

**OOPS technical meeting - 15<sup>th</sup> December 2011**  
**IFS cleaning and re-factoring - Part-2**

Participants (MF) : Claude Fischer, Florence Rabier, Karim Yessad, Stéphane Martinez, Yves Bouteloup

Participants (EC) : Deborah Salmond, Yannick Trémolet. Tomas Wilhelmsson

**6. Cleaning actions**

The long term cleaning work of IFS/Arpège is carefully tracked and documented by Karim – his latest version is V7d. For the cleaning actions towards CY39, the appendices E, G, I, L and M were considered.

Appendix E – Renaming of namelists/modules

E1: This list would be dealt with as it came up in other reorganisation for example NAMPAR0/1 could be included in George's cleaning of MPP aspects.

E2: Tomas would provide a list of modules to be renamed from this list in CY38R2 and MF would check ALADIN and CANARI items, and liaise with HIRLAM for HIRLAM items. NAMGFL would wait for GFL cleaning.

Appendix G – Obsolete variables in modules

EC (Tomas) agreed to do the complete list except yhl\*.F90 and yem\*.F90 which would be done by HIRLAM and MF, resp.

Appendix I – Modules which can be merged into other modules

I1: no action for the time being. Needs to wait for the re-write of interpolators.

I2 and I3: EC (Tomas) would address where possible for CY39

I4 and I5: MF would work on these after CY39

Appendix L – Routines with unused arguments and/or too many arguments

L1: EC (Tomas) agreed to do the complete list of unused arguments except c9xx and phys\_dmn which would be done by MF

L2: The list of routines with more than 50 arguments would be addressed as the work to introduce more derived types was done. For example EC would be doing some work on the interface to ec\_phys/callpar for CY39.

Appendix M – More than 10 norm violations in a routine

M1: MF would address the (new) routines holo & unholo with >100 norm violations each.

M2: EC mentioned that the offending routines in obs\_preproc would be soon obsolete with their replacement by COPE.

## **7. Pruning of 4D-Var switches**

EC (Yannick) proposed a list of options in 4D-Var which are now obsolete and should be removed.

MF agreed that LOBSTL, L131TL, L801TL and LSKF could be removed.

Yannick would check with Carla if LSIMOB and LOBSREF were used for sensitivity runs – if not it was agreed that these could be removed too.

ACTION

Option LTC was still used by MF so would stay. But option LAVARC also developed by MF might be able to be removed – MF would check.

EC also mention the key to the Normal Mode penalty term (LJCNMI), which could be a candidate for pruning. MF say they probably do not use this key either. We should confirm this pruning for CY39 or CY40.

ACTION

It was discussed whether some configurations for example 421/422 and 521/522 – TL/AD of shallow water could be removed. Karim mentioned that he had a document to describe the removal of these which he would circulate after the meeting.

ACTION

Yannick pointed out that the gradient computation (Config 801) will eventually disappear and be replaced by the OOPS code – but we would wait for OOPS before removing. Same holds for Config 501/401 (tests of 3D TL and AD models). There will be a many unit-tests written into OOPS – including tests for all minimisers.

## **8. Removal of command line option**

OOPS could not use the 'command line option' as different instances need different values. Yannick said that although OOPS would not use the command line option it would be kept for IFS for CY39. Claude said that MF would indeed like to keep the command line options at least until CY39, and then a deeper analysis should take place to see how (and how quick) we could eliminate the command line. This has an impact on MF's operations for instance, as they are intensively using this facility in complement to the namelists.

Karim pointed out that the command line option was a very convenient way to obtain geometry information eg. A's and B's for vertical coordinates. He said that the removal of the 'command line option' would need to be done very carefully with many intermediated steps so as not to introduce bugs. He would circulate his recent document about the command line work.

ACTION

## **9. Frequency of cycles and exchange of technical changes (item from OOPS/SC)**

There was a discussion on the problem of MF and EC working together on the same routines but only being able to exchange code every common cycle = every year – which can cause delays or very complex merges.

