Data Assimilation: experience & plans in Belgium

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Current situation

- A surface DA cycle is running in experimental mode since June.
- AROME cy43t2, 1.3km
- 3h assimilation cycle (SYNOP observations only)
- OBS are treated with python scripts
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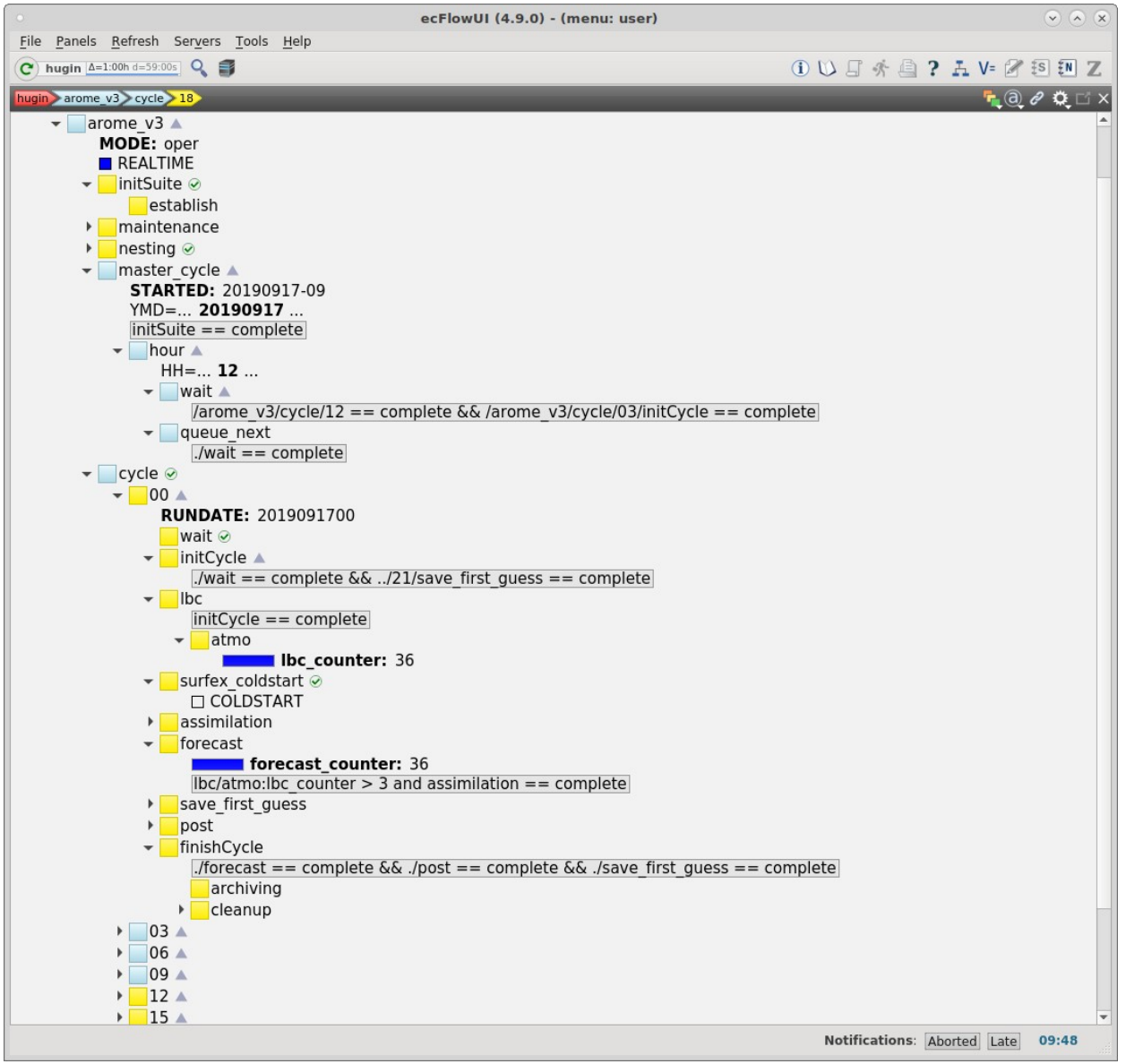
Experimental DA suite

- Experimenting with new ecFlow cycle set-up.
- 3-hourly surface DA
- Coupled to operational 4km alaro run.



