Minutes of the HMG/CSSI meeting, Reykjavik, April 19, 2013, 09:00-18:00

List of participants :
Ulf Andrae, Jelena Bojarova, Alex Deckmyn, Daan Degrauwe, Maria Derkova, Tilly Driesenaar, Ryad El Khatib, Claude Fischer, Mariano Hortal, Jean-François Mahfouf, Jean-Antoine Maziejewski, Jeanette Onvlee, Patricia Pottier, Laura Rontu, Piet Termonia, Alena Trojakova, Xiaohua Yang, Yong Wang, Christoph Zingerle

Piet takes the floor and proposes the adoption of the agenda below :

1. Review of actions agreed on in the Marrakesh HMG-CSSI meeting
2. Ongoing/planned activities
   a. Data assimilation
      i. Common work and plans on upper air data assimilation algorithms
      ii. Observation pre-processing and impact studies
      iii. Surface assimilation; future spatialization tool
      iv. OOPS/COPE
   b. predictability
      i. GLAMEPS and LAEF status and developments
      ii. Convection-permitting EPS; SRNWP/EPS programme and June workshop
      iii. Cooperation between GLAMEPS and LAEF
   c. Model physics and dynamics
      i. Dynamics
      ii. Upper air physics:
         a. Ongoing activities and new developments: Convection and turbulence, COST ES0905, ALARO-1; stable (winter) conditions behaviour; microphysics and aerosol treatment/chemistry.
         b. Convergence of interfacing and cross-use of parametrization schemes
      iii. Surface modelling: SURFEX/ALARO, issues from SSC, high-resol physiogr datasets
   d. Verification and validation
      i. HARP
      ii. Towards more common validation of new cycles?
   e. System aspects
      i. Phasing and maintenance; plans for 2013,2014
      ii. Code optimization and benchmarking
      iii. RNWP Interoperability follow-up
3. Institutional matters/ longer-term strategic planning
   a. Organizational merge discussions (HAC/PAC)
   b. Rolling work plan, practical arrangements for 2014?
4. AOB

1. Wrap-up of actions from last HMG/CSSI

	PLANNED in MAY 2012	STATUS in APRIL 2013
Who	Action	
VERIFICATION		
Piet, Christoph, Xiaohua	Agree on ToR for the task force (task force leader : Christoph). Make basic design and plan of the common work in order to finalize it into the 2013 workplan.	The task force didn't materialize but the work is going very well
Alex	Write down the minutes of the 1st meeting of the proposed Task-force on verification	Done in another way
Christoph (Joao), Xiaohua	Post-processing: What is available and what is wanted as end products for users (focus internal users at institutes). Start with inventory and end up with recommendations.	Was started last year in ALADIN with Joao's inquiry (to be continued). HIRLAM : no joint action so far (collaboration about tools not contents)
EPS		
Ulf, Claude	Move from HIRLAM to HIRALD user group; arrange access to HIRALD for all ALADIN/HIRLAM partners	Access to HIRALD group on request to Ulf. **Alex will move GLAMEPS to hirald group.**
Alex, Inger-Lise	Look into consequences of this move for access to MARS	**The decision has been not to put to MARS** : incompatibility of the format (GRIB); if the data are put to MARS, all ECMWF members can access (not only ALADIN and HIRLAM)
Inger-Lise, Yong, Alex	Propose plan of collaboration with LAEF (products list, archiving, harmonization) → Organise a video-conference with Yong (late September)	The exact time-schedule is not yet define (contact with Theresa). **We decide that Alex and Theresa will check for a common domain and make some experiments and try to make some basic products to begin with (EPSgrams, ...)**
Inger-Lise, Roger,	Write up tasks in working plan after discussion on AROME EPS and on perturbing physics-dynamics (MF: F. Bouttier, ALARO-1 WW)	F. Bouttier provided the plans forAROME-EPS to Inger-Lise. There are also the plans for GLAMEPS and LAEF. To avoid work duplication; we need a better coordination. Alex will contact Francois Bouttier and **set up a coordination including all components of convective-scale EPS (HarmonEPS, Arome-EPS, LAEF). They will probably all meet in Madrid in June.**
EPS team	Revisit the actions besides the EWGLAM EPS ET meeting	Next ET meeting in June (Madrid workshop)
Data Assimilation and Observations		
all	Get involved in COPE specifications (MF contact point for discussion with	Visio-conf meeting by the end of May 2013 between MF, ECMWF and LAM partners:

