ALADIN Newsletter 18

ALATNET Newsletter 1

January - June 2000

http://www.cnrm.meteo.fr/aladin/ & http://www.cnrm.meteo.fr/alatnet/

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This joined Newsletter presents you the principal events concerning ALADIN or ALATNET during the first half of 2000. The news about work or events are related with informations that you sent.

An electronic ALADIN Newsletter 18 is available on the ALADIN web site and an electronic ALATNET Newsletter 1 can be consulted on the ALATNET web site. These electronic Newsletters are different from this joined "paper" Newsletter as they do not include informations already detailed on the sites (only links instead of summary of these informations).

Please do bring to my notice anything that you would like to be mentioned in the next Newsletter (ALADIN 19 $ ALATNET 2) before the 15th January 2001 (the Newsletters will be prepared only twince a year now).

Any contribution concerning announcements, scientifical progress, publications, news from the ALADIN versions on workstations or on big computers, verifications results, ... will be welcome.

ALADIN Main events

1. Draft the new Memorandum of Understanding

On Monday 24th of January 2000, the working group (Météo-France, INMH and HMIS) for the drafting of the new MoU met in Ljubljana for one day of discussion around the current MoU and its necessary modifications to be presented in the next Assembly of ALADIN Partners.

2. New ALADIN libraries

a) The operational cycle AL12

The code of AL12 was eventually completed and validated in January 2000. All the phasers present in November-December 1999 did a great job, and it is worth mentioning the appreciated contribution of Gabor Radnoti, whose experience as former LACE/ASC was very helpful. The ALADIN project for sure needs a few more people of such scientific and technical level.

Although there were as usually a few surprises coming from ECMWF, the phasing was fairly smooth, and the finalized cycle could be delivered for operations in Toulouse in February. AL12 is presently the operational ALADIN cycle at Météo-France, along with CY22T1 of ARPEGE/IFS.

- Contents of AL12 include:

- some in-depth namelist cleaning
- recoding of dummy arrays in the spectral transforms
- code cleaning specific to ALADIN, such as the merge of e(ree)(spe)sm with dm
- extra code for wavelet cost-function

A bugfix is needed to run the non-hydrostatic 3tlsl version

- Multitasking aspects:

  - the LACE team has also implemented the AL12 library, and found incompatibilities between openMP directives and multitasking mode (see the mail by Gabor Radnoti sent to the *alabobo* list).
  - there is one important lesson to extract from this: since in future the natural technical evolution goes towards the use of the standard microtasking directives from openMP, and due to its progressive insertion into the ALADIN code, the level of non-compliance with multitasked/macrotasked platforms will increase. Time is now more than ripe to think about alternative operational speed-ups to replace multitasking for those still relying on it.
  - NEC implementations might switch on message passing, which is now more and more mature in many ALADIN configurations, and other sites have already plans to leave the historical sphere of influence of Cray computers. Morocco also intends to move to distributed memory on its CRAY J90, till a new computer is delivered.
  - those who will continue on multitasked platforms like J912 must check the possibility to implement and test openMP libraries on them.

b) The new cycle AL13

In April-May-June, the ALADIN code was phased to the ARPEGE cycle CY22T2. The former cycle AL12 was with respect to CY22T1. As often, the phasing was rather chaotic and far from optimal:

- ECMWF sent us its cycle CY22R2 with 3 weeks of delay, so that the ALADIN phasing did not start in time.
- the overlap with holidays and seminars involving GMAP people caused some extra delay.
- finally, CY22T2/AL13 and CY23 (soon after, this is the true common cycle ECMWF/Météo-France, without ALADIN and still requiring significant cleaning in dynamics) clashed a bit in time in Toulouse.

In this context, the phasers showed a great sense of tolerance and adapted to the situation. We were thus in a position to declare CY22T2/AL13 beginning of June, although not all the configurations had been tested, and bugs were of course still present (NHS, CANARI - 3DVAR not fully tested).

Mid-July, a thorough debugging period allowed to create a bugfix version for AL13, for which almost every configuration is working optimally:

- hydrostatic models (e001,e501,e401,e601,e801) mono-and multi processor
- non-hydrostatic models (e001,e501,e401) mono-and multi processor
- fullpos and e(e)927 mono-and multi processor
- canari, but the multi processor versions for sure still have "marginal" bugs
- 3d-var multi processor

- Contents in AL13 include:

- provisional skeleton for predictor/corrector advection scheme
- additional code for semi-Lagrangian TL and AD code
- a new key LMPOFF to switch off MPI in mono-proc mode (only for e001&fullpos)
- bugfix for test of TL and AD non-hydrostatic full model in multi-proc mode
- first developments for ozone as a spectral thermodynamical variable
- new output fields in fullpos: CAPE ...
- the option to use background statistics in gridpoint for ALADIN 3d-var
- removal of calls to the NAG library in 3d-var (not yet tested in Toulouse !)

c) The future cycle AL14

This cycle is planned for phasing in November/December 2000. It will most likely be phased with CY23Tx. See the list the technical changes in CY23 and those expected in CY24 (article of Claude FISCHER in this Newsletter: "Better to know ...") for estimation of the modifications that should be introduced in AL14.

Note that CY24 is scheduled for end 2000, so ALADIN might still be lagging one cycle behind ARPEGE at the end of 2000, as it is now in July.

3. 3DVAR workshops in Budapest and in Toulouse

During the last quarter, two small workshops enabled significant progress in 3D-Var work : in Budapest with A. Horanyi, C. Fischer and M. Siroka (see Article in this Newsletter) and in Toulouse with C. Fischer, W. Sadiki and A. Dziedzic (see report on Toulouse work in this Newsletter).

4. SRNWP Workshop on Mesoscale variational data assimilation

Organized by Andrew Lorenc (The Met.Office), this workshop was held at The Met.Office College in Reading, England, 8-10 May 2000. ALADIN was represented by C. Fischer, E. Gérard and A. Horanyi.

One day and a half was devoted to presentations and two half days to working groups.

As an introduction, Jean Quiby, SRNWP coordinator, presented the current organization of NWP development within Europe in four groups (HIRLAM, COSMO, ALADIN and UKMO) and the role of each lead centre. The operational data assimilation methods within those groups have been specified: OI to be soon replaced by 3DVar in Hirlam, 3DVar in UKMO, OI and nudging in global and local German models respectively, and 3DVar to be soon replaced by 4DVar in ARPEGE (which was effectively done in June 2000).

Beside the presentations about the current developments within the four SRNWP groups, representatives of American models (MMM-NCAR, NCEP, RUC/MAPS) and Canadian model (CMC) gave their expertise in mesoscale variational assimilation. Five working groups were defined with reflection subjects entitled: Large scale and topographic forcing, boundary conditions (1-2); High resolution observations: their assimilation and utility (3); Assimilating clouds and precipitation observations (4); 4DVar, how can we make it affordable ? (5); Analysis techniques, 3DVar and error covariances (6).

For more informations about the issues and conclusions of this workshop, the abstracts and working groups reports are available on The Met.Office web site:
http://www.met-office.gov.uk/sec5/NWP/DA_MesVAR/.

