Assimilation versus spin-up model configurations tested with Arome-France

Pierre Brousseau, Yann Seity
(prepared by C. Fischer)

METEO FRANCE
Toujours un temps d'avance

Objective scores : analysis and forecast compared to radiosondes

- Analysis from the AROME RUC compared to ALADIN analysis show an important reduction of Root Mean Square Error and Bias for all parameters all over the troposphere except for the humidity field around 200 hPa

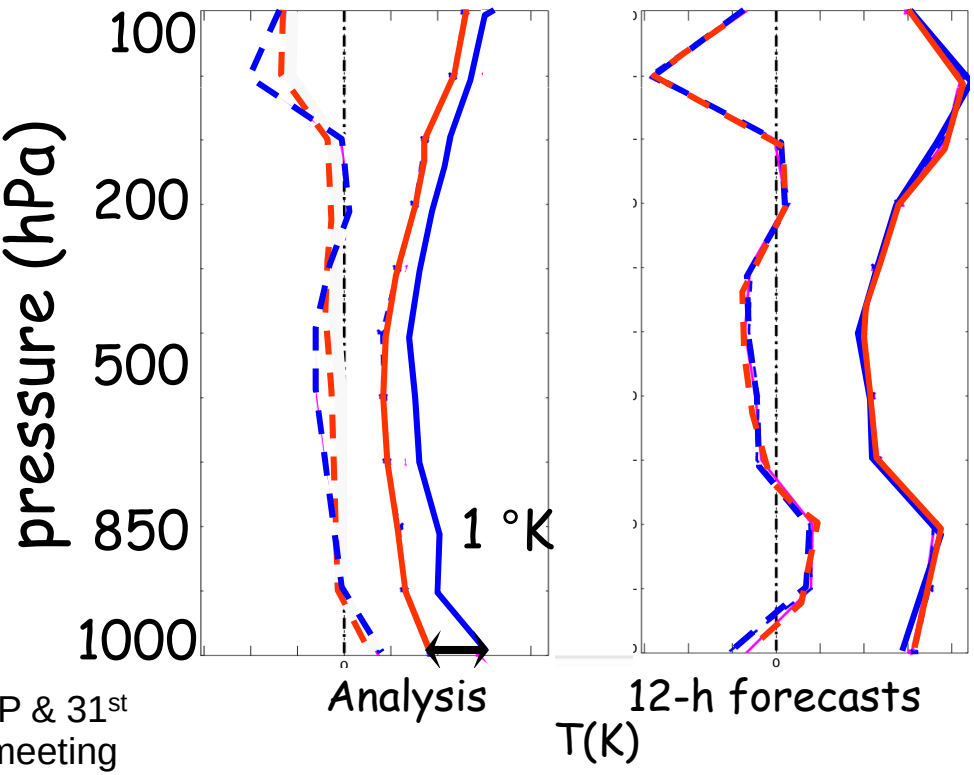
- AROME 12-h forecasts initialized with an analysis from the AROME RUC and an ALADIN analysis (spin-up mode) seem very close compared to radiosonde.

- the general benefit of the AROME analysis appears during the first 12-h forecast ranges, then lateral conditions mostly take over the model solution

Vertical profiles of RMSE and bias for temperature compared to radiosonde measurements

