

Summary report on DAsKIT video-conference, 26 March 2016

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The main topics of this video-conference were:

1. Progress on validation of local surface DA
2. Actual local issues
3. Coupling DA cycles with ARPEGE
4. Debriefing on common A-H DA training
5. Next DAsKIT WD
6. Planning of next actions and AOB

Preliminary note:

In order to account for eventual bad connectivity conditions an optimisation test on the video-conference platform was done the day before. “BlueJeans” (demo version which last for 30 days), suggested by Morocco, was the chosen platform, having as backup “Rendez-Vous” started by France.

Short progress status per country:

#### ALGERIA

- data locally acquired: GTS SYNOP TEMP, AMDAR; besides ASCAT
- data pre-processed: SYNOP (duplications and amends are tackled)
- OBSMON local installation is on-going
- MANDALAY has been ported
- HARP has not been installed
- Surface DA (AROME OI\_MAIN, CY40T1\_bf07) is being cycled under test mode with GTS SYNOP data
- 3D-Var has been cycled and tested for ALADIN at CY40T1\_bf07
- B-matrix has been computed from AEARP downscaling and a 3D-Var cycling is being implemented for AROME at CY40T1\_bf07
- future plans consist on building a pre-operational version of 3D-Var cycle, combined with OI\_MAIN, for AROME at CY40T1 and pre-process GPS data
- compilation problem issues still remain for BATOR CY43T1\_bf02 (routine `bator_decodhdf5_mod.90`), although the compilation flags for hdf5 package are now conforming to advise from LACE/Météo-France; a segmentation fault on `blendsur` routine (CY40T1\_bf07) has also been reported.

#### BELGIUM

- have an eflow suite to cycle surface (OI\_MAIN) + 3D-Var DA which is technically working for CY40T1\_bf07 and CY43T2\_bf09, after a 3 weeks stay of a colleague from Algeria, for ALARO, where SYNOP and AMDAR data is in use since October 2018
- B-matrix has been computed by the NMC method; plans include the improvement of B-matrix
- just started an e-suite for surface DA with AROME at 1.3km resolution and an equal suite will be started to ALARO with the same eflow set of scripting
- OBSMON is technically working at the HPC machine, but not yet in use

- work with HARP\_V3 is progressing fast.

## BULGARIA

- synop2bufr application is being used to convert local SYNOP's to WMO BUFR data
- HARP, OBSMON and MANDALY have been ported successfully to the local machines
- 2 weeks period cycling of AROME-BG using surface DA (OI\_MAIN, CY40t1\_bf07) with local BUFR data; validation of ODB contents for this cycling was done using ODB tools
- BATOR CY43T2\_bf09 has been compiled with Intel processor mpi ifort/cc 2019, but lacking of information on how to set up namelists (see Recommendations).

## MOROCCO

- data locally acquired: GTS SYNOP, TEMP and AMDAR; local SYNOP (VIGIOBS); besides GPS and ATOVS (BUFR)
- OBSMON and MANDALAY were implemented locally and the tests run ok
- HARP was not implemented
- BATOR (CY40T1 and CY41T1) was implemented and tested with SYNOP and TEMP GTS BUFR & local GPS and ATOVS; the issue with AMDAR GTS BUFR data in the local machine is maintained
- AROME-MOROCCO surface DA (OI\_MAIN, CY40T1\_bf07) implementation has shown a bug in the local machine, but it was OK in beaufix
- AROME-MOROCCO upper-air (3D-Var) implementation is OK in beaufix
- a full AROME-MOROCCO DA experiment with OI\_MAIN+3D-Var will be assembled and cycled in beaufix for a 2 to 3 weeks' period in CY40T1 since most of the components have been tested already (3D-Var and OI\_MAIN)
- acquisition of a new HPC is planned for 2019, where the full AROME-MOROCCO setting is supposed to be ported.

