

SWFDP Steering Group

March 2016

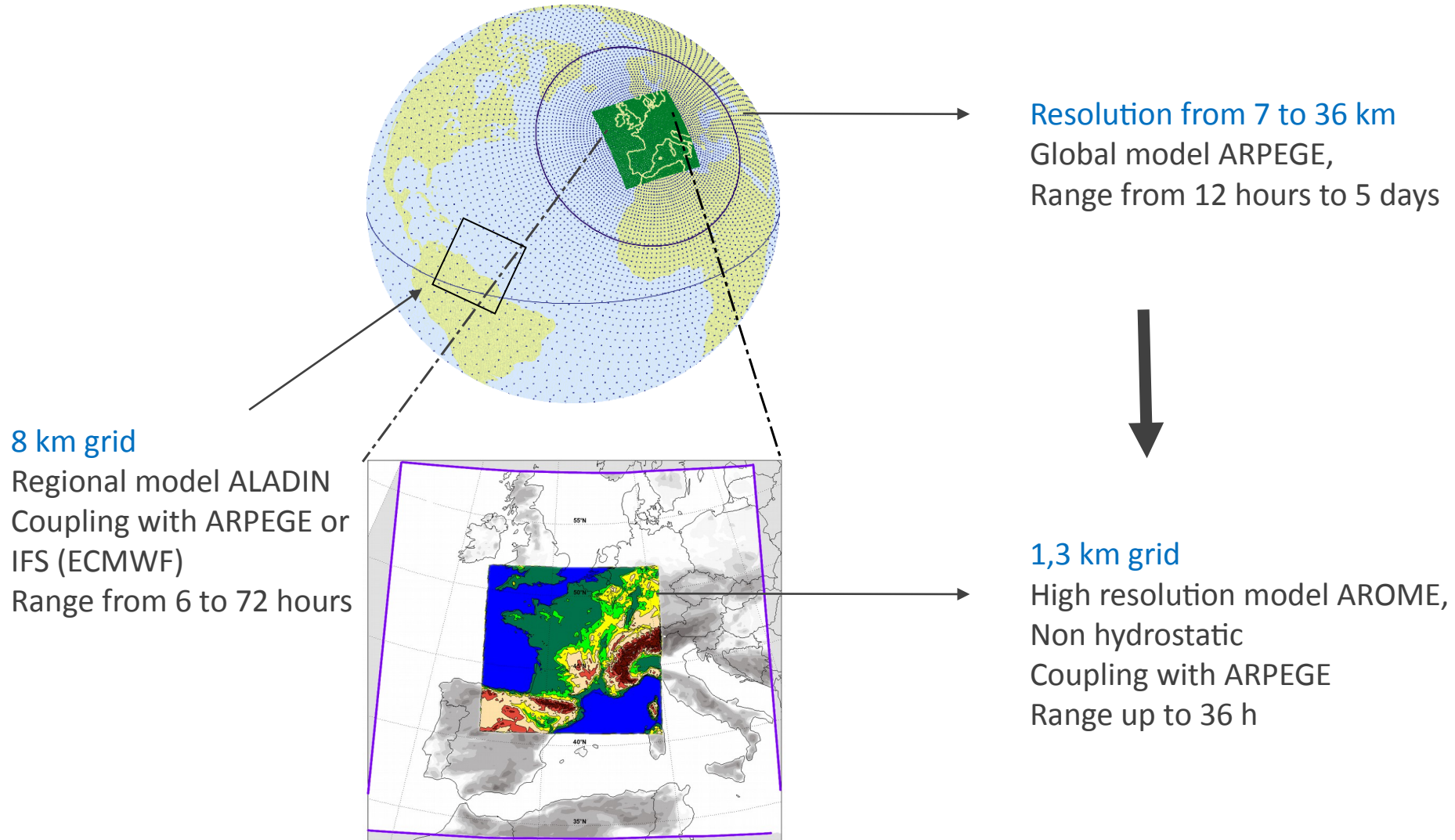
Contribution from Météo-France

• Bernard Strauss



METEO FRANCE

Operational Numerical Weather Prediction configuration



Deterministic NWP output available over Africa in 2016

▶ ARPEGE model

0.1° resolution to 10°S

4 times a day: 00, 06, 12, 18 UTC

Fc range 0 to 72 hours by 3 hour steps

4DVAR data assimilation

▶ Specific products for aviation

▶ Wave modelling MFWAM 0.5° resolution

Input 10 m wind from ARPEGE or IFS (ECMWF)

4 times a day: 00, 06, 12, 18 UTC (00 and 12 UTC if coupling with IFS)

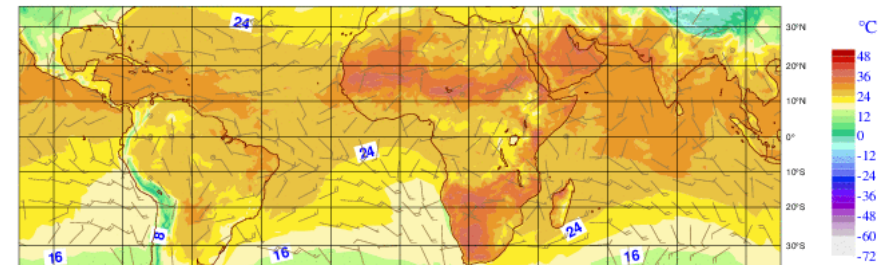
Fc range up to 5 days

▶ Downscaling to higher resolution, tailor made for specific needs

Dynamical coupling with avec AROME (without data assimilation)

- *Within the available computing capacity!*

Mercredi 28 Octobre 2015 06UTC - Prevision t+30h : Jeudi 29 Octobre 2015 12UTC
Temperature à 2m; Vent à 10m

