

# IFS/Arpège Coordination Report

**From:** Claude Fischer (MF)

**To:** (ECMWF) HR, RD Division & Section Heads, List of recipients

**To:** (Météo-France) Arpège diffusion list, other MF (Arome) correspondents

**To:** (ALADIN) Piet Termonia

**To:** (HIRLAM) Ulf Andrae

**File:**

**Subject:** Minutes of the IFS/Arpège coordination video-conference - Cycle 40 – held on 19th March 2013.

## **Participants:**

**Météo-France:** Alain Joly, Florence Rabier, Claude Fischer, Karim Yessad, Ryad El Khatib, Stéphane Martinez

**ECMWF:** Jean-Noël Thépaut, Deborah Salmond, Anne Fouilloux

**Part time:** Frank Guillaume, Pierre Bénard, Sylvie Malardel

**ALADIN:** excused.

**HIRLAM:** Ulf Andrae

## **0. Adoption of Agenda (start at 14h30 Tlse / 1.30pm Rdg)**

adopted.

## **1. Approval of Minutes of Coordination teleconf of 5th December 2012**

approved.

## **2. Review of list of actions from last meeting**

1. *C++ coding guidelines for OOPS: EC will investigate whether the guidelines can be made common to OOPS & COPE. Anne will contact the OOPS core team at EC, and later liaise with MF and LAM partners. => EC will start from the OOPS C++ guidelines for COPE, and add specific design guidelines for COPE/C++ codes to them. MF and partners should now start evaluating the OOPS guidelines that are included in the OOPS GIT repository. MF will nominate one correspondent for the C++ guidelines. EC, MF and partners will*

- continue to liaise on a regular basis (as an item of a technical video-conference for instance). **Action closed.**
2. *GIT: both centres agree to keep each other informed about their progress on using GIT. => MF will definitively switch to GIT immediately after CY40 is completed. MF's GIT tutorials (French and English versions) have been sent to EC and partners (also available from the GMAPDOC website at: <http://www.cnrm.meteo.fr/gmapdoc/spip.php?article218>). Hirlam plan to use GIT for a common verification project with Aladin partners, and move their Harmonie SCR to GIT end of 2013 or 2014. **Action closed.***
  3. *Pruning of the old GRIBEX interface: we agree that the last GRIBEX calls for Arpège should stay in the code until at least CY41. Deborah will send MF a set of routines where GRIBEX has been totally pruned and replaced by equivalent GRIB\_API calls, so that MF can start testing it on the new HPC asap. => EC and MF have agreed on the (single) routine where a specific call to 'gribex' should remain until CY41 (as a direct call to the 'grib\_api' equivalent would significantly decrease Arpège's performances on MF's present NEC SX9). This call will be handled as a #ifdef option in CY40. **Action closed.***
  4. *Inclusion of the new Model Field Structure for the IFS radiation scheme: MF to study the prototype code and give feedback to EC. Decision on whether the new structure already enters for the radiation code in CY40. => EC have sent the prototype code to MF; MF have sent a feedback (short technical note by Karim). Discussions will be continued in the course of 2013, in the frame of the usual technical discussions (tech' video-conf and emails). No new code on this topic has entered the IFS for CY40. **Action closed.***
  5. *Ensemble data assimilation changes: Jean-Noël to contact Massimo Bonavita, to ensure that the forthcoming scientific and technical changes in the IFS/EDA are transmitted to MF contacts (Gérald Desroziers, Loïk Berre, Laure Raynaud). Claude will liaise about the reciprocal with MF correspondents. => Massimo Bonavita has started the exchange of information, by an email to Gérald Desroziers. Gérald and Loïk Berre shall prepare a corresponding reply. It is expected that both centres regularly will exchange their intentions for scientific and technical changes on Jb and EnsDA in the coming years, especially before new implementations are scheduled in E-suites. **Action closed.***
  6. *Next technical video-conference, mostly devoted to Geometry & State for CY40: Claude will arrange the precise dates and contact all correspondents. => the video-conf took place on January 17, 2013. A first part of the new organization of global variables in the IFS will enter CY40, and a continuation of this work is planned to enter CY41. Collaboration between Tomas Wilhelmsson, Karim Yessad and Alexandre Mary on this issue will continue. **Action closed.***
  7. *Presentation of Full-POS2: EC (Deborah) and MF (Ryad) agree to arrange a video-conference for Ryad to introduce EC staff to the new Full-POS2 software. => EC to propose a few possible dates to MF (Deborah/Ryad). **Action open.***