5. 8th ALADIN workshop "Toward high resolution modelling"

The 8th ALADIN workshop, entitled "Toward high resolution modelling" was organized at IMWM / Cracow (Poland) on 19-20 June 2000. Participants were : Yong Wang (Austria), Luc Gérard, Philippe Nomerange and Piet Termonia (Belgium), Dagmar Merkova (Czech Rep.), Elisabeth Gérard and Dominique Giard (France), Gabor Radnoti (Hungary), Evgheni Alexeev (Moldova), Marek Jerczynski, Witold Owcarz, Malgorzata Szczech and Jadwiga Woyciechowska (Poland), Vanda Maria Sousa da Costa (Portugal), Oldrich Spaniel (Slovakia), Mark Zagar (Slovenia) and Jean Quiby (Swiss). Jean Quiby was present as the SRNWP coordinator and as a representative of the COSMO group. Though invited, the HIRLAM and UKMO groups did not send anyone. The ALADIN participation was unexpectedly small, distorted, and hopefully not representative of the implication of partners in research. This was quite disappointing for the organizers, the SRNWP coordinator and those partners who made a significant effort. All the more since this workshop was expected to illustrate the effective emergence of deported research and discuss the mid-term completion of the ALADIN medium-term research plan. Moldova expressed its willingness to involve itself further into the ALADIN project.

- Presentations dealt with research topics as well as operational applications or coordination efforts.
- Elisabeth Gérard and Dominique Giard made an exhaustive review of the last developments performed by the permanent staff and visitors in Toulouse : assimilation, dynamics, physics, utilities (Full-Pos, EGGX, 923, ...) and case studies.
- Luc Gérard presented its new convection scheme, better taking into account up- and down-draughts. He also underlined the impact of the time-step on precipitations with the current parametrization. Differences between the new and old schemes were illustrated on two situations : the Cleopatra and the August 99 squall-lines.

- Dagmar Merkova described the experiments performed by David Dvorak to study the sensitivity of ALADIN / LACE to coupling on the (missed) Christmas 99 storm. Both increasing the coupling frequency from 6h to 3h or moving to a quadratic temporal interpolation have a positive impact. This latter solution already moved to operations in Prague. She also presented the experiments she performed with Elisabeth Gérard on the July 97 floods : impact of changes in the model and of resolution (in ARPEGE, ALADIN / LACE and using the new ALADIN / CZ).
- Mark Zagar showed how tricky the use of CAPE diagnostics may be (representativeness, impact of the definition of the starting point, ...), with examples on several situations and comparisons to different observation types.
- Jean Quiby described the preliminary tests to an increase in resolution of the Swiss Lokall Model, from 14 to 7 km: improvements and problems in the representation of orography, and in the forecast of low-level wind, precipitations and 2m-temperature. He also showed the high dependency of precipitation scores to the interpolation method used (comparison to the nearest point or average), and to height.
- Gabor Radnoti made a review of the developments around Diag-Pack and presented the study of Sandor Kertesz on the representation of lakes in ARPEGE / ALADIN.
- The operational implementations of ALADIN / VIENNA and ALADIN / POLAND were described by Yong Wang and the Polish team respectively.
- Oldrich Spaniel presented a poster illustrating the impact of resolution on the forecast skill for precipitations, with a comparison between ALADIN / LACE (12 km) and ALADIN / SLOVAKIA (7 km).

Some of these presentations are detailed in articles hereafter.

Mark Zagar presented the first results (see Article in this Newsletter) of the operation "***Towards coordinated exchange of information***" launched by the Slovenian team at the previous ALADIN workshop. It was quite successful since only 3 partners have not yet answered (Bulgaria, Moldova and Morocco) and about 50 applications were described. Some redundancies already appeared. It was decided to :

- exclude visualization tools, usually dependent on commercial softwares,
- to host the list of applications, and the applications themselves on a web site,
- ensure a maintenance of basic tools (to be defined), reference and describe their successive updates.

The decisions of the last Assembly of Partners concerning ***the coordination of verification*** within ALADIN were recalled. Apart from the creation of the e-mail list *verifala@meteo.fr* nothing was done. Who will initiate the exchange of EWGLAM-type scores ? More details on the definition of scores may be asked to the French contact points : *Samuel.Westrelin@meteo.fr*, *Francis.Pouponneau@meteo.fr*.

The importance for each team to control and eventually re-tune the orography for its domain, once again underlined by the results of the recent study of Steluta Alexandru, was recalled. Since e923 can now run on workstations, thanks to the work of Neva Pristov and Mehdi El Abed, and as the corresponding documentation was published, there is no longer any major obstacle.

The discussion on the ***medium-range scientific plan*** underlined the importance of a mid-term report, with a detailed description of the studies related to each item. Such a check-up is very useful but cannot be achieved solely by the small coordination team. Volunteers for synthesis on some topics and reports on deported research are welcome ! If this succeeds, the report will afterwards be put on the ALADIN web server and updated regularly.

Thanks to the Cracow team for the very nice welcome (in a really beautiful town) !

Sad news for the ALADIN community

Arlette RIGAUD died on August 13. For some of you what is recalled below should be rather well known, but let us make sure that everyone understands the crucial role Arlette played in the ALADIN project.

Right from the start in 1990, she was at the heart of three crucial efforts that made our common project possible:

- the search for French financing sources,
- the link with the official international collaboration structures in meteorology and
- the "Direction to Direction" bilateral aspects of the official support to the project for each Partner NMS of Meteo-France.

Year after year, she dedicated all her skills and energy to these tasks, while always keeping her legendary good mood as the trade mark of the discussions she carried out with NMS bosses, embassies or ALADIN people.

The naturally fragmented character of such actions does not allow to immediately judge how important it was; however, it is recognised that without Arlette's work, the ALADIN project would never have reached the scope and success it has had and may even have collapsed in one of the two or three growth-crisis it encountered.

The efforts she did over the last four years in favour of our project were even more demanding on her, since she had started fighting with enormous courage the disease that finally took her. One remembers how disappointed she was to miss the first Assembly of Partners in Paris in November 96 owing to her first heavy treatment and how she spent still a lot of energy on the preparation of the Lisbon Assembly eight months ago, despite not being able to attend again. In between, she had had the pleasure to be a very active participant to the Brussels and Prague Assembly meetings and to see there the confirmation of the ALADIN progress, strongly linked to her dedication.

Arlette will be kept in memory as someone that had an extraordinary willingness to see meteorologists from all origins work together, effectively, truthfully and in the best possible mood!

The ALADIN project has lost one of its most important supporting personnality.

An e-mail address (arcndl@meteo.fr) has been opened in order to collect the messages of condolences and/or remembrance that whose who had direct contacts with Arlette might wish to be passed later to her family.

NR : this sad news doesn't deal with the period of this Newsletter but is too important to wait the next one (about the second semester of 2000).

ALATNET Main events

1. ALATNET story

The ALATNET project is very young (birth on March 1st, 2000) but its story is already a long one :

- June 1999 : a promising application to one of the horizontal programmes of the European Community.
- October 1999 : ALATNET is favorably evaluated by the Commission services.
- November 1999 : ALATNET Contract is submitted to the Commission.
- February 2000 : ALATNET Contract is fully signed by the contracting parties (Météo-France and the Commission).
- 1st of March 2000 : official Project commencement date.
- March 2000 : the Membership Agreement is signed by all the participants (Météo-France as co-ordinator, IRMB, CHMI, HMS and HMIS as members). ALATNET is born !...

The beginning of the project :

- April 2000 : creation of ALATNET web server (http://www.cnrm.meteo.fr/alatnet/) and update of ALATNET informations on the European Commission web server.
- 1st meeting of the Steering Committee of ALATNET and presentation, Toulouse (F), 17 April, 2000.
- 9 May 2000 : Initial data base report sent to the Commission.
- Deadline for applying to the first ALATNET vacancies, 12 May, 2000.
- May 2000 : initial advance paid by the Commission to the co-ordinator and transferred to the members.
- ALATNET Seminar of High Resolution Modelling, Radostovice (CZ), 15-26 May, 2000.
- Selection of the first candidates, 30 May, 2000.
- Update of the ALATNET vacancies on the European Commission web server, 30 May, 2000.
- Kick-off meeting for Research Training Networks , Brussels, 9 June, 2000.