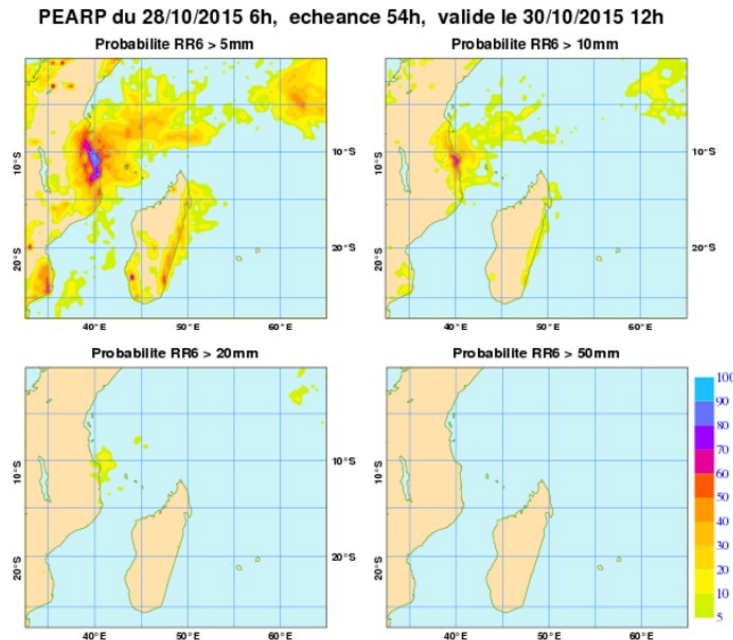


Ensemble forecasts

- ▶ **Ensemble based on ARPEGE model**
35 members, 0.5° resolution
2 times a day: 00 and 18 UTC
Fc range: 90 hours at 06 UTC, 108 hours at 18 UTC

Main output of interest:

Probability of wind speed and precipitation amounts exceeding thresholds
Mean and standard-deviation of Z and T at 850 and 500 hPa



*Example of output for SWFDP
southern Africa*

Nowcasting: RDT (Rapid Developing Thunderstorm)

- ▶ **Principe**
 - Tracking of convective systems on satellite imagery
 - Diagnostic on the intensity of the convection

- ▶ **Main objective**
 - Early detection of potentially severe convective activity

- ▶ **Transmission**

XML files with the main characteristics of the systems :

 - size
 - position and speed
 - min temperature
 - cooling rate
 - expansion rate

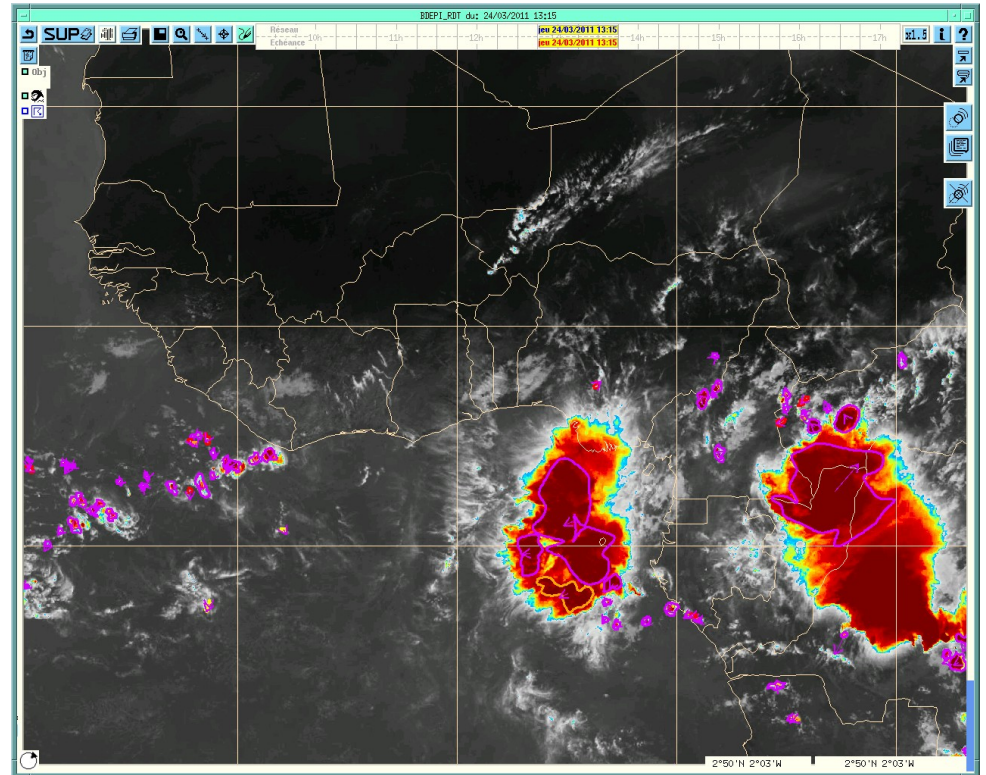
- ▶ **Visualisation**

Conversion of the XML data to graphics (e.g. with Synergie-web)

Example of RDT over the Gulf of Guinea

- Particularly relevant in data sparse area
- Subjective feedback generally positive, but difficulty to produce well documented objective assessment

Animation over 3 hours + 1 hour forecast



Training

- ▶ Training courses at ENM (Ecole Nationale de la Météorologie) Toulouse
 - ▶ General forecasting
 - ▶ Tropical meteorology
 - ▶ Use of satellite imagery for forecasters
 - ▶ Marine meteorology
 - ▶ Aviation meteorology
 - ▶ ...

- ▶ Dedicated training, including training for end users, can be organised in the context of SWFDP