

# Minutes of

## LACE Steering Committee (LSC), 1st Session

*Zagreb, 14th February 2003*

### Participants:

LSC delegates: Yong Wang (Austria), Martina Tudor (Croatia), Radmila Brožková (Czech Republic), András Horányi (Hungary), Jan Mašek (Slovakia), Gregor Gregorič (Slovenia);  
MG members: Dijana Klarić (Project Leader), Gergerly Bölöni (Working Group Leader for data assimilation), Petra Smolíková (Working Group Leader for dynamics), Thomas Haiden (Working Group Leader for physics), Stjepan Ivatek-Šahdan (Data Manager);  
Observers: Claude Fischer (France), Dražen Glasnović (Croatia), Čedo Branković (Croatia).

### **1. Opening**

The Meeting was opened by Dražen Glasnović, deputy Director of DHMZ, National Meteorological Service of Croatia.

### **2. Organisational Matters**

Project Leader announced the organisational schedule of the day and her proposal was unanimously accepted.

### **3. Adoption of the Agenda**

Hungarian delegate proposed to have a short summary of the role of LSC, namely for delegates who were not in a close connection with the preparation of RC LACE Memorandum of Understanding (MoU) II. This idea was welcome and Project Leader gave the overview.

### **4. Election of the LACE Steering Committee Chairperson**

According to the MoU, delegates elect the LSC Chairperson. There were two candidates, Radmila Brožková and András Horányi. Each of them presented their candidacy and then a secret vote took place. Project Leader collected and counted the votes. Radmila Brožková was elected by 4:2.

## **5. Status of the operational activities at Member Services**

### **5.1 Short information from representatives**

Short descriptions of the current operational suites in the LACE Member Services were given by their representatives. The status is reported as follows:

Austria:

ALADIN forecast is run on the original LACE domain and also on the ALADIN/Vienna domain. The products from LACE domain are provided to Slovakia. The library level is AL15/CY24T1 export version. The Lateral Boundary Conditions (LBC) are downloaded from Toulouse by Internet.

Croatia:

The double nested suite is in place: ALADIN is run on the original LACE domain and also on the nested Croatian domain, which is planned to be enlarged and shifted more to the South-West (forecast for this new domain is already in pre-operational tests). The library level is AL12/CY22T1 CYCORA. On top, the dynamical adaptation of the wind field is made for 5 domains with 2km resolution. The LBC files are downloaded by Internet but more stable solution is needed.

Czech Republic:

The last configuration of ALADIN/LACE suite is kept for the time being. The library level is AL12/CY22T1op6 with back-phased physics of CYCORA TER +++. The RMDCN line to Toulouse is also kept for downloading the LBC files. The RETIM 1 charts are still distributed and this will stop with the end of RETIM 1 system (when it is replaced in near future by RETIM 2000 system). A new computer will be installed in spring (NEC SX6, 4CPU and 32Gb RAM with planned upgrade in two years time). The library AL25T1/CY25T1 is under installation.

Hungary:

ALADIN is run operationally on a domain with the size of the LACE domain but with the horizontal resolution of 6.5 km. A 3DVAR assimilation suite is run in parallel. The LBC files are downloaded by Internet but this solution is not considered as a final one.

Slovakia:

ALADIN products are received from Austria for the LACE domain. 3 person x weeks were invested to install in Vienna all the necessary tools for production of pseudo-temps and GRIB bulletins. Beside, ALADIN Slovakia is run with 7.2 km resolution and 31 levels. Slovakia plans to buy a new computer by the end of the year and to run the LACE domain.

Slovenia:

The operational version is still the old one, based on AL11/CY21T1 library. The move to the new cluster and AL25T1/CY25T1 will be completed when remaining hardware problems are solved. The integration with in-line full-pos is still not working. The installation of SMS is planned.

Information from Météo-France:

The operational suite was changed this week; several modifications were made in the physics. There are two more in-depth changes investigated currently. The first one concerns the use of the stretched geometry in the 4DVAR assimilation algorithm or not, the second one is about the merge of ARPEGE and ARPEGE CLIMAT physics. Upgraded VPP-5000 computer should be operational in September – October; till then there are no plans to increase the resolution of ARPEGE.