### 3. Progress and Plans of ECMWF (Highlights)

#### Modifications with impact in CY38R2:

- Increase of number of vertical levels from 91 to 137 in HRES, EDA and 4D-Var - NA+PA+DA
- Revised background error covariances at 137 levels (interpolated from 91) based on model cycle 38R1 - Elias Holm, Agathe Untch
- Revised EDA calibration/filtering for 137 levels - Massimo Bonavita
- EDA also updates unbalanced parts of T, D, ln(p) in B - Massimo Bonavita, Elias Holm
- Model error cycling in stratosphere switched off - Yannick Trémolet
- Modification of surface drag - Anton Beljaars
- Test parcel entrainment in boundary layer and shallow convection - Irina Sandu, Maike Ahlgrimm
- Non-orographic GWD (cf. seasonal) - Peter Bechtold
- O2 absorption bug fix - Alessio Bozzo
- Reduced time step in 2nd and 3rd minimization from 1800s to 1200s - Gabor Radnoti
- Sea-ice/SST consistency over Caspian Sea - Sarah Keeley
- LEKPERT=OFF stability enhancement - Philippe Lopez, Deborah Salmond

#### Technical/minor impact in CY38R2:

- Modernisation of (GOM) model field-to-observation interpolation - Alan Geer
- Fix of LSPRT=.T. option in TL/AD code - Filip Vana
- Cleaning of CALLPAR - Filip Vana
- Cleaning+consistency of constants - Peter Bechtold
- Introduction of small planet option - Peter Bechtold, Nouredine Semane, Sylvie Malardel, Jean-Jacques Morcrette
- Bugfixes to NH with LPC\_FULL + LGRADSP and some optimizations - Nils Wedi
- Bermejo & Conde quasi-monotone mass fixer for semi-Lagrangian advection - Michail Diamantakis
- Modification of S\_nonlin for first frequency downshifting and technical changes for sea ice attenuation - Jean Bidlot
- Fix to footprint averaging and enhancements to the quality control of ATMS data (will be active with ATMS data) - Niels Bormann
- Infrastructure to monitor passive data (i.e., data which is not part of the atmospheric 4DVAR analysis) - Joaquin Munoz-Sabater
- Assimilation of SMOS data in SEKF + bias correction - Joaquin Munoz-Sabater
- Grib-API replacing GRIBEX in surface analysis - Patricia de Rosnay, Tomas Wilhelmsson
- Preparations for assimilation of OSCAT and Metop-B ASCAT data - Giovanna de Chiara
- MACC, Aeolus, ERA-20C, ODB, COPE, OOPS, IBM P7, Diagnostic - All