	ECMWF: Florence Rabier). Work on format definition.	ECMWF seems to have changed some priorities; HIRLAM has representatives at these coordination meetings (Ulf, Jelena; manpower Mats Dahlbom, Eoin Whelan + Bjarne Amstrup), for ALADIN, someone has to be found (somebody in ALADIN outside MF working on the subject); Alena accepts to join these meetings (for OPLace). Main points : filters, Bator, continuous processing Main concern is LAM, not ALADIN, nor LACE nor HIRLAM Care to be taken of data not used by ECMWF (3D radar)
Jelena	Increasing number and type of data in VarBC : close cooperation between Jelena and MF on scientific issues about the method (Patrick Moll & Jean-François Mahfouf should be MF contacts).	**It's a on-going research and we will coordinate the results**
Jelena	Research on flow dependent methods : Code HIRLAM hybrid ensemble-VAR version into the OOPS toy model and test it there.	Not done but Jelena is still interested in it and hopes that a group could work on it In ALADIN, the priority is more on OOPS adaptations in the Fortran IFS code, than on OOPS C++ toy models Discussed later (point 2.a.iv)
Claude, Jelena, Roger	Prepare a joint training (by video-conference) on how to make optimal use of observations : training on the algorithms (code and science) for variational DA. Try video-training and look into possibilities of EUMETCAL sponsoring on-line lectures.	An OOPS training was organized in Madrid but we did not managed to organize training on the use of observations as we know too little about ODB. HIRLAM tries to arrange a 2nd OOPS training about OOPS system itself (**postponed to fall 2013, preliminary dates the second week of November 2013, 11.11-15.11, still plenty of place for people to come**) but it's complicated (people don't see OOPS now, thus don't see the problem) **Mariska will coordinate : Jelena will send Piet, Claude and Mariska information about this 2nd OOPS training**
Jelena	Start discussing possibilities of collaboration on cloud radiances in the framework of HyMex (work package assimilation). Contact MF: Nadia Fourrié.	**It's going well and can be removed from the action list**
Roger	Get more information about Pierre Brousseau's tool on impact assessment and its possibilities for use in high resolution DA	**Closed (it has been done)**
System		
Ulf, Claude	During porting of a new cycle or when facing severe events, send selective	**Closed**

	emails of description of problems and, when solved, update with solution. Use the forum at hirlam.org in case of bugs or operational problems of general interest.	
Ulf, AEMET, all	OOPS/COPE training : Ulf prepares a single page : scope, attendance (people who are going to work on the code and are data assimilation experts), suggestions for the basic content (basics of C++ and object oriented programming, …). AEMET tests some video-conference possibility (LACE). Others give feedback on proposal and propose possible candidates.	**Done**
Piet	Organise SURFEX week in Brussels with a core group: Daan, Tayfun, Trygve and other HIRLAM person (to be decided by HIRLAM). Others are welcome, LACE has funds for three people. Claude proposes SURFEX expert contact person at MF who can be consulted by video or telecom during the week. Main goal : analyse the situation (current PREP too slow for operational purposes) and prepare a workplan to address this issue.	**Done**
Jelena	Impulse more contact between SURFEX people an Mariken to discuss the precise steps of the commitment of the ICE tile in SURFEX (necessary to implement the simple ice model).	Discussed during SURFEX SC **-> decision : contact point between Mariken Homleid (via Laura Rontu) and Patrick Le Moigne (via Jean-François)**
Dynamics		
Pierre	Send scientific information (and manpower needed) about the PRACE externally funded project on scalability (study the behavior of AROME on Curie machine in Palaiseau : scalar, 96000 cores, intel based). Aim at small scale cases on large domains. Possibility for ALADIN/HIRLAM partners to join MF in this project.	PRACE: 1st stage done (with a small preliminary allocation granted); Pierre is preparing the 2nd stage. -> **Pierre will communicate to ALADIN and HIRLAM PMs when he has the result of the phase 2 submission**
Ulf, Mariano	Read the document of Karim on "Z-based coordinate to enter cycle". React on that. Start brainstorming about this.	Mariano will stop the development of Z-based coordinate for the time-being and will move to collaborate on the solution of LACE people (Jozef) : Alvaro Souvias is new staff at AEMET working on this
Mariano,	Mariano will continue to check the	Mariano has implemented Daan's coding solution