In the following discussion it was stated that all LACE Member Services should define a policy about the remote access to their computers for persons that will work on some joined problems. Remote access is a necessary mean for fulfilling some of the planned tasks of the Working Groups. The policy about the remote access of Météo-France can be an example how this can be done. It was mentioned that for Slovenia this is a special issue since the whole Service is being moved behind a government firewall.

Resolution:

Each Member should write short information about the characteristics of the machine and version of the operational suite and send to Project Leader. Details about the operational suites and used computers should be available and maintained on a LACE web page.

Members are encouraged to allow the remote access to their computer systems in order to facilitate the research and development work. The concrete policy and application of the remote access shall be defined by each Member. Project Leader should raise this issue at the next Council.

## **5.2 ARPEGE LBC Transmission by RETIM 2000 System**

Recent news on the system installation and some properties were distributed. In general, the installation is delayed with respect to the plans. In Austria, the system should be installed by the end of February. In Czech Republic, Hungary and Slovakia it should be delivered in March. Croatia has ordered the system but did not get any information on the delivery date. It seems that Slovenia has not ordered the system yet. From this information it is clear that the system will hardly be operational in all countries at the same time and thus there is a question how to organise the common payment. Further, technical issues with a financial impact were discussed:

- Equipment has a one year warranty; it is not clear what will be the maintenance conditions (level of the service, repair time, etc.) and how much the maintenance will cost;
- What is the maximum capacity for the data volume that can be asked;
- Acceptance tests: should LACE harmonise them and accept the system only when it works at each site and only then to start the payment or should be these tests done individually. In the latter case there is the question on how the common payment shall be organised.
- Météo France should give information about the increase in resolution before the contract is signed in order to anticipate the changes in the size of the files.

Resolution:

LACE should get the answers on the maintenance conditions, maximum capacity and acceptance test organisation from MFI, on the foreseen changes in the size of the files from Météo-France. Slovenian delegate should enquire about the ordering of the system by

Slovenia (see Annex). Based on the revised calendar of the installation and acceptance tests, the organization of the common payment by RC LACE shall be considered by Council.

## **6. AROME Project**

A short report about the AROME project was given by Claude Fischer: AROME will be NWP LAM with 2km resolution. The first prototype of AROME shall be available in 2005; the application is foreseen for 2008. AROME will be built on ALADIN-NH dynamics, MESO-NH physics and ALADIN 3DVAR type data assimilation. The AROME team is progressively put in place and there are already studies going on. One of the crucial works is an analysis of the implementation of the physics package suitable for 2km resolution into the code (in fact it is an analysis of the interface of the physics). Further, there is a study of spin-up, preparation of 4DVAR type of scripts, formulation of background error structure functions for humidity, assimilation of MSG radiances, verification of precipitation patterns using radar imagery, etc.

According to the experts, current parameterization schemes of moist deep convection are not adapted for the so-called grey zone (7 to 3 km) where convection is partly resolved and moist processes are ill-posed. In AROME, these scales will be avoided and beside the expensive 2km version there will be a 10km version, which may be used as intermediate coupling model. This version will have however also quite expensive physics, probably three times more than the current ALADIN physics. The new physics will require introduction of new prognostic variables and by consequence the data flow in the model will be changed. At the coordination meeting of IFS/ARPEGE it was agreed that the new data flow with quite a flexible possibility of introducing new model variables will be prepared by Mats Hamrud at ECMWF and it will probably appear at cycle 27 of IFS/ARPEGE in autumn. The ODB documentation was also discussed at that meeting and ECMWF promised a user guide and to coordinate the documentation writing with Météo-France and also with ALADIN countries (here Sándor Kertész from HMS is already in charge to help with the documentation).

### Resolution:

LSC noted the information on AROME. As the most important seems to be the ongoing analysis of the new physics interface, announced changes for cycle 27, problems of the grey zone and high cost of AROME physics. It was stressed out that there will be a special ALADIN-AROME workshop organised in Prague on 11-12 April where important strategic issues will be discussed. LACE should maintain the pressure on ECMWF regarding the ODB documentation not only on the use, but also on the installation.

