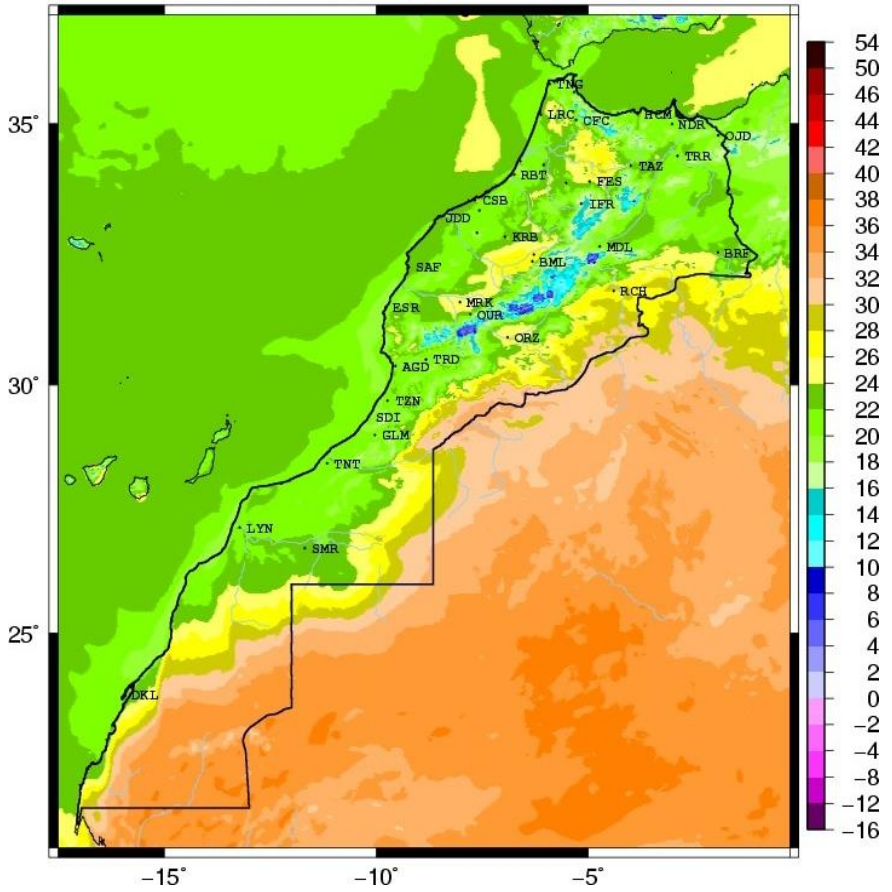
Data Assimilation in Morocco : Status and plans

Fatima Hdidou Zahra Sahlaoui

Moroccan Meteorological General Direction

DA configuration for AROME-Morocco

- Cycle: 43t2
- Resolution : 2,5 km
- 800 x 800 points
- Vertical levels: 90 levels
- Coupling with ARPEGE (1 hour)
- 3h cycling
- One run per day at 00UTC
- Forecast range : 48 hours



Data assimilation status

Observation			
Preprocessing of GTS and local BUFR for conventional observations : local perl programs			
Preprocessing of GPS : Bernese suite to produce ZTD (Bufr)			

Data assimilation status

Observation	Monitoring		
Preprocessing of GTS and local BUFR for conventional observations : local perl programs	Mandaly : OK		
Preprocessing of GPS : Bernese suite to produce ZTD (Bufr)	Obsmon: DASKIT exercise OK on local server		

Data assimilation status

Observation	Monitoring	Surface DA	
Preprocessing of GTS and local BUFR for conventional observations : local perl programs	Mandaly : OK	Installed and tested in the new HPC machine	
Preprocessing of GPS : Bernese suite to produce ZTD (Bufr)	Obsmon: DASKIT exercise OK on local server		

Data assimilation status

Observation	Monitoring	Surface DA	3D-Var
Preprocessing of GTS and local BUFR for conventional observations : local perl programs	Mandaly : OK	Installed and tested in the new HPC	Ensemble B matrix
Preprocessing of GPS : Bernese suite to produce ZTD (Bufr)	Obsmon: DASKIT exercise OK on local server		3D-Var combined with OI-MAIN in the new HPC