#### Modifications with impact in CY39R1:

- Increase of number of vertical levels from 62 to ?? in ENS (also relevant to MOFC) - Martin Leutbecher, Frederic Vitart
- Atmosphere-ocean coupling of ENS from day-0 - Kristian Mogensen et al.
- On-line estimation of background errors, using 25 EDA members - Massimo Bonavita
- Modification of convection to address diurnal cycle of precipitation - Peter Bechtold
- Modification of cloud scheme (evaporation, autoconversion) to address drizzle - Richard Forbes
- Modification of vertical diffusion and orographic GWD - Irina Sandu
- Fix of snow albedo in radiation scheme, consistent with land-surface scheme - Jean-Jacques Morcrette, Alessio Bozzo, Gianpaolo Balsamo
- Perturbation of land surface initial conditions of the ensemble - Simon Lang
- Perturbation of land surface temperature and moisture observations in the EDA - Patricia de Rosnay and Anne Fouilloux
- Retuning of the regularization of upper-air and surface exchange coefficients in the TL and AD versions of the simplified vertical diffusion scheme - Philippe Lopez
- All-sky microwave: SSMIS 183 GHz channels activated; discrete dipole snow scattering - Alan Geer
- Enhanced use of AMSU-A/B/MHS data over sea-ice - Enza Di Tomaso, Niels Bormann
- Use of calibrated EDA spread in radiance space as background error estimate for the FG-check for ATOVS - Niels Bormann, Massimo Bonavita
- Situation-dependent observation errors and revised QC for AMVs - Kirsti Salonen
- Variation of refractivity between model levels above 10 km is now consistent with a linear variation of temperature with height - Sean Healy
- Imager-assisted cloud detection for IASI radiance data - Reima Eresmaa
- Changes to shallow water calculation and surface air density - Jean Bidlot

#### Technical/minor impact in CY39R1:

- ECFLOW python suite definition for data assimilation - Jan Haseler
- More code cleaning in CALLPAR - Filip Vana
- Revision of small planet formulation in physics - Peter Bechtold, Nouredine Semane
- Improvement in the snow blacklist: generic approach to get the most recent input file for a given cycle - Patricia de Rosnay
- SSMIS radiance monitoring over land - Fabrizio Baordo
- Wave model Charnock parameter used in minimization - Giovanna de Chiara
- NH and shallow water model (and miscellaneous) bug fixes - Sylvie Malardel
- ODB feedback for surface analysis observations. Patricia de Rosnay and Anne Fouilloux
- Quality control for ATMS lunar intrusions - Niels Bormann
- Move of cloud detection for AMSU-A/B/MHS/MWTS/MWHS from blacklist to IFS-code for dedicated flagging - Niels Bormann
- Treat NOAA-18 MHS as MHS, not as AMSU-B - Niels Bormann

- Implementation of new ozone data from MetOp-B GOME-2 (TCO) and NPP OMPS (TCO and nadir profiles) - Rossana Dragani
- Geometry object for OOPS – Tomas Wilhelmsson
- OOPS cleaning of JB – Mike Fisher
- COPE mods for ADM-AEOLUS – Mike Rennie
- Renaming of .h files – Glenn Carver

#### MACC changes for CY39R1:

- Aerosols: post-processing of Aerosol Optical Depth and PM1, PM2.5, and PM10. Updates to the Calipso lidar observation operator. Updates to the MODIS AOD VarBC, including a new predictor - Richard Engelen et al.
- Greenhouse gases: Observation operators for GOSAT CO2 and CH4 retrievals. Coupling to CTESSEL - Richard Engelen et al.
- Reactive gases: various updates to C-IFS. Inclusion of C-IFS in data assimilation through the use of YCHEM GFL fields. Changes to allow fast-response experiments in case of volcanic eruptions - Richard Engelen et al.

The operational targets are to switch CY38R2/L137 IFS for EDA/4D-VAR/HRES to operations in June 2013. The official start of the L137 E-suite was on February 6th, and test data for partners are expected to become regularly available immediately after Eastern (this is for instance of interest to those wishing to test LBC from the L137 suite). CY39R1 is scheduled for operations in October 2013 and CY40R1 for February 2014.

#### **4. Progress and Plans of Météo-France (Highlights)**

MF's present experimental suite is based on CY38T1 (CY38T1\_op1). Its porting from Research to the Production and Operations environment started in December. This e-suite contains two major ingredients: the use of new observations and the use of "correlations" of the day from the ensemble data assimilation. Both these changes are quite demanding from a resource point of view, and needed differentiating the assimilation cycle (for which we can afford to use more elapsed time) and the short cut-off analysis (for which we are more constrained). The main modifications are described below:

##### **New observations:**

- \* Suomi NPP: ATMS and CrIS
- \* MetOp-B: AMSU-A, MHS and IASI (ASCAT when available)
- \* OSCAT
- \* CSR from GOES satellites
- \* SSMIS sounding channels
- \* 12 more IASI water vapour channels
- \* Less vertical thinning of GPS-RO
- \* More AIRS channels
- \* Plus, in AROME: more SEVIRI channels over land (with Ts retrieval)

Notes:

- \* a slight retuning of the observation errors in ARPEGE has been found necessary to accommodate the new mix of observations
- \* the short cut-off analysis will only use 2 or 3 out of 4 hyper-spectral sounder data, no CSR from GOES, and no SSMIS sounding channels. It will also not use the wavelet formulation for the Jb term.