Bias

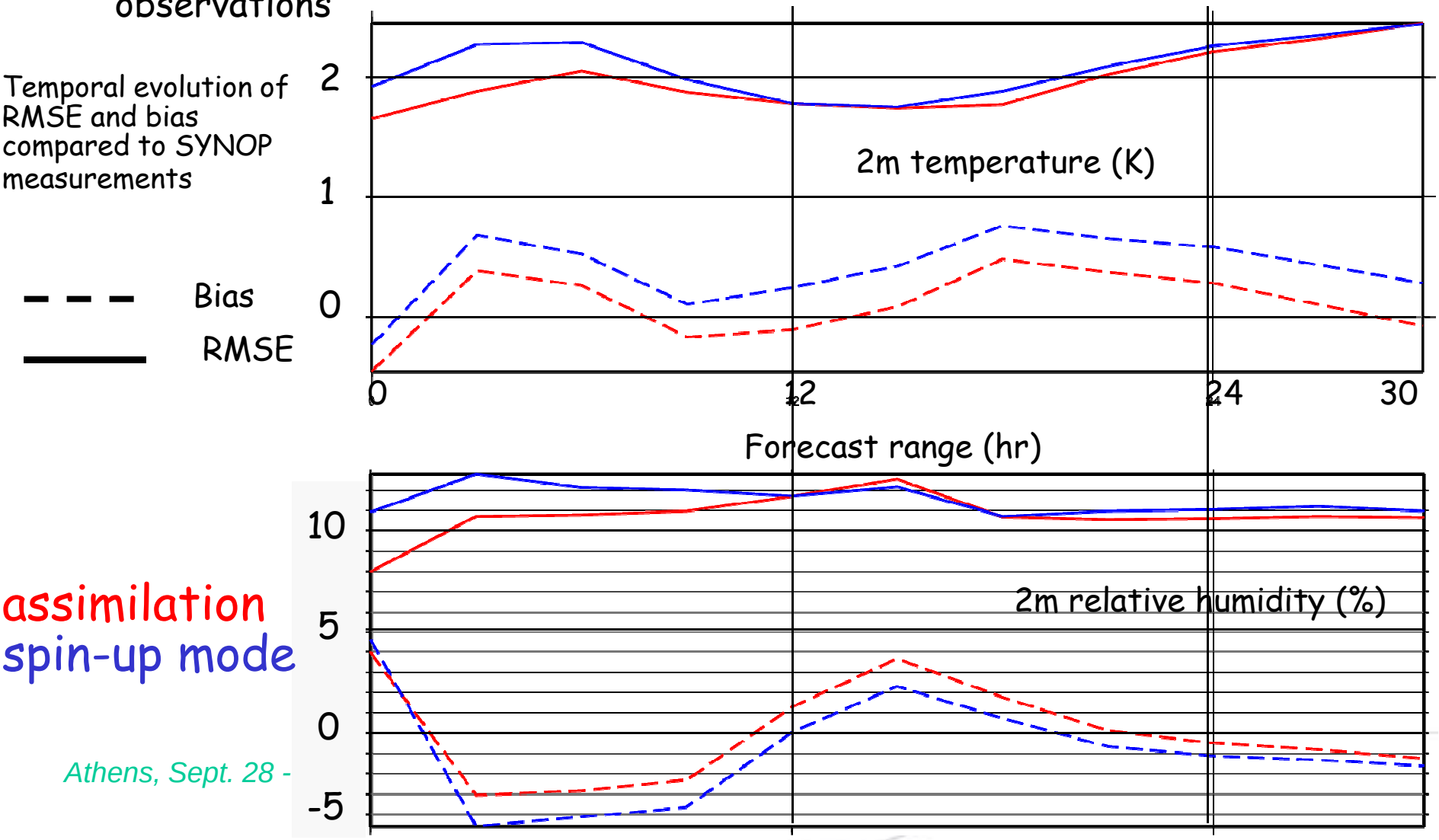
RMSE



Objective scores : forecast compared to SYNOP

- The same feature is observed regarding scores compared to SYNOP observations

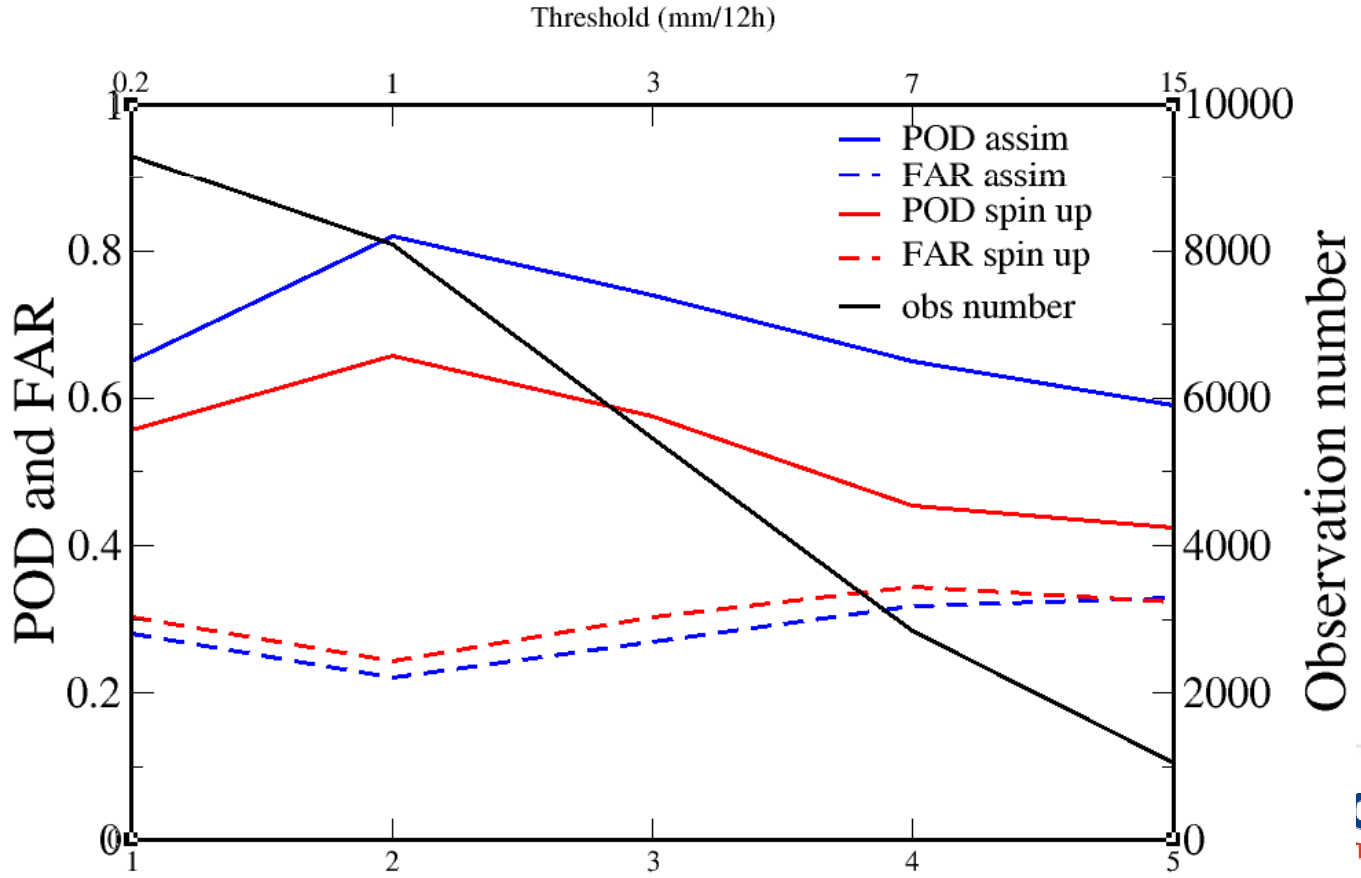
Temporal evolution of RMSE and bias compared to SYNOP measurements