Daan	algorithmic problems noticed by Daan on the Extension zone treatment proposed by him. He will start the check with the code phased in CY38T1. This is about noisy fields showing up in the E-zone.	with further modifications (spectral coupling solution) : still some problems to solve (temperature), otherwise everything is OK and will be implemented. Daan will resume some testings (still a bug for temperature ?) and study Mariano's complete solution (contact at MF is Fabrice) Claude indicated that the discussion with Ulf about possibly implementing Mariano's solution in the code of CY39T1 was good. Alas, it was not ready on-time and didn't therefore enter the official libraries. **Daan will do the new tests and contact Fabrice -> possibly enter the complete code solution in the next common cycle (CY40T1)** **Claude asks for a rather detailed documentation** in addition to the summary already sent by Daan and Mariano
Upper-air physics		
Laura	Introduce the key common projects in atmospheric and surface physics as discussed during the physics session discussions into the 2012-2013 plan.	done.
Transversal issue : sub-km experimentation		
Ulf, Pierre, Mariano, Laura, Neva	Collect names of people working on sub-km applications and approach them. Start a living community (include them in a email list to share their experiences). (Ludovic Auger for MF)	**Laura prepares the inquiry** (ask people to write 2-3 pages to explain kind of applications and purposes) **with Claude and sends to a list of interested people** (Laura knows who is interested in HIRLAM and Mariska will coordinate for ALADIN). Claude and Mariska will look at the outcome for ALADIN.
Laura	Laura will write proposal on how to deal with high resolution orography. Look for possibilities of interaction with ECOCLIMAP. Relation with SURFEX steering committee.	Not done but will be done in the context of the previous action
TODO (very soon)		
Piet and Jeanette	Come up with names for the OOPS scientific review very soon	No need anymore
Piet	Fix the dates for the SURFEXWW, based on the agenda of Daan, Tayfun, Trygve	Done
Piet, Jeanette	Settle the Verification task force	Done

2. Ongoing/planned activities

a. Data assimilation

i. Common work and plans on upper air data assimilation algorithms

Jelena is disappointed about the common work; she feels lack of interest in HIRLAM work from ALADIN side. Claude reminds the HMG meeting in Toulouse last year, that was appreciated by HIRLAM, but afterwards the information exchange stopped. For GMAP people, work is dominated by new cycles. Although the exchange around OOPS scientific review are okay, Jelena would expect a more open interest to other solutions. Claude thinks that it is about compatibility of the solutions. They share being afraid of divergence. Laura would like the staff work keeping closer to the common workplan. Piet comments that ALADIN needs to learn to work with a plan with manpower commitment, a rather new idea in ALADIN. **The difficulty how to work together will be taken up by management: Piet, Jeanette, Jelena and Claude.**

ii. Observation pre-processing and impact studies

There is active exchange of information between the people involved, especially from the small countries like Croatia, Hungary and in HIRLAM. Problems of BATOR, related to radar data processing, are solved. For small countries there is the problem of different formats of data, to get data in ODB. Impact studies looked at technical and meteorological performance.

iii. Surface assimilation; future spatialization tool

Surface assimilation and upper air DA should share the same framework. Facing a lack of manpower, we need to use it efficiently, on the best common way. Through Euro4M, there is a natural collaboration between SMHI and MF.
The system meeting yesterday agreed on the need to get on the same track again on surface assimilation/SURFEX. People are finding solutions to the same problems. SURFEX SC can also have a role here. This is further discussed at C.iii (Model physics and dynamics, Surface).

