Minutes of the HMG-CSSI meeting, Copenhagen, April 17, 2015

List of participants :
Ulf Andrae, Jelena Bojarova, Daan Degrauwe, Maria Derkova, Inger-Lise Frogner, Ryad El Khatib, Claude Fischer, Mariano Hortal, Jean-François Mahfouf, Jean Maziejewski, Jeanette Onvlee, Patricia Pottier, Laura Rontu, Piet Termonia, Martina Tudor, Xiaohua Yang, Yong Wang, Christoph Zingerle
Observers (external reviewers of the Hirlam programme) *: Peter Lynch, Dominique Marbouty and Tiziana Paccagnella*
Excused *: Pierre Bénard, Alex Deckmyn, Alena Trojakova*

A round-table gives the opportunity to each participant to introduce themselves to the observers.

The CSSI chair (Claude Fischer, CF) accepts to act as chair for this meeting. He proposes the adoption of the agenda below. No A.O.B. is proposed and the agenda is unanimously adopted.
Patricia is asked to prepare the minutes of the meeting and the 2015 ToDo list to be reviewed at the end of this meeting.

1 Review of actions agreed on in the Bucharest HMG-CSSI meeting (2014 ToDo list)
2 Ongoing/planned activities
- 2a. Predictability
  - i. GLAMEPS and LAEF status and developments
  - ii. Convection-permitting EPS
- 2b. System aspects
  - i. Phasing and maintenance; plans for 2015,2016
  - ii. Scalability and code optimization
- 2c. Data assimilation
  - i. Algorithmic developments; OOPS, code refactoring and interactions with ECMWF
  - ii. Observation pre-processing and impact studies; COPE;
  - iii. Surface DA developments; SODA status and future developments
- 2d. Verification and validation
  - i. HARP
  - ii. KNMI testbed
  - iii. Follow-up from Bratislava ww
- 2e. Model physics and dynamics
  - i. Dynamics
  - ii. Upper air physics:
    - a. New physics-dynamics interface
    - b. ALARO-1
    - c. Radiation, clouds and aerosol/chemistry
    - d. Convection, microphysics and turbulence; stable boundary layer
    - e. (sub-)km scale experiments; high resolution geospatial data
  - iii. Surface modelling: issues from SSC

3 SRNWP issues?
- Options/initiatives for external funding: Hor2020, …?

4 List of actions decided during the meeting : 2015 ToDo List
5 AOB

1. Review of actions agreed on in the Bucharest HMG-CSSI meeting

Patricia has prepared a googledocs where HMG/CSSI members have filled the status of the 2014 actions. This status is discussed. This files is shared by all HMG & CSSI members who can fill in it over the year.

	PLANNED in MAY 2014	STATUS in APRIL 2015
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). ALADIN forecasters meeting, not yet fully defined but HIRLAM people welcome.	A forecaster meeting was held in Ankara with the Aladin countries. Both forecasters and developers appreciated the meeting and the forecasters demanded more frequent and more extended meetings in the future to get guidance on the use and interpretation of convection permitting models and high resolution EPS. To be continued in 2015.
Xiaohua, Alex, Christoph	Implement EPS verification in HARP, and finalize and advertise the new release of HARP.	The first release of HARP with EPS verification tools was declared in the beginning of April (extensive documentation and shiny tool for flexible vizualisation is included). Advertisement by e-mail and during the Workshop / ASM in many presentations. Action done
Predictability		
Alex, Theresa	Cooperation GLAMEPS and LAEF: Alex and Theresa will check for the definition of a possible common domain, and perform test experiments. In addition, they would try to prepare some basic common products to begin with (EPSgrams, ...)	Nothing has been done. It's no longer on the top priority list. Action closed.
Alex, Theresa	Estimation of the added value of combining GLAMEPS and LAEF	Presentations were given during the Workshop. Action closed.
Alex, Theresa, Inger-Lise, François B.	For addressing all aspects of the collaboration (i.e. Funding schemes, exchange of information and RWP update), tele- or video-conferencing should be investigated and a common discussion take place.	COST action was submitted. SRNWP-EPS phase 2 is coming up. Contact between Inger-Lise & GLAMEPS team is very good but there is too little contact with Météo-France. Action closed.
Data Assimilation and Observations		
Alena	Join COPE meetings for ALADIN; keep in touch with JF Mahfouf and HIRLAM contacts.	Alena joined the last videoconference last autumn (http://www.rclace.eu/File/Data_Assimilation/2014/201406_COPE_Reading_report.pdf.). Done. To be continued for COPE3.
Jean-François	Provide a template and the Météo-France information as an example of what should be shared with Martin Ridal, for his inventory of what should be provided to the OPERA inquiry.	Template provided. Information sent. Action done.
Claude, Jelena	improve the exchange of information about the technical implementation of EnVar and/or LAM features in OOPS; possibly use the EC/MF/LAM technical video-conferences for exchange	There was a visit by Jelena in June 2014 to Toulouse (debriefing with Etienne & Gérald). The OOPS LAM 3D-Var prototype was sent by MF to Hirlam in October, integrated into the HARMONIE system and compiled by Ole Vignes. Ulf and Jelena take part in the technical video-conferences with ECMWF. Action closed.

