ALADIN CSSI-LTM-ST meeting in Madrid

9/10/2008

T. Kral and P. Termonia

List of participants

CF	Claude Fisher	France / LTM
RB	Radmila Brozkova	Czech Republic / LTM
NP	Neva Pristov	Slovenia / LTM
AB	Alica Bajic	Croatia / LTM
GB	Gergely Boloni	Hungary
PB	Pierre Bénard	France / CSSI
AT	Alena Trojakova	Czech Republic / CSSI
REK	Ryad El Khatib	France / CSSI
EH	Edit Hagel	Hungary / CSSI
JFM	Jean-Francois Mahfouf	France / CSSI
PT	Piet Termonia	Belgium / CSSI Chairperson
TK	Tomas Kral	Czech Republic / ALADIN Coordinator for Networking Aspects
JFG	Jean-Francois Geleyn	ALADIN Programme Manager
DK	Dijana Klaric	Croatia / LACE
JM	Jean Maziejewski	France / ST
PP	Patricia Pottier	France / ST

A considerable number of LTM's and CSSI-ST members were not present due to a misunderstanding about the time and date of the meeting. JFG proposed that next time this shall be avoided by asking the organization to put the meeting on the official agenda and by more frequently updating reminders.

1. Opening
2. Adoptation of the agenda

JFG recalled that we are behind the schedule for the General Assembly (GA) and the discussion of the work plan should remain minimal. Written contributions are far more expected. PT pointed out that probably the most important part of this meeting is the last item, i.e. the discussion of the outcome of the "convergence's days" and that we should keep the schedule under control.

3. Review of events since the last LTM-CSSI meeting

JFG highlighted the relevant parts of the last PAC meeting in Casablanca, Morocco. In particular he mentioned the task for the CSSI to propose a scientific solution for the convergence between AROME and ALARO.

JFG then asked the opinion of the LTMs on 4 year plan and the work plan for 2009. NP stressed that LTMs need to receive a list of actions for next year. CF further raised the question of how to

build the table with LTMs. After some discussion JFM proposed that the process of the planning for 2009 should start from the CSSI members. It was decided that each CSSI member will prepare the plan for his topic for 2009 and that it will be sent to JFG, PT and PP and the plans will be then distributed to the LTMs. DK asked how many iterations would be needed. JFG answered that there will be only one iteration for 2009 work plan (since we can not afford more) and one iteration for 4 year plan. He also noted that all CSSI members should send remarks to the 4 year plan within 7 days from now. The deadline for final version of the 4 year plan was set to be after the GA and that for the year plan at the end of year 2008.

JFG then asked DK to give a report of the LSC meeting last September. DK gave an overview on LSC meeting and also LACE management group (MG) meeting in June. She underlined that LACE organizes its work in projects and thus LACE has to learn how to define and treat deliverables of these projects. The contacts with HIRLAM MG were discussed including the possibility of joined LACE-HIRLAM MG meeting. She referred to the fact that HIRLAM creates scripting system for HARMONIE (both GB and AT partially helped with its development). DK mentioned the creation of a preprocessing center in Budapest and the question of implementing 3Dvar for other LACE centers while having a common scripting system. In particular, there are two diverse paths to follow: either use a strategy of software "bricks" or adopt HARMONIE scripting system. However, it was concluded that the decision will not be made this year. DK also mentioned that there is a lack of people in LACE for this project. In HIRLAM there is full time administrator for the maintenance of 3Dvar system while in LACE there is currently only half time position for this purpose. Thus there is a need for all LACE countries to jointly contribute to this project. DK further noted that no report of the work on the 3Dvar scripting system in LACE have been done so far, but brief report should be prepared for the LACE Council until the end of the year.