iv. OOPS/COPE

Dark side of OOPS is the Fortran refactoring (still increasing in volume of work; mainly for GMAP people and phasers). We have to express our LAM wishes w.r.t. OOPS/COPE to ECMWF, and take care that we are not pushed to proceed more quickly into changes in LAM.

b. Predictability

i. GLAMEPS and LAEF status, developments and cooperation

Coordination is definitively progressing, contacts between GLAMEPS and LAEF have been re-established. Working group yesterday on transversal issues arrived at action on defining joint products on a common domain.

ii. Convection-permitting EPS; SRNWP/EPS programme and June workshop

The Predictability/DA workshop in June in Madrid provides a good opportunity to firm up the plans for designing consistent DA-EPS systems (taking into account challenges in DA, EPS and physics). Jose Antonio will be HIRLAM point of contact for this work. Two actions are agreed:
Action 1: draft plan and circulate, and organize videoconference (WebEx) to discuss the plans ("whom will do what and how" based on the outcomes of the yesterday discussion), before the June Wk. Alex will coordinate the communication within the DA-EPS-PHYS "expert team" with Inger-Lise, Alex, Theresa (EPS); Jelena, Mariska, Jean-Francois, Jan (DA); and Lisa, Radmila and Neva (PHYS) (Yong Wang will provide a name for the LACE contact);
Action 2: for Jeanette and Roger to prepare the minutes of the WG on transversal issues of yesterday.

c. *Model physics and dynamics*

i. Dynamics

We don't know much yet about the consequences of increasing horizontal and vertical resolution. Marco Kupiainen (even if he's not officially in Hirlam) is interested in these topics from numerical point of view. Ulf will help Marco Kupiainen familiarizing with the code. Marco and Daan should keep in touch and Fabrice Voitus and Pierre Bénard can be involved in the discussions.

ii. Upper air physics:

a. Ongoing activities and new developments: Convection and turbulence, COST ES0905, ALARO-1; stable (winter) conditions behaviour; microphysics and aerosol treatment/chemistry.

Laura reports on interesting things going on turbulence : workshop in Toulouse in March (Sergei, Valéry Masson has done the implementation work in Méso-NH, Eric Bazile has made simplifications for AROME, brainstorming). There is convergence at level of basic equations.
Concerning radiation schemes, there are now quite a few papers. It's time to validate the different approaches in one framework. TOUCANS seems suitable for this.
Concerning aerosols & Microphysics, people from chemistry develop their own aerosols models. We should get the Eumetchem (EnviroHirlam in Denmark) people in contact with the Méso-NH and MF climate people, e.g. at the common workshop in Toulouse. Their aerosol developments may come back to our community when we need it. The meeting is planned for September 26-27 in Toulouse.
The COST action will finish next year and the plan is to publish a book with the outcome.
Going to higher resolution: there will always be the need for good parameterization. Also LES models cannot always resolve everything.
Concerning microphysics, the short term plan is first to create consistency in clouds and radiation: in AROME there is an action on raindrops and clouds. Long term work on microphysics will start when a new person will arrive at MF to work on this, at the end of 2013.

b. Convergence of interfacing and cross-use of parametrization schemes

Test within AROME will be done end of June in Brussels (Daan, Francois Bouyssel). Piet will contact Francois Bouyssel.
-> This is part of ongoing Aladin actions.
Is there a link of the physics-dynamics interface rewrite and what ECMWF have done in frame of openIFS project (work of Filip Vana on cleaning / reorganizaing CALLPAR) ?

iii. Surface modelling: SURFEX/ALARO, issues from SSC, high-resol physiogr datasets

