



A Consortium for CONvection-scale modelling  
Research and Development



# TURKISH STATE METEOROLOGICAL SERVICE DATA ASSIMILATION STATUS

**22.09.2021 Video Conference**

**Yelis Cengiz**  
**[ycengiz@mgm.gov.tr](mailto:ycengiz@mgm.gov.tr)**

# Operational Models



## ALARO-TURKEY

Current operational suite:  
Model version: cy43t2\_bf10

### **Model geometry:**

- 4.5 km horizontal resolution
- 600 X 1000 grid points
- 72 vertical model levels
- Linear spectral truncation
- Lambert projection

### **Forecast settings**

- 180 sec time-step
- Hourly post-processing
- 4 runs per day at 00, 06, 12 UTC (up to t+72) and 18 UTC (up to t+60).
- Coupling with ARPEGE LBC files at every 3 hours

## AROME-TURKEY

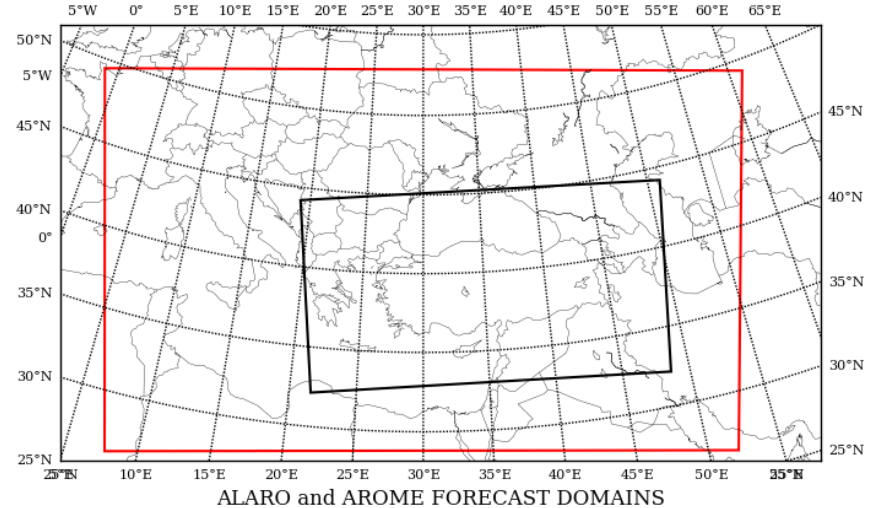
Current operational suite:  
Model version: cy43t2\_bf10

### **Model Geometry:**

- 1.7 km horizontal resolution
- 629 X 1589 grid points
- 72 vertical model levels
- Linear spectral truncation
- Lambert projection

### **Forecast settings**

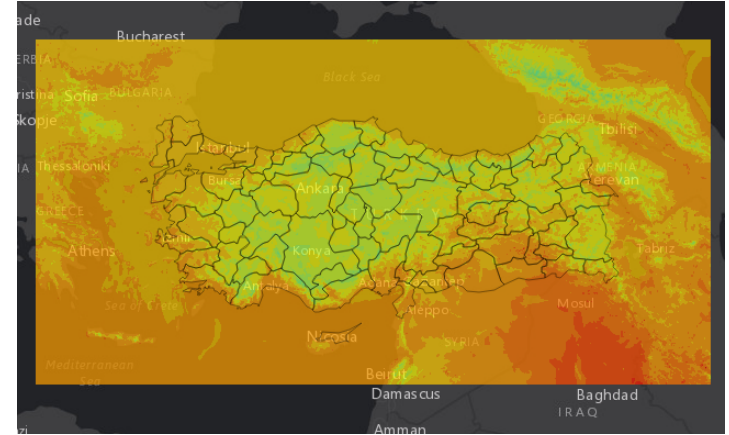
- 50 sec time-step
- Hourly post-processing
- 4 runs per day at 00,06,12,18 UTC up to 48 hourly forecast