It was thought that more frequent common cycles was not practical – otherwise Karim, Stéphane and Deborah would have no time for anything except merging.

A solution to the problem would be if MF and EC had the same source code repository. Tomas pointed out that this did not necessarily mean that there had to be a central repository needing remote access – but a distributed revision control system could be used – for example **git**.

Claude pointed out that sharing a common SCR system should not be the complete answer, and careful coordination and analyses of developments and code commitments still would be needed, to be done by code experts. It was agreed however that the common SCR could help, as it would make exchange of modsets very easy, and allow scientists to quickly install, see and compare changes done by the partners. More easy pre-phasing of modset might be expected as well.

Stéphane said that MF would stop using clearcase and move to **git** by the end of 2012. EC were very keen to receive information on MF's plans on how to use **git** – and Stéphane agreed to send documents as soon as they were available (in French).

ACTION

## 10. CDCONF

Yannick said that some 'localised pruning' could be done as he had discovered several IF tests containing CDCONF – where the CDCONV bit could be removed as it had been superseded by other logicals also in the IF test.

Karim pointed out that CDCONF was a 7-Degree of Freedom entity – and some degrees would be easier to clean-up than others. The easier CDCONF elements to deal with were 4, 7, 8 and 9 and the most difficult being 1, 5 and 6

Residual occurrences of CDCONF(4:4)='S' and CDCONF(9:9)='S' will disappear in CY38T1.

He proposed that the work should be spread over several cycles and more general cleaning of CDCONF could not be done before CY39.

It was decided that a short document with a list of all CDCONF's with one line describing them should be produced and this work would be started by Karim.

ACTION

## AOB

### Boost libraries for OOPS on the NEC SX9

Claude said that Louis-François had been looking at creating a boost library on the NEC – and he was concerned that this might involve many problems.

Yannick pointed out that as only a very small part of boost was used – the best way to proceed was to put the boost source on the NEC, tell the OOPS Makefile where the boost source is and then let **make** decide to build only what boost stuff was necessary for OOPS. This could be tested using the version of OOPS provided for the technical review.

More recent versions of OOPS now contain 'unit-testing' from boost and this would have to be checked on the NEC too.

### **LAM OOPS days**

This 3-day meeting would be attended by Claude, Ludovic Auger, Alexandre Mary from MF, and Nils Gustafsson from HIRLAM. Yannick, Tomas, Mike and Deborah from EC.

MF would provide the ALADIN source and documentation to be available at EC for the days. Also Claude would send an email to find suitable dates – expected to be in early February after the MF C++ training which was re-scheduled to Jan 16th-20<sup>th</sup>.

ACTION

### **Map Factor Encapsulation**

Claude had provided a document on MF's proposals for encapsulation of the map factor. Tomas would respond to this after checking how this fitted in with his encapsulation of the geometry for OOPS.

ACTION

### **3-way Video-Conf**

It was decided to investigate whether it would be possible to have a three-way video-conf MF/EC/HIRLAM. Claude would provide details from MF side and Deborah would check with EC technical staff to arrange a test of the system.

ACTION

### **Next meetings:**

Next technical video conf: 2<sup>nd</sup> week of February 2012

OOPS/LAM meeting: early February 2012 at ECMWF

### **List of Actions**

1. Yannick would check with Carla if LSIMOB and LOBSREF were used for sensitivity runs.
2. Karim would circulate his document to describe the removal of Configs 421,422,521,522 etc.
3. MF would check about use of LJCNMI, in the view of a later pruning.
4. Karim would circulate his recent document about the command line work.
5. Stéphane would send documents on MF's use of **git** as soon as they were available
6. A short document with a list of all CDCONF's with one line describing them was to be produced and this work would be started by Karim.
7. Claude would provide the ALADIN source and documentation to be available for the OOPS/LAM days. Also Claude would send an email to find suitable dates.

8. Tomas would respond to MF's map-factor proposals after checking how this fitted in with his encapsulation of the geometry.
9. Claude would provide details from about 3-way video-confs from MF side and Deborah would check with EC technical staff to arrange a test of the system.