Yong	Send information when the joint work with a group of Austrian universities on the use of satellite data for surface assimilation concretely begins. Send link to web-page for the satellite surface data portal.	Information can be found here : ww.eodc.euw Action closed.
Jean-François, Claude, Jelena	Exchange experiences about new types of observations (like GNSS, dual-polar radar, use of VarBC) and the trend from interpolation to integration for obs operators for very high resolution assimilation => item to be put on the agenda of the 2015 HMG/CSSI.	No progress on HIRLAM side on the "integration" instead of "interpolation" operator, due to lack of manpower. In 2014, priority was given : on radar data, ZTD GNSS and Mode-S; new types of observations in the research mode (wind measurements from warm air balloons, AMV, MTG-IRS); development of the observation operators for assimilation of raw radiances (AMSR2/GCOM-W1, MIRAS/SMOS) and backscater data (SAR/Sentinel-1) of surface properties. In MF, Vincent Guidart has funding for this action. Action kept for 2015.
Claude, Françoise, Ulf, Trygve	liaise in preparation of CY41T1, on issues seen in part of the CANARI/OI_main code for I/O, as originally proposed for CY40T1 (and not yet implemented in a common cycle)	Included in CY41t1, https://hirlam.org/trac/wiki/HarmonieSystemDocumentation/Phasing/cy41t1 Action done.
Martin Ridal, Jean-Francois	Send minutes of the radar and SODA WG discussions, respectively, to HMG/CSSI when ready	Action done.
System		
Mariska	Send minutes of the System WG discussion to HMG/CSSI, when ready.	Action done (April 2014)
Ulf	Ulf will create a VAR-toy for technical pre-validation of components of the assimilation.	No action taken so far but it's still needed. Ulf will try to do something in 2015. Action kept for 2015.
Roger, Olda	Roger should start a repository of ancillary user tools with documentation; Olda will study the possibility to exchange information through LACE forum	Nothing has happened since Bucharest Wk. No more interest. Action closed.
Ulf, Mariska, Piet, Olda, Claude ?	Test of HARMONIE as a platform to see how ALADIN and HIRLAM can do more efficient validation together (WW in Bratislava, October 2014)	Done : see attachments in https://hirlam.org/trac/wiki/HarmonieWorkingWeek/System201410_bratislava Action done.
Patricia	Make the Minutes of the Ankara WW available on the ALADIN website	http://www.cnrm.meteo.fr/aladin/spip.php?article276 Action done.
Ulf, Claude	Within preparation of cy41t1, study the impact of removing the LFI format from the SURFEX/NWP interface (“mse”) code: MUSC, test of FA/LFI converter, assess memory consumption	Done. Hirlam gave the green light for pruning. Taking into account the internal replies at MF, we will prune the LFI support in 'mse' for CY42 or CY42T1. Action closed.
Ulf	to contact Ryad and Claude about Rymvidas' work on optimization in order to evaluate to which extend it may affect the code.	Technical work has been included in CY41 and SURFEX v8 (in close collaboration with the SURFEX team). Action closed.