CF mentioned that non-MF ALADIN people might be interested in having an insight in the scripting system for Data Assimilation (DA). PT noted that for the development of an academic ALADIN-HIRLAM system, the so-called CHAPEAU package, a scripting system will also be important. Essentially it was concluded that a scripting system may be useful in some cases but may have some disadvantages for the whole system. JFG said that this means it is not a yes/no question.
RB mentioned that in LSC the scripting system would be supposed to help people with DA, but the demand for similar use between operations and research usage should be discussed. Should the system be the same? What will be the short time solution for people who are developing the system for themselves? She stressed that it's important to know towards what we are going. RB also said that even HIRLAM system is not used operationally everywhere and that it has some weaknesses. CF replied hat there is really no short time solution for it. GB added that DA system in HIRLAM is used “until full-pos” (meaning until the post processing in the operation ALADIN chain), but at that stage it becomes a local problem of each country. DK said that LACE looks for solutions where a work is shared, e.g. the project on observation preprocessing center. CF said that apart of SMS and GMKPACK there is not much common scripting tools between ALADIN countries. JFG proposed that in case of novelties in the new system it should be shared with other ALADIN countries outside LACE as well. RB also noted that there are countries that don't have people for assimilation so common scripting system would not help. On the other hand, if we do have people for assimilation, they have to understand what they are doing and if we decide to have a common script system with HIRLAM they should participate to the maintenance of it because we can not simply take it from HIRLAM and not contribute to it. PT spoke for RMI that they don't have the manpower to work on 3Dvar but they have a potential and usefulness of a scripting system would be mainly to create 3Dvar activity in Brussels. If this happens the scripting system won't be used only as a black box. RB continued that we can produce some

common system but we need more people on technical aspects. DK said that O. Spaniel is currently studying the feasibility of the HARMONIE scripting system. CF also mentioned that running DA trough user interface (i.e. Olive) is advantageous, but whether to make the full investment for the operational chain is an open question. He expressed his worries whether HARMONIE system is flexible enough to cope with extra features like blending for instance. JFG raised another question: "Can the full HARMONIE script system be "downscaled" to a level that is the only one needed in the countries without manpower?" JFG warned that we should not just "blindly" use the complete system. He also explicitly stressed that he disagrees with the HIRLAM's approach of working just with given versions of ALADIN and AROME. RB said that in her eyes Olive is seen as one kind of superstructure and HARMONIE another. She explained that in LACE a brick system is proposed, i.e. for each job we do need a clear specification of input, executable, namelist and output. She said: "Let us have very clean bricks to see in what superstructure they can be inserted. For instance, these bricks are to be seen as equivalents to the smallest elements in Olive." JFG added that if this is not taken care in HIRLAM this would be hidden for the user. In other words "Are the bricks blinded to the users?" RB said that when we build something under Olive we need to see what are the specifications (inputs, outputs, etc). AT noted that for instance, in the LACE web pages, informations with the definition of all the specifications are available. JFG pointed out that important aspect is to individualize and visualize the bricks. Then DK opened the issue of the version of the scripting system for universities. PT said the main problem right now is to provide an easy installation process and for this we need a kind of compact package. JFG stressed again that we should aim to enable individual choices for people using the system. CF noted that also a new system should guarantee that a new bricks can be easily included. It was concluded that a discussion between O. Spaniel, CF, E. Sevault and REK should be undertaken in Toulouse in order to discuss some of the specifications needed for a possible minimum layer of common interfacing and vocabulary within the scripting system(s).

Then the LACE strategy was discussed.

DK reported that LSC is currently tackling LACE strategy. They finished the first steps, creating documents, passing them to directors and looking for a further external uses of these documents (e.g. the same documents will be used for SRNWP). DK addressed a question what is the relation of LACE with ALADIN Climate? RB explained a round table discussion on climate modeling held at LSC: the LSC's view is to inform Council on good performance of ALADIN in climate mode. At the same time manpower on climate modeling should not be taken from NWP. JFG as PM expressed his appreciation of this viewpoint saying that it is very complementary to ALADIN.

4. Organizational and management issues

4.1 Financial matters

PM (JFG), LACE PM (DK) gave an overview.

