphysics (LIMA), coupling with ocean model, aerosol/radiation interaction
- Evaluate an ensemble-variational approach for DA