Dynamics		
Mariano, Daan	Propose a strategy for the implementation of the code of the spectral coupling solution in the new cycles. Mariano should finish the documentation.	The code is available but there is no strong interest in using it. Action closed.
Belgian team, Pierre, Fabrice, Mariano,	Follow the work of re-factoring the LBC code for OOPS (which is part of the LAM design)	Done (see Bogdan Bochenek's work) and implemented in Cy41T1. Action closed.
Petra, Pierre, Mariano,	Address the issue : predictor-corrector versus single semi-implicit + upper-boundary condition (relaxation, RUBC, etc.). Pierre will send the note by David Dvorak, 1997: Radiative upper boundary (RUBC) in ALADIN.	The scientific issue is still opened. The note was sent. Action closed.
Physics		
Laura, Bent, Yong	Enhance contacts between the Eumetchem people (EnviroHirlam in Denmark) and HARMONIE community: first steps (radiation) to be discussed in the next interface web-meeting (Denmark, date tbd) where Laura will present the use of our model by chemistry people; LACE will join and is interested in being kept informed.	Done : Laura gave a presentation during the ALARO-1 WD in Vienna (May 2014); presentation and discussions took place during the EUMETCHEM summer school in Aveiro (Portugal, July 2014). Bent gave a presentation during the Wk. Action closed.
Laura, Neva	How to involve more people on turbulence and the analysis of a common interface block for turbulence : to be discussed during ALARO-1 WW	Done for TOUCANS : it seems possible to externalize turbulences and make a clean interface. It started with a small group of people and will be continued with an extended group (Eric, Yann, …). Daan will act as a project leader and contact Laura or others if necessary. Action closed.
Eric, Wim	Follow the exchange initiated in Bucharest via web-conferences (exchange of information and cross-testing, inter-comparison with MUSC, enhance cooperation on KNMI test-bed). Send around minutes of physics WG to HMG/CSSI when ready. Exploratory research: where/how do we imagine to converge in terms of code design?	Action closed. People will continue to exchange. The contact points remain Eric and Wim.
Jeanette, Laura, Katya, Jean-François	European cooperation on the physiographic data and physiographic data in SURFEX: follow the kick-off of this proposal and ensure link with SURFEX SC.	Laura arranged a web-meeting in December (notes are available). Jean-François reports on the last SURFEX SC (the new ESA-CCI database was presented and will replace ECOCLIMAP1 in 3 year time). A nice collaboration is established between Laura, MF, ZAMG, .. Action closed.
Piet, Jean-François	Check the needs of people outside MF in term of high-resolution physiographic data (Sentinel versus Ecoclimap); help exchange information between the MF/GMME team and the ALADIN/HIRLAM partners.	Some exchanges took place during SURFEX SC (documents were given to Katya and Rafiq). The information is available on the surfex website (with a description of ECOCLIMP2 in French). Action closed for HMG/CSSI (still an ALADIN internal action, to be discussed during ACNA WebEx).

A.O.B.		
Patricia	Distribute the link to the page with the minutes of the coordination meetings for people to take into account the calendar of the cycles when planning scientific or technical developments.	Done in the minutes of the HMG/CSSI meeting : http://www.cnrm.meteo.fr/aladin/spip.php?article170 (once logged in as "Partners only", with the usual access). Action closed.
Jeanette, Piet	Have a list of HIRLAM and/or ALADIN proposed meetings defined well in advance for budgetary constraints;	Action done. List published twice a year in the joint ALADIN-HIRLAM Newsletter. Agenda available on aladin website.
All	HMG/CSSI members are invited to contact Piet and Jeanette and express their opinion on the re-formulated goal of the HMG/CSSI meetings in respect to the new MoUs and the ALADIN/HIRLAM convergence (code design and implementation besides science)	Action done.

2. Ongoing/planned activities

These discussions are mainly summarized in the "2016 list of actions" (see point 5), only complementary remarks to the list of actions are reported below.

2a. Predictability

i. GLAMEPS and LAEF status and developments

Contacts between ALADIN (LAEF: Martin Bellus) and HIRLAM (Björn Stensen) people working on EPS exist but Inger-Lise deplores the lack of meeting with MF people (for instance during EWGLAM). She plans to test some multi-physics in HARMON-EPS -not only in LACE).
Piet proposes a targeted web-conference to exchange. => action A4.

