Data assimilation in Morocco

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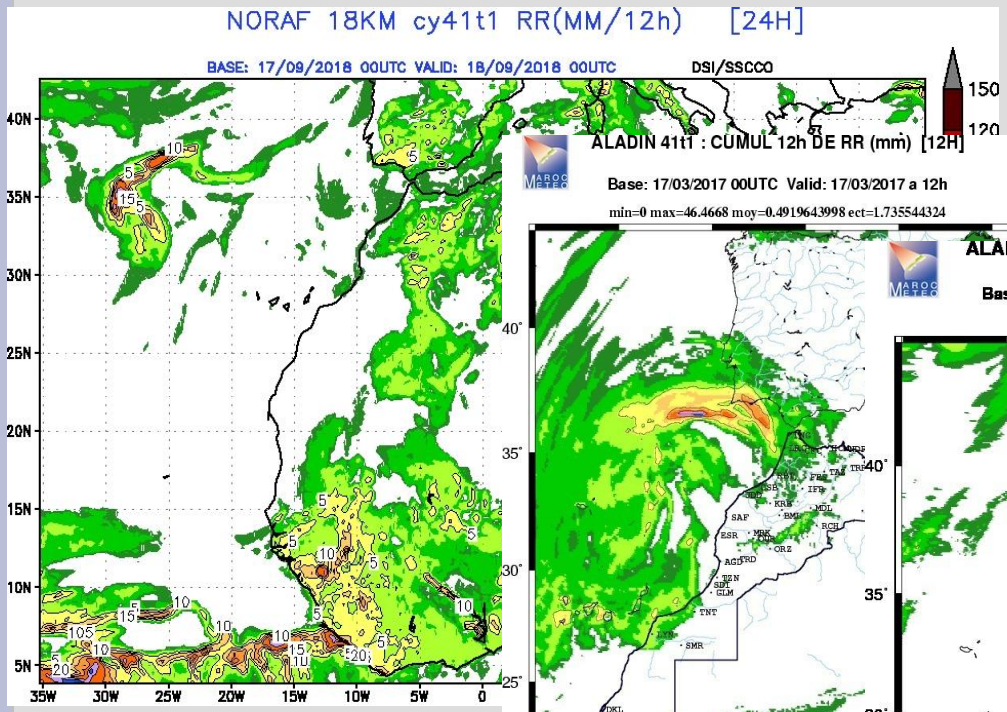
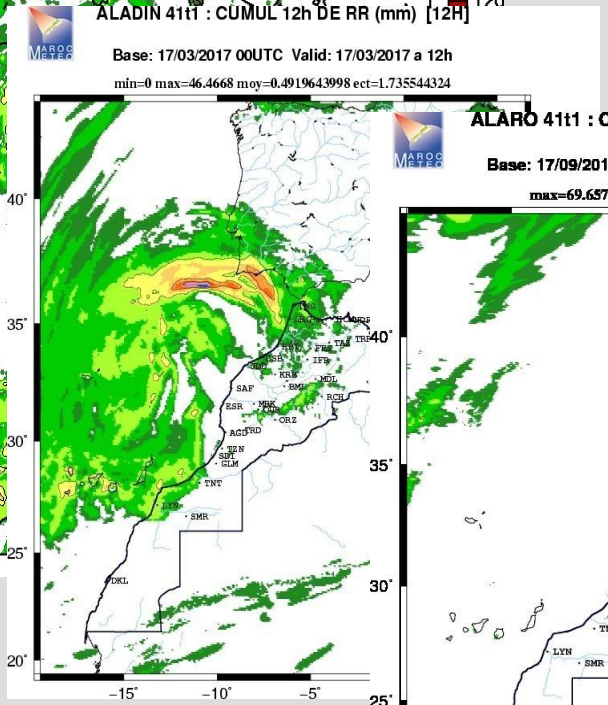
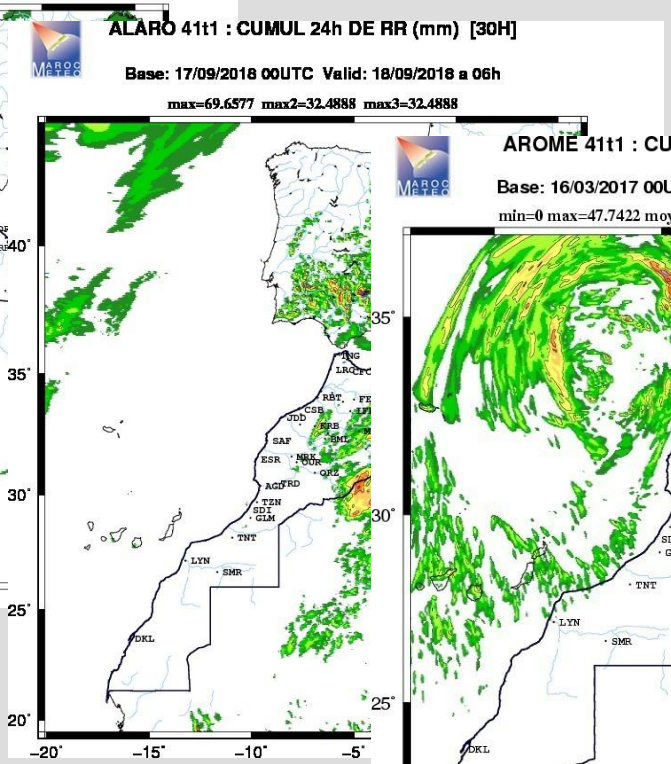
OUTLINES

