Météo-Algérie
الديوان الوطني للأرصاد الجوية
Office National de la Météorologie

Data assimilation activities at ONM (Algeria)

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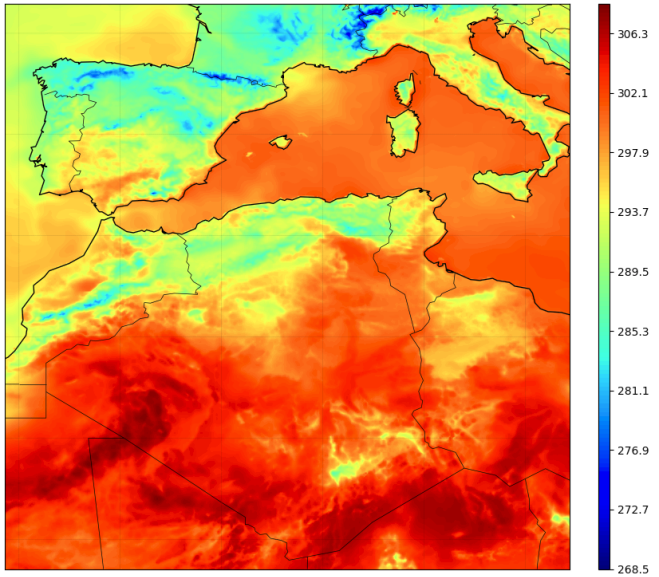
Operational setup at ONM

Operational forecast models

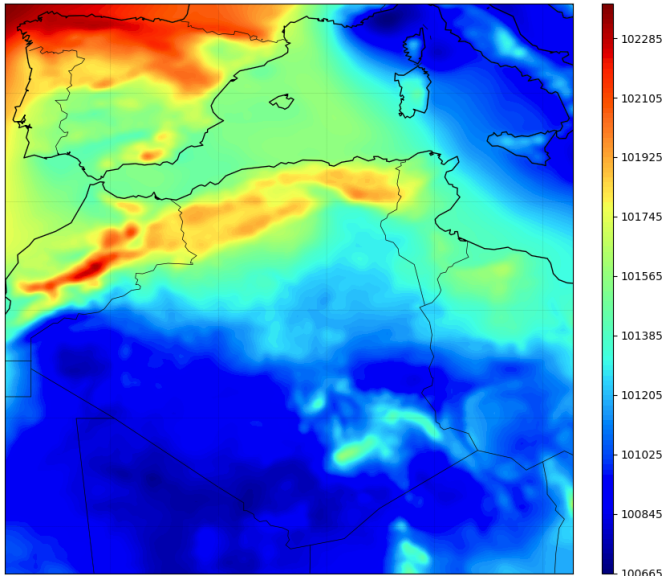
ALADIN cy40t1

Resolution = 8 km , 450x450 grid points
Number of levels = 70
Time step integration = 514 s
Coupling model : ARPEGE
Coupling frequency : Every 3 hours
Forecast range : 72h at 00h , 12h
Type of initialisation : First ARPEGE coupling file.



ALADIN_DUST cy40t1

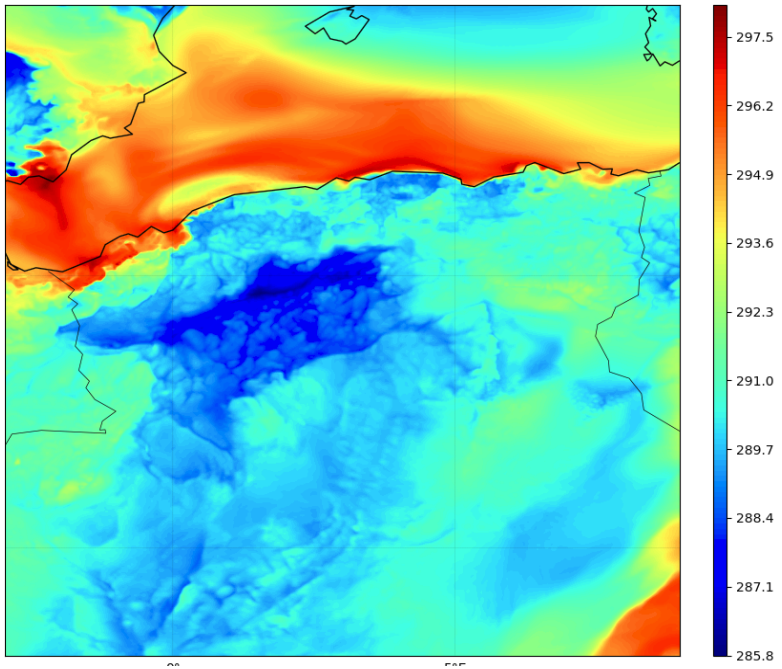
Resolution = 14 km , 250x250 grid points
Number of levels = 70
Time step = 514 s
Coupling model : ARPEGE
Coupling frequency : every 3 hours
Forecast range : 48h at 00h , 12h
Type of initialisation : First ARPEGE coupling file.