### **Use of correlations from the AEARP (Ensemble data assimilation):**

96 members (over 4 days) are used to compute correlation statistics, using the wavelet formulation. This induces flow-dependent statistics for the background error correlations.

### **Physics:**

In ARPEGE and ALADIN, changes have been made to the deep and shallow convection schemes. Over glaciers, changes have been introduced in the albedo and thermal inertia of the snow and in the roughness lengths.

The plan is to switch this E-suite to operations in June 2013. Much of the efforts after that will concern porting the NWP applications to BULL HPC and preparing the increase of resolutions for Arpège and Arome targeted for 2014.

MF is also finishing to build its **interim development cycle CY39T1**. The major input to this cycle, which is common with Aladin and Hirlam, is listed below:

- Catch-up of contributions from CY38T1\_op1 and CY38T1\_bf.02 (or later)
- Observations:
  - Possible re-phasing of code changes related to the monitoring of NPP/ATMS (filtering of noise on Tb and use of wind product) & CrIS (note: for CrIS, the code by ECMWF will be in CY39)
  - Mostly blacklist changes (for Arpège: mf\_blacklist.b) to assimilate radiances from GOES and MTSAT, SSMI/S channels as well as SEVIRI over land, MHS channels 4-5 of NOAA-19, monitoring of AMSU-A channel 14, raise top level for assimilating GPS-RO from 36 to 46 km. In Arome: more AMSU-A channels for Arome
  - Pre-processing of GPS ZTD in Arpège and LAMs
  - Changes for the vertical thinning of GPS-RO: pre\_thinner.F90, YOMOBS, SUOBS, namobs.h, YOMSCC, namsc.h, defrun.F90
  - Scatterometer code: cleaning of code related to OSCAT, adapt a more general code for band-Ku scatterometer data (OSI-SAF); more refined definition of  $\sigma$ 's depending on observed value and position of satellite print
  - Code land surface emissivity maps as binary files (coordinated with F. Karbou/CEN-Grenoble)
  - Bator adaptations for HYMEX configuration (polar-coordinate radar data)
- Dynamics (common code to all models):
  - various cleanings by K. Yessad including simplification of coupling code, of tests on LPC\_FULL, of use of CDCONF(7:7) and (8:8) that become equivalent in the direct transforms, aborts in I/O routines