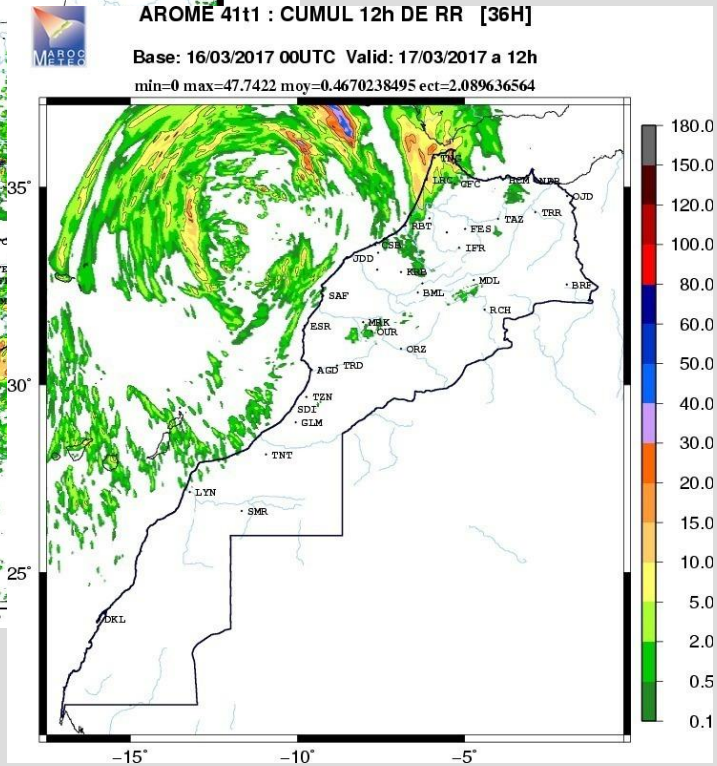
- Operational configurations
- Data assimilation
- Case study
- Future plans