## **9. Flow of Information in Project**

This item was short and hence it was scheduled before lunch, while the Working Group plans were put in one block for the afternoon session.

Project Leader proposed to establish LACE web page. There should be the basic documents like MoU, meeting reports, budget reports, scientific reports and information on any action financed by RC LACE. It was proposed that the reports from Prague stays will be also put on that page. The confidential documents (e.g. budget) will be protected by password. Beside, there should be a list of interesting meteorological cases, including the cases of bad forecasts.

### Resolution:

LSC endorsed this proposal and recommended that Data Manager prepares a first draft of the web page since this page will be maintained at the Croatian Meteorological Service (according to MoU it is a duty of ASC, whose help is of course welcome) and especially because of the documentation for the case studies, which is more in competency of DM.

## **7. The Presentation of Working Group Plans**

Each Working Group Leader presented the plan of research and development for 2003:

### ***7.1 Working Group for Dynamics***

There are three main projects: non-hydrostatic dynamics, group of other individual topics (horizontal diffusion, radiative upper boundary condition, physics-dynamics interface) and coupling. LSC mainly commented the part of the plan on coupling. The question was whether to re-orient the plan in order to examine some new ideas published for example in HIRLAM Newsletter. French delegate stated that the issue of the lateral coupling schemes will have to be seriously addressed sooner or later.

### Resolution:

LSC endorsed the plan and had the following recommendations: Given the special mini-workshop on coupling organised the next week in Ljubljana, WGL for dynamics will use this occasion to discuss with the involved scientists and possibly modify the plan on coupling in order to cover important topics. LSC noted with satisfaction the information on the excellent performance of the ALADIN non-hydrostatic version in the trapped lee wave tests in comparison with other non-hydrostatic models and the choice to retain ALADIN NH for the dynamical core of AROME. LSC stated that such good results should get enough publicity among the ALADIN community.

### ***7.2 Working Group for Physics***

There are four main projects in the plan for the model physics: shallow convection and PBL cloudiness, CAPE & deep convection triggering, orographic drag and physics/dynamics interface. The fourth project was added recently due to AROME and first efforts on this particular topic will start in Toulouse in spring 2003. WG on model physics will have due to AROME more difficult situation, since there will be significant code changes in the main model which may affect the calendar of works. WGL for physics underlined that the R & D projects will try to answer the demand for scientifically advanced (AROME-type) but cheaper (like current type) physics. The second project should help to find the solutions for tackling the grey zone convection problem. Some questions were raised about the financing of small workshop planned to start the work on the main and most ambitious project on shallow convection and PBL cloudiness. It was explained that the main purpose of the planned workshop is to engage, discuss and set up the detailed work plan for the persons involved as well as to distribute different tasks among themselves and to report the progress and new information from work on a given subject, so it is not a seminar type of meeting.

#### Resolution:

LSC endorsed the plan with the following recommendations: Since at this stage it is difficult to foresee the impact of AROME physics on the LACE working plan, LSC recommends a flexible and pragmatic approach to adjust the research and development work to evolving constraints. WGL should be in contact with GMAP to gather the information on the physics/dynamics interface analysis, when this analysis is ready. LSC appreciates the willingness to work on the semi-cheap physics and to help with the grey-zone problem. The evaluation of the level of risk should be added to each individual topic, like it was done in the plans of the other two working groups.

### **7.3 Working Group for Data Assimilation**

This research area is more diversified, although the topics are grouped also in three main chapters: methods (algorithms and cycling), observations and analysis of surface variables. LSC went through individual topics and adjustments were made. The most problematic point was the format of the planned workshop on data assimilation. First idea for this workshop was to try to enhance the number of people working on data assimilation by inviting newcomers. But from past experience it is known that this approach does not bring expected effects: the ALATNET Seminar on Data Assimilation in Gourdon failed from this point of view. There should be other means how to involve newcomers, while the format of the discussed workshop would be rather devoted to the exchange of information and results. At the same time, LSC does not consider to recommend LACE financing for seminar-type of workshop, since there are other occasions where to present results, like regular ALADIN workshops and other SRNWP workshops.

