

Minutes of the eighth ALADIN PAC Meeting Brussels, June 6-7 2011

Participants

PAC members

Adérito Serrão (chairperson)
Michael Staudinger (vice-chairperson)
Philippe Bougeault
Radmila Brožková
Alain Joly
Maria Monteiro
Vladimír Pastirčák

Piet Termonia (ALADIN Programme Manager)

Observers

Claude Fischer (CSSI chairperson)
Sylvain Joffre (HIRLAM Advisory Committee chairperson)
Dijana Klarić (LACE Project Leader)

Excused

Abdalah Mokssit

Secretary

Daan Degrauwe

1. Opening and welcome

D. Gellens, director of the RMI, welcomes everyone in Brussels, and stresses the need for cooperation in NWP, both in the past and the present. He wishes the participants a fruitful meeting.

The PAC chairperson (Adérito Serrão, AS) thanks D. Gellens for the hosting of the meeting and expresses his optimism about the results.

PAC chair welcomes the participants, especially those attending PAC for the first time: Vladimír Pastirčák (VP) and Sylvain Joffre (SJ). He also wishes Piet Termonia success as the new Program Manager (PM).

2. Adoption of the agenda

The agenda is adopted.

3. Final approval of the minutes of the seventh PAC meeting in Budapest

The minutes are approved. PM explains that he tried to highlight the key items in all circulated documents.

4. PAC matters (arising from previous meetings if any)

AS proposes to discuss the items highlighted by PM further in this meeting, and asks if someone identifies other key issues.

5. ALADIN planning and reporting

5.1. Progress report: highlights, critical issues, and actions demanded by the GA (SURFEX, convergence and dynamics/scalability)

PM presents the midterm progress report. It is based on a review enquiry by the LTMs, the presentations at the ALADIN workshop and some additional input from the CSSI members. It is intended to be used as an internal working document for the CSSI to help writing the next year's workplan. PM made a summary document and sent it to CSSI for corrections. The document was produced with the help of the CSSI chair. PM gives a presentation about the progress during 2011 (slides available on the ALADIN site).

PM focused on the actions required by the GA in Prague: an action on SURFEX, on dynamics, one on convergence and the demand for action on OOPS.

The background of the convergence actions is given. Historically, before the so-called convergence-days meeting in September 2008, the distinction between IAAA and AROME was scale-based (down to 5 km vs. 2.5 km and below). In 2008 it was decided to define the definition based on the originating scientific developments: NWP science vs. more academic meso-NH science by 'how quick new developments find their way in the model'. Four specific actions were identified: A) DDH, B) physics dynamics interfaces, C) 3-MT in ARPEGE and D) ICE3 in ALARO. The first two actions have progressed, but the latter two had not progressed very much at the time of the GA in Prague. And so the GA asked a special action of the PM to reactivate the activities on the action C. Two meetings with the convergence working group resulted in a number of concrete steps to progress the 3rd action. It was proposed that ALARO staff would implement 3-MT in ARPEGE. The PM apologizes for not having progressed on the 4th action (ICE3 in ALARO), but plans to do this in the near future. The goal should be that the ALARO and AROME physics are not completely separate, but this may be too ambitious for the moment. We should proceed step by step.

PM then focused on the action on 3MT in ARPEGE: progress will be achieved by very specific steps and indeed should lead to concrete results or even to a joint scientific paper.

Alain Joly (AJ) asks why the protection of the convective cloud condensate part was addressed, and explains that he expected that 3-MT would not need to be modified to run in ARPEGE. PM answers that at the GA it was required that partners and MF clearly codify what was called "3-MT in ARPEGE" in 2008. Since both ARPEGE and ALARO have evolved since then, it was agreed to add a few modifications related to the protection of the convective condensate part. And the first step is then to get an agreement of all the members of the convergence WG. AJ also voiced that he had understood from previous discussions with PM that we concentrate on "3-MT in ARPEGE", and leave ICE3 developments for later, and treat it separately. AS stresses that the PM gives some guidelines/roadmap to the GA.

Philippe Bougeault (PB) comments that it is a big progress that scientists communicate again, and asks what MF can do to help. He proposes to involve Christine Lac. PM will contact her and the experts of the AROME team at MF.