Operational configurations:
ALADIN-NORAF, ALADIN-MOROCCO, ALARO and AROME







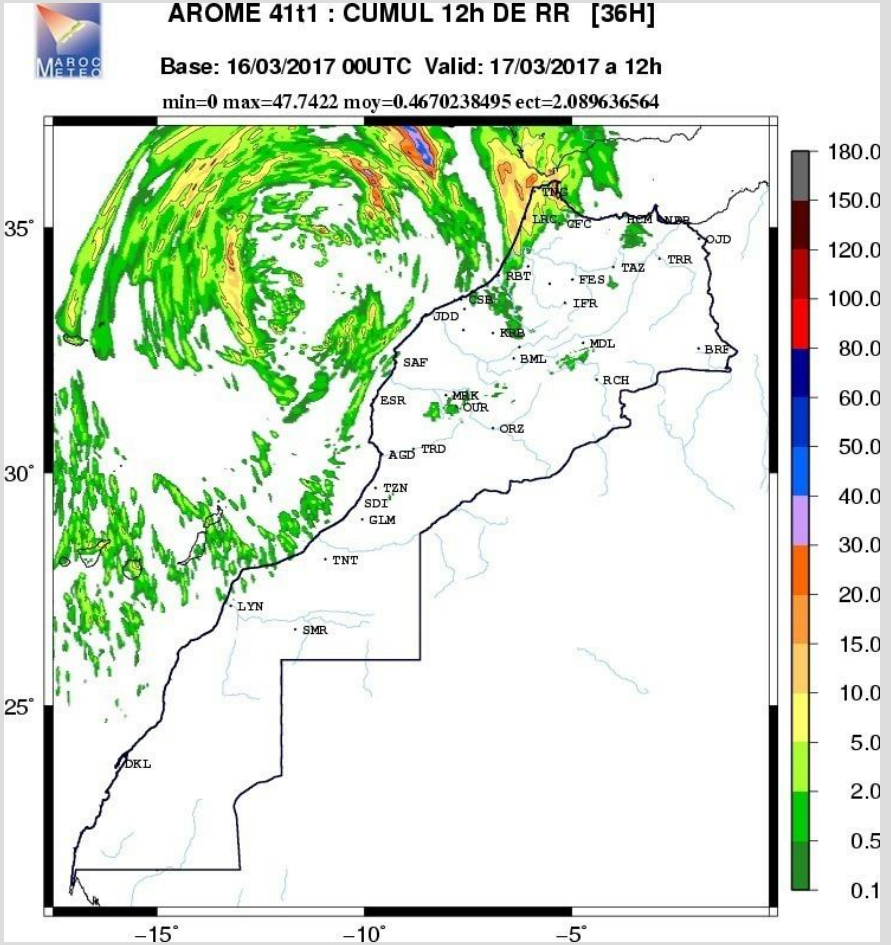


Data assimilation:
Experimental AROME DA

- AROME;cy41t1+cy40; Resolution : 2.5km; Grid : 800*800; Vertical levels : 90; Coupling : ALADIN MAROC every 1hour; Forecast range : 48 hours; Time step : 50s; DFI : None

- Upper air analysis: 3DVAR ; cycling 3h; Assimilation window: +/-1.5h; Ensemble B matrix; Observations: Synop, Temp and Buoys (BUFR format);

- Surface analysis: test of canari OK



Data assimilation:
Data handling

The following actions are achieved:

