



Draft Minutes

3rd Joint HAC-PAC meeting
Thursday May 21, 2015
Helsinki, Finland



HAC Participants: Jan BARKMEIJER (NL rep.), Claude FISCHER (FR rep.), Bent HANSEN SASS (DK rep.), Sylvain JOFFRE (HAC Chair and FI rep.), Heiner KORNICH (SE rep.), Roger RANDRIAMIAMPINANINA (NO rep.), Ray McGRATH (IE rep.), Jeanette ONVLEE (HIRLAM PM), Javier CALVO (ES rep.), Florence RABIER (ECWMF observer)

PAC Participants: Philippe BOUGEAULT (MF rep.), Radmila BROZKOVA (LACE rep.), Fatih BUYUKASABBASI (PAC Vice-Chair), Claude FISCHER (CSSI Chair), Daniel GELLENS (non-LACE non-MF rep.), Maria MONTEIRO (non-MF non-LACE rep.), Patricia POTTIER (Secretary), Michael STAUDINGER (PAC Chair), Piet TERMONIA (ALADIN PM)

Excused: Theodor F. HERVARSSON (HAC IS rep.), Adonas MAZEIKIS (HAC LT rep.), Andres LUHAMAA (EE rep.), Alain JOLY (MF rep.), Vladimir PASTIRCAK (LACE rep.), Yong WANG (LACE PM)

Observers (external reviewers of the Hirlam programme): Peter Lynch, Dominique Marbouty and Tiziana Paccagnella

1. Opening and welcomed

The Director of Research of FMI welcomed the participants to the 3rd HAC/PAC meeting. As a representative of a small country, he underlined the benefit of belonging to a big consortium and his strong support to the convergence of ALADIN and HIRLAM into one single bigger consortium. Following the agreed procedure of an alternate chairmanship for the joint HAC-PAC meetings, the HAC Chairperson opened this meeting. He welcomed the newcomers in this meeting, Javier (Bartolome ORFILA substitute), Roger (Jorn KRISTIANSEN substitute) and Florence (Erland Kallen substitute). He asked Patricia to take the secretariat of the meeting.

2. Adoption of the agenda

The HAC/PAC unanimously agreed on Piet's proposal to move point 5 after point 6 (the major item on the agenda).

The agenda below was adopted:

Agenda *	Introduced by	Documents
1. Opening and welcome	PAC/HAC chair	
2. Adoption of the agenda	PAC/HAC chair	
3. Final approval of the minutes of the last HAC-PAC meeting (D)	PAC/HAC chair	Draft minutes of the 2 nd HAC/PAC meeting
4. Information on the HIRLAM external review and strategy revision process (I)	HIRLAM PM	
5. Common reporting and plans (I)	ALADIN & HIRLAM PMs	list of common actions from HMG/CSSI
6. Policy issues (C) <ul style="list-style-type: none"> ◦ outcomes of the 1st joint ALADIN General Assembly & HIRLAM Council ◦ outcomes of the data policy task force ◦ guidance about the ALADIN/HIRLAM common agreement for the next MoUs ◦ organization of the 2nd joint ALADIN General Assembly & HIRLAM Council 	ALADIN & HIRLAM PMs PAC chair	<ul style="list-style-type: none"> • Draft minutes of the 1st joint ALADIN GA&HIRLAM C • summary of the data policy task force meeting • Proposed organization
7. Round table discussion: questions raised by the common declaration (C)	all	
8. Scalability program at ECMWF (I)	ECMWF rep.	
9. A.O.B	PAC/HAC chair	
10. Date and place of the next meeting (D)	PAC/HAC chair	
11. Closing	PAC/HAC chair	

3. Final approval of the minutes of the last HAC-PAC meeting

The draft minutes of the 2nd HAC-PAC meeting (as sent as preparatory document) were adopted.

4. Information on the HIRLAM external review and strategy revision process

Jeanette explained that external reviews have been existing in HIRLAM since the end of HIRLAM-6 when the decision to start the cooperation with ALADIN was taken after strong recommendation from the 1st external review. Currently, three people with large expertise and practice of collaboration (Dominique Marbouty -former ECMWF head-, Peter Lynch -former HIRLAM PM- and Tiziana Paccagnella -former COSMO PM-) are evaluating, scientifically and on operational and organizational sides, what has been done and how things should evolve, including the collaborations with ECMWF and with ALADIN. The draft recommendations will be presented at HIRLAM Council (June 22) and a final report will be produced by September.

The decision on the new HIRLAM PM will likely be taken by the Council by email correspondence before October 1st. The new PM will be involved in the application process for the remaining HMG members (to be appointed at the November Council).