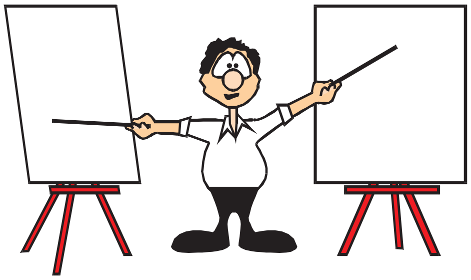
And after :

- Next calls for candidacies and selection of candidates, autumn 2000 and spring 2001.
- ALATNET Training Course, Toulouse (F), spring 2001.

2. 1st meeting of the Steering Committee of ALATNET, Toulouse (F), 17 April 2000

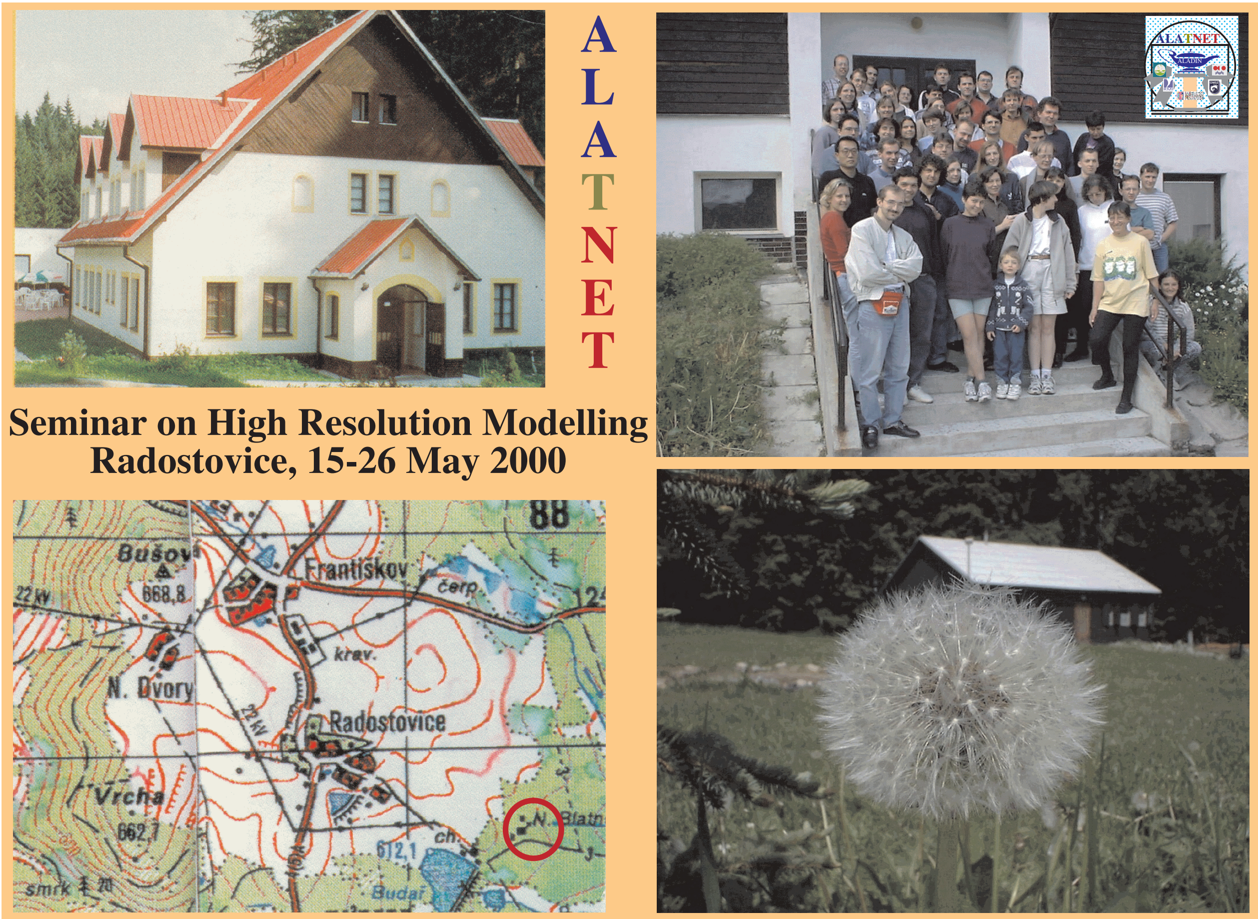
The scientific representatives of the ALATNET partners, the ALATNET and the ALADIN co-ordinators, meet in Toulouse on April 17, 2000. Discussions were mainly about :

- rules for the candidates selection,
- rules of budgeting,
- registration of ALATNET-linked work in a data base,
- communication means,
- calendar of events,
- ...



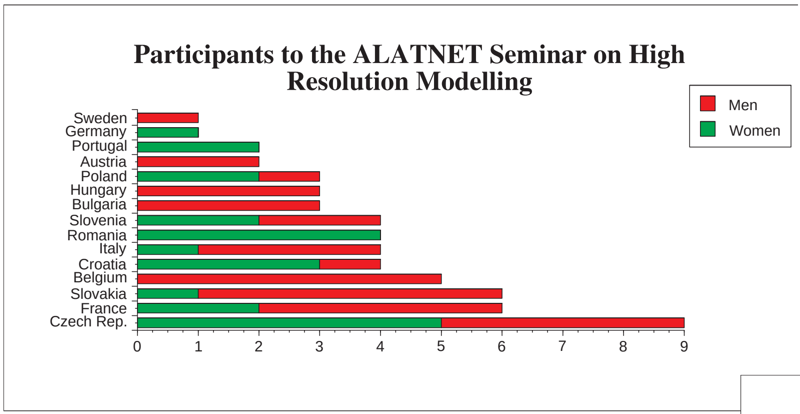
On the same day, a presentation of ALATNET was given to Météo-France people and ALADIN visitors in Toulouse.

3. ALATNET Seminar on High Resolution Modelling, Radostovice (CZ), 15-26 May, 2000



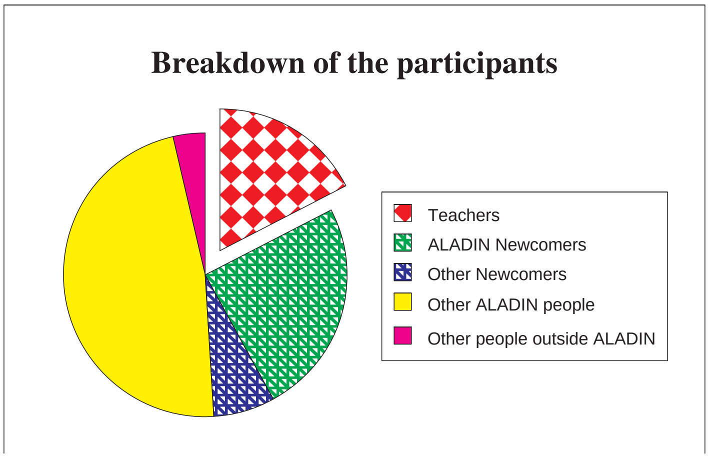
The support of the TMR/IHP Programme of the European Community (through ALATNET) gave CHMI the funding to organize the Seminar and allowed more than 20% of the participants to attend this

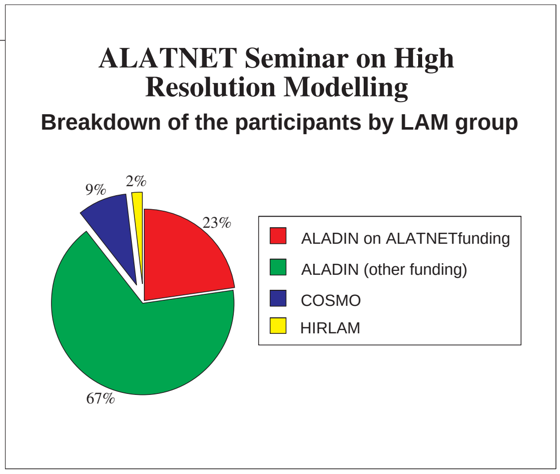
Seminar. Thanks to the Local Organization Committee (with special thanks to Helena VONDRACKOVA), the 2 week seminar went on very well for the 57 people attending it.