Dijana Klarić (DK) comments LACE would like to contribute and profit from these convergence actions. CF again stresses the need to have clear descriptions, on paper, of the steps to be taken. He also proposes that short reports on the outcome of these steps would be circulated.

Concerning the 3-MT action: PAC chairperson appreciates PM's hard work to progress in this topic, since this was asked for by the GA. It is proposed (a) to focus on 3-MT in ARPEGE rather than on the implementation of ICE3 in ALARO and (b) that short reports on the concrete outcomes of the progressive steps would be circulated, and finally reported to the GA.

PM continues his presentation of the highlights of the progress during 2011.

Météo-France (MF) have made important developments on meteorological radar data assimilation, all French radar data are now used operationally in AROME, both reflectivities and Doppler wind. They now would like to assimilate other European radar data. This requires "absence of echo" to be separated in the messages from "noise or abnormal echo" as well as specific metadata from each European radar, that have been requested from OPERA. Within LACE, Hungary and Croatia are also working on assimilation of radar data, in cooperation with HIRLAM, sharing tools and quality control procedures. LACE is not considering anything operational at the moment; radar DA is done for scientific and learning purposes. The MF staff has been very active in HIRLAM developments, and will continue to be so.

PAC concluded it would be useful to exchange experiences and speak with one voice to OPERA. Currently discussions are ongoing within the frame of the redaction of the new EUMETNET Forecasting capability area roadmap. However, PM asks what would be the best context to organize this collaboration, i.e. whether it should be done within the drafting team or maybe outside of it. The HIRLAM observer proposed to talk to the OPERA manager (who is at FMI) and to come back at PM and the HIRLAM PM (Jeannette Onvlee), but the work should still be intended to take place within the EUMETNET frame. PM remarks that also within the consortium, we should agree on our needs and will make an extra effort on that.

PM continues his presentation, and notices that non-MF, non-LACE countries are somewhat behind regarding DA. The LACE observer, CSSI chair and Maria Monteiro (MM) listed the requirements for installing a 3Dvar, which are quite heavy, and explained some of the difficulties to install 3Dvar. This shows that installing a 3Dvar for all partners is not straightforward. PAC chair proposes that DK gives a presentation in the next GA. DK gladly accepts this invitation.

Concerning radar data assimilation: (a) PAC endorses a more coordinated action instead of the ad-hoc approach taken at this moment, (b) supports the initiative of HIRLAM to contact the OPERA program manager, (c) a consortia list of requirements should be prepared. PAC chair asked the LACE PM to give a presentation in the next GA about the LACE work on DA.

PB remarks that he found the workplan progress document very useful. MM asks if such a document is intended to be made every 6 months. PM answers that this would be too much work, and an updated version may not be very useful for the GA.

MM remarks that a lot of the work in Portugal is related to local maintenance, and that such work is not reflected in the progress report. CSSI chair answered that what MM mentions is more visible in the workpower registration tool, which does not need to be compatible with the

workplan progress reporting. RB remarks that local maintenance cannot be avoided and sees a good task for ACNA in the coordination of this.

PAC chair concludes that the workplan progress report is very useful and proposes to generate a light-version for the GA. PM may consider to write one every 6 months, but will give priority to other actions during the second part of the year.

5.2. Preparation of the 2012 workplan: preliminary prioritizing

PM gives his proposals for the 2012 WP priorities. The workplan will be written jointly with HIRLAM, but these priorities are the ones of ALADIN. PAC chair suggests that convergence actions would be mentioned explicitly.

RB proposes that, before installing the SURFEX steering committee, we should investigate what went wrong with the SURFEX in the past and would like some report on what went wrong. PM notes that the COSP action was taken to identify what should be mended, but he did not make a historical analysis. PM reverses the question: if the SC would have been installed in 2006, maybe we would have been further. He stresses that the SC will not just be a formal body: it will be a way to address needs from users. The historical analysis is indeed needed, but this doesn't mean that the SC is not needed. PM proposes to have this discussion further under point 6.3.

The LACE PM asks about the verification task force. PM answers they have been looking for someone to chair this task force, but that it is difficult to find someone suitable. PM will put an extra effort on this in coordination with the HIRLAM PM. The task of the task force leader is to propose the work plan content for the next year.