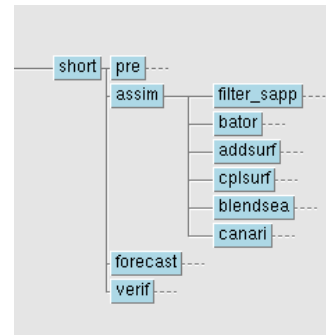
# AROME-Turkey DA Status



- 1.7 km horizontal resolution, 72 vertical levels, 50 seconds time step,
- Model version cy43t2\_bf10.
- SAPP (The Scalable Acquisition and Pre-Processing System) is used for observation pre-processing.
- SAPP data is obtained hourly and assimilated in surface data assimilation.
- Running on ecflow 8 times a day (00,03,06,09,12,15,18 and 21 UTC).
- Coupling with ECMWF-IFS (3hours).
- Producing forecasts up to 24 hours.



Arôme-Tr Ruc fullpos domain



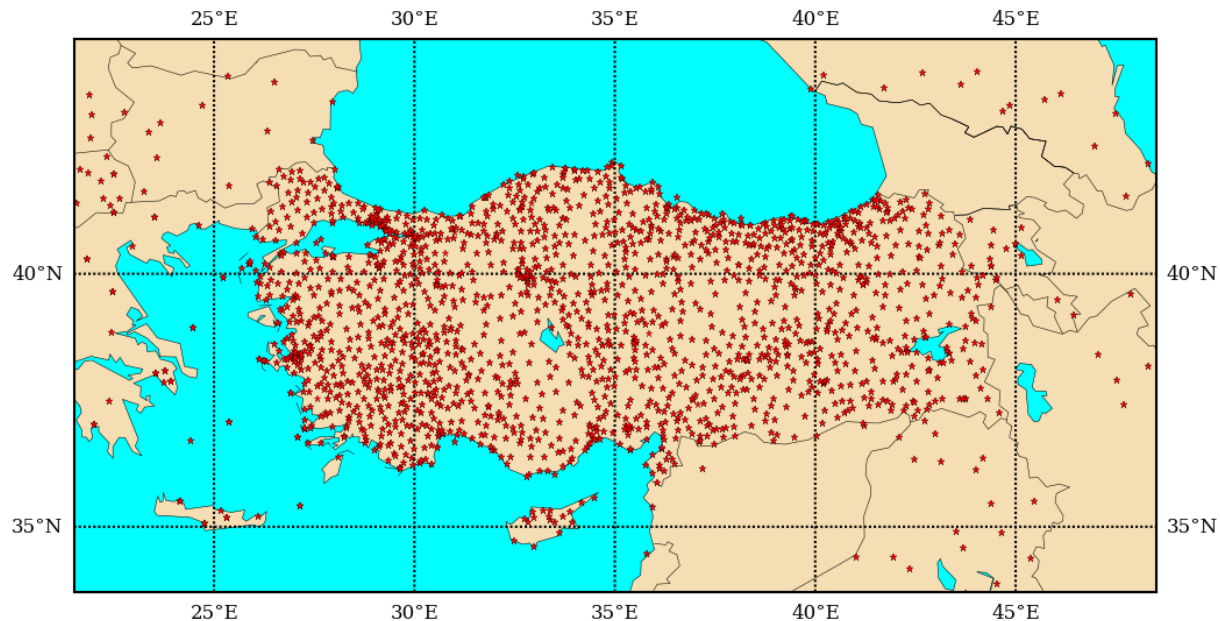
# AROME-Turkey DA Status



- OBSMON is installed and a home made tool based on MANDALAY is used.
- Harmonie Verification tool is used.
- Synop, Temp, Airep and Metar