The audience was multi-European, with participants from 15 countries both inside the European Union (1/3) and outside (2/3), both inside ALADIN and outside (10%), with an important percentage of women (40%).

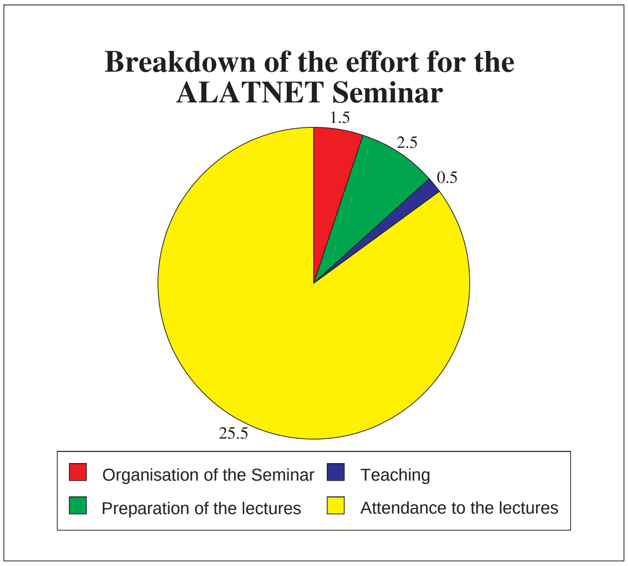
40% of the students were newcomers in the ALADIN project.

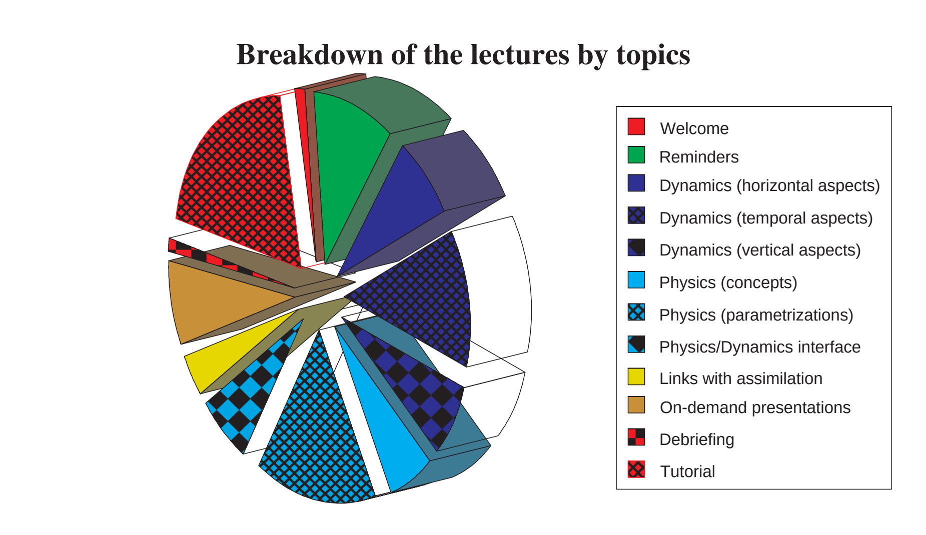




3 out of the 4 European Working Groups on Local Area Modelling were represented (ALADIN, COSMO and HIRLAM). 30 person.months were dedicated to the Seminar (preparation, attendance).

The programme was considered well balanced between the different topics. The volume of the lectures (63 hours) appeared well adapted to the topics and the duration of the Seminar (length of the lectures, number of lecture per day and organization of the day) proved to be good . The lectures, prepared in 7 countries by 10 teachers were judged homogeneous with good connections between one another and proved to be a good compromise, theoretical enough and not too close to the ALADIN equations. The need of a bibliography for each lecture was expressed during the debriefing. This is now done (bibliography available on web). However, the main criticism expressed was both the lack of a Numerical Weather Prediction overview after the dynamical meteorology notions and the lack of a compact overview of perspectives of high resolution modelling. The corresponding informations were underlying among all the lectures but should have been summarized in special lectures at the beginning and at the end of the Seminar.





A complete report on this Seminar is available on ALATNET web pages (programme with on-line lectures or summaries, bibliography, participants, time-table, the WWWW of the Seminar : When, Where, Who and What in few numbers and graphics, photos, ...).

To conclude, a few sentences noted during the debriefing and some graphics of the WWWW of the Seminar : *"I was really surprised that it works", "it was better than we expected", "after this Seminar, I get the impression that blacks boxes (in the model) are now grey boxes : it is not so complicated or, if complicated, with some efforts, it will be possible to understand; things start to fall together", "we should have done earlier", "Radostovice : a NWP paradise", "very good mood", "friendliness of the atmosphere"*, ...

4. ALATNET Selection of the first candidates, 30 May, 2000

The whole candidacies received before the deadline (12th of May, 2000) were considered. On the 30st of May 2000, the ALATNET scientific officers of the 5 ALATNET centers voted for the selection of the first ALATNET researchers, following the rules defined during the 1st co-ordination meeting.

The result of the selection is (in alphabetic order) :

- Gianpaolo BALSAMO : pre-doc position in Toulouse,
- Christopher SMITH : post-doc position in Prague,
- Cornel SOCI : pre-doc position in Toulouse,
- Klaus STADLBACHER : pre-doc position in Ljubljana,
- Jozef VIVODA : pre-doc position in Prague.

For details about the topics and the duration of their work, please read "ALATNET PhD and Post-Doc studies" in this Newsletter.

5. Kick-off meeting for Research Training Networks, Brussels, 9 June, 2000

Jean-François GELEYN (ALATNET co-ordinator) represented ALATNET at this kick-off meeting. This meeting gave the opportunity to meet the E.C. executives responsible for our project and also the co-ordinators of other networks in the same E.U. Programme. An interesting exchange of informations took place in a friendly atmosphere.

ALATNET appeared as very well prepared among the newcomers. All we have done (or planned to do) up to now is OK with what was said at the meeting.

A complete report can be consult on the ALATNET server, see "history", then "Kick-off meeting".

ALADIN/ALATNET : New rules of the game

ALADIN project is a project, a bigger project every year, and already an old project.

- old : it will be 9 years old soon ... and the French Ministry (MAE) asks for a report (see "Money") on the benefits of the bilateral cooperation since the beginning of the project. Other similar requests could arrived at this stage of the project.
- big : before the end of the year, 200 persons will have participated to ALADIN for a global effort over 200 person.year. Now, ALATNET will give a new boost to ALADIN ... and a new boost to administrative constraints.

Thus, the administrative management had to be slightly modify. New rules were proposed to you : they will help to comply to the ALATNET contract with the European Commission, will help to find a solution to your requests in Cracow meeting (see "Events"), will be officialized in the MoU, ...

1. *New calendar for Newsletters and administrative documents :*

Newsletters will be published twice a year, dealing with one half-year events, on the following calendar :

- ALADIN & ALATNET Newsletter available in August
- Documents for the Assembly of ALADIN Partners (November)
- ALADIN & ALATNET Newsletter available in February
- Documents for the Annual ALATNET Report to the European Commission (April)

Of course, important news, announcements for workshop, meeting, ... will still be announced on the ALADIN or ALATNET web pages continuously.