- Full-POS:
  - Fullpos buffers re-shaping (REK): since the very beginning, Fullpos buffers have been shaped like 1-D arrays in order to enable the use of the asynchronous I/O workfiles on the former Cray vector machine. The buffers are now reshaped like 3-D arrays (NFPROMA, number of fields, number of NFPROMA slices) in order to :
    - allow higher resolutions (the total buffer size is not any more limited to 2.E9)
    - reduce the number of arrays copies (no more sc2rdg/sc2wrg mechanism)
    - save memory (each NFPROMA slice is accessed directly and working arrays can be released rapidly)
- System:
  - Possibility to read/write surface FA files split into sub-files with the same frame; basic parallel version of “e927/PREP” (aka as “PREP in Full-POS”) which is the configuration used when coupling an Aladin/Arome+Surfex with and Arpège or Aladin with the old ISBA (P. Marguinaud)
  - FA/LFI files: compatibility with 64 bit format for all data types ; optimization of memory usage; move to F90 free source file format
  - I/O server: facility to send fields piecewise and aggregate them into full horizontal fields inside the I/O server (instead of before sending them to the server)
  - Cleaning and rewrite of the model I/O routines (wrml\*, wrpl\*)
  - Bug-fixes from CY38T1 about I/O stuff reported to CY39
  - Parallelization of « fp2sx1 » (ISBA -> SURFEX)
- SURFEX code: version V7.2.1 including the processing of only the current decadal datasets (instead of all yearly decades; this is an optimization feature in Surfex & PREP); surface EKF scheme SODA with a few code updates for snow and albedo analysis (Hirlam)
- ALARO:
  - corrections to 3MT, which have entered CY38T1bf, but not CY39 (R. Brozkova);
  - latest development in TOUCANS (R. Brozkova, I. Bastak-Duran);
  - small modification to BATOR, enabling to read wind profiler data from BUFR (A. Trojakova);
  - possibly first version of the incremental updraft and unsaturated downdraft (R. Brozkova, L. Gérard, D. Banciu);
  - possibly diagnostic fields for describing convection like helicity, speed of thunderstorm etc. (in Full-POS)
- Hirlam for atmospheric NWP libraries:
  - Various small fixes for porting to other platforms
  - Update of the coupling of Cellular Automata with 3MT
  - WMO cloud definitions: update
  - Option to switch language of printouts to English in LFI
  - Note: Bator and blacklist changes: will be handled as separate codes and files in the Harmonie trunk (specific versions for Harmonie w/r to Aladin/Arome)

Code cleaning and refactoring will also enter this cycle (with other refactoring entering directly CY40).

Declaration of CY39T1 is expected on **March 26, 2013**.

## 5. LAM partners comments

Hirlam are putting together Harmonie-38h1.1 and preparing for a more thorough evaluation of both the forecast model and the assimilation system. There are still several changes related to non-conventional observations (radar, ATOVS, IASI, GPS) that needs to be merged from cy37h1.2. Targeted release in September 2013.

Claude explains that the Aladin consortium now has a new person on the position of “Aladin Coordinator for Networking Aspects” (ACNA). This is Maria Derkova. Her tasks are to coordinate the 16 Aladin countries using the network of Local Team Managers: prepare the LTM meeting (twice a year), arrange some exchange of operational information, arrange specific coordination for some operational changes (in particular in liaison with MF). The ACNA may also sometimes replace the Aladin PM at the IFS/Arpège coordination meetings.

## 6. Cycles: status and content of future releases

Both EC and MF will have timing constraints in 2013 and 2014. EC wish to declare their CY39R1 in May 2013, to include changes for the vertical high resolution other scientific changes. The operational implementation of CY39R1 is scheduled for October 2013. EC will start porting to their next HPC after mid-2014.

MF will have no opportunity to work on new code releases between June and at least November 2013, because of porting to new HPC and preparations of the future high resolution systems. These constraints impose limits in the scheduling, **which have been addressed at the Dec 5 teleconf** and lead to the calendar summarized in the following Table:

Common cycle:	ECMWF	MF	Start pre-φ	Declaration	Misc. / Oper plans
		CY38T1		August 9, 2012	Oper schedule (op1) in June 2013
	CY38R1			Feb 2012	Oper. In June 2012
	CY38R2			Aug 2012 Work ongoing for future oper version	E-suite in Dec 2012; oper in June 2013
CY39			End Aug. 2012	Nov. 29, 2012	
	CY39R1		March 2013	May 2013	Oper at EC in Oct 2013
		CY39T1	In Feb. 2013	End of March 2013	

CY40			In late March 2013	mid-June 2013 at the latest	See more detailed strategy of phasing below (*)
	CY40R1			In Oct. 2013	Oper. In Feb 2014
	<i>CY40R2 ?</i>			<i>In Feb. 2014</i>	<i>Technical cycle including many OOPS &amp; refactoring features</i>
		CY40T1	Nov 2013 at the earliest	In Feb. 2014	
CY41			In March 2014	In June 2014 ?	First common cycle that MF would test only on BULL
CY42				In April 2015 ?	