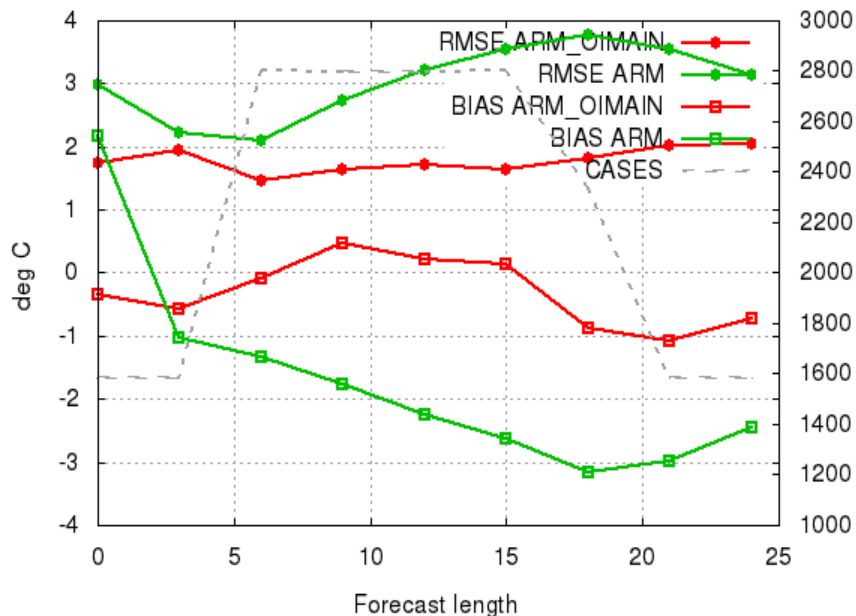
obs received locally and  
received from GTS are processed  
by SAPP. Then they are sent to  
NWP division every hour.

## SYNOP OBS IN ECMA 2021092006

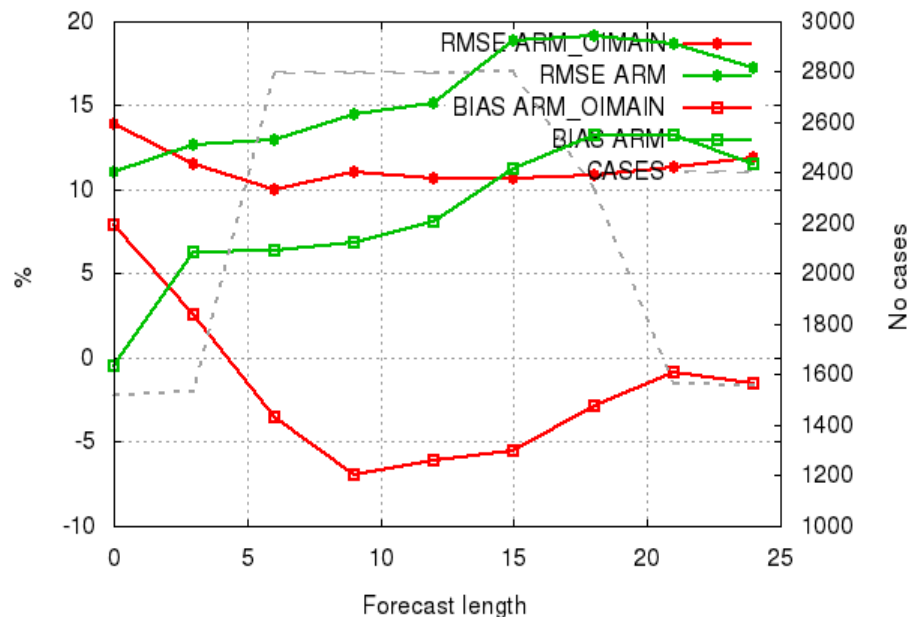




Selection: ALL using 112 stations  
T2m Period: 20210810-20210904  
Hours: {00}



Selection: ALL using 112 stations  
Rh2m Period: 20210810-20210904  
Hours: {00}



CANARI namelist settings:

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.,

# AROME-Turkey DA Status



- Ensemble B-Matrix was calculated with the support of ZAMG and SHMU.
- The B-Matrix was calculated from ECMWF EPS at ECMWF cca for 30 days (20210811-20210909).
- 00 and 12 UTC runs of 4 ensemble members and 120 forecast differences were used.
- FESTAT and FEDIACOV from model version cycle 43t2\_bf11 were used.

# AROME-Turkey DA Status



- Future plans:
- Setting up single obs test for the new calculated B-matrix,
- Setting up 3d-var and testing more observations,
- Installing HARP verification package.

Thank you for your attention!