Articles are, of course, welcome. The Newsletters will also contain :

- announcement or report of events,
- individual reports of the ALATNET young researchers (pre and post-doc) and the other ALADIN PhD students,
- summaries of the ALATNET work, the ALADIN non-ALATNET work, in Toulouse/ outside, in the ALATNET centers/outside, ...
- ALADIN and ALATNET statistics (not in this Newsletter, see below why !).

2. *ALADIN/ALATNET work accounting :*

It is no longer possible to calculate statistics on different periods following the sorting of the work : now, we register Toulouse work, LACE work in Prague and ALATNET work in the ALATNET centers immediately whereas a 3 months delay is given to deported work (such as ALADIN non-ALATNET work in an ALATNET center ...). For Prague, it is even worse with LACE/non-LACE, ALATNET/non-ALATNET !...

The 3 months' lag for deported work had been introduced due to the initial difficulties in collecting the information. But, it seems that the lag is no use ... as many countries don't send informations in time, even after recalls.

Thus, the simplest solution is to harmonize things. A ONE MONTH DELAY will be given to everybody (as soon as the current transitional period is finished).

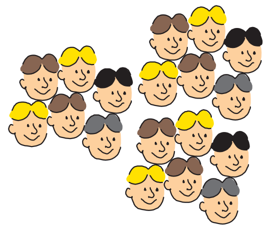
Next statistics to be produced will be updated for the end of June for all kinds of work (all informations MUST BE SENT before 15 August, special delay for this first attempt, using the new forms prepared for effort accounting).

For the Assembly of Partners, we will give statistics at the end of September 2000 for everybody and only informations given before the end of October will be taken into account.

For the next Newsletter, the transitional period will, hopefully, be finished and it will contain the statistics updated at the end of December 2000.

The national correspondents are kindly asked to consult the instructions for the work accounting completely describe on ***http://www.cnrm.meteo.fr/aladin/organisation/contributions.html***.

Announcements

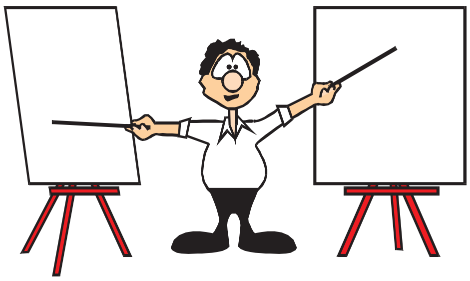


1. *Next ALATNET events*

a) ALATNET young researchers

A second call for candidacies will be published for the partial selection of new candidates in autumn 2000.

b) ALATNET Training Course



The next ALATNET training course will be held in Toulouse next spring. It won't be devoted to basic training as initially scheduled, since this is now more or less achieved by each NMS. A topic could be data assimilation, as expressed during the debriefing in Radostovice, for instance, but it is only one option. Each ALADIN team is invited to express its own wishes so as to help defining what would be most useful.

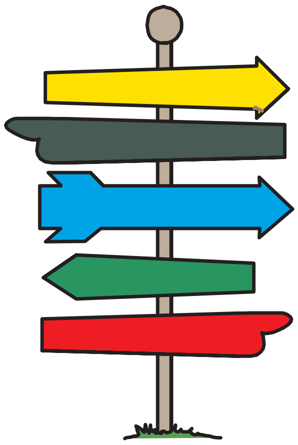
2. *Next ALADIN workshops/meetings*

a) The 9th ALADIN Workshop

It will take place in Brussels (Belgium) on November 6-8, 2000 : all informations on ***http://www.meteo.oma.be/IRM-KMI/aladin/welcome_aladin2000.html***. including announcements, instructions to authors (deadline for receiving the abstracts is end of August), ...

Proposed subjects are :

- CANARI Potential use of package for the analysis, diagnostics (verification) and nowcasting purposes



- APPLICATIONS TO THE WEATHER FORECASTS - development of indicators of the frontal position and activity - dynamic adaptation scheme for "local" forecasts - convection scheme and tuning - boundary layer scheme adjustment - use of the conceptual models at mesoscale
- VERIFICATION OF THE ALADIN FORECASTS Model verification, methods and results. Survey of severe events (storm, thunderstorms, frost ...)
- GENERATION OF AUTOMATIC WEATHER FORECASTS Products delivered to the forecasters and to the end users. Prospects for forecasts delivered in probabilistic terms
- APPLICATIONS TO HYDROLOGY AND ATMOSPHERIC POLLUTANTS TRANSPORT Presentations - Applications of ALADIN on : - weather forecasting - aviation meteorology - hydrology - air pollution - Model verification, methods, results

For other questions, please contact ***aladin2000@oma.be***.

b) The 5th Assembly of ALADIN Partners

It will take place in Vienna on November 24th, 2000 with the crucial question of the MoU renewal on the table.

c) The 10th ALADIN Workshop

The 10th ALADIN workshop, dedicated to scientific coordination, will be held in Toulouse (France) next spring. It will be organized just after or just before the next ALATNET training course, as an attempt to reduce travel costs and thus enable a contribution of more partners.

3. *Other next events*

a) The EWGLAM/SRNWP workshops 2000

The EWGLAM/SRNWP joined meetings, Météo-France/Toulouse, 9-13th October, 2000 (informations available on ***http://www.cnrm.meteo.fr/aladin/ewglam2000/*** or contact ***ewglam2000meteo.fr***). Deadline for registration was mid-July. In case you plan to attend and you have not registered yet, please do it as soon as possible.

Usual sessions will deal with :

- for EWGLAM meeting : group presentations, national status report or posters, scientific presentations (2000 special topic is "Convergence properties of Numerical Methods"), ...
- for SRNWP meeting : report of the SRNWP Lead Centers, SRNWP scientific actions, SRNWP business meeting, ...

This year, other sessions of these meetings will also be dedicated to the Mesoscale Alpine Project (MAP Session, invited speakers only) and to the 2nd SRNWP/EUMETNET Composite Observing System (EUCOS) Meeting on December 99 storms.

Considering the added MAP and EUCOS sessions, the 2000 schedule proposed is slightly different from those of the previous years, the EWGLAM and SRNWP sessions being more interwoven.

The representatives are, of course, welcome during the whole week and could attend all sessions of these meetings.

b) SRNWP workshop on statistical adaptation

This workshop will be held 4-6 December 2000 in Vienna, at the Central Institute for Meteorology and Geodynamics (ZAMG). It is intended to provide an open forum for discussing current methods and results of Statistical Adaptation in NWP, with emphasis on short-range forecasting. Contributions from both theory and application, including 'classical' methods like Model Output Statistics (MOS), Perfect-Prog Method (PPM), Kalman filter are welcome as well as combined physical / statistical approaches, and more recent developments such as neural networks or genetic algorithms.

In addition to scientific discussion and exchange, one purpose of this workshop is to provide an assessment of the current state-of-the-art in optimizing direct model output by statistical means. Such an assessment is considered important (1) as a basis for deciding on priorities in further research in this field and (2) to obtain an updated view on what improvements of forecast quality due to Statistical Adaptation can be expected in the near future.

A preliminary program, registration, hotel and general information will be posted on the ZAMG homepage (***http://www.zamg.ac.at***). For informations, please contact ***klaus.stadlbacher@zamg.ac.at*** or ***thomas.haiden@zamg.ac.at.***

c) A.M.A. 2000 (Atelier de Modélisation de l'Atmosphère)

The 15th Ateliers de Modélisation de l'Atmosphère will be held in Toulouse on 29-30/11/2000. This is THE French and French speaking mass event devoted to french atmosphere / ocean science, held every year in France only, with mainly French and French speaking participants. This year's topic is data assimilation, with some emphasis also on LAM models. This will deserve to make our work in ALADIN better known at CNRM.