assimilation spin-up mode

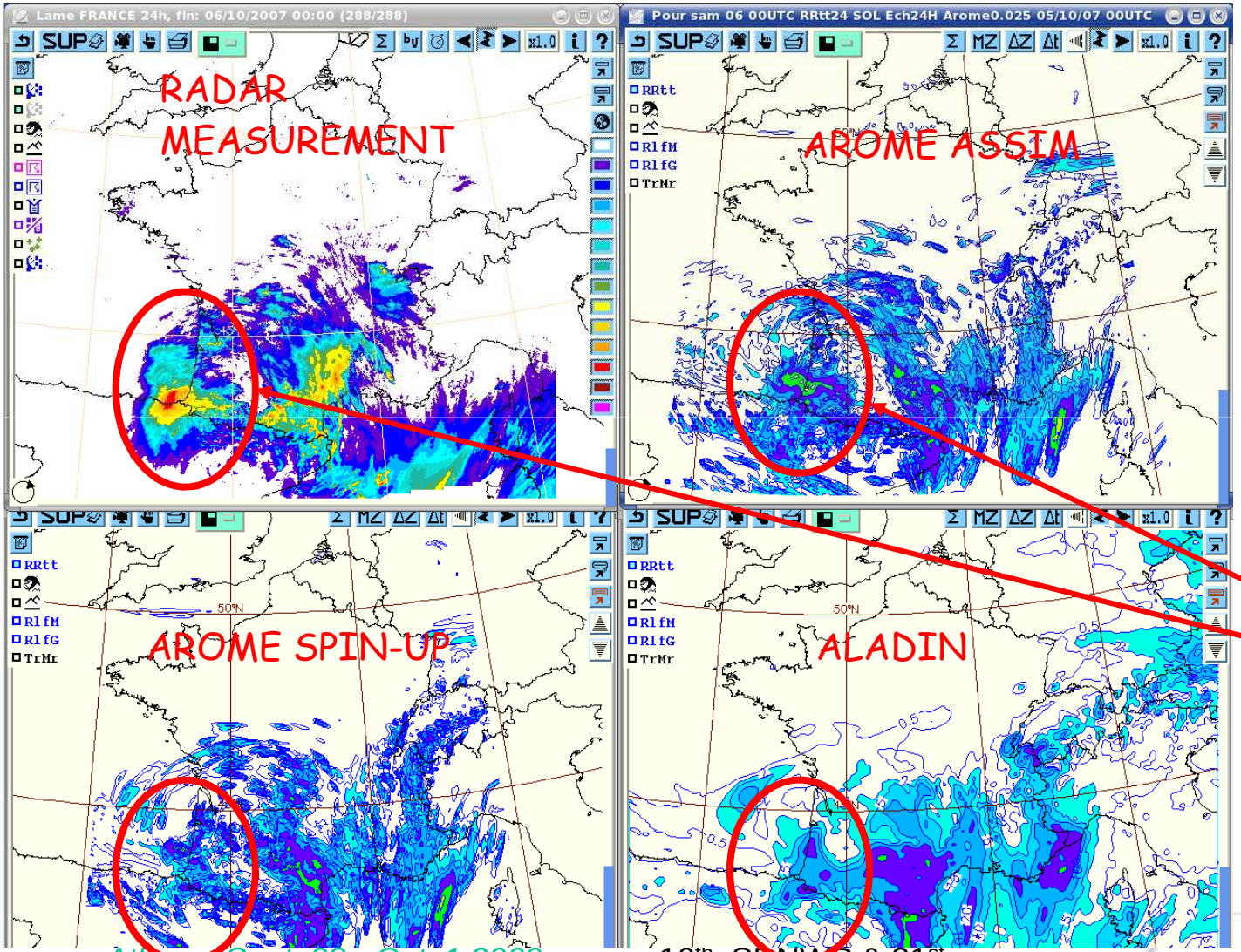
Quantitative Precipitation Forecast scores