PAC endorses the priorities and the procedure for the 2012 work plan. PM will make an effort to kick off a verification task force.

5.3. PAC input for the 4-y work plan

PM recalls that ALADIN has a 4-y plan for the period 2009-2012. He raises the question of how to write the 4-y work plan more in common with HIRLAM, although this may require some rescheduling. PM asks how the merging between HIRLAM and ALADIN should proceed. We are now in the situation where we write common 1-y work plans, and people may ask how these reflect the 10-y strategic plan which is not joined. A common gliding 5-y work plan is one possibility.

PM sees a problem in the fact that there is never a joint governance meeting; only joint scientific meetings. SJ thinks joined sessions (not joined meetings) of HAC and PAC could be useful. This is also a problem for the strategy meeting and the strategies of the two consortia. PM thinks we should not be overambitious about the quick merging at the governance level.

PAC chair thinks PAC could raise this question to GA, presenting advantages and drawbacks. DK says LACE considered this topic.

PM asks PAC how to proceed in the next half year? PAC then discussed how to proceed with the strategic workshop and common HIRLAM-ALADIN strategy meeting.

PAC chair emphasizes again that PAC is not responsible for the strategy, but that PAC should make a proposal to the GA, and that the process of creating the 4-y plan should be coordinated with HIRLAM.

5.4. Preparation of the strategy meeting in September, revisiting the strategic plan

SJ stresses the difference between short-term practical work plans, and long-term strategy. The link between is called in HIRLAM “the scientific and operational plan” (5-y term). At the HAC meeting, HIRLAM tried to identify common points between HIRLAM and ALADIN in this intermediate document. The goal was not to influence each other’s documents. Although it is not a common document, it is still useful to identify common issues, in order to enhance the number of interfaces between scientists of both consortia. In this view, SJ agrees with PM’s proposal. SJ expects that writing a common long-term strategy document would need a longer joint preparation.

PB asks if we could have another PAC meeting to discuss this document. He describes PM’s proposal as a pragmatic approach. The new PM has taken a very aggressive approach to solving some problems, but cannot solve everything at the same time. PM answers that the involvement of CSSI in the process is the key element of his proposal. PB thinks we should come back to strategy at a later moment, because several issues are still open.

PAC raised a few issues: the outcome of hot topics from the Brač-HR workshop is generally a positive result. PAC wondered whether climate be included, EPS and DA, the question “what is an acceptable level of diversity”, and issues like joint development and maintenance of code diversity. The latter was originally the basis for organizing the Brač-HR meeting. DK recalls that Alain Ratier asked for an urgent meeting in view of the speed of actions in LACE. PM’s proposal will not help LACE in developing its strategy. PAC chair stresses that it is not the responsibility of PAC to decide on this. Its task is to answer to the GA, who did not ask to rewrite the strategy document, but to revisit/update it in view of changing circumstances. PM’s proposal is an operative way to this goal. He doubts whether a second PAC meeting to review this review document is useful and feasible, especially in view of the time table. Therefore email correspondence seems best, followed by a final discussion in the Bureau meeting. He stresses that the document is only a proposal to the GA, not necessarily a final strategy document.

PAC chair stressed we make a difference between the organization of the discussion, and the topics to discuss; these can be decided upon later. We should be aware that this document is not a second strategy; only a review/update. If it is accepted by GA, we can proceed; if GA proposes a different direction we will follow that.

Regarding the outcome of the Brač workshop, PM explains the origin of the document by ‘the group of four’ and mentions the document by JFG and JO which served as a basis for this document.

PB appreciates the progress made in this document with respect to the previous version. He would like to see a more precise specification of who will perform which tasks. Also the issue of benchmarking should be emphasized, since this may also lead to the identification of problems. PB doesn’t like the mentioning of the VFE in the document, since this is not related to scalability. PM answers that the task group considered it useful since it is related to robustness, hence to stability and the choice of the timestep.