The presentations will be shared between :

- development of simplified Kalman filters
- assimilation of remote-sensed data
- assimilation in limited-area models
- variational assimilation problematics
- other issues

There will be at least 3 ALADIN contributions :

- L'analyse 3d-var dans le modèle à aire limitée ALADIN (C. Fischer et al.)
- DIAGPACK : un outil diagnostique pour l'analyse à méso-échelle de champs météorologiques (G. Radnoti and E. Gérard)
- Réglage des statistiques "lagged-NMC" dans le 3d-var ALADIN (W. Sadiki)

For more details, contact Claude Fischer (***Claude.Fischer@meteo.fr***), or have a glance at ***http://www.cnrm.meteo.fr/ama2000/).***

d) Annual COSMO meeting

The first day of the annual COSMO meeting (27-29 September 2000, Zurich, CH) will be devoted to "Next generation numerics".

Participation (with or without contribution) can already be announced to the Local Organiser, Jacques.Ambuehl@meteoschweiz.ch

Contacts & Informations

1. *ALADIN and ALATNET on the Web*

These informations (and many many others ...) are available on the ALADIN usual server:

http://www.cnrm.meteo.fr/aladin/

and on the ALATNET web server : **http://www.cnrm.meteo.fr/alatnet/**

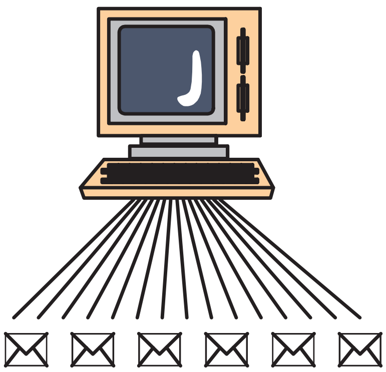
A renewal of the ALADIN web site will be done this autumn. Any suggestions, remarks, wishes, ... are welcome. Many thanks for your help.

2. *Public ftp*

Some documents (please see the list of the documents in annex) are also available on a public ftp : ***cnrm-ftp.meteo.fr***, under the directory ***/pub-aladin***. Please connect on user anonymous and use you e-mail address as your password. The space available on this public ftp doesn't allow to put on it many files (only last updated files are on this public ftp). If you are looking for a precise document, this document is more likely to be found on the web servers.

3. *Mailing lists*

Some mailing lists also exist to make our correspondence smoother :



The public lists :

- a general list has been recently updated : aladin@meteo.fr . It can be used for exchange of general interest about ALADIN project. It contains address of ALADINers at home.

• An e-mail list has been created : alatnet@meteo.fr . It can be used for exchange of general interest about ALATNET project. It contains address of people involved in the ALATNET project (ALATNET Young Researchers, mentors, co-ordinators).

- the stagmap@meteo.fr list contains the list of the ALADIN international Toulouse team : this very variable list (updated at the arrival or the departure of every visitors) permits to contact all visitors in GMAP,
- the AWOC list : awoc@meteo.fr, list for ALADIN WOrkstation Coordination,
- the list for questions and/or problems encountered with ALADIN software : alabobo@meteo.fr,

More "private lists" :

- a list with correspondents for operational questions related to the Toulouse centre : operala@meteo.fr ,
- a list with correspondents for verification questions : verifala@meteo.fr , following the 1999 Assembly of ALADIN Partners' recommendations, each country has entrusted one person as the correspondent for the verification project.
- a list around the exchange of applications in the ALADIN's world : exchala@meteo.fr.

4. Remote access to Météo-France machines

Many of you have a remote access to Météo-France machines. Autorizations for these access must be renewed yearly. Eric Escalière (eric.escaliere@meteo.fr) is your only contact point for these access.

Money Funding asked for some cooperations based on the ALADIN project

1. French "Ministère des Affaires Etrangères" support (MAE)

Most stays on 1999 MAE support are now finished. A few ones and will begin in autumn (remaining funding for Morocco and Bulgaria).

MAE support for 2000 roughly corresponds to demands, with two more partners concerned this year (Croatia and Slovenia). However fundings won't be available before mid-October, in the most optimistic case. As a consequence many stays will have to be delayed to 2001.

As a justification for 2001 demands, the Ministère des Affaires Etrangères asks for **a report on the 10 last years of cooperation** (progress, benefits for each part), for the partners benefiting from this support. The Toulouse support team will write down his part (and assume translation in French whenever required), but the concerned NMS must complete it with their own contributions. Reports must be ready before the autumn. Demands for 2001 will be prepared only for those partners who send a sensible report in time. Only Hungary, Portugal and Romania answered up to now.

More details can be asked to Sylvie Rivals (Météo-France/D2I/INT, ***sylvie.rivals@meteo.fr***).

2. Bilateral supporting grants

AMADEUS, BALATON, BARRANDE, PROTEUS are bilateral programs who can support short visits in both sides. The countries involved in these programs can easily be guessed considering the programs names. The French fundings are used to pay the per-diem (in France) of the visitors and to pay the travel of French people to other NMS, and vice-versa.

The 2000 exchanges (BALATON, BARRANDE) will be completed this autumn.

The renewal for 2001 has been asked for BALATON (Hungary benefits from ALATNET support but not for the same topics as those supported by BALATON) but not for BARRANDE and PROTEUS (Czech Republic and Slovenia are ALATNET centers). The BALATON topic is "development of very short range prediction using the ALADIN model".

A new demand has been sent for 2001 : its name is AMADEUS and exchanges will be, of course, with Austria. This program will focus on the improvement of the description of the precipitation on mountain areas (parametrization, analysis, verification).

More details can be asked to Dominique Giard (***dominique.giard@meteo.fr***).

3. Météo-France support for maintenance, ...

The Météo-France support to the maintenance of ALADIN will be distributed among 21 stays (6 from February to June, 15 from September to December). They focus on :

- the preparation of cycles 13 and 14,
- some code cleaning,
- the design and validation of new climatologies,
- the validation of the last developments in Full-Pos,
- the investigation of some old problems,
- the renewal of the ALADIN web server,

and are completed by a few MAE stays, thanks to Morocco and Poland. The overall partition will enable each partner to achieve its maintenance commitments for 2000.

The demand for the next years is less and will support only 2 phasing exercises with 8 persons invited each time, and some additional stays. However we may hope that part of maintenance will effectively be deported at that time.

4. ALATNET funding

- On 25 May 2000, Météo-France received the initial advance from the Commission (30% of the total).

- On 5 June 2000, the advance has been allocated to each participants in accordance with the article 3 of the ALATNET contract.

This money will be mainly used for young researchers employment in the 5 ALATNET centers (salaries or grants, social charges, relocation costs, travel costs). A smaller part will be dedicated to the Networking of the research work associated with ALATNET. All details can be found in the ALATNET contract and its Annex 2.

Recent and future changes in the operational implementation of ARPEGE

(Jean-François GELEYN)

1. Recent operational changes in ARPEGE

- On 23/2/2000 the compacting characteristics were modified with a 20% reduction of the file's size.

- On 4/5/2000 the operational library was switched to a Cy22T1/AL12-based release (for ALADIN-France as well). At the same time a dozen or so of modifications were made to the observation handling (bug corrections, use of NESDIS data as background for the SST analysis, retuning of the screening for too dense observations and technical modifications to enable the use of the ATOVS radiances as well as a 4D-Var parallel suite). This very cumbersome process had in fact started at the end of November 99!

- On 20/6/2000 two major milestones went operational in a joint mode:

  - the use of ATOVS radiances (hence the possibility to process the data of two NOAA satellites, while we were left with a single possibility since the end of NOAA11 in March 99). Of course the ATOVS data are richer than the TOVS ones (thanks to the Advanced Microwave Sounding Unit - AMSU- new instrument) and would in principle warrant a direct processing of raw-radiances; for the time being we are however still processing, via a 1D-Var procedure, both HIRS and -SU data for the TOVS and ATOVS instruments alike, i.e. starting from so-called «cleared radiances».