* **(D): Decision ; (C): Consultation; (I): Information**

In the beginning of the next MoU period, the HMG will formulate the high-level objectives in the strategic plans, together with ALADIN CSSI and a joint scientific strategy workshop will be organized. Piet commented that there is not much room for adaptation of the HIRLAM MoU after the final report of the external review. Jeanette answered that main recommendations will be already presented in June and taken into account in the preparation of the draft MoU, without waiting for the final recommendations.

5. Common reporting and plans

This point was very briefly discussed after point 6. The report of last year actions decided jointly by the HMG/CSSI, together with the list of agreed actions for the next 12 months had been distributed as preparatory documents. Piet showed the cycles diagram as presented during the HMG/CSSI meeting: it summarizes the most important milestones towards the next code releases and illustrates the way they are prepared and coordinated by ALADIN and HIRLAM. The HMG/CSSI discussions focused on such code issues, while the scientific discussions went very smoothly.

6. Policy issues

- Outcomes of the 1st joint ALADIN General Assembly & HIRLAM Council

The main output of the 1st joint ALADIN General Assembly and HIRLAM Council was the common declaration that stated a clear will to go forward toward the convergence, identified issues to be addressed and requested PMs to report every six months on those issues to the consortia governing bodies. Piet took the floor and provided the latest information on these issues' status.

Code ownership:

- Shareholdership in ALADIN \Leftrightarrow full ownership in HIRLAM

In ALADIN, the ownership of the code by the ALADIN partners is in proportion to their cumulative manpower contributions since 1991; commercial income, when selling products outside national territory, are shared proportionally to the cumulative manpower; decisions should be taken unanimously but in the absence of consensus a decision is valid unless it is vetoed by more than 1/3 of the members or by a group of members having contributed to the project in proportion higher than 1/3.

In HIRLAM, all full members own jointly the HIRLAM common codes; no royalty when selling products based on the HIRLAM system; decisions shall be taken by simple majority except for resources and staffing commitments where unanimous decisions are required.

- In both consortia, whatever the ownership, members have a complete use of the full system.

Contributions:

In ALADIN, the database of the contributions registers the manpower dedicated by each NMS since 1991. Piet showed some graphics of the ALADIN cumulative manpower. Radmila added that the database contains many criteria that also allow a monitoring of the evolution and the health of the consortium.

Philippe explained that it is difficult to weight the initial contribution of HIRLAM in respect to the initial contribution of ALADIN. The current ALADIN way to rely on cumulative contributions over 25

years may be not fair for newest ALADIN members (as underlined by Fatih). For instance, we could consider what was done during only the last 5 years (the MoU period time).

Conclusions: three questions have been identified by HAC/PAC for further comprehensive review:

- how to share commercial income ? => as royalties will most likely diminish with time due to PSI directive, this point should not be over-emphasized (Philippe);
- How to take decisions ? => a compromise should be easy to found in the next years as both consortia currently work mainly on consensus (Philippe);
- How to value contributions from the different partners ? => find a new way, fairer to new partners, but do not put too much effort in it as it is only relevant if you want to use it to share commercial income or for voting rights (Heiner).

Identification of common activities or how to organize the contributions of 26 countries

Piet showed the diagram that describes how science proceeds to application, starting with research and ending with products for the end users: the different scientific contributions are first transferred into algorithms and scientifically validated; phasing, sanity check and first scores of several model configurations and data assimilation are then done in MF repository; each country does the local meteorological validation of the export version locally ported. The transversal work on the common code is of common responsibility whereas management of closer operational systems and their quality assurance is specific to each consortia or to each country.

This diagram was accepted at the last HAC/PAC meeting as a basis to structure the future MoUs and the PMs were asked to propose the necessary adaptations to the MoUs in order to introduce this agreed vision.

Piet presented the two novelties proposed in the draft ALADIN MoU5:

- Canonical Model Configurations (CMCs): a CMC is a configuration of the ALADIN System for which resources are provided by the Members in order to (a) perform regular code updates, which includes the scientific and technical validation at a state-of-the-art level of research and development, and (b) to provide the coordination and networking activities in order to install and run any canonical configuration at this state-of-the-art level by the ALADIN Consortium Members.
- A Code Architect (CA): the CA carries out scientific and technical studies to assist the ALADIN PM with the definition and the implementation of the ALADIN Canonical Model Configurations. The Terms of Reference of the CA are described in an annex of the MoU5.

Jeanette described the HIRLAM process for a new release of the HARMONIE code: it starts with the T-cycle (code from Météo-France repository), data assimilation and scripting are added to create the H-cycle (in HIRLAM repository, that contains not only code but also scripts). HIRLAM takes the responsibility for the maintenance of the H-cycles but the main intention is to make everything common and everything developed in a H-cycle meant to enter also a next T-cycle.

Radmila explained that thus, HIRLAM would have to make efforts to develop parts of the sanity check tool to also check on data assimilation and would have to dedicate resources to ensure its operational functioning (as LACE does for ALARO).