## POLAND

- observational data is coming from OPLACE. Besides, more local surface data is available, which is not shared by GTS and therefore is not BUFR formatted. This means local conversion has to be done
- OBSMON local installation is on-going
- HARP\_v2 is being used for verification of main production forecasts but is not yet being used for DA validation purposes
- Surface DA (OI\_MAIN, CY40T1\_bf07) has been ported
- DA is being cycled each 6-hour for ALARO configuration with CANARI in CY40T1 and CY43T2 in parallel and a case study has been done for validation
- test with and without surface DA is on-going

## PORTUGAL

- no progress on local data acquisition and pre-processing was done, though deported work occurred with conventional data during 2018 and with Portuguese OIFS radar data during 2019, in collaboration with Alena Trojakova, for more details see [http://www.rclace.eu/File/Data\\_Assimilation/2019/MMonteiro\\_short\\_stay\\_2019\\_v20190131\\_final\\_1.pdf](http://www.rclace.eu/File/Data_Assimilation/2019/MMonteiro_short_stay_2019_v20190131_final_1.pdf)
- local implementation of OBSMON and MANDALAY is still on-going
- HARP has not been implemented
- BATOR CY40T1\_bf07 shows a problem on ODB entry point during execution in the local machine therefore all assimilation work is being moved to ECMWF HPC platforms
- surface DA (OI\_MAIN, CY38T1) is running in operational mode

- B-matrix for AROME-PT2 (2.5 km, 60 levels) has been computed in beaufix and a full OI\_MAIN+3D-Var experiment has been cycle under OLIVE platform at CY40T1 (the closest to export version); B-matrix diagnostics have been started
- next actions should be: validation of surface DA (OI\_MAIN, CY40T1\_bf07) in ECMWF platforms and porting AROME-PT2 OI-MAIN+3D-Var from beaufix to the ECMWF HPC machines; besides work with Portuguese OIFS radar data should continue at ECMWF.

#### TUNISIA

- OBSMON and MANDALAY have been successfully tested locally
- BATOR has been locally implemented on CY40T1 and should now be tested with OPLACE databases
- surface DA (AROME OI\_MAIN, CY40T1\_bf07) has been tested on the local machine and next step will be to adapt it to the AROME-Tunisia domain
- a new HPC machine should be acquired by mid 2019 and after that the tests for a full (surface+3D-Var) DA for AROME at CY43 should take place
- in the new configuration, Jk will be added on AROME-Tunisia 3D-Var.

#### TURKEY

- OBSMON has been installed and tested with provided observations
- a 6-hour DA is being cycled for ALARO CY40T1 in operational mode (at 00, 06, 12, 18UTC network times), at 4.5km, 60 levels and with LBC from ARPEGE; as conventional observations are using SYNOP GTS&local; TEMP local and AMDAR GTS; as non-conventional observations are using AMSUA, AMSUB-MHS (NOAA18-19 & METOP1-2, SEVIRI (METEOSAT11) and AMV (METEOSAT); CANARI is used for surface DA and 3D-Var for the upper-air with 24-hour varBC. The model is integrated up to 48 hours
- an ensemble B-matrix has been calculated from AEARP at CY43T2
- surface DA (OI\_MAIN, CY40T1\_bf07) in beaufix has been completed
- next actions will include the installation of HARP, and the implementation of CY43T2 for ALARO; besides, an assimilation cycle should start for AROME.

#### Main conclusions:

1. countries have shown good progress in their local DA settings (Bulgaria in particular) and almost all are now able to cycle them (Morocco and Tunisia are waiting new computers, but are able to cycle a DA configuration in beaufix);
2. concerning implementation of the surface DA (OI\_MAIN, CY40T1\_bf07), all countries have declared to have started its local implementation somehow (just BATOR, for Tunisia and Turkey). However, Portugal (BATOR) and Algeria (BATOR) reported compilation or running problems in their local machines;
3. none of the countries has shown any sort of validation studies on surface DA, so far;
4. MANDALAY has been implemented and tested in almost all (still on-going for Portugal) the countries and no issues have been found;
5. OBSMON has been implemented and tested in most of the countries (still on-going for Algeria and Portugal), but none has started to use it on a regular basis;
6. HARP has not been implemented in most of the countries;