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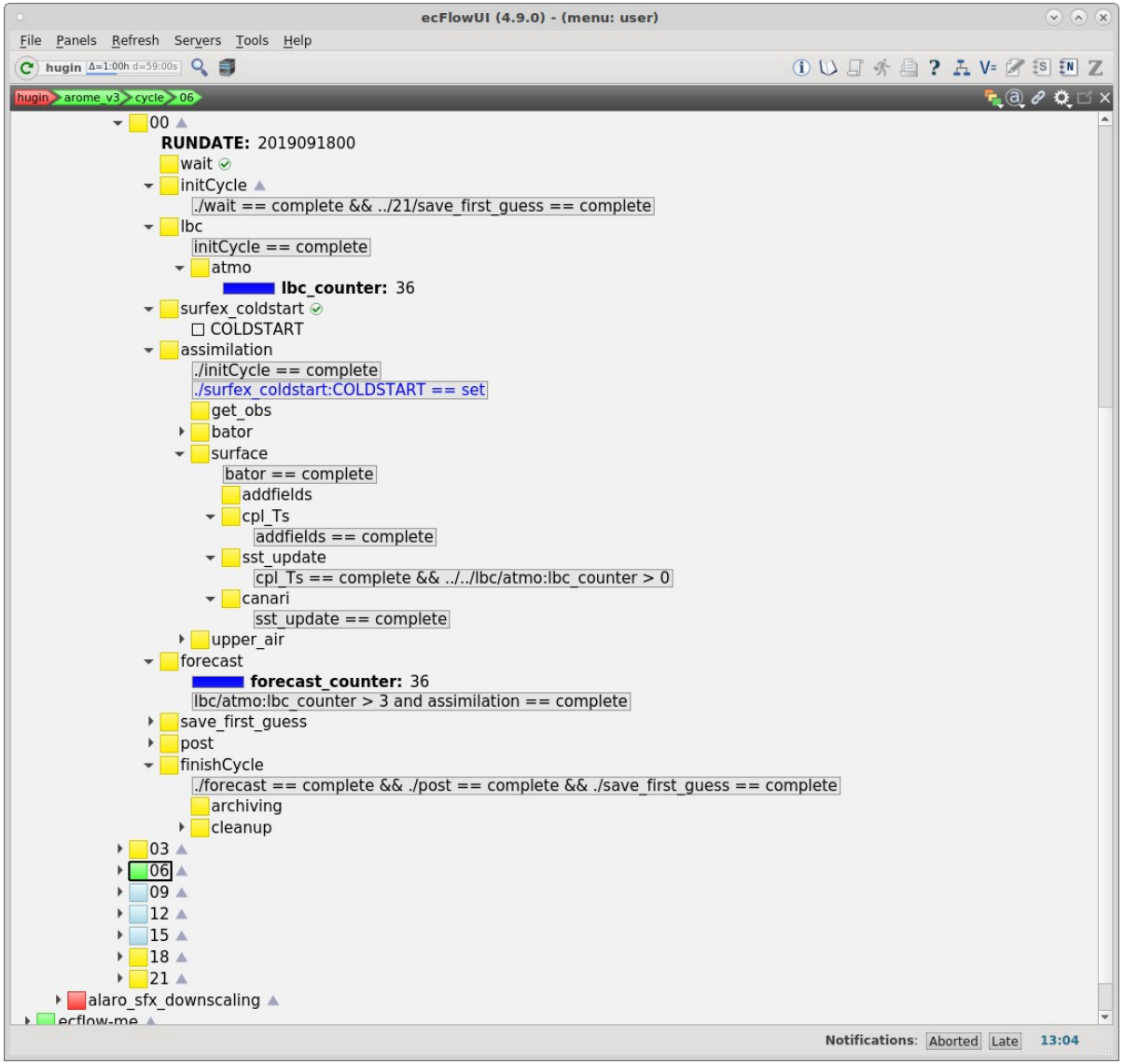
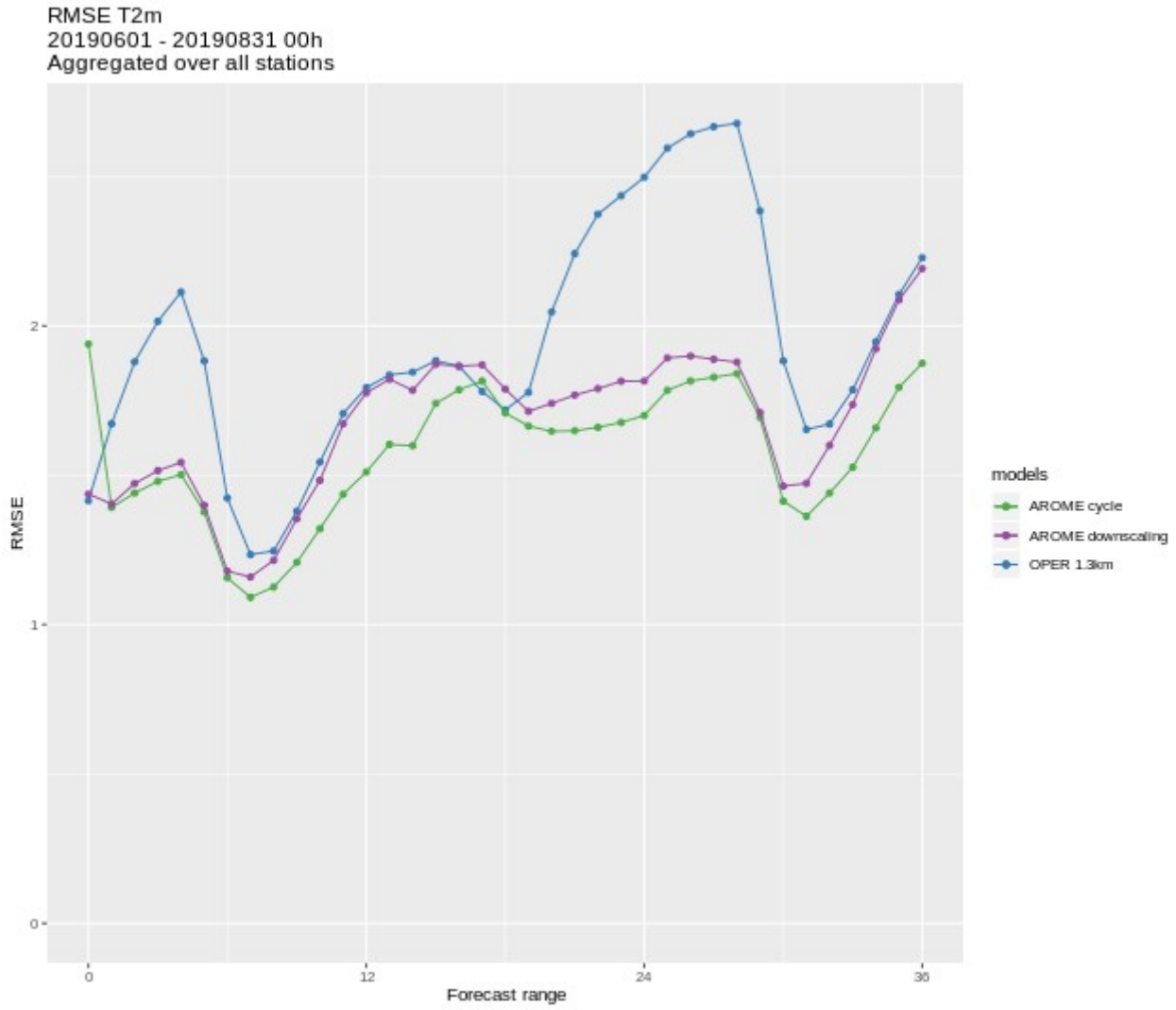


