

Participants: Tomas, Olivier, Michael, Paul (EC), Claude, Ryad, Etienne, Alexandre, Florian, Harold (MF), Daniel (AEMET /Hirlam)

Excused: Daan (RMI/Aladin)

1. Methods and tools for code validation in MF (Alexandre)

Alexandre presented the plans for revisiting the technical validation and working methods in MF. The goal is to create a user-friendly validation environment enabling developers to quickly test development branches. Tests will include components for data assimilation in addition (and in parallel) to the models (note: DA is a missing aspect in MF's present system "mitraillette") and some cross-tests IFS/Arpège are expected.

The discussion then extended to questions about ECMWF's present work practices and tools for validation (continuous integration system implemented with prepifs, specific very small truncation tests for Workstation – WS -). EC confirmed that bit-reproducible changes systematically and automatically are tested overnight. Those developments involving scientific changes and different numerical results require specific scientific reviewing.

MF already have started to develop a prototype new validation tool (named "davaï" - let's go ahead !" in Russian). Internal discussions and early prototype testing will take place in the coming months in order to progressively make GMAP staff familiar with, and using "davaï".

A few specific actions ("commitments") have been agreed:

- Olivier offered to provide MF staff access to the ECMWF bit-bucket environment, where the WS test tools are uploaded. Action on Claude to provide Olivier with the list of MF names for granting access.
- MF (Ryad) to provide Olivier and Alexandre an Arpège T30 forecast test (without SURFEX, which is a source code that is not at present being shared in the exchanged codes)
- EC (Olivier) to provide Alexandre and Ryad with a T21 IFS forecast test (note: in practice, this may simply mean to upgrade the T21/IFS test that Ryad used to share with Deborah)
- we expect to get back to this topic by about the beginning of 2020, after MF have started to use the new tool and feedback from the staff is available.

2. Status of validation and content of CY47 (Claude, Olivier)

Since 26 June, MF has a pre-version v04 of CY47, including also several fixes provided by Olivier. At MF, v04 has been tested for all mitraillette configurations with accepted results. A few prototype OOPS tests have been run as well (with a very early version of "davaï").

In EC, tests focus on IFS 4D-VAR. Problems mentioned (in short list):

- there is an IO server crash that does not show up with Gfortran nor Intel compiler, only with Cray. Olivier suspects a problem with the Cray compile system (rather than a bug in the code), and now works with a support from the Forecast Dpt.
- Crash of 4D-VAR with optimized binaries, and some suspicious Jo-table values with debug binaries (Cray). Gabor and Olivier now check these results together.
- Problem when setting on GOM-2D: both EC and MF have modified the codes for the GOM-2D structures (EC in their CY46R1 for continuous DA, MF in their CY46T1 for all-sky microwave retrievals). There are however specific late fixes by MF that prove difficult to be

phased from CY46T1 up to pre-CY47/v04. The clean phasing may require 2-3 days of work. In order not to block any further technical validation, MF suggest to switch back “yomlocs.F90” to its version of CY46R1 (this could enable GOM-2D again for the general options, but the all-sky microwave option would be broken until a clean CY47 fix is available).

The timing for declaration of CY47 will be further addressed at the IFS/Arpège coordination videoconference on 4 July.

3. Quick status about OOPS (if time is left, otherwise can be shifted to 4 July coord) (all)

leftover for the 4 July coord meeting.

4. Technical AOBs

suggested by Daan: the organization content of Atlas working days this autumn. => Olivier will check whether such ATLAS days are being planned at EC for this autumn.

Suggested by Claude: exchange about constraints for agenda of 4 July coord videoconf => due to timing constraints, the suggestion is to move the discussion on content and timing of next cycles, post-CY47, a little up in the agenda.

5. Reminder: next meetings

next technical video-conference: proposal is for November 2019, precise date tbc, 14h30 CET / 1.30pm UK

next video-conference IFS/Arpège coordination meeting: Thursday 4 July 2019 14h30 CEST / 1.30pm UK

next physical IFS/Arpège coordination meeting: tbd March 2020 ? in Toulouse (full day)

List of specific actions:

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4. we expect to get back to this topic [validation process] by about the beginning of 2020, after MF have started to use the new tool [davaï] and feedback from the staff is available.
5. Olivier will check whether ATLAS working days are being planned at EC for this autumn.