#### Resolution:

LSC endorsed the plan with the following recommendations: Within the project on methods, work should be devoted to the study of vertical cross-correlations and to B matrix in general, further the total increments of BLENDVAR method compared to the classical method should be more understood, the comparison of BLENDSUR and CANARI has no meaning before the soil water index is not smoothed in ARPEGE surface analysis. LSC acknowledged the planned training on the ODB tool implementation and use, as well as the planned work on the use of new types of observations. Here LSC feels that the difficult point will be how to train newcomers in the assimilation methods of radar data and recommends that potentially interested colleagues follow the development work started in AROME. LSC recommends reconsidering the issue of the data assimilation workshop regarding its date, duration, whether it should be appended to ALADIN workshop or not and the demand for financing.

### **7.4 Compilation of LACE Scientific Plan for the Year 2003**

A short discussion took place on the presentation of the plan.

#### Resolution:

Working Group Leaders should reflect the recommendations of LSC in their plans. LSC appreciates the short overview of all topics which is added to the plans as well as the summary on man-power investment and demanded support, important for the financial aspects. This summary could show in time some disproportions between the planned efforts and demanded financing. LSC strongly recommends to the Management Group to achieve

more balanced proposal before the plan is presented to Council. The short overview should be completed by the executive summary (about one page per Working Group).

## **8. Prospective for RC LACE Budget 2003**

Beside the table of demands for financial support by Working Groups, Project Leader informed LSC that the travel cost financing policy was an urgent issue, since the travel costs of this LSC meeting should already be financed according to it. The rules are needed in order to avoid misunderstandings and problems in future. Project Leader presented the idea of possible limits for travel and hotel expenses.

### Resolution for Budgetary Aspects:

The demands of Working Groups for financial support should be in proportion with the manpower put on developments. LSC does not recommend to ask the financial support for seminar-type of meetings (it is not foreseen either in MoU). LSC supports the proposal of Project for the travel and hotel cost limits as follows: 40 € for per-diem, 150 € for train ticket, 600 € for air ticket, 75 € for hotel. All travellers paid by RC LACE Budget will be asked to respect these limits but if there would be no other way, the limits may be exceeded.

## **10. Calendar of the ALADIN and RC LACE events for 2003**

Project Leader prepared the overview on ALADIN and RC LACE events this year. The problem was when to organise the ODB training, possible workshop on data assimilation (regardless the financial issue of it) and next meeting of the LSC. The ODB training will probably be organised still in March or if not in May, so that all potential participants may attend. The concrete schedule also depends on the port of AL25T1/OD25T1 by Sándor Kertész, who is the lecturer. Each Member nominated its participant for this training and the final schedule will be agreed among them. The data assimilation workshop should avoid the clash with the regular ALADIN workshop, which will take place either in the last week of November or in the second week of September.

Next meeting of LSC should take place before autumn Council meeting. It is foreseen either for the end of September or for early November.

## **11. Closure of Meeting**

Chairperson thanked all participants for working up to the late evening to go through the whole of the Agenda and closed the meeting.

## **Annex**

### *A posteriori information from Slovakia:*

Computer platform in SHMU is unchanged for the time being; there was upgrade of the F90 compiler:

DEC Alpha XP1000, EV6 processor, 1 GB memory, 24 GB HDD, DIGITAL Fortran 90 V5.2-705

The parameters of ALADIN/SLOVAKIA did not change recently: AL12/CY22T1\_op6, CYCORA bis, 120x90 points (C+I+E domain), quadratic grid, 31 levels, dx = 7.18 km, dt = 337.5 s

Accommodation in Bratislava - it is no problem to get a single room below 75 euro/night.

***A posteriori information from Slovenia:***

The RETIM 2000 reception system will be ordered and installed in spring 2003. Slovenia does not consider having special claims regarding the starting date of RETIM 2000 payments.

Slovenia does not intend to send anybody to the ODB workshop: at the moment data assimilation is not a high priority and there is nobody who could work on this subject in the near future.

The new cluster is still crashing; the information about the system will be made available to the ALADIN community as soon as the system is operational.