RB says the smaller partners will need access to massively parallel machines. PB answers this is the case for MF too. He mentions the new possibility offered by the European PRACE project. Several computing centres in Europe are getting very advanced machines, and have for mission to distribute computing resources to scientists of all disciplines. The Met community must engage in submitting projects to these resource centers, in order to gain an expertise in massively parallel computing.. It is possible, and even preferable, that the ALADIN consortium makes projects proposals to such centers, instead of each partner doing this separately. AJ comments that we shouldn’t limit ourselves to testing if our current solutions work on massively parallel machines. RB comments that we would certainly learn a lot from running the code on

huge massively parallel clusters, but it is not sure if such kind of HPC machines would represent those suitable for production purposes, due to operational requirements on e.g. mean time between failure etc.

RB agrees with PB that VFE is not relevant for horizontal scalability. There is also some mistake/confusion in the vorticity/divergence on an A-grid in the working plan on the longer term, point (a). PM answered that in his opinion it should be there. The intention is to plan this part relying on the SLAV scheme. AJ was surprised by the combination of NH and finite volume in the document, since this is known to be a difficult issue.

PM will explore the collaboration with computer centers. He will contact Pierre Bénard to discuss the issues of the VFE, the testing on HPC platforms and a specification in point (a) of the document in the long term proposal (including SLAV).

PM summarizes some of the discussed issues:

- PAC should evaluate the outcome of strategic workshop and present a document to the GA.
- A concrete problem is the choice whom to invite for the workshop?
- Which ALADIN body should do this? According to the MoU, PAC should at least review the document before it is passed to GA.
- Ultimately, this touches the fundamental issue of the merge between HIRLAM and ALADIN: to have common governance bodies. However, we are not ready for this.

Additional constraints:

- Travel budget is limited, especially for meetings that were not planned beforehand.
- Who should be invited/attend? Limited number of CSSI members? Does PAC trust the judgment of the PM, LACE PM and CSSI chair?

PM makes the concrete and pragmatic following proposal to PAC:

- No joint meeting between HAC and PAC
- Organize the meeting by the CSSI (subject to budget constraints) + extra experts up to judgment of PM and CSSI chair
- Location: central. Brussels, Toulouse, or De Bilt. This has to be discussed with JO.
- When? The week of 26 September.
- Deliverable that will go the GA: an update of the 10-y ALADIN strategy document (2008-2017) taking into account
 - The outcome of the Brač HR meeting (+ post-Brač discussions of the group of 4, PAC discussion)
 - Some extra input on DA and EPS, up to the judgment of the CSSI chair and the PM
 - A technical analysis of the overlap/disjoint goals between the ALADIN and the HIRLAM strategy
- After that, there will be an E-mail correspondence between PM, CSSI chair and PAC. The latter will review the update. Time table: before the Bureau meeting.
- Bureau meeting, PAC chair with the help of PM and CSSI will provide the evaluation for the GA.

- REMARK: The aim is to organize this jointly with HIRLAM (HMG). PM will discuss and decide with JO next week. BUT the proposal can be in its most minimalistic way carried out by ALADIN.

PAC chair proposes that PM's proposal is followed, and expects PM and JO to develop a list of topics and a pre-final document to be discussed by PAC, the Bureau and the GA. LACE PM is invited. PAC agreed with this way to proceed.

6. ALADIN program definition and activities

6.1. Update on recent events (ALADIN workshop, SURFEX working week)

PM proposes to join this point with item 6.3 about the SURFEX SC. At this moment, two actions are taken: first, a long-term governance body (SC) will be installed; second, on the short-term (the so-called COSP action) a survey of the current situation is done (SURFEX working week). One reason for the delay of the use of SURFEX lies in the demand of reproducibility when replacing the original ISBA-scheme with the ISBA scheme in SURFEX. Some actions were carried out on this reproducibility, but they were not successful. At some point these actions died out. However, SURFEX is evolving, so reproducibility becomes the longer the more difficult. At the same time, MF decided to replace ISBA by SURFEX in ALADIN-MF, which led to an improvement of the scores (work of M. Jidane). This led to the organization of a survey between the ALADIN partners that are not (yet) using SURFEX in their: how do the scores change when we (ALADIN partners) replace ISBA by SURFEX, and whether everyone will accept a change to SURFEX in the future. PM explains how the survey of the working week was carried out: all participants worked on the same machine, doing tests they consider exemplary for their situation. Many partners were happy to join this working week. This work allowed identifying at least the model behavior and the impact on the scores.