First results

- Scores for past summer are quite good
- Clearly a problem with the 00h score. Presumably an effect of surface DA with basic “downscaling” for 3D fields.



Some problems

- +00h : large bias in T2m (inconsistency surface vs atmosphere? Some bug in the data flow?)
- Some strange behaviour in the TG analysis increments.
- These strange gradients can also be seen in the obs-interpolation from CANARI.
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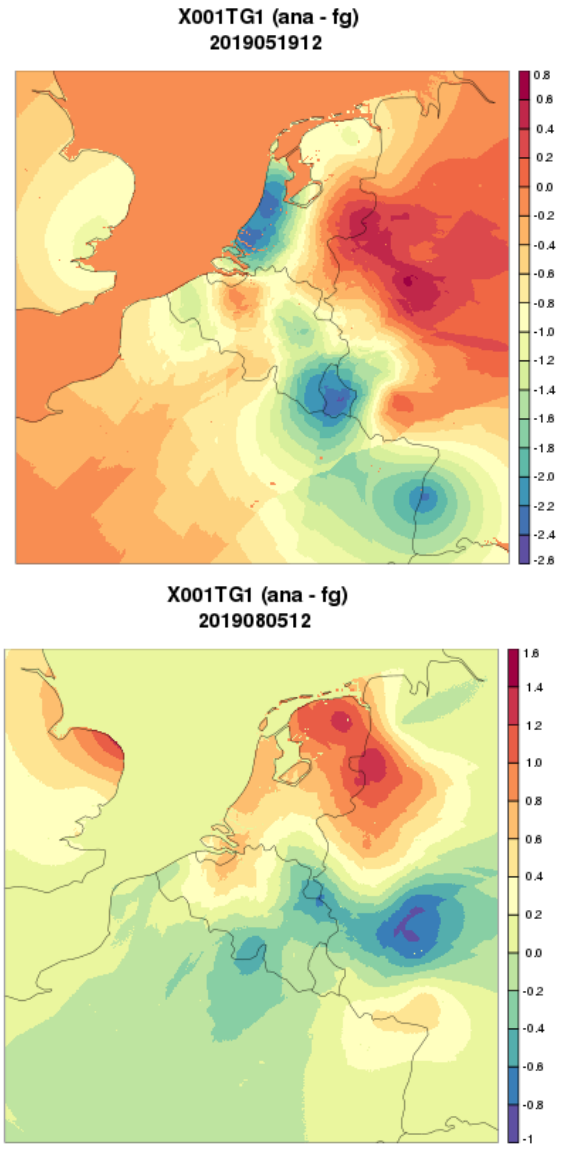

Observation processing

- Currently, observations are processed with house-made python scripts (SYNOP-BUFR from GTS: basic filtering of messages and preparation of final BUFR file for DA)
- SAPP is installed but not yet configured properly for local use.
- OBSMON also not yet in use.

Future plans

- Switch from home-made python scripts to SAPP
- Add basic 3d-Var (AMDAR, RADAR, GPS...)
- Also start a DA cycle for the 4km Alaro run (SURFEX or ISBA?)
- OBSMon for monitoring: compiled but currently not yet in use.
- Move DA cycle to an “official” e-suite as a first step towards operational use (will require further work on the ecFlow scripts)