- the replacement of the 3D-Var intermittent data assimilation by a 4D-Var continuous data assimilation (second such implementation world wide, after the ECMWF one, two and a half year ago). The characteristics of this implementation are as follows: similar screening and quality control procedures as for 3D-Var, but with hourly windows for the timing of data (against 6 hourly before); multi-incremental version of the minimisation T42/T63/T95 (all unstretched), the «regularised MJ physics» being activated only at T95; 6 hours time windows, centred around analysis times, with the interface with surface assimilation (still CANARI-based) roughly unchanged; high frequency wave filtering done without any NMI computation, through the use of a DFI-like procedure as a weak constraint of the minimisation.

2. *Forthcoming operational changes in ARPEGE*

- The parallel suite of ATOVS+4D-Var revealed a slight default of incrementality over the Saharan region (too much difference between the resolution of the forecasting model and that of the control variable in a region where the usual geostrophic and moist-physical balance mechanisms are not fully at work). It was therefore decided to test a new 4D-Var configuration with (i) a doubling of the weak DFI constraint, (ii) the introduction of a non-zero level for moisture handling in the latter and (iii) the introduction of a semi-external incremental DFI, to better control noise and humidity increments. The last point is obtained «for free» when replacing the 3D-Var-linked «double filtering» DFI option by a «launching» DFI option applied on two already existing 6 hours runs, i.e. the «observation screening» one and the «ultimate trajectory for surface analysis» one. First results of the new parallel suite are encouraging and an operational switch in August is likely.
- The next plans concern the resolution of the forecast model. All ARPEGE configurations and ALADIN-France will move from 31 vertical levels to 41 (top at 1hPa, bottom at 17m above the surface). Furthermore there will be a change of the link between spectral and grid-point resolutions: for all forecast models (at yet unchanged situation for the control variable of 4D-Var) the quadratic grid approach will be replaced by the linear grid one, but with the orography still computed in the quadratic mode (i.e. unchanged in practice). Hence this change means 2.25 more degrees of freedom in spectral space with unchanged physical and orographic forcing. Finally the grid mesh of ALADIN-France will go down from 9.9224 to 9.5090 km at constant domain size, in order to put it back to half the minimum value for ARPEGE. The consequences of these resolution upgrades on the coupling strategy for deported ALADIN applications will have to be assessed as soon as possible, but the switch itself will be technically quasi-transparent in this respect.

3. *Planned operational changes in ARPEGE*

- A package of changes in the physics;
- A revision of all data bases (orography, soil, vegetation and soil moisture climatology) to be strongly coordinated, like always, with the ALADIN coupled runs;
- A major revision of the snow cover description (including in the soil data assimilation procedure); here also the ALADIN coordination might be complex;
- The use of scatterometric data;
- ????

ALADIN and ARPEGE : major code changes and stategy for code porting for the next months

(Claude FISCHER)

I will try here to list and comment the major code changes that will strike us, aladinists, in the next months. This text should be an incitative for choosing a strategy for code porting as well as for dissemination of interesting porting results among us.

1. The ARPEGE CY23 (June 2000)

* new Observation Data Base (ODB)

This feature is the successor of CMA-arrays for handling the observation data sets in the code. For the time being, ODB has only replaced CMA in the core of the model (in particular, *robsar* has disappeared), but the ODB structure will progressively replace CMA also in scripts and observation file formats.

* removal of I/O options from obsolete Cray SSD/memory systems:

Some of you know the existence of the "LIO" logicals, which are quite various (see *namct0*). For instance, they control the i/o onto files stored on the rapid-access SSD memory which exists on Cray.. A recent investigation, worked out by Ryad El Khatib, showed that nobody uses these options in our community anymore. Thus, they will be removed. which will simplify the reading of the spectral transform code (removal of LIO keys) and eliminate the corresponding module "*yomio*".

* removal of multitasking option LMLTSK:

This was the old Cray multitask facility, still used in Brussels and Casablanca. However, Morocco should change its platform quite soon, in 2000. So only Belgium is in a position where it would not be able to run the new cycles efficiently after this summer. Hence, Luc Gérard is having contacts with Cray persons for the possible installation of an openMP library, but this issue will be rather medium-term.

* openMP (OMP):

The OMP directives have appeared in the code in cy22. They were blindly adapted into ALADIN (however, the parallel code structures allowed for a rather automatic transposition of arp/ifs into ald parts). OMP directives can be interpreted by the compiler to produce microtasked code at loop level, provided one compiles with adequate OMP options. No tests of OMP were done for the time being in ALADIN, but a basic strategy is readily defined:

a/ analyze OMP directives in arp/ifs, understand the microtasking,

b/ verify the adaptations already performed in aladin, correct if needed,

c/ run and debug !

Appended are some performances provided kindly by Mats Hamrud from ECMWF. It turns out that OMP allows for executing the code almost with the same cpu time than multitasking, but with a slight increase in memory, by 5-10 %.

2. CY24 (end 2000)

* externalisation (modularisation) of transforms:

It is intended to modularize much more the spectral transforms, so that they can become a "toolkit" useful for different types of applications. The principle of the transforms won't be changed, but the interface with the upper level model routines will change , so that this modification introduces some heavy recoding for all. The phasing of ALADIN to ARPEGE will require a careful analysis because our north/south transforms are not 100% similar to ARPEGE ones (mean/wind, conversion between u,v and vor,div).

* message passing version/distributed memory version:

The way the distributed memory version was introduced inside arp/ald in the old days makes it impossible to draw any precize interface between shared and distributed memory versions. Differences splash throughout the code , from setup level down to scan2m, with some reflections on low level routines. Very understandably, ECMWF and some developpers elsewhere do not wish to go on maintaining 2 parallel codes. As a consequence, the SM code will disappear very soon, by the complete removal of the key LMESSP.

This cleaning is planned for cy24, so that it would appear in late 2000 in ARPEGE, and in ALADIN somewhere in early 2001 (cycle AL15).

3. Tests performed so far

* openMP: none

* removal of LMESSP:

Tests to run aladin with LMESSP=TRUE/NPROC=1 but no MPI library (because there "should" be no active message passing if only 1 processor is provided !) have been worked out by Jean-Marc Audoin, Andrey Bogatchev and Jozef Vivoda.

What to retain from those 3 experiences ? Firstly, Jozef's tests indicate that there is a possibility to run the basic configurations without MPI libraries but with lmessp=true. However, in the absence of OMP tests, this code version on 1 processor might perform somewhat less efficient than the good old SM code. The installation of MPI libraries is encouraged on all platforms with 4 processors or more. You will for sure face difficulties in the starting up (installation of mpe/mpi, checking communications on your platform ...). The Hungarian/Slovenian portings show that this is not impossible even if you are running neither on a VPP nor on a SX ! Standard, free versions of MPI exist (MPICH).

For the time being, we have introduced a logical LMPOFF that can be switched on to desactivate MPI calls in e001 and fullpos, in order to run the mono-processor code without MPI library (cycle AL13).

Sone more details on the tests can be found hereafter (experiments of J.-M. Audoin and A. Bogatchev).

4. Strategy and further tests for 2000

Each center is heavily invited to think about its own goals and strategy. The questions one should answer are:

a/ is it enough for me to run a "minimum" version - that is nproc=1 without message passing, nor openMP ?

b/ if speed-up is required, which one: openMP, message passing or both (both is for grapes of processors, each grape being SM/openMP while grapes would communicate via MPI) ?

c/ dates for tests and plans for switching to new environment.

Here we can add that the message passing version has now proven its reliability and efficiency on multiproc. platforms, even for a modest number of processors. The experiences in Toulouse, Ljubljana and Budapest are good. Prague also could switch to DM version if required.