(\*) specific steps towards CY40:

- EC would send a pre-release of their CY39R1 to MF (CY39R1\_V1), for pre-phasing to start, on March 28, 2013
- MF would create pre-CY40\_V1 by merging CY39T1 with CY39R1\_V1 and send to EC, either around April 26 or around May 6-7, 2013
- EC would create pre-CY40\_V2 by adding the remaining branches of CY39R1 (most of the scientific content) to pre-CY40\_V1 and perform a first set of local validations in Reading (count two weeks for this step).
- EC will then send the pre-CY40\_V2 back to MF for a second evaluation and validation. Declaration of CY40 would be expected around mid-June 2013.

## 6.1. Content of CY40

See list of contents of CY39R1 and CY39T1.

## 6.2. Draft contents and timings of CY41, CY42

Other, bigger in volume, technical changes, are expected to enter CY41:

- use of the new Model Field Structure by Alan ? => open issue.
- adaptations in the model codes (NL, TL, AD):
  - STEPO (Filip and Yannick)
  - trajectory handling (Yannick and Marta)
- overhaul in the VarBC code (Alan). Note: EC will study the possibility to make the definition of the VarBC coefficients more flexible (proposal by Hirlam: have a namelist driven specification of predictors)
- removal of command line options ? (MF)
- LAM (Hirlam for CY40T1): apply LBC in spectral space; cleaning of radar data assimilation code

The schedule for CY41 will be addressed at the next physical coordination meeting in Reading, on June 3. EC need to further check their constraints for migrating to their next HPC. MF indicate their plans for porting in 2014 are quite stable (note: MF will only have one BULL cluster available first half of 2014). In contrast, for 2015, the plans are not yet firm.

It is therefore too early to make plans about CY42.

Complementary aspects with respect to the recent code evolution:

- the overhaul of GOM arrays has been completed and entered CY39. EC will check if they can provide a tutorial note describing how to add new fields in the refactored GOM structures (Deborah and Alan).
- Anne had provided a new version of the ODB documentation to MF. MF have uploaded the files on their Aladin website, in a password-protected area. Hirlam and LACE most likely will copy those files also on their secured websites. EC's ODB documentation is the reference one about ODB for all partners. On the Aladin website, see at: <http://www.cnrm.meteo.fr/aladin/spip.php?article172>

## 7. Specific managerial issues

EC indicate that the question of IPR and licenses of the IFS code is on hold for the time being.

## 8. Specific technical issues

- 8.1. Status update on COPE (ECMWF): the refactoring of BUFR2ODB in order to remove the 'makecma' tool from the IFS has well progressed. It is expected that the refactored BUFR2ODB would be implemented in operations with CY40R1. EC are already providing their early COPE developments in the usual tar packages to the partners. MF will check that the COPE codes are systematically retrieved when fetching these tar files (Claude & GCO). EC provide access to COPE documentation at <https://software.ecmwf.int/wiki/display/COPE/COPE>. The git repository contains all the source code used for COPE, and the associated documentation (+ information on how to compile, etc.). EC will update the git repository very soon and add the C++ guidelines. MF and Hirlam correspondents for COPE already have access to these data presently. For the next steps, EC (Lars Isaksen) will convene a kick-off meeting with MF and Hirlam, in order to discuss the specifications for COPE and the share of work between partners. Jean-Noël will liaise with Lars about this action. While EC will remain the major actor, it is expected that MF (Frank Guillaume and Patrick Moll) and Hirlam (Eoin Whelan and Mats Dahlbom) can take an active part especially in the specifications for BUFR2ODB and the coding of some of the filters.
- 8.2. Status update on OOPS (all) and on the link Vortex / prep-IFS (ECMWF): EC have managed to run an IFS OOPS 3D-VAR using much of the usual observations. Preparations for the readability and 4D-En-VAR

working days in Reading (8-10 April) have started. Partners will take part with Gérald Desroziers and Etienne Arbogast (MF) and Nils Gustafsson (Hirlam). A Hirlam OOPS training session will be arranged at EC in May. The input material will consist of the English version of MF's C++ tutorial, the material from the OOPS/C++ training in Madrid in 2012, and extra material about the OOPS code to be prepared by the OOPS core team. MF will check how it can help or participate to this training session (provide some material or physical participation). MF will later organize a specific OOPS training in Toulouse. About the overhaul of EC's scripting system and the link with VORTEX: EC will invite Eric Sevault for a 2 day visit in Reading. MF and EC will liaise and check about appropriate dates with Eric.