Jean-François reports about issues of the last SSC (28 March): SURFEX team increased with one person, thus now probably faster response to our requests; optimisation of PREP; enter surfex; aladin manpower; memory issue of physiography and PGD (orography) still there; sea-ice model (exchange with MF-climate); the generation of sub-grid parameters will be studied in the context of high-resolution wk; Rafiq has coupled SURFEX and ALARO; The next SURFEX version (SURFEX 7.3) could contain the new optimisation for PREP; version 8 is planned within 1 year from now according to plan.
Following the divergence noticed on recent developments related to surface assimilation within SURFEX v7.2 between Météo France (P Marguinaud) and HIRLAM (Trygve Aspelien), it has been decided that JF Mahfouf and C Fischer will organise a visioconference between the various people involved in order to redefine a common strategy.
We are now taking the very minimum of SURFEX. We should try to see how to get more benefit of the improvements in SURFEX.
Rafiq is representative in SSC at ALADIN side. On HIRLAM side get Lake and SDB up and running correctly. In HIRLAM there is a lot of knowledge about sea ice, energy model, snow. The models that are in HIRLAM and not yet in SURFEX should go in there as soon as possible.
Furthermore, it would be good to have tools to check the orography in the model. Mariken showed bad maps of Ecoclimap for snow in Norway.

d. Verification and validation

i. HARP

1. The HARP team has worked quite efficiently and is waiting for the community to come up with verification projects. Now it is focussed on EPS and spatial verifications but also open to other forms of verification. The tool can be used externally, and internally for operational use. In the first version SAL and FSS are implemented, for future it is open for other kinds of verification: fuzzy, fractional. Utilities are developed to prepare local datasets to be used in this system. To implement time dimensional tools could be interesting scientific work.

Christoph will announce when the first version is ready.

ii. Towards more common validation of new cycles?

HIRLAM is installing and validating new releases quicker than ALADIN (outside MF). A workshop in Ankara is planned as a first step in synchronisation of validation process. Ulf will visit Ankara as if it was an HIRLAM country, install the validation tools, and show ALADIN participants how to use them.

e. System aspects

i. Phasing and maintenance; plans for 2013,2014

Claude recalls his comprehensive view about cycles (including outcomes of the discussions about the planning with ECMWF, above 1.5 to 2 years -> available within the minutes of the coordination meeting with ECMWF, see the ALADIN website);

From HIRLAM side, the wish is expressed for a set of common tests for the technical validation of data assimilation, to avoid phasing problems (ODB, OBS pre-processing, etc.). More specifically, the question of a VAR-toy system was put on the table during the System group discussion. Claude indicates that the VAR-toy was addressed in MF in 2012, as one possible tool for an easier testing of components of the assimilation. There was however no consensus among experts in GMAP (some believing a VAR-toy could help; others claiming that many bugs only are seen when a full assimilation is tested). Claude concluded at that time that, given the lack of consensus and taking into account the extra burden of maintaining such a tool, he would not further promote a VAR-toy solution inside GMAP. So the question remains entirely open with respect to the partners. Ryad indicates that one could give it a try, but should make sure that the toy system actually can address known problems from the recent past.

Ulf will create a toy that's useful in his opinion and check whether this system can reproduce recent bugs..

ii. Code optimization and benchmarking

Ryad summarises the ongoing work : HIRLAM has started to evaluate the I/O server ; development on FA/LFI software by Philippe Marginaud to pack and unpack data in parallel; full-pos2; work on optimisation of AROME interface (allow both bottom-up and top-down vertical Do-loops in Méso-NH physics routines when relevant for Arome).

iii. SRNWP Interoperability follow-up ?

Daan's development still not in the code; it is also of interest to HIRLAM. Ulf will ask Toon to port it to HIRLAM with help from Daan.

3. Institutional matters/ longer-term strategic planning

a. organizational merge discussions (HAC/PAC)

The directors have considered it was time (at mid-MoU) to think about the future of our 2 consortia and have created a task force (consisting of Jeanette, Piet, Sylvain J, Claude, Michael) to analysis the pros and cons of a potential merge, taking into account governance, financial and coordination aspects.