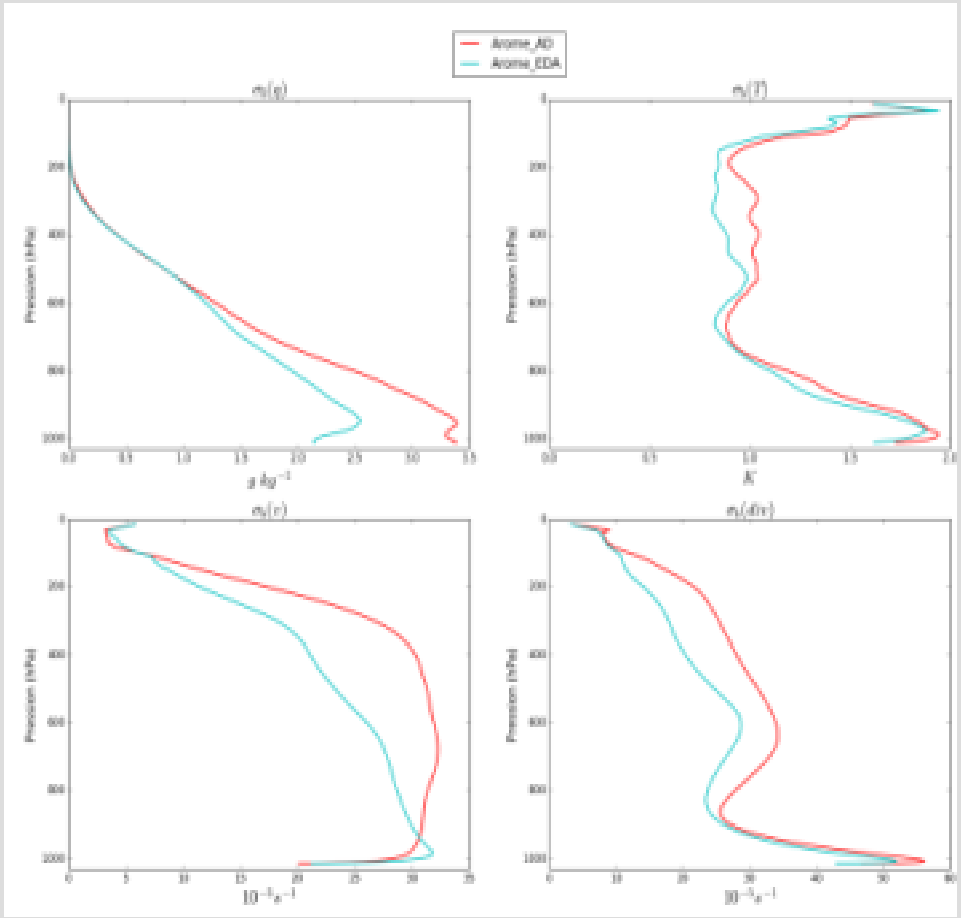
1. Getting data from GTS (in BUFR format) for SYNOP, TEMP and AMDAR data
2. Producing local BUFR from GPS
3. Storing these data in a local database
4. Convert GTS data to ODB format (via BATOR).
5. Check the content of the resulting ODB by Mandalay

Data assimilation:
B matrix

Background-error covariances for AROME:

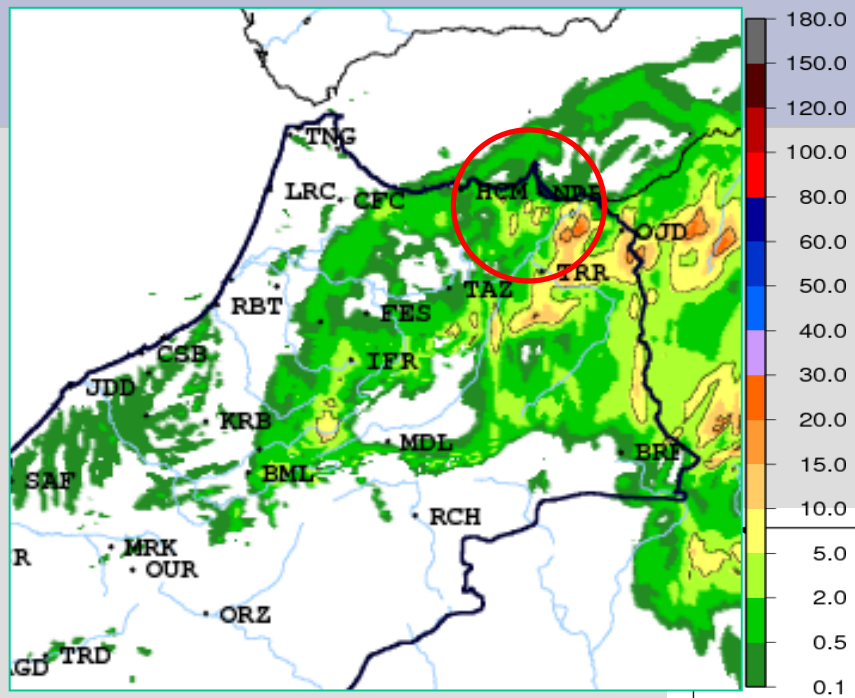
The first version of the background-error covariances for AROME-Maroc was calculated using AROME forecast ensemble coupled to Arpège in dynamic adaptation mode (Arome_AD).