RB remarks that there are some aspects of the interface which pose big problems and that these problems are not yet solved. PM answers that this is again more of a strategy/maintenance issue. We should decouple the technical/scientific content of SURFEX from the strategy. RB asks how she can check the scores if the interface poses such problems. PM answered that SURFEX is used in E-suite by MF and the aim of COSP was to check whether this code branch would be acceptable in terms of performance by the partners.

RB asks how you can trust the result if there are conceptual bugs in the interface. The problem is that everyone solves these issues locally, but if someone wants to test a different option afterwards, this may lead to incompatibilities. She asks how we will address the proper externalization of the software. PM answers that for this we need a body that will allow putting together the needs of all involved SURFEX users, i.e. the SURFEX SC. The working week was intended to identify the potential of SURFEX. RB acknowledges this potential, but insists that technical issues remain. PM answers that these technical issues are also best directed to one body, i.e. the SC. He wanted to hear opinions/remarks like those of RB during the working week. A first task of the SC will then consist of prioritizing.

PB recalls that SURFEX has many users, and that it is difficult to please them all. The SC will at least provide a mechanism to centralize the needs of the users. RB stresses that for operational use, maintenance rules are obligatory, without compromising.

PAC chair concludes that some problems exist with SURFEX, and that the SC is a proposal to set up a body to address these problems. PAC agrees on the SC proposal and its shape; the in-depth discussions about SURFEX should then be discussed in this SC.

PM proposes Rafiq Hamdi as ALADIN representative in the SURFEX SC and proposes to have a first meeting in September, because he needs more time to include Czech input into the COSP document.

6.2. CSSI/LTM/ST, Task force matters, ACNA

PM says that the verification task force was discussed before. The ACNA position is still open. PM will also have some reflection about CSSI composition.

PAC has no further comments on these documents.

6.3. Creation of a SURFEX steering committee

See 6.1.

6.4. Link with HIRLAM

SJ gives a presentation explaining there have been some changes in HMG and HAC. He lists the members of these bodies. He gives an overview of the research highlights of the past months. He indicates that HIRLAM 7.4 will be the last version, and that the full switch to HARMONIE will hopefully be made soon. He finishes with presenting the topics in the HIRLAM 5-y scientific and operations plan.

PAC chair thanks SJ for this presentation, he agrees that the user feedback is quite important, and proposes that we consider this in ALADIN too.

PAC has no further questions or comments on this presentation.

6.5. Maintenance issues: local technical knowledge transfer, OOPS

CF gives a presentation. He explains the time schedule and topics addressed by the upcoming cycles. About technical knowledge transfer he remarks that the maintenance workshop was a good idea but not sufficient to train people entirely. The presentation continues with the background of OOPS, its objectives, its status, open questions about it, and the outcome of the Norrköping system group discussion. He proposes that the ALADIN partners would start to get involved in OOPS, e.g. by building a LAM 3D-VAR prototype.

RB asks if OOPS means that developers need to learn C++, or whether there will be trained some experts who will help the others? CF thinks that some experts are needed, but some developers (e.g. those involved in DA) will need basic knowledge themselves. According to PM, it is, a priori, a matter of good code design to protect people from things they don't need. CF stresses that C++ will not be used for the computational part. In the most ambitious plans, C++ would go until the stepo routine.

RB asks if IFS has plans to produce openIFS, which would be an IFS version for academic use. CF answers that IFS has hired 2 people to study the feasibility of such a version. RB asks how such version will be maintained. AJ answers that it is a 3y project, and the objective is to enable the use of the global model (without DA) by external users. RB sees maintenance problems for such an incomplete version. AJ says it is not our problem. PM says an academic ALADIN version is used at the University of Ghent, but it is a "frozen version". As such, it does not pose maintenance problems.

CF concludes his presentation with some hints for the future.

PM remarks that a demonstration of the advantage of OOPS in the LAM model part (i.e. besides data assimilation) would help motivate people.