JFG informed that the financial situation is favorable for this year. The budget was well calibrated and its spending goes well within the plan. For the next year the situation should be similar so we could proceed in the same manner. However, the budget for 2010 is questionable. If the same amount of money (7800 Euro/country as a ceiling) will be available, there might not be enough finances. Knowing that the situation will be bad in 2010 we might have to back down from some items in this or next year's programme. DK mentioned that MF has still some debts to

LACE. She also said that there is a problem with some colleges incorrectly filling the invoice papers (not signed or changed money amounts), which creates some side effect of flat rates (LACE is advancing the money before the trip is done). JFG insisted that we should educate people how to follow the LACE procedure. Otherwise, if we drop this procedure (which is very flexible), some people might not be able to travel for stays.

5. Scientific and technical issues

5.1 Phasing news

CF gave an overview of the phasing status.

Cleaning cycle CY35 was finished and a full documentation is available on LTM pages. Phasing of CY35t1 has started in October. The main contributions are: Surface/PBL observation operator compatibility (L. Kullmann, R. Hamdi, J-F. Mahfouf), LAM wavelet code (A. Deckmyn), SL interpolators' reshaping (F. Vana, J. Masek), scale-selective DFI (P. Termonia), new options for p-TKE in ALARO0 (F. Vana), completed code for TKE-CBR in ALADIN-FR physics, completed prototype of new DDH dataflow, introduction of SURFEX v4 and new version of EDKF in AROME, etc. The full content of changes is to be found in a document that will be distributed afterwards. CF informed that there will be only tight phasing for CY35t2 starting in mid-January until beginning of February next year followed by CY36 common phasing with ECMWF/IFS starting in May. However, no big changes are expected from ECMWF for CY36. As regards the manpower, proposal is to have 2-3 phasers for CY35t2 phasing and then 2 for CY36. For CY35t1 and CY35t2 an export version will be created.

CF also mentioned a problem with the dissemination of the cycles: HIRLAM distributed CY35 before it was approved by the phasing team. The announcing (to HARMONIE) and dissemination of information (version) should be restricted. The updates are happening too frequently. This reflects a cultural difference in the way of working. RB noted that in LACE exports are used to be sure that development is being done with the same base. CF explained that the idea is that the channeling goes through the working experts, but it's not yet fully working. It was finally concluded by CSSI that this is temporal transition problem and that PM will raise the the issue when discussing with the HIRLAM PM.

5.2 Procedure of modification of telecom domains

The new procedure for clim files and telecom coupling domains' changes was explained by TK. There is a technical documentation that will be disseminated after the meeting. In summary, the most important issues are: (1) creation of new domains will be primarily the responsibility of the partners, (2) there is agreement that all fields should be on quadratic grid using mean orography with Bouteloup cost function. This restrictions imply only for LBC files. Partners have naturally a freedom to choose characteristics of their own integration domain according to their needs. JFG explained that this unification of telecom coupling domains is necessary because the procedure should be kept simple to anticipate the future complications when introducing SURFEX. It was decided to create a list of partners which are not complying and to set up a deadline for partners to change their coupling domains accordingly. JFG inquired about GLAMEPS. He was suggesting to have two domains, one for LACE and one for GLAMEPS with low resolution. The reply from CF was that MF can not afford more new domains for now. DK concluded that ACNA in cooperation with CF and EH should find an option for PEPs and give recommendation to ALADIN community.

6. ALADIN/ALARO/AROME planning

6.1 Four year plan

This was already discussed sufficiently in point 3.

6.2 The Common HIRLAM-ALADIN plan on dynamics

PT gave a status report. It is still a draft state. It is a collection of various contributions and has not yet been harmonized. There was the problem that the LACE part was not properly represented and that the part about LBCs seemed to be out of proportion with respect to the rest of the document. JFG said that Filip Vana didn't finish his part yet and said this will be finalized. PT recalled that there is still the problem of the lack of manpower for dynamics. DK noted that plans between ECMWF and HIRLAM should be taken into consideration. Some parts of the program and discrepancies should be updated/smoothed-out. PB gave a summary of the recent developments concerning NH-VFE after the presentations and discussions in the EWGLAM workshop of the past week. The work plan will be updated by Filip Vana with respect to these developments. PT explained the problem in LBC research stating that it is a conditional program. First we should be sure we have a solution for the Euler equations. If not, all the rest become useless. That explains why the part on LBCs is longer. He asked whether CSSI finds it necessary to reduce the length of the text on LBCs. It was decided that this is not necessary. PB recalled the issue of the map factor that will be enhanced. He said that F. Voitus will do this part. JFG informed the CSSI that Iwona Lelatko from Poland has started to understand the part of the code regarding delta_m option which might be profitable in the future.