Operational setup at ONM

AROME cy40t1

Resolution = 3 km , 500x500 grid points
Number of levels = 41
Time step = 60 s
Coupling model : ALADIN
Coupling frequency : every 1 hour.
Forecast range : 48h at 00h , 12h
Type of initialisation : First ALADIN coupling file.



Upper air analysis

None (3DVAR under testing)

Surface analysis

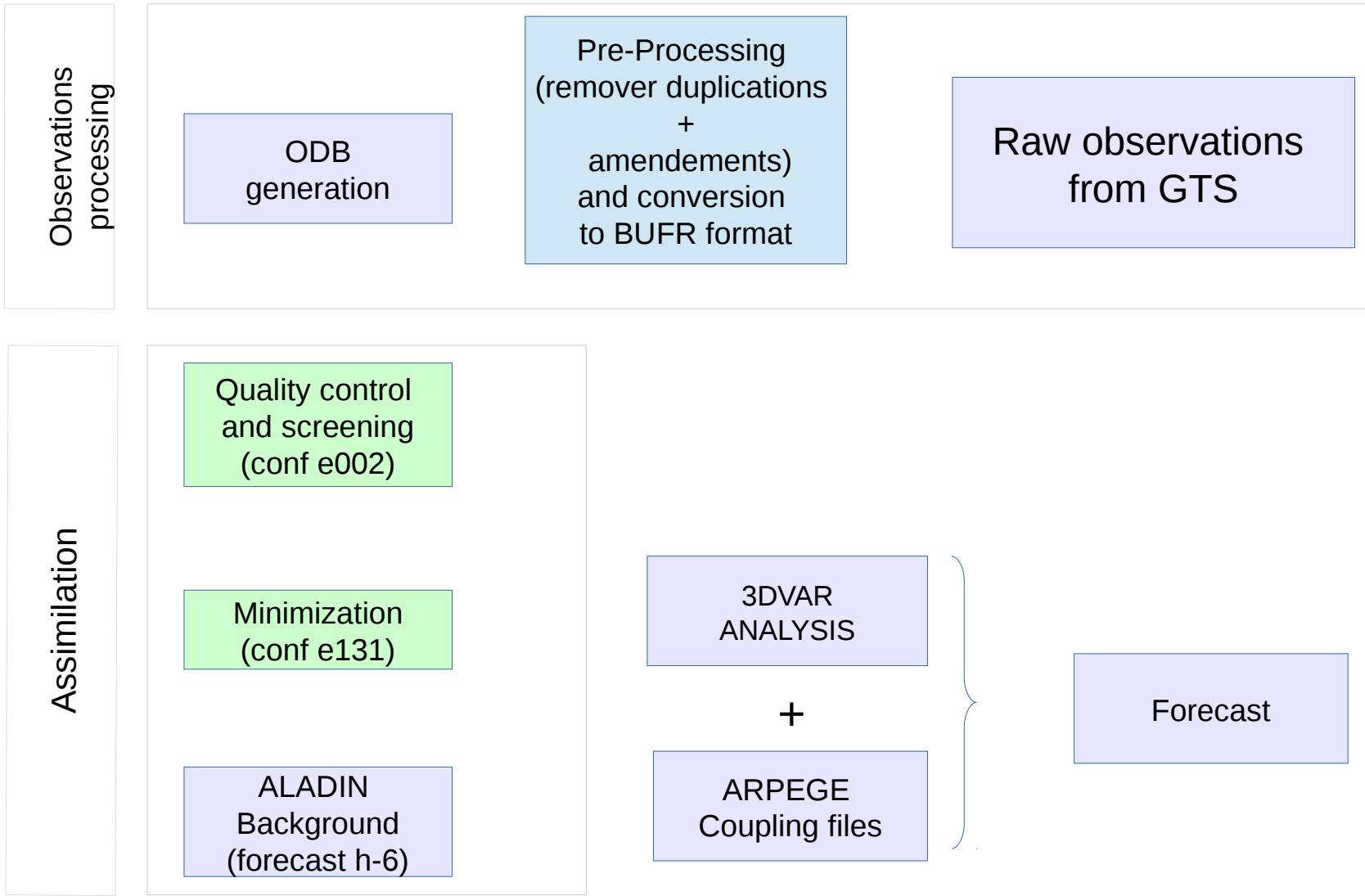
None (CANARI T2m anf H2m under testing)