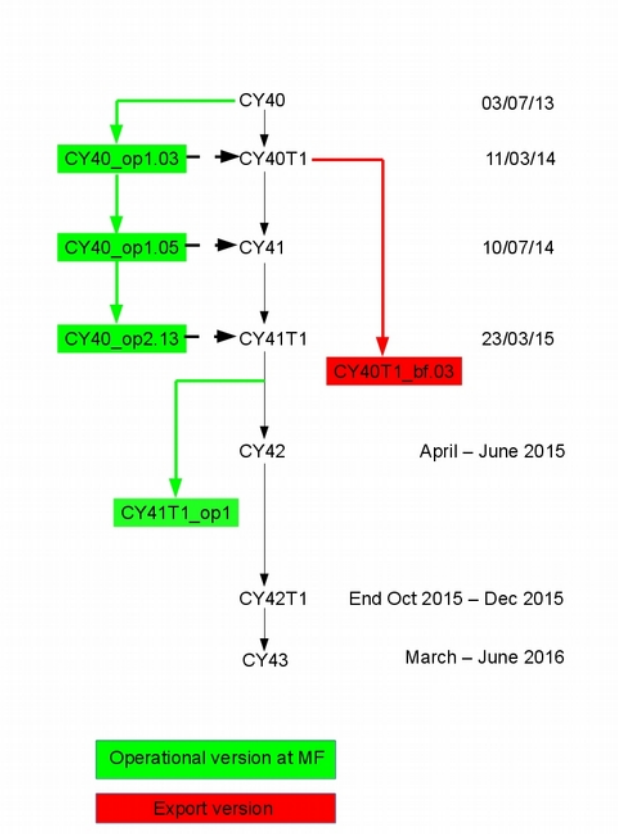
ii. Convection-permitting EPS

Inger-Lise announces the HIRLAM EPS WW (week 43).
Patricia asks to be sent information about dates of WWs as she keeps a synthesis of all events and publishes it twice a year in the Newsletter => action A19.
Yong announces that ZAMG will submit a proposal to EU to build seamless probabilist forecasts : all interested people are invited to contact Yong.

2b. System aspects

i. Phasing and maintenance; Plans for 2015, 2016

Claude presents (see graphic) the timing of the cycles and e-suites and gives some important milestones. During the preparation of a new code release, Claude liaises with Ulf for HIRLAM contributions to the code. For instance, a variety of contributions from HIRLAM side entered CY41T1, after discussions with Ulf and code scientists. The same coordination will be done for CY42T1 => action A12.



ii. Scalability and code optimization

Scalability : ESCAPE has just got funded as a H2020 program. As ALADIN & HIRLAM are not legal entities, they are not officially represented in ESCAPE but the LAM community has a good representation (i.e. Piet is responsible for WP4) and is kept informed by RMI, DMI, … No specific action needed.
Code optimization : Work is on-going (see Ryad's presentation during the Wk). No specific action needed.

2c. Data assimilation

i. Algorithmic developments; OOPS, code refactoring and interactions with ECMWF

Last year coordination efforts (mainly through web-conferences) were successful and should be emphasised. The consortia concentrate on observation operators but many things depend on ECMWF decisions.
Jelena will organise a video-conference to address the problems noted in 4D-Var implementation => action A8. Then, besides the workshop organised in Toulouse at the beginning of July (obs operator OOPS working seminar); an additional day will be proposed to discuss design aspects with ECMWF. => action A10.

ii. Observation pre-processing and impact studies; COPE

New types of observations (discussion at the next HMG/CSSI meeting) => see action A7.
OPERA => see action A6.
COPE => see action A5.

iii. Surface DA developments; SODA status and future developments

See action A9.

2d. Verification and validation

i. HARP

HARP V2 is planned for next year. The plans were settled during the Brussels WW in March and the manpower should now be confirmed. => action A2.

ii. KNMI testbed

Some technical work is still needed. Main issue is the manpower => action A3.

iii. Follow-up from Bratislava ww

Piet proposes that, we will : arrange a system WW (in autumn): reproduce the validation of ALARO-1/cy40t1 baseline in the Harmonie system context (with ISBA, to be discussed for SURFEX); compare a downscaling run by this ALARO-1 (including the namelist of the baseline) with the HARMONIE system to a downscaling with an executable that was compiled by the authors of the ALARO-1 baseline; then, to set plans to validate together CY42 => action A13.

2e. Model physics and dynamics

i. Dynamics

Weak-constraint boundary conditions will be discussed during Brussels WW => see action A14.
Cubic grid topic : Xiaohua has shared results with Ludovic. Pierre will continue academic tests => action to insure exchange A15.

ii. Upper air physics

a. New physics-dynamics interface

The next step is to analyze the interfacing of the various turbulence schemes under a common framework. So the short term plans now will focus on organizing a group of contacts and start this analysis. Already discussed.

b. ALARO-1

See point 2.d.iii about HARMONIE WW exercise.

c. Radiation, clouds and aerosol/chemistry

Aerosols/chemistry : during his presentation at the Wk, Bent suggests to set a WG for aerosol modelling adaptation => see action A17.

d. Convection, microphysics and turbulence; stable boundary layer

People in the WG are addressing the issues. Nothing requires attention of HMG/CSSI.

e. (sub-)km scale experiments; high resolution geospatial data

Jeanette proposes that this point will be postponed after the strategy workshop (2016) that will define how we will proceed towards sub-km scales.

iii. Surface modelling: issues from Surfex SC

Jean-François presents the outcomes of the last Surfex Steering Committee that went very smoothly; without specific issues around the SURFEX V8.

Both consortia will keep each other informed on their SURFEX related actions => see action A18.