PAC took note

6.6. EUMETNET matters: the Forecasting Capability Area road map

PM explains how this document originated. AS says that during the last EUMETNET GA, this document was not considered final.

RB recalls that during 6th PAC meeting in Bucharest, the question was raised how the consortia will be organized in the future. PM answers that it is still not clear what will happen. RB confirms she got similar signals. DK says the problem is not that they don't know what to do; they are just delayed with the steps.

7. Cooperation agreements and membership

PM was contacted by Ukraine, but an application of a new member should be directed to GA. The MoU was sent to Ukraine, but no answer followed yet.

PAC chair confirms that for the time being, there is no progress after this first intention; the initiative is up to Ukraine.

8. Resource matters

8.1. Manpower status: revision of the guidelines for reporting practices and update on the manpower registration and accounting

PM explains this document was written in collaboration with Patricia Pottier and CF. He remarks that the registration system cannot be changed too heavily in order to have relevant statistics over a long time period.

RB remarks that regarding manpower, there is always a lack of developers. RB asks whether AROME is progressively used more and more as the basic research tool? PB replies that MesoNH will always have its value because of the interactive grid-nesting functionality, and the rich set of diagnostics for research. It would be interesting to compare the scores of AROME and MesoNH.

8.2. Budget matters

PM remarks they noticed that the flatrate system is not very flexible, but doesn't see an immediate solution.

DK raises the point that an extra strategy meeting will be organized, and asks how the travel will be financed. AS proposes to use videoconferencing. CF agrees that we should use such facilities more frequently. PM remarks that this will not solve the problem for longer stays or working weeks. DK gives the example of the radar DA group, who wants to meet several times a year. Such meetings are often planned on quite a short term. A consequence is that ALADIN staff often does not attend DA workshops.

CF makes the point that a consequence of flatrate financing is that it implies some administrative regulations. At MF, it is impossible to create extra flexibility in the administration. This is why the flatrate planning is needed early in the year. PM asks if another country could also do some administration or accounting.

PAC chair notes that we are fully aware of the budget constraints of the members. Therefore we stick to the current system. He proposes to try to reduce the travel expenses.

8.2.1. Accounting of the ongoing 2011 budget

PM says the document fits the demands made by the GA, but it would be quite an exercise to do it every year.

DK asks if partners from Tunisia and Algeria face problems to travel. CF answers their main problem are the visa.

8.2.2. PAC's first guidance for the 2012 budget

PM explains that we make a first proposition based on the workplan; after that it is a mechanism of offer and demand. The amount for 2011 was covered.

PAC agrees that PM prepares this.

8.2.3. Status of the previously unclaimed royalties and follow-up of lake database maintenance financing mechanism.

PM, CF and Patricia Pottier will follow this up.

9. A.O.B.

CF re-summarizes that OOPS business is still the subject of a very open discussion between MF and ECMWF. CF asks if PAC has any recommendations for these discussions. PB remarks that we should first ask ECMWF clearly what the OOPS strategy and plans are.

PM says the main unknowns are the level up to which OOPS will penetrate down the model code, and the time schedule for this work. RB considers the learning of C++ as a major issue. Even the current system, which consists solely of Fortran, is difficult to learn.

AS asks if PAC should raise this issue in the GA. PB answers that he hopes to have more info by that time. PB stresses that the ongoing discussions between MF and ECMWF on technical issues does not mean that MF agrees on their strategy.. RB says a more modular code would be an advantage, but also asks that the further plans would be made clearer. PM says we should investigate the impact of OOPS on our own work: how deep it will penetrate, and at what time scale it will do so. ECMWF should clarify these topics.

CF emphasizes the difference between modularization (which does not involve C++, but penetrates the code quickly and deeply) and the real object-oriented coding (which consists of the introduction of a C++ layer). It is on the latter topic that the opinions may diverge between MF and ECMWF.

RB comes back to openIFS. The intention would be that “developments in member states more easily enter the IFS model”. PB recalls that the main reason for the openIFS project is to stimulate the use of IFS as a climate model.

10.Date and place of the next meeting

VP proposes to organize the next PAC meeting in Slovakia on the 4th and 5th of June 2012. PAC accepts this invitation.

11. Closing

PAC chair thanks all participants and closes the meeting.