The outcome of the analysis is to be discussed during the HAC/PAC back-to-back meetings (May 6-7, Toulouse) : **the discussion of the task force stresses the divergent working practices on system aspects**.

b. Rolling work plan, practical arrangements for 2014

There was a discussion about having CSSI/HMG by video-conferencing at a more quiet time of the year. But then we would miss the impact of all the presentations during the all staff meeting/workshop. Also multi-way videoconferencing is still technically challenging and costly (but less expensive than many physical travels).
Preparation for the HMG-CSSI meeting could improve by sending around agenda and todo list earlier.

A test will be organized to see if the rolling plan benefits from a videoconference meeting. We will try this out in the end of 2013, when wrapping up the joint work plan for 2014.

4. AOB

Jelena : HIRLAM is interested in pre-testing OPERA. She will send the invitation about this again to Piet, Claude, Jean-François.

ANNEX : 2013 TO-DO LIST

	2013 Action list (as planned in April 2013)
Who	Action
Verification	
Christoph, Joao, Xiaohua	Post-processing: What is available and what is wanted as end products for users (focus internal users at institutes). Proceed with Joao's inquiry and end up with recommendations.
Christoph	Announce first version of HARP when ready
EPS	
Alex	Move GLAMEPS from HIRLAM to HIRALD user group
Alex, Yong Wang	Cooperation GLAMEPS and LAEF: Alex and Theresa will check for a common domain, perform experiments experiments and try to make some basic products to begin with (EPSgrams, ...)
Alex, Inger-Lise	set up a transverse collaboration on convective-scale EPS (HarmonEPS, AROME-EPS) including contact with Francois Bouttier
Data Assimilation and Observations	
Alena	Join COPE meetings for ALADIN to have wide LAM commitment
Jelena, Piet	Jelena will send Claude and Mariska information about the OOPS training end of May 2013; Piet asks Mariska to coordinate participation from ALADIN.
Piet, Jeanette, Jelena and	Improve cooperation between HIRLAM and MF on data assimilation

Claude	
Alex	Draft plan for transversal issues linking data assimilation, physics and predictability, circulate and organize videoconference (WebEx) to discuss the plans, before the June Wk in Madrid. Alex will coordinate ; other people involved are Jose Antonio, Inger-Lise, Lisa, Alex, Radmila or Neva (Yong Wang will provide a name for the LACE contact)
Jeanette, Roger	Prepare the minutes of the WG on transversal issues held during ASM/Wk 2013
System	
Laura, JF Mahfouf	Contact between Mariken Homleid (via Laura Rontu) and Patrick Le Moigne (via Jean-François) to discuss the precise steps of the commitment of the ICE tile in SURFEX (necessary to implement the simple ice model).
Ulf	Ulf will create a VAR-toy for technical pre-validation of components of the assimilation.
Ulf	Ulf will help Marco Kupiainen familiarizing with the HARMONIE code (to study numerical consequences associated with increasing resolutions). Marco and Daan should keep in touch and Fabrice and Pierre Bénard can be involved in the discussions.
Dynamics	
Pierre	Pierre will communicate to ALADIN and HIRLAM PMs the result of the phase 2 submission of PRACE
Mariano, Daan	Daan will finish testing the code of the Extension zone treatment, as implemented by him and Mariano. Provide documentation as requested by Claude
Physics	
	Get the Eumetchem (EnviroHirlam in Denmark) people in contact with the MesoNH and MF climate people, e.g. at the common workshop in Toulouse (Sept 26-27).
JF Mahfouf and C Fischer	Organise a visioconference between the various people involved in order to redefine a common strategy for surface assimilation in SURFEX.
Transversal issue : sub-km experimentation	
Laura, Claude	Start a living community on sub-km applications. First step: identify people and ask people to write 2-3 pages to describe purpose, application and encountered difficulties. Then organize video-conference or email exchange, possibly followed by specific working days. Mariska will coordinate for ALADIN.
A.O.B.	
Piet, Jeanette	Meeting about update of rolling plan with videoconferencing (end of 2013, wrap-up for 2014)
Patricia, Jeanette	Send around agenda and action list for HMG/CSSI meeting at least two weeks in advance