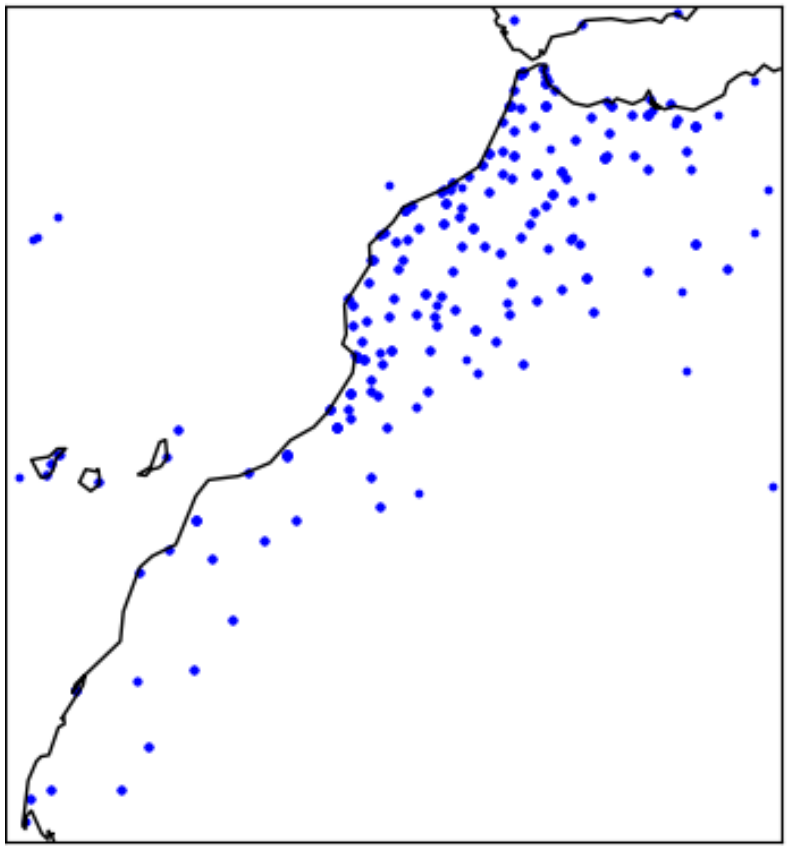
Task	Progress
Cycle 43t2	Phasing of all configurations
SurfDA	Implementation and cycling on the new HPC
Combined surface and upper air DA	Implementation and cycling on the new HPC
Pre-operational suite	Shell scripts based on the DAsKIT package

- Experiments setup
  - ✓ Dynamical adaptation (ADYN)
  - ✓ SufDA: CANARI + OI-MAIN (OIMAIN)
  - ✓ Modified SurfDA: OIMAIN_JF
  - ✓ DA cycle from 16 January to 8 February 2021

- CANARI Namelist settings

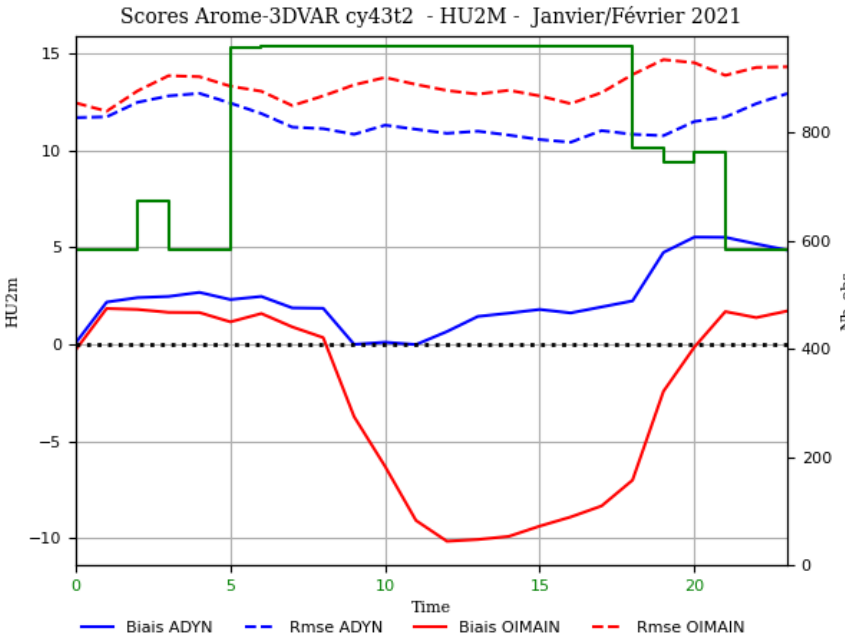
OI-MAIN	OI-MAIN JF
REF_A_H2=85000.,REF_A_T2=80000., REF_S_H2=0.18, REF_S_T2=1.6,REF_S_SST=0.8, REF_A_SST=200000., LAECHK=.FALSE.	LMESCAN=.TRUE., REF_A_H2=100000.,REF_A_T2=100000., REF_S_H2=0.1, REF_S_T2=1.6,REF_S_SST=0.8, REF_A_SST=200000., REF_A_SN=50000., REF_S_SN=5., LAECHK=.FALSE.