- QPF scores for different thresholds for the total rain forecast between 0- and 12-h compared to raingauge measurements for November 2007. With AROME analysis :
  - 20 % increase of POD for all thresholds
  - 2 % increase of FAR except for the threshold 15mm



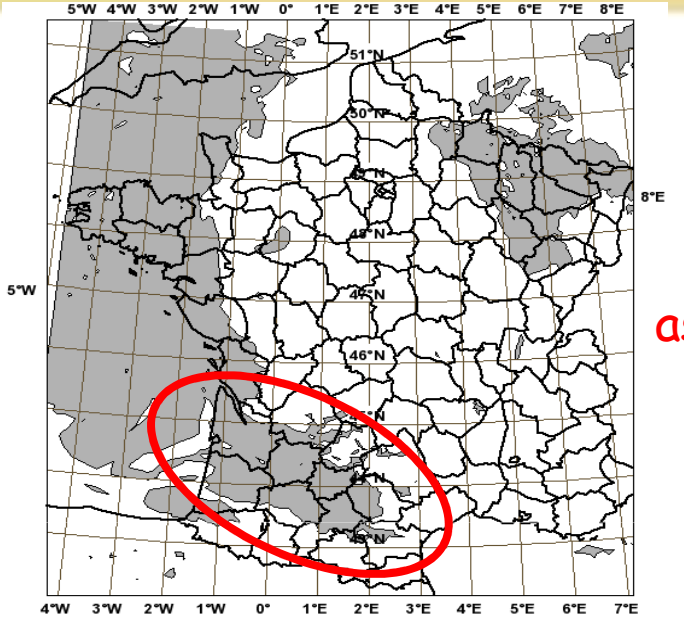
Athens, S

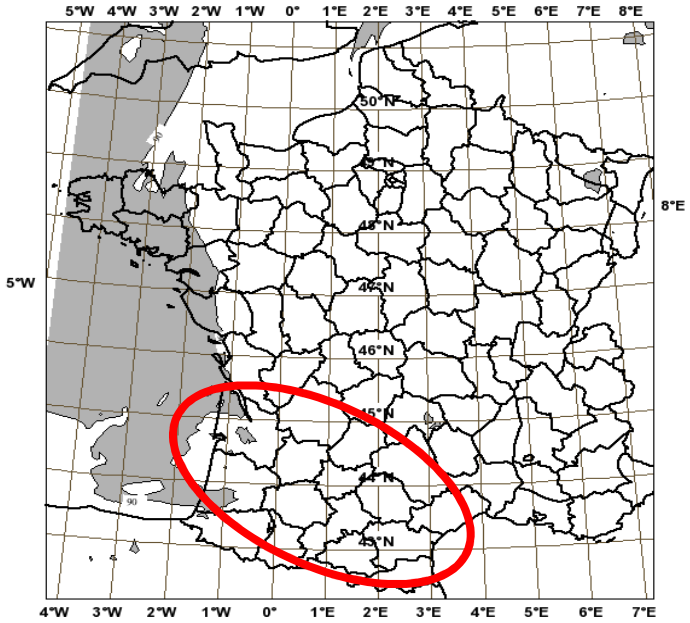
Precipitating event, October 5th 2007



- 24-h cumulative rainfalls
- Better location of the maximum of precipitation

Fog event, February 7th 2008





- AROME low cloud cover at 9 UTC
- Fog is not simulated in spin-up mode

assimilation

Spin-up

16th SRNWP & 3 EWGLAM meetir