- 8.3. Update on the experimentation of IFS in NH mode using the Arpège/Aladin NH dynamics (ECMWF): Sylvie Malardel gave an overview of the tests of the Arpège/Aladin NH dynamics in the IFS. While they do obtain stable and accurate solutions using the Predictor/Corrector scheme for truncations up to T4000, EC encounter several issues when the P/C scheme is switched off: (1) a loss of mass (mean surface pressure decreases dramatically), (2)  $2 \delta t$  oscillation, (3) a numerical instability over steep orography (mainly but maybe not only) at high resolution. (1) and (2) seem to be linked. (1) and (2) are observed both at low (T159) and high (oper) resolution, both for academic and real cases. EC will continue the investigation in close collaboration with MF (Pierre Bénard). Investigation of (3) has just started. EC further indicate that switching on the Corrector step does imply a significant extra cost, even with physics off, because of the extra transforms. The NA section is investigating the meteorological benefit of running NH dynamics for higher than 10km resolution. MF asked about the possible link of this study with the foreseen R&D effort by P. Smolarkiewicz, who has joined ECMWF for a 5 year period, with the goal to implement a solution inspired by the EULAG model into the IFS. MF and EC agree to arrange a presentation about the NA section work plans for the next coordination meeting (June 3). This presentation shall be arranged as a video-conference between MF and EC.

## 9. AOB

Ulf explains that Hirlam have listed various questions of Fortran IFS compliance to the coding standards and portability. All agree those aspects could be discussed at a forthcoming technical video-conference. Ulf would prepare and send a note beforehand.

## 10. Date and Place of Next Meeting

**Full-POS2 presentation video-conference:**

**Next Coordination Meeting in Reading: June 3, 2013 (all day)**

**Next OOPS Steering Committee (Toulouse): May 21, 2013. Notes:**

- Ulf indicates that Jelena Bojarova, Hirlam coordinator of DA activities, will represent their consortium at the next SC.

- Jean-Noël suggests that every second SC could be arranged as a video-conf, with one SC remaining as a physical meeting. This proposal shall be discussed at the next SC.

**Next Coordination video conference:**

**Next Technical video conf: probably only after the summer holidays 2013**

## 11. List of Actions

1. *Presentation of Full-POS2: EC (Deborah) and MF (Ryad) will arrange a video-conference for Ryad to introduce EC staff to the new Full-POS2 software. Hirlam will try to attend the talk as well (Note: Ryad will repeat it at the next Aladin/Hirlam workshop in Reykjavik, in April).*
2. *the overhaul of GOM arrays has been completed and entered CY39. EC will check if they can provide a tutorial note describing how to add new fields in the refactored GOM structures (Deborah and Alan).*
3. *P. Smolarkiewicz has joined ECMWF for a 5 year period, with the goal to implement a solution inspired by the EULAG model into the IFS. MF and EC agree to arrange a presentation about the NA section work plans for the next coordination meeting (June 3). This presentation shall be arranged as a video-conference between MF and EC.*
4. *OOPS training session organized by Hirlam & EC (28-31 May in Reading): MF will check how it can help or participate to this training session (provide some material or physical participation).*
5. *About the overhaul of EC's scripting system and the link with VORTEX: EC will invite Eric Sevault for a 2 day visit in Reading. MF and EC will liaise and check about appropriate dates with Eric.*
6. *COPE and disposal of codes: MF will check that the COPE codes are systematically retrieved when fetching these tar files (Claude & GCO).*
7. *COPE collaboration: EC (Lars Isaksen) will convene a kick-off meeting with MF and Hirlam, in order to discuss the specifications for COPE and the share of work between partners. Jean-Noël will liaise with Lars about this action.*