Progess and DA activities (Since Lisbon DAsKit working days)

- **2017 :**
  - Computation of the background matrix error covariances for ALADIN using NMC method (at ONM)
  - Computation of background matrix error covariances for AROME model using AEARP method (at Météo France)
  - Configuration of a 3DVAR assimilation for ALADIN and AROME using synop data

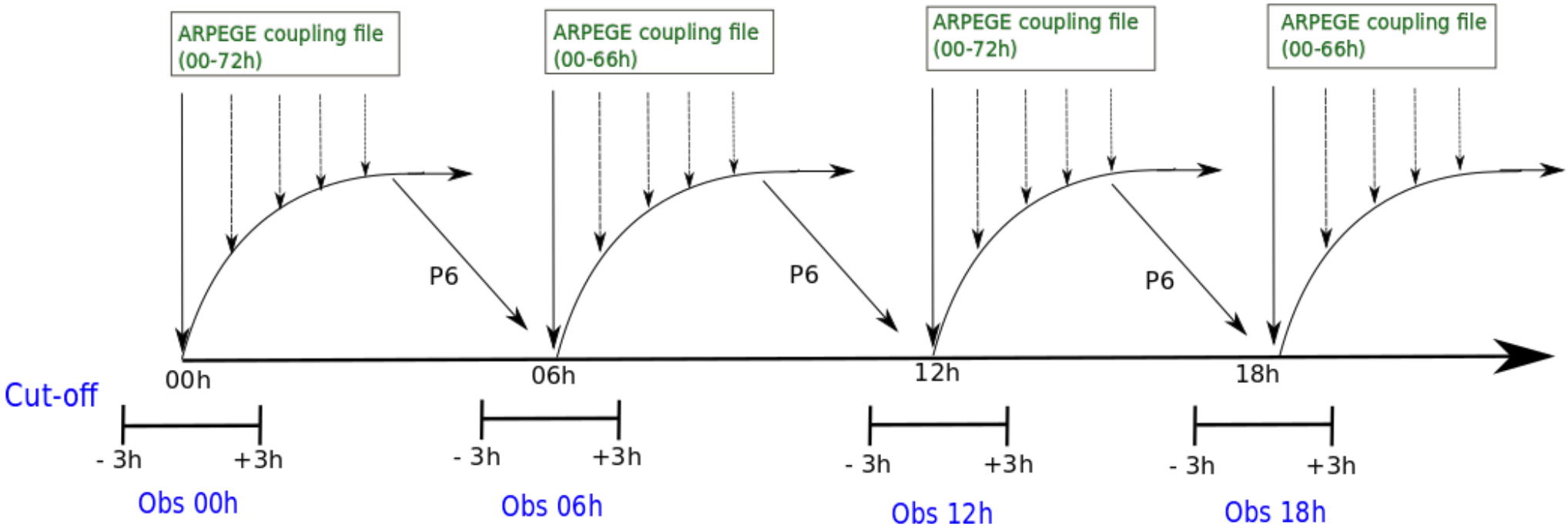
- **2018 :**
  - First setup of a 3DVAR assimilation cycle for ALADIN (pre-operationnal version).
  - Installation of the back-phased BATOR cy40t1 (M.Monteiro ,F. Guillaum , A. Trojakova) for the assimilation of AMDAR data (template 311010) and testing assimilation of GTS AMDAR data.
  - Installation of MANDALAY utility in order to read ECMA and CCMA databases.
  - Testing of a rapid-update-cycling scheme (3hour cycling) with ASCAT wind data for ALADIN