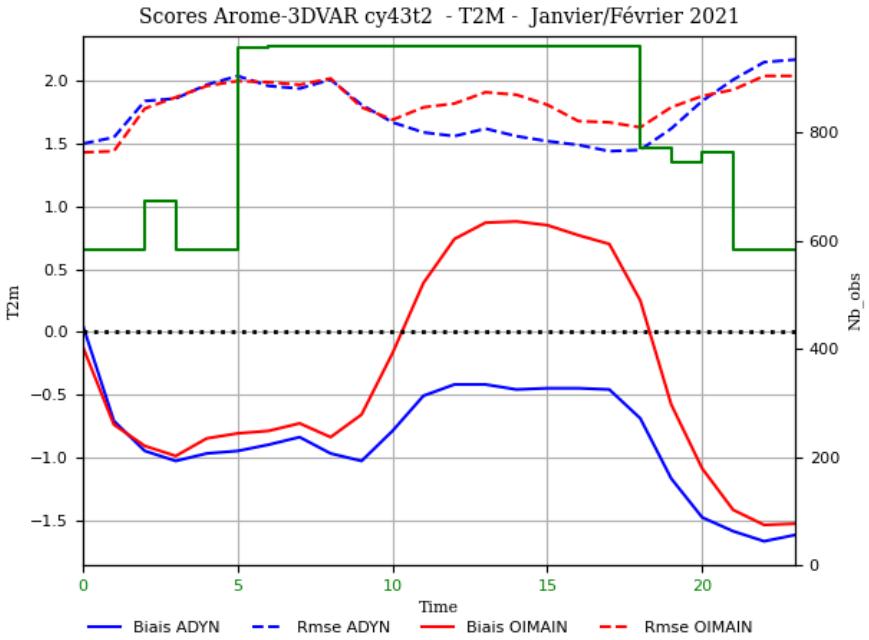
Experiments setup : Observations



Verification results

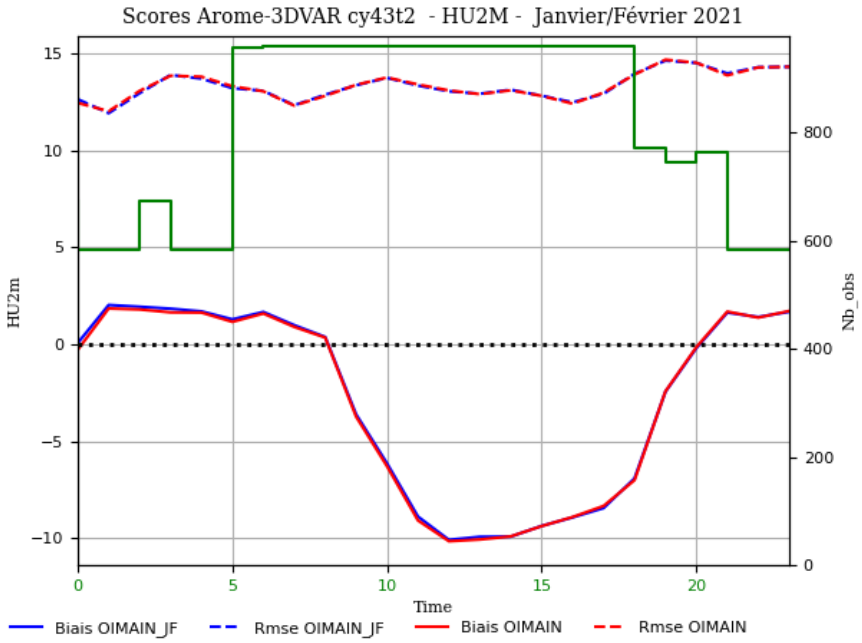
OIMAIN vs ADYN

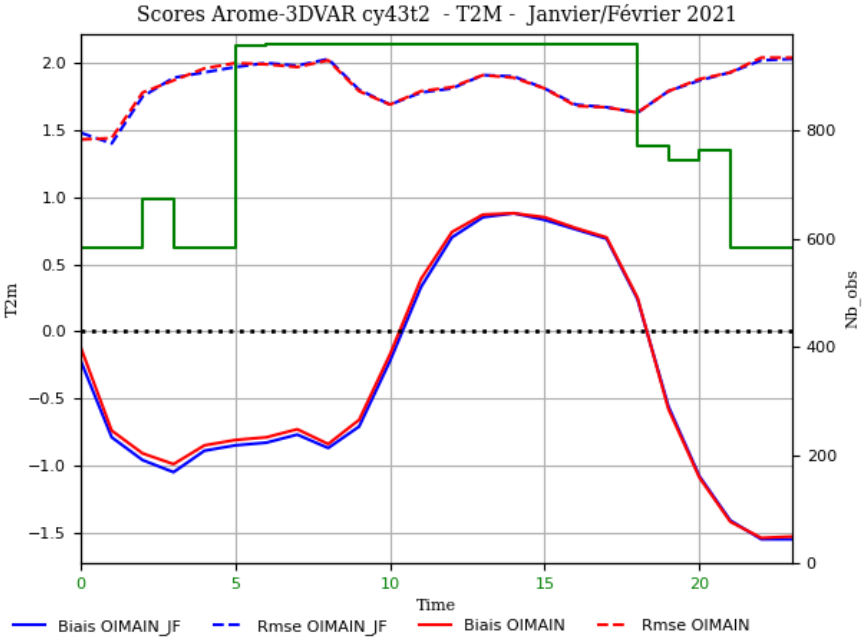




Verification results

OIMAIN vs OIMAIN_JF





Future plans

- More investigation on the OI-MAIN skills over Morocco (quality check of observations before CANARI)

- Verification of the combined surface and 3D-Var DA

- Add new observations for the combined surface and 3D-Var DA (TEMP, AMDAR, Satellite and GNSS)

- EcFlow for pre-operational suite (DAsKIT DA workflow)

Thank you for your attention