7. some countries have reported problems when using GTS AMDAR data in BATOR since some templates have not been tackled in AMDAR, so far. In particular, Algeria and Morocco found BATOR problems with the following templates: 301011 (VHHH), 301013 (VHHH) and 311010 (Note that templates 311011 and 311005 are already treated in BATOR (CY43T2)). Therefore, a common action should be made during the 2019 DAsKIT WDs;
8. some countries have reported compilation problems with BATOR for different reasons;
9. at the same time, although most of the countries are still working in CY40T1, many of them have started CY43T2;
10. two countries (Morocco and Tunisia) expect to buy new HPC platforms in 2019 with impact on their DA planning;
11. attention should be paid on near future info on ARPEGE LBCs requests by DAsKIT countries (see Recommendation 6);
12. next DAsKIT WDs will be jointly organized with LACE DA WD and CHMI will host the event in Prague, during 18-20 September (Wednesday to Friday);
13. next DAsKIT video-conf will take place in June 2019 and a doodle will be set to choose the day.

#### Recommendations & actions:

1. all countries are invited to document their issues at the LACE forum, on the page dedicated to DAsKIT issues <http://www.rlace.eu/forum/viewtopic.php?f=21&t=580> or to the DA coordinator (MMonteiro).
2. all countries are requested to start the validation of their surface DA cycling at CY40T1. MMonteiro will try to share a methodology based on single observation diagnostics;
3. Intel 2017 compiler was not recommend for known compilation problems (Algeria); Intel 'Parallel Studio 2016 update2' was successful used in Czech Republic and Intel 'Parallel Xe Studio 2019 update3 composer' in Bulgaria;
4. documentation on BATOR namelist (CY43T2) may help during porting and can be found at [http://www.umr-cnrm.fr/gmapdoc/IMG/pdf/namel\\_bator\\_cy43-en.pdf](http://www.umr-cnrm.fr/gmapdoc/IMG/pdf/namel_bator_cy43-en.pdf);
5. ECMWF BUFR templates (MARS) reading with BATOR is a special case; according to info provided by Météo-France on the future evolution of BATOR (vidé "Discussion about a shared Bator version" notes provided by ATrojakova): "Other items like local formats, specific needs for reanalysis projects, would be handled within development branches, mostly on the responsibility of the appropriate project team.";
6. concerning the ARPEGE LBC requests of the DAsKIT countries, the document 'Short note about the impact of cutoff choice for LBC files on Arome-France; collected information from GMAP (2019)', was shared and some information provided by CFischer. In particular, ARPEGE has 3 TELECOM files chaines: 'prod' (short cutoff; 6-h 4D-Var; timeliness dissemination); 'assim' (long cutoff; 6-h 4D-Var non timeliness dissemination); and 'pacourt' (short cutoff; 00UTC network FGAT; timeliness dissemination). AROME-France only uses 'prod' chaine for timeliness reasons, but the results from a recent study (AROME-

France, 1.3 km resolution) has shown that using 'assim' chaine, a small improvement can be achieved in H+18 forecasts onwards. ACNA raised the point that for countries where sparse observations networks are at play, ARPEGE 'assim' coupling files can bring an added value. Météo-France is studying the optimal solution to provide the 'best possible' coupling files to DAsKIT countries (including hourly couplings);

7. DA coordinator will check the possibility to acquire a "BlueJeans" license through IPMA. And countries are recommended to continue to share their slides in advance of video-confs to allow an efficient communication;

8. MMonteiro should soon give news on OBSMON outcome from A-H Common Training;

9. countries are welcome to take a look on the A-H common training website at <https://hirlam.org/trac/wiki/HarmonieSystemDocumentation/Training/HarmonieSystemTraining2019>; and provide suggestions on how to best take advantage of this training to its progress on DAsKIT are welcome (eventually suggest some action for the WDs).