Testing of a first 3DVAR Assimilation setup (ALADIN)

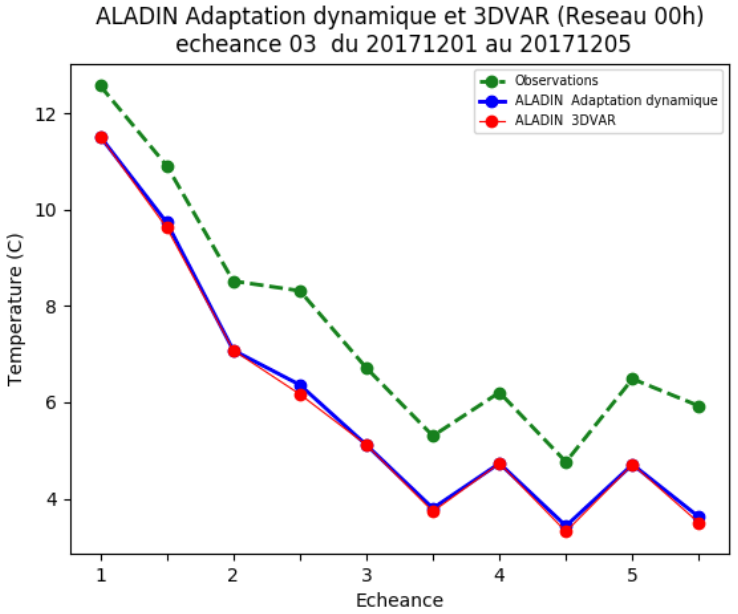


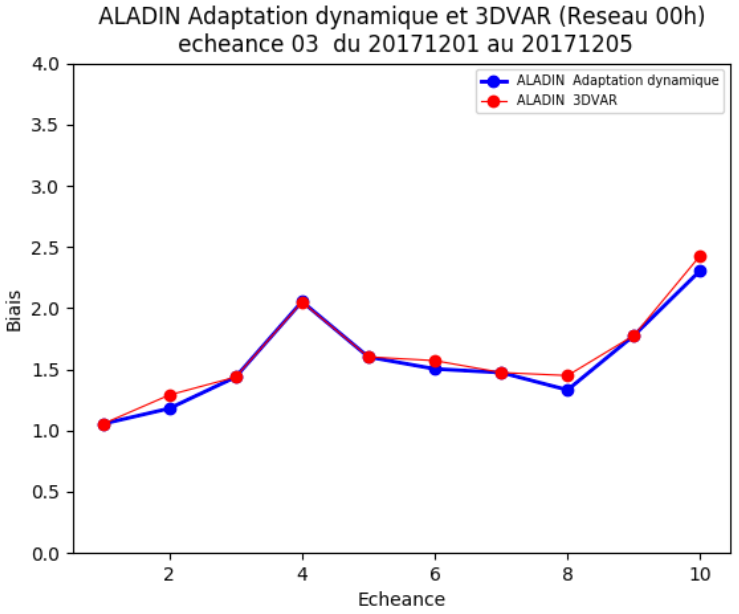
Testing of a first 3DVAR Assimilation setup (ALADIN)