6.3 HIRLAM-ALADIN action on academic models

PT recalled the intention of the HIRLAM-ALADIN community to start developing an academic version of the ALADIN, HIRLAM, HARMONIE models for universities. This plan was supported by PAC this year in Casablanca. There it was said that the first concrete action was that person would be hired in Brussels to work on this. This has been done and he (Daan Degrauwe) started 1 July. There has been a coordination meeting with HIRLAM people from KNMI in September. The idea is to develop a script system based of a version of SMS, developed by KNMI, the so-called mini SMS in which academic tools can be inserted. The acronym for this project is CHAPEAU (Common HIRLAM ALADIN Package for Education and Academic Use). As far as the RMI is concerned the scope is very limited in a first stage. Some Linux version of the ALADIN model will be created together with a few interesting cases to be run by the students of the postgraduate programme on Meteorology and Numerical Weather Prediction at Ghent university. This will be plugged within the scripting system. The purpose at this stage is to provide a setup for the students and not to create a full research tool. DK said this will be reported but talking about licenses will be avoided at this stage. JFG stressed that the aim of CHAPEAU is to train students at NWP. After that, if the first stage is successful, we can become more ambitious. But for now we can not provide universities the whole assimilation system (data assimilation is too hard to tackle for universities in the present technical status).

6.4 Working plan for 2009

This was discussed in point 3.

6.5 "Convergence days" outcome

PT summarized the outcome of the convergence action between ALARO and AROME (held in Toulouse in September) presenting the slide made by V. Cassé. Specifically, there were four actions on convergence meeting:
1) on DDH. This was the most consensual one of the four. The only aspect of this action was that it has to be coordinated with MAPFI work in the action on interfacing.
2) an action on interfacing. JFG recalled that there are two aspects: the physics-dynamics interface and physics interfaces. PT said that MF will make a proposal about extending the Catry's et al. paper and the MAPFI solution towards AROME. Also it was decided to create a comprehensive documentation of the dynamics equations. JFG mentioned that there are many existing documentations for dynamics and some clarification is needed.
3) the action on Microphysics. JFG explained his three slides he presented during the convergence days. The issue concerns the implementation of the ICE3 scheme of Meso-NH in ALARO. The main problem is that ICE3 can not be run with long time steps which makes it unattractive for implementation in ALADIN/ALARO. The emerging idea is that there should be coexistence of two solutions (the nominal one and one adapted to long time-steps). The way to realize this ambition still needs to be further optimized.
4) the action on implementing 3MT in ARPEGE. RB introduced document to which she contributed together with J-M. Piriou and E. Bazile. The first plan is that 3MT should become operational in ARPEGE next year 2009. One identified issue was that we have to be careful about convective cloud's condensates evaporation during a time step which have to be taken into account by implementing an option for adjustment in ARPEGE. Another issue was extension of 3MT to shallow convection which was proposed by ARPEGE Climate Group. Implementation of 3MT in AROME is not planed so far. As JFM noted, for MF it should first be proven that deep moist convection is useful at 2km scale (this is a wish of E. Brun).