3. SRNWP issues ?

Some possible external funding should be considered :

- COST: Jelena should pass information on the new COST action submitted by Yun Ichi => see action A20.
- H2020 space programme : the 2015 call has just closed but we should consider the 2016 call (Bent WG) => see action A21.

4. 2015 ToDo list

The table below is presented and accepted by HMG/CSSI as the list of actions for 2015, to be reviewed at the next HMG/CSSI meeting.

2015 Action list (as planned in April 2015)	
Who	Action
Verification and validation	
A1: Piet, Maria Monteiro	Organise forecaster meeting mid-October 2015 : Can the forecaster make something out of convection permitting EPS ? Disseminate minutes of last year meeting
A2: Xiaohua, Alex, Christoph	HARP: version 2 for next year with spatial and conditional aspects (neighbourhood, radar data, ...). See plans after last March Brussels WW and confirm manpower.
A3: Lisa, Wim, Eric	KNMI testbed : complete and send minutes of the Elsinore clouds WG asap; Technical work still needed for the testbed (manpower issue): postprocessing tool and driving model HARMONIE instead of RACMO

Predictability	
A4: Piet	Continue contacts between ALADIN & HIRLAM people (Alex, Theresa/Martin, Inger-Lise, François B....). Put emphasis on contact with MF. Piet will propose a doodle for a web-conference before summer. Note: webex should focus on scientific exchange for convection-permitting EPS
Data Assimilation and Observations	
A5: Alena, JFM, Ulf, Eoin	read/react on the COPE3 document : JFM will organise (before the end of May) a web-conference to prepare ECMWF kick-off meeting of COPE3 (feedback from ALADIN-HIRLAM partners)
A6: Jean-François, Eric Wattrelot Martin Ridal, Alena, ACNA	OPERA inquiry : continue updating the wiki-page (additional countries welcome to put their information on this page) and understand the obs we want to have with what sort of quality flags. Send regular information to JFM+Martin, and JFM+Martin to send our information to other SRNWP representatives in the OPERA user group.
A7: Jean-François, Claude, Jelena	Exchange experiences about new types of observations, design aspects, the trend from interpolation to integration for obs operators for very high resolution assimilation => item to be put on the agenda of the 2016 HMG/CSSI.
A8: Jelena	organise a video-conf to address the pbs noted in 4D-Var implementation : prepare a summary of the questions/issues first
A9: Jelena	set up a wiki page to share information on surface DA (like it was within the former SRNWP Expert Team); Jelena and JFM to contact relevant people for uploading scientific info
A10: Claude	confirm dates for the obs operator OOPS WS + possibly additional day for design aspects with ECMWF (30 June)
System	
A11: Ulf	Ulf will create a VAR-toy for technical pre-validation of components of the assimilation.
A12: Claude, Ulf	before summer : choose a date and organise a webex to discuss the content of CY42T1 between HIRLAM/MF
A13: Ulf, Piet, Mariska	arrange a system WW (in autumn): reproduce the validation of ALARO-1/cy40t1 in the Harmonie system context (with ISBA, to be discussed for SURFEX) ; think about how to arrange more common validation for CY42T1
Dynamics	
A14: Piet	organise WW in Brussels after PAC about weak-constraint boundary conditions (Mariano, Marko, Fabrice, ...)
A15: Claude, Piet	ensure exchange of scientific results and experimental settings on cubic grid testing. Light action: organise a web-conference with Pierrot + Ludovic + people in Brussels (during WW above)
Physics	
A16: Daan	Common interface for turbulence : Daan acts as project leader and contacts Laura or others if necessary, for discussing design or testing aspects
A17: Bent, François By, Laura & Claude	set up a WG for aerosol modelling adaptation : Bent should precise the longer term scope of the WG and detail/split the NWP and the external aspects (interaction

	radiation/aerosol/clouds, initialisation of aerosols *versus* atm chemistry, coupled modelling, ..). Should be submitted to HAC/PAC, depending on the proposed scope.
A18: Piet, Ulf	Keep each other informed of the actions around surface fields interpolation (Surfex related): to study the issue of coupling ALADIN-ISBA to ARPEGE-Surfex (Aladin priority) and/or the optimization of PREP (Hirlam priority: for 4D-VAR).
A.O.B.	
A19: ALL	keep Patricia informed on the ALADIN or HIRLAM WW (dates, location, ...).
A20: Jelena	pass information on a new funding action in preparation, for submission, on predictability
A21: Jeanette, Piet	consider new call for H2020 space programme (in link with development of COPERNICUS services)

5. A.O.B

None.

6. Closing

The meeting is closed (at 16:45). The next meeting will be held in Tunisia on April 8, 2016.