

Participants: Tomas, Olivier (EC), Claude, Ryad, Etienne, Karim (MF)
Daniel (AEMET /Hirlam), Daan (RMI/Aladin)

1. Review specific actions from 7 June (all)

- Daan to send EC (Marcin, Olivier) and MF (Claude) information about his tests and analysis of the digital filter OOPS adaptation (backward integration aspects, any other issue) => *Daan sent a short summary of the DFI technical analysis done by him and Martina Tudor in 2015, based on the OOPS/toy models of that time. This analysis will need to be refreshed on the basis of the recent OOPS versions. Daan pointed out that handling negative time steps was necessary for DFI, in the OOPS layer. Olivier confirmed that Marcin would arrange this possibility very soon, so it would be part of the OOPS code version to be linked with IFS CY47. Closed.*
- EC (Deborah, Mats) to send MF (Claude) the details about the suggested pruning of MAKECMA and LSCREEN codes, for further evaluation => *Deborah sent a summary of the relevant code option to Claude, who received some feedback from the MF/OBS team on how this optional code was being used in Arpège. Claude wondered whether EC eventually had decided to prune LMKCMARPL or not, as it seemed to also be used in IFS. Olivier will check with Mats when he's back for his contract activity. Action open: Claude to send Olivier LMKCMARPL feedback from OBS team; Olivier to check status of pruning with Mats.*
- MF (Claude) to send EC (Deborah) details about the fixes needed for LTRAJHR (misuses) in CY45 => *done. The main problem in CY45 and CY46 was the removal of the optional code handling LTRAJHR=.F. (in places, modified code only had been implemented for the IFS case – TRUE – which obviously broke the Arpège case – FALSE -). It is recalled that LTRAJHR is an active option in the joint Fortran code, and both options need to be maintained. It was also noted that LTRAJHR would become useless with OOPS, since the different handling of trajectory fields would be materialized by the instantiation of different Trajectory objects. Closed.*
- EC (Olivier) to make code of CY46R1+OOPS available to MF (Etienne, Ryad, Claude) => *this action has become irrelevant, as the target joint codes now should be in CY47. Closed.*
- MF (Etienne, Ryad, Claude) to send EC (Marcin, Olivier) the proposed changes for adapting the I/O classes for Arpège files in CY46. EC to check and consider whether this could enter already in CY46R1. => *the code will be available in CY47 OOPS-IFS/Arpège. Closed.*
- Tomas and Claude to exchange about new version of EC FLUB (CY45R1 as example) => *a similar discussion was raised at the 25 Sept. coordination videoconference. Tomas stressed that with the current merge strategy at EC (pre-merge steps and very continuous merge process), the base versions and the precise list of modified routines, per topic, became very difficult to assess in detail. This action closed.*

2. EC progress with IFS-OOPS & CY46R1/R2 (EC)

- CY46R1 is in build process, testing of the final version (V8) is expected to start this month. The cycle should be handed over to FD by the end of the year. For the full content of CY46R1, we refer to the minutes of the 25 Sept IFS/Arpège coordination videoconference

(draft minutes available from Claude or Olivier)

- There will not be any specific CY46R2 then; rather a small upgrade of CY46R1 (CY46R1+) including technical updates for OOPS (wave assimilation, continuous DA, flexible TOVSCV control vector for outer loops in OOPS), non-oops science contributions being targetted at CY47R1.
- We exchanged a little on the testing tools and strategy at EC, for new code releases. EC have both a large number of technical tests, and a smaller subset of specific configurations (Tco399 4D-VAR, IFS forecast, CAMS forecast version, some ENS technical benchmark). Scientists are expected to provide results of their technical test runs when committing a dev branch to the trunk. A few system experts regularly run the major test configuration when integrating branches. It was also recalled that scientific teams do pre-merges of contributions.
- OOPS testing: the Tco399 4D-VAR OOPS-IFS runs technically fine. Systematic runs have revealed that the analysis increments are however not yet good with the CY46R1 code version. The deterioration seems very large, and should be not too difficult to trace back. Missing items are continuous DA, second-level preconditioning, and wave assimilation. Only the last item probably won't be ready in time for CY46R1+ and CY47.