PT then explained the proposal of MF for a new form of collaboration. The definition of the models will change. AROME will allow MF to quickly implement upstream research results in Meso-NH in a NWP model. We called this in the meeting as the fast upstream track and it will be referred in the future as the Meso-NH/AROME implementation track. The implementation in ARPEGE/ALADIN will be for the longer term, we coined this process by calling it the slow track and will be referred to as the ALD/ARP/IFS implementation track. That keeps ALADIN as a separate model whose developments will be NWP driven. JFG paraphrased this by saying that in fact the scale specificity of the models disappears but that their definition will now be determined by how to implement research in them. PT reported that MF presented their position for international collaboration and that it gave a very clear and positive signal of willingness to collaborate with the partners. He also said that it is his personal opinion that this proposal is very acceptable and that it is a very good compromise. PT said that, to state it differently, if this was the way in which the decisions were taken at the start of the AROME developments we would have been very happy with it. RB said that the novelty in this proposal is the implicit recognition of the innovations coming from NWP by including what we identified as the ALD/ARP/IFS track. JFG identified two issues that remain open with this proposal: (1) the question of the phys/dyn interface's equations and whether it will be possible to define the interface, and (2) there is still cultural gap when looking at moist physics. On one hand there is the GMME culture where the processes are treated in a compartmented manner as opposed to the 3MT approach where moist processes are treated as a big entity. The divide between the two approaches is not necessary the one between MF and ALARO scientists. The problem is that each science has it's own track and no methodology is foreseen in the compromise that allows to decided which approach is right. This issue should be solved in the future. JFM said that nevertheless we live in an imperfect world, but at least that people are aware of that. This was confirmed by CF.

DK reminded that PAC asked for a scientific solution (which was done), but also recalled the need to present directors the working power available. JFG replied that this is a scientific solution, but that it should be stressed that it was found under pressure.

After this discussion the proposal of V. Cassé was accepted. It was then discussed what would be the best way to present this to the GA.

DK asked how to present this scientific outcome in a way that non specialists and the directors of the institutes in particular, who have not followed the details of the whole discussion, can easily understand the essence of it. RB proposed that what was called the ALD/ARP/IFS track corresponds to the toolbox idea (flexible, applicable to all needs, all resolutions, in any country, etc.), and AROME, on the other hand, is a very specific application meant for implementing and making operational academic-type research. Nevertheless, having a common phys-dyn interface is essential. PT suggested that the way to present this issue could be based on the statement that ALARO and AROME are different models with different aims. Eventually, after a broad discussion, CSSI members and PM agreed on a final formulation (so called Madrid paragraph):

"The scale specificity which currently characterizes AROME and ALARO is going to be progressively replaced by a difference in the way of capitalizing on upstream research either rapidly for the process side or more slowly for the NWP specific side.

This characterization allows to optimize the benefits from each other's developments.

Linked with these principles, there are several scientific and technical particular choices which are detailed in the convergence's days outcome document."

Concerning the specification of the manpower, it was concluded (and should be made clear) that manpower will be diverted from existing tasks at the short time scale (about one year), to guarantee a far better long-term sustainable development. Specifically this will allow the partners to benefit from any type of research.

JFG raised a question how to discuss the above paragraph (outcome of the convergence days) with HIRLAM. RB responded that from HIRLAM's view, after discussion with Sander Tijm, the interfacing of HIRLAM physics via cptend_new (which is the first step) could be done with 2 weeks of work.

7. Projects update

7.1 LAM-EPS project(s)

DK urged that we need a better consensus of the ALADIN part in GLAMEPS and also that we should have some presentation in general assembly. She proposed that she will prepare a presentation for directors using Y. Wang's presentation and existing presentations of EH and T. Iversen. Further she stressed that the decision about the domain is is two years old (starting from September 2006) so we should make a consensus about it. CF said that there is a big effort from different countries but not enough contribution from ALADIN. DK further mentioned a need to have a clear targets for the presentation, she raised a problem with CPU units in ECMWF. The

reaction from JFG was that currently there are different research actions going on right now and that we should not kill potential tracks by saying there is no CPU, this is dangerous. He continued that we have GLAMEPS, EUREPS, etc. so we should aim at participating in any case to the one that will be the surviving initiative.

7.2 ECMWF special projectfor LBC

Due to the time limits CF only briefly reported that 30% of allocation have been used and for now we have 35kSBU available which should be sufficient. The special projects are further decided for 3 years with renewal in 2009, 2010 and 2011 when it will finish. CF also advised to write a brief report which is usually appreciated by ECMWF.

8. Date and place of next LTM-CSSI meeting. Closing.

The next LTM-CSSI meeting will be held in the week 11-16/5/2009 in Utrecht.

9. In camera CSSI for PAC request about "convergence"

This was discussed in point 6.5.