The operational version is computed using an ensemble assimilation- based method with six independent perturbed assimilation cycles (Arome_EDA).

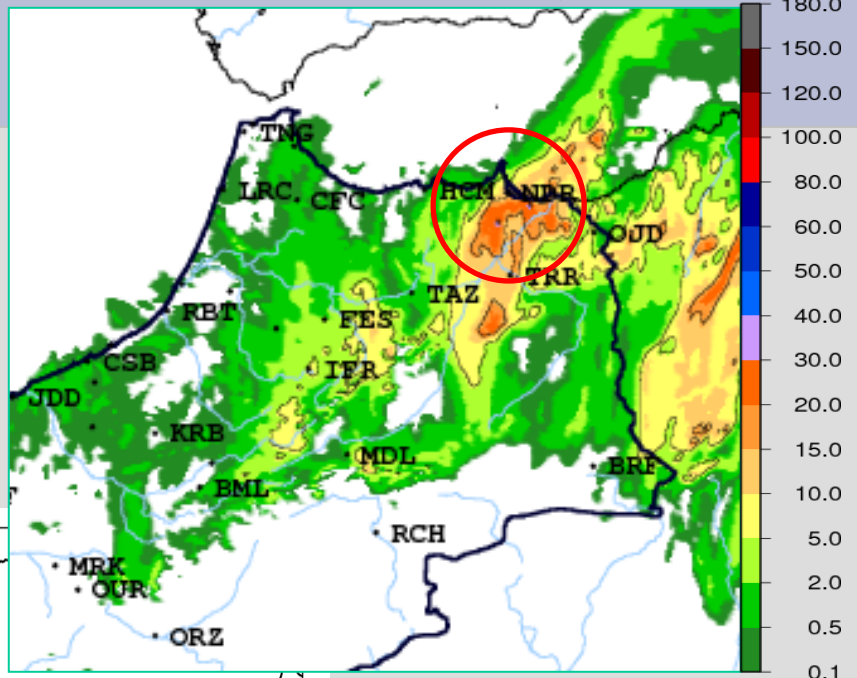


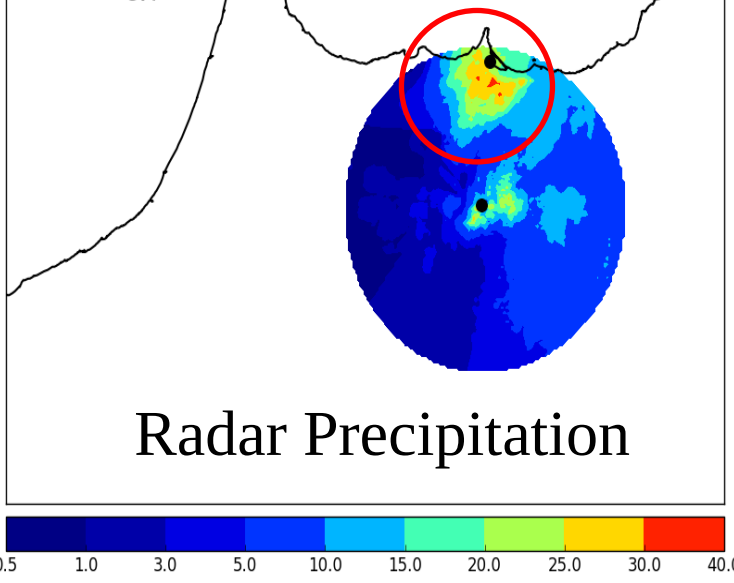
Case study 19/01/2018: 24h precipitation forecast

AROME-DYN



AROME-3DVAR





Plans for the future

- New calculator
- 3DVAR operational suite on AROME (2.5km and 90 levels)
- Surface analysis
- GPS (positive impact in ALADIN and AROME MAROC)

Thank you for your attention