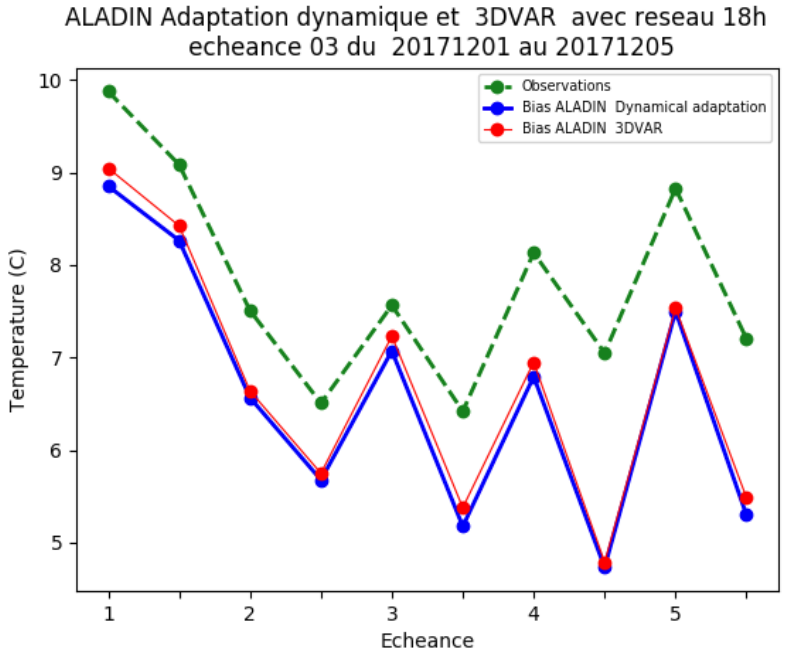
6 hours assimilation cycling
3 hours observations cut-off

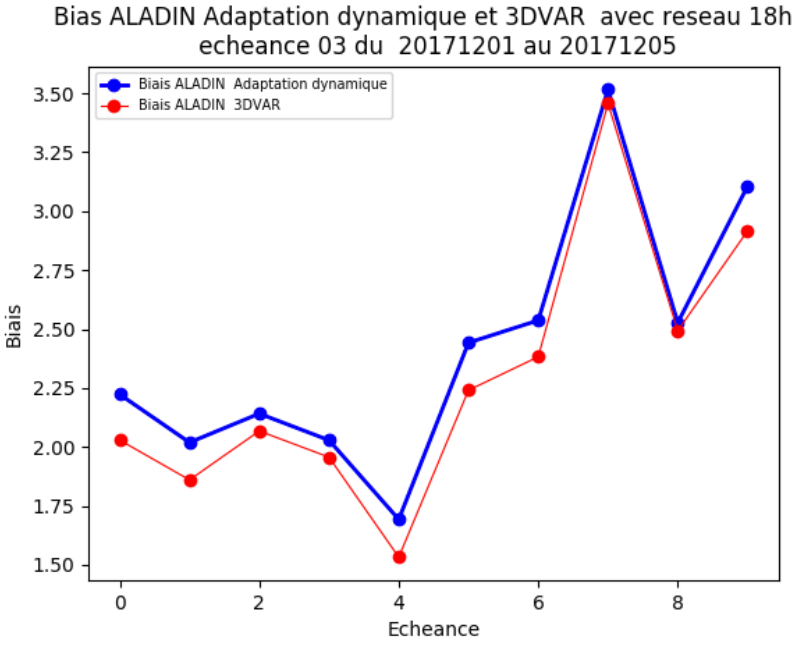


Preliminary results









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Tested observations

- Algerian Synop (Ps, T2m ,H2m ..etc) + synop of neighboring countries (Tunisia , Morocco , Italy, Spain , France and Portugal)

- ASCAT winds (speed and wind direction). from Metop A and Metop B, collected from GTS

- AMDAR data IUA* , EGRR with template (31 10 10) (T , P and U)

Issues

- Crash with CANARI surface analysis for AROME in subroutine **CANCER.F90**.

Calculating the Observations-first guess departures.

Setting :

```
&NACOBS
OROLIM=1000,
ORODIF=0 ,
/….
&NACTEX
 LAEOMF=.T.,
 LAEOMN=.T.,
```

Type of error: Fortran segmentation fault.

- Crash in screening when using more than one observation type (assimilation of SYNOP+ASCAT) In subroutine STEPO.F90

Type of error : MPI_Recv communication

Planes

Main perspectives :

- Setup of an operational 3DVAR assimilation cycle for AROME model using all available data types (SYNOP , ASCAT, AMDAR)

- Coupling of the surface CANARI-OI_MAIN analysis with the upper air analysed fields (for AROME model)

- Assimilation of radio sounding data.

Other

- Handling and assimilation of GPS data (collected from National Institut of cartography and Teledetection in format RINEX)
- Assimilation of SEVIRI satellite radiances.

Thank you
for your attention