5. Coordination aspects

It would be great to have regularly informations about your future tests and plans. I propose that the information should be sent via the *alabobo* list so that we can have a good overview about difficulties.

I gave you in section (1) the main frame of dates for the code changes, which will for sure influence your own decisions (though you probably wished to work on something else, but this is life !).

6. Appendix: Figures of performances (provided by Mats Hamrud, ECMWF)

conf001/arpege-ifs/ T63. tests run on J90. The execution times (not shown) were very similar using Cray macro-tasking, OPENMP or message passing.

```
Macro-tasked
ntasks=1.nproma=255.nrproma=255:Maximum memory used : 20.6035 MWords
ntasks=4.nproma=255.nrproma=255:Maximum memory used : 30.2031 MWords
ntasks=8.nproma=255.nrproma=255:Maximum memory used : 42.0977 MWords
ntasks=16.nproma=255.nrproma=255:Maximum memory used : 64.2773 MWords
ntasks=32.nproma=255.nrproma=255:Maximum memory used : 109.5898 MWords
OpenMP
nproma=255.nrproma=255.omp_num_threads=1:Maximum memory used : 45.4883 MWords
nproma=255.nrproma=255.omp_num_threads=4:Maximum memory used : 54.5547 MWords
nproma=255.nrproma=255.omp_num_threads=8:Maximum memory used : 63.5859 MWords
nproma=255.nrproma=255.omp_num_threads=16:Maximum memory used : 78.3633 MWords
nproma=255.nrproma=255.omp_num_threads=28:Maximum memory used : 82.5313 MWords
MPI
1x1.1x1.nproma=255.nrproma=255:Maximum memory used : 52.5430 MWords
4x1.4x1.nproma=255.nrproma=255:Maximum memory used : 71.5469 MWords
4x1.2x2.nproma=255.nrproma=255:Maximum memory used : 71.3398 MWords
8x1.8x1.nproma=255.nrproma=255:Maximum memory used : 102.1016 MWords
8x1.4x2.nproma=255.nrproma=255:Maximum memory used :  95.2773 MWords
4x2.2x4.nproma=255.nrproma=255:Maximum memory used :  94.4844 MWords
4x2.4x2.nproma=255.nrproma=255:Maximum memory used :  95.0117 MWords
16x1.16x1.nproma=255.nrproma=255:Maximum memory used   139.2031 MWords
16x1.1x16.nproma=255.nrproma=255:Maximum memory used : 144.0352 MWords
16x1.4x4.nproma=255.nrproma=255:Maximum memory used :  139.8086 MWords
16x1.8x2.nproma=255.nrproma=255:Maximum memory used :  140.3438 MWords
8x2.4x4.nproma=255.nrproma=255:Maximum memory used :  136.0781 MWords
4x4.4x4.nproma=255.nrproma=255:Maximum memory used :  135.6367 MWords
15x2.15x2.nproma=255.nrproma=255:Maximum memory used : 216.0547 MWords
```

The operational ALADIN models

1. Status report of the operational ALADIN versions

ALADIN runs operationally on a wide range of computers, from single workstations to vectorial computers in shared or distributed memory, and on a cluster of workstations under Linux. 12 operational ALADIN suites are presently running in various NMS. 7 coupling domains are produced operationally at Météo-France, 1 in Prague.

On vectorial computers

Model	Machine	System	Mesh size	Grid points (extension zone)	Vertical levels	Coupled with	Range of forecast	latitude,longitude SE corner	latitude,longitude NE corner	operational cycles
ALADIN-BELGIUM-	CRAY J916, 8h processors	Unicos 9.0.0	7.0 km	97*97 (108*108)	31	ALADIN-FRANCE (36h) then ARPEGE	48 h	47.47, 0.11	53.47, 9.60	AL11T2/CY21T2
ALADIN-FRANCE	FUJITSU VPP700, 24 processors, 6 used	Unix System 5	9.9 km	277*277 (288*288)	31	ARPEGE	36 h	33.14,-11.84	56.96, 25.07	AL12/CY22T1
ALADIN-LACE	NEC SX4C/3A, 3 processors	SuperUX 7.2	12.2 km	229*205 (240*216)	31	ARPEGE	48 h	34.00, 2.18	55.62, 39.08	AL11/CY21T1 + cycora (quadratic coupling)
ALADIN-MAROC	CRAY J916, 6 processors	Unicos 8.0.4	16.7 km	169*169 (180*180)	31	ARPEGE	48 h	18.31,-19.98	43.12, 9.99	AL08

On workstations

Model	Machine	System	Mesh size	Grid points (extension zone)	Vertical levels	Coupled with	Range of forecast	latitude,longitude SE corner	latitude,longitude NE corner	operational cycles
ALADIN-AUSTRIA	DEC Alpha 600	Digital Unix	9.6 km	133*117 (144*128)	31	ALADIN/LACE	48	41.37, 5.89	51.82, 21.85	AL08 AL11T2 is in installation
ALADIN-BULGARIA	SUN Ultra Sparc 60	Solaris 2.7	9.0 km	63* 79 (72* 90)	31	ARPEGE	48 h	39.79, 20.01	46.41, 31.64	AL11 since 27.12.1999
ALADIN-HUNGARY	SGI Origin 2000, 8 processors		8.0 km	189*133 (200*144)	31	ALADIN/LACE	48 h	42.08, 6.34	51.77, 26.06	AL09 AL11, AL12 already installed on SGI
ALADIN-POLAND	SGI Origin 2000, 32 processors	IRIX 6.5	13.5 km	169*169 (180*180)	31	ARPEGE	48 h	41.42, 5.56	61.16, 40.19	AL07 AL09 in progress

ALADIN-PORTUGA-L	DEC Alpha XP1000	Digital Unix	12.7 km	79* 89 (90*100)	31	ARPEGE	48 h	34.94,-12.42	44.97, -0.71	AL11 AL12 implemented
ALADIN-ROMANIA	DEC Alpha 500	Digital Unix 4.2	10.0 km	89*89 (100*100)	27	ARPEGE	48 h	41.11, 20.69	49.80, 32.13	AL12
ALADIN-SLOVAKIA	DEC XP1000WS	Digital Unix	7.2 km	79*53 (90* 64)	31	ALADIN/L-ACE	48 h	46.92, 16.02	50.27, 23.65	AL11T2
ALADIN-SLOVENIA	Cluster 5 x Alpha PCA56 533 MHz	Linux	11.2km(soo-n 8.3 km)	80*80, (soon 97*97) (108*108)	31	ALADIN-LACE	48 h	42.33, 8.69	49.44, 18.97	AL11

2. Operational version at Austrian Meteorological Service

(more details yong.wang@zamg.ac.at)

Last news in Newsletter16.

3. Operational implementation of ALADIN-Belgium

(more details luc.gerard@oma.be)

No change since 16/11/1999 (introduction of CYCORA scheme) :

- operational version : AL11T2_export.02
- 48h forecast, twice a day,
- coupling every 3 hours from Aladin-France.
- basic output every hour, wider output every 3 hours
- running in shared memory mode on the Cray J90, with 8 processors
- successfull tests of MPI on the J90.

The tests on HP machines meet difficulties due to unsatisfying coding, that defines specific kinds (JPRB for instance) but which actually are not fully supported.

System libraries and some xrd routines often expect default kinds, while ALADIN passes the user-defined kinds.

This problem is often solved by compiling on workstations with "+autodbl"-like flags, but on HP those flags are not allowed when compiling for MPI.

The replacement of the J90 is planned by another system, shared with the Royal Observatory and the Space Aeronomy Institute, but the choice has not yet been finalized.

4. Operaional version at Bulgarian Meteorological