3. MF progress with validation of CY46 (MF)

- validation of assimilation with CY46:
 - Arpège screening seems OK when Open-MP is switched-off. With Open-MP, there are spurious NaN's in the listing. This seems a difficult bug, and may require a systematic switch-on/switch-off of Open-MP sequences throughout the screening code.
 - Arpège 4D-VAR minimization has at least one bug in the interfacing to the PBL obs operator (ACHMTTL/ACHMTAD). A deeper look by an expert from the OBS team might be required.
 - In the meanwhile, tests of Arome 3D-VAR are starting.
 - The CANARI Optimal Interpolation code is under investigation. Problems with reading properly the obs error stdev's have been solved. Nevertheless, the final analysis increments are zeros. Stepwise validation of CANARI will be continued.
- build of CY46T1:
 - the build of CY46T1 has started on 1 October. Early compile and runtime problems could be spotted and solved quickly thanks to testing on PC (with GFORTTRAN). A second pre-cycle version is being built this week (v02). Then, systematic model and FP testing can start on the BULL.
 - The CY46 fixes already known so far (see major bullet above) have been included in the first pre-cycle release CY46_t1.01 (v01). More fixes are expected to enter in future versions (eg. for CANARI or Arome).
 - Scripts enabling a systematic testing of GIT branches are being developed in GMAP (in Python, Alexandre). They will be evaluated during the build process of CY46T1.
 - There are a few trailing, missing contributions (to be considered as late input): Hirlam portability and model contribution, Aladin new fields in FP (J. Cedilnik and coll.). MF (GMAP and GMGEC) contributions are almost totally 'in' in v02.
- The present e-suite preparation at MF is with CY43T2 (Arpège TL1798C2.2 high resolution).

4. Coordination of OOPS implementation for CY47 (EC, MF)

MF have a set of OOPS developments that will be implemented in CY46T1, on the base of an OOPS code version provided beginning of 2018 by Deborah. Olivier confirmed that this code version still was the baseline of present OOPS-IFS testing at EC (with CY46R1). Etienne confirmed he could prepare a GIT contribution very quickly and post it in the EC OOPS repository. The code could then be scrutinized by Marcin, before officially merging it with the OOPS Master trunk. Olivier stressed that the OOPS repository does have its own versioning system, separate from IFS, and Marcin will set specific tags to link a given version with an IFS Fortran cycle release (eg. CY47).

Olivier further mentioned that EC would add the missing features they are working on now: TOVSCV variable size control variable and continuous DA should be in CY47, wave assimilation features would come after.

Action: MF to provide their OOPS CY46T1 code changes in EC's GIT (Etienne). EC to provide feedback after proof-reading the code, and merge the agreed code with the Master trunk for CY47 (Marcin, Olivier). Ensure the proper OOPS version is being tagged for CY47 (Marcin to set the tag; Olivier, Claude, Etienne, Stéphane to all make sure this tagged version is used on both sides).

Olivier explained that after CY47, one expected evolution in OOPS would be to remove the instances of BOOST features. This would increase the level of portability of the code (beneficial for benchmark purposes). The standard and recommended version of C++ would then be raised to ANSI version 11. Claude stressed that this information would be handed over to all partners of the IFS/Arpège/LAM code in due time, probably once the change becomes effective at EC. The change already was agreed with Yannick (for JEDI partners).

5. Reminder: timing of CY47; AOB

Start of phasing for CY47 in mid-January. EC will provide CY46R1+; MF will merge with CY46T1.

next technical video-conference: Tuesday 29 January 2019, 14h30 CET / 1.30pm UK

next video-conference IFS/Arpège coordination meeting: Monday 10 December 14h30 CEST / 1.30pm UK ; Thu 20 Sept 14h30 CEST / 1.30pm UK

next physical IFS/Arpège coordination meeting: Friday 8 March 2019 in Reading (full day)

List of specific actions:

1. Claude to send Olivier LMKCMARPL feedback from OBS team; Olivier to check status of pruning with Mats.
2. MF to provide their OOPS CY46T1 code changes in EC's GIT (Etienne). EC to provide feedback after proof-reading the code, and merge the agreed code with the Master trunk for CY47 (Marcin, Olivier). Ensure the proper OOPS version is being tagged for CY47 (Marcin to set the tag; Olivier, Claude, Etienne, Stéphane to all make sure the tagged version is used on both sides).