Jeanette agreed and a CA will also be proposed in HIRLAM with the aim to focus on data assimilation: as the first code architect is kicked off on the ALADIN side, HIRLAM does not want to delay this function and will propose another code architect in the future; the consortia have not merge yet, thus

they have no common funding and there will be two separate CA positions for the time being, that not being an obstacle to the upcoming convergence.

Piet explained that there are two CMCs presently in ALADIN (AROME-France and ALARO-1 baseline). Jeanette commented that the CMC definition is close to the HIRLAM reference system RCR that should be considered as a 3rd CMC at some stage. Piet agreed and added that during the ALADIN-HIRLAM common HARMONIE Working Weeks, the project team is already working on the issue of a single repository.

Conclusion: the HAC/PAC agrees on the code architect(s) principle, on the CMCs principle and on the necessity to make efforts on the sanity check tool; concrete steps will be detailed later.

- Outcomes of the data policy task force

Michael summarized the clear analysis of the data policy Task Force (the “summary of the data policy task force meeting” was distributed as preparatory document). Two issues were separated in respect to the Public Sector Information (PSI¹) Directive that should be implemented by EU member states before 18 July 2015:

- Intellectual Property Rights for the code (Software IPR): as the code is co-owned by the consortia that are not public sector bodies but third parties, the PSI directive does not apply;
- Intellectual Property Rights for the output (IPR for output): the IPR for the output is owned by the NMS running the model, thus the PSI directive should apply with its exceptions.

The TF recommended to clarify what is in the code part and what is considered as output, using the experience from the data policy implemented at ECMWF (that defines the system and the Type A data). The TF did not find any possible solution in the current legal framework, to limit the ownership of the output to political, geographical borders. This should be part of the negotiations within NMSs.

The HIRLAM/ALADIN consortia may find another solution for the EPS-runs (that are common products, jointly produced) and could exploit the product commercially (ECOMET can be asked to assist with setting up a fee).

Whereas some kind of solution exists for the code, the general tour de table proposed by Sylvain could not reach a solution for the output. What is legal for one NMS is not for another. When there is no real agreement, many practices are based on good will. Radmila insisted on the need for rules to prevent unfair competition between the members and ensure a good cooperation. Philippe pointed out that the problem is not only a matter of convergence between ALADIN and HIRLAM as it exists also inside ALADIN. He asked that the compatibility between the ALADIN MoU (article 11) and the PSI directive should be checked.

1 PSI Directive (Directive 2003/98/EC on the re-use of public sector information, with 2013 amendments) is an EU directive that considers PSI should be made accessible as a main rule (open data policies).

Charges may be implemented on certain conditions (exceptions to the PSI directive): the Public Sector Body is obliged to cover a substantial part of their activities with the revenues of their products; the Public Sector Body is a scientific institution.

HAC/PAC considered that the mandate of the Task Force (the analysis) has been completed. It is proposed to ask the ALADIN General Assembly (by email consultation) and the HIRLAM Council (at the meeting on June 22) to mandate the PMs and the HAC/PAC chairpersons to organize a new Task Force to seek a compromise and define a legal space of cooperation. This should be started soon in order to get early recommendations if something should be changed in the MoUs or the annexes (another solution could be to write in the MoUs that we are in the acceptance process).

- Guidance about the ALADIN/HIRLAM common agreement for the next MoUs

Opportunity was given to HAC/PAC participants to cross-comment on the ALADIN & HIRLAM MoUs:

- HIRLAM MoU, page 2: Philippe proposed to add after “T-cycle releases” “coordinated by Météo-France”;
- HIRLAM MoU, page 9: Philippe commented that in the present formulation the scalability program board is given too much weight in the coordination activities on the code evolution; Jeanette agreed on this sentence being provocative with the scalability program board considered first;
- ALADIN MoU, page 3: Heiner asked for a clear content of the CMC; Piet answered that the Code Architect will work on the precise definition, the starting point being AROME-France and ALARO-1 baseline;
- ALADIN MoU, page 10: Jeanette pointed out that, as the ALADIN annual Workshop is organized jointly with the HIRLAM All Staff Meeting, for its preparation, the text should add “with the help of the HIRLAM PM”;
- HIRLAM MoU, page 10: Claude pointed out that the possibility for joint Task Forces (introduced simultaneously in the ALADIN and HIRLAM MoUs five years ago) was removed from ALADIN MoU but still exists in HIRLAM MoU; Jeanette agreed to remove them in HIRLAM-MoU too as they had proved of no use.

Considering ALADIN and HIRLAM still have two separate MoUs, HAC/PAC agreed that the ALADIN/HIRLAM common agreement (also as an Annex to both MoUs) is the right place to spell out our intentions for convergence and to make explicit the process of merging, with the reference to the common declaration and the steps to be achieved during the next five years. Piet proposed concretely to replace the points 7.1 to 7.3 by the conclusions of the HAC/PAC discussion on the outcomes of the 1st joint ALADIN GA/HIRLAM C (see above).

- Organization of the 2nd joint ALADIN General Assembly & HIRLAM Council in Algiers

After Jeanette's remarks on the proposed organization in the preparatory document, Patricia came with different options. HAC/PAC recommended the third option (*editor's note: LACE President gave his agreement after the meeting and HIRLAM Council will discuss it at their next Council*):

- LACE Council on November 24 in the morning and possible continuation on November 25 in the morning;
- ALADIN General Assembly on November 24 in the afternoon, including MoU signing;
- HIRLAM Council on November 25 in the morning, including MoU signing;
- 2nd Joint ALADIN General Assembly and HIRLAM Council on November 25 in the afternoon, including ALADIN-HIRLAM collaboration agreement signing.

7. Round table discussion: questions raised by the common declaration

Actions have been initiated on the five points listed by the common declaration as issues to be resolved towards the aim of forming one single consortium by the end of the 2016-2020 MoUs:

- Common ownership: discussed above;
- Data policy: discussed above;
- Global picture of annual contributions of countries: discussed above;
- Common activities and specific activities: a general agreement was reached through the “science to operations” diagram presented by Piet, the definition of the Canonical Model Configurations and the Code Architect(s) new position;
- Branding issue: this issue should be solved but it is not the main nor the more urgent one.

The governance and the subsequent financial arrangements are not mentioned in the common declaration but discussions should not be delayed too long after the beginning of the next MoUs.

Heiner insisted on the most important point being the convergence of the code and the need for a plan to have only one repository: the decisions on the other points are necessary even if we remain with two consortia but if we merge the common code is mandatory.

Piet explained that the next step toward a common code will be the next HARMONIE Working Week.

Sylvain concluded that the next joint ALADIN General Assembly & HIRLAM Council will be the opportunity to give more momentum of how the convergence will be done.

8. Scalability program at ECMWF

Florence gave the status of ECMWF's Scalability Program at ECMWF whose objectives are: an integrated forecasting system combining a flexible framework to use latest science with maximum achievable parallelism; portable code structures ensuring efficiency and code readability, and exploiting a range of expected future technologies; metrics and framework for code testing, allowing a quantitative assessment of scalability. The key is to address the scalability challenge by using novel mathematical solutions and computing techniques. In parallel, the fine-scale information produced in real-time will have to be provided to the users with large increases in data volumes. Data handling and dissemination will be revised to accommodate this new situation.

The programme promotes an integrated approach to code development with active participation from ECMWF Member States and is organized around six projects at ECMWF and four external projects funded by the European Commission H2020 Research and Innovation program, with an additional 10 persons per year, half funded by ECMWF and half by external projects:

- ESCAPE (Energy-efficient Scalable Algorithms for Weather Prediction at Exascale) project that ECMWF coordinates will address the urgent need to adapt forecasting models to the massively parallel supercomputing facilities of the future.
- ESiWACE, the centre of excellence in simulation for weather and climate in Europe, has just recently been approved. Improvements in efficiency, and hence in productivity, will be delivered by developing solutions for cross-cutting HPC challenges specific to the weather and climate domain.
- NextGenIO aims at the development of new hardware for accelerating I/O, and includes several

vendors with the overall objective of designing the prototype for a new, scalable, high-performance, energy efficient computing platform designed to address the challenge of delivering the necessary scalable I/O performance to applications at the Exascale.

- EarthServer2 should establish Agile Analytics on Petabyte Data Cubes as a simple, user-friendly, and scalable paradigm and provide a commodity for non-experts and experts alike through navigation, extraction, aggregation, and recombining of any-size space/time data cubes, based on open standards such as the OGC Big Data standards. EarthServer-2 will focus on large volumes: satellite images from Sentinel satellite and weather simulation data.

The ECMWF now needs to get organized between the above 4 external projects and the 6 internal projects within Scalability program. The general structure and the various projects are now in place with representation from MF & LAM partners (Alain Joly, Piet Termonia and Jeanette Onvlee in the Scalability board). The door is opened to everybody to collaborate to the huge work.

More broadly, ECMWF has joined the [ETP4HPC](#) (European Technology Platform for High Performance Computing), an industry-led forum helping to define European HPC technology research priorities and action plans

9. A.O.B.

None.

10. Date and place of the next meeting

Fatih invited HAC and PAC members in Turkey for the 2016 meetings, most likely in Ankara: 13th PAC meeting on May 23 in the morning, 4th Joint HAC/PAC meeting on May 23 in the afternoon and HAC meeting on May 24, 2016.

11. Closing

Dominique Marbouty thanked the HAC/PAC for accepting the HIRLAM external review team to this meeting.

HAC Chair thanked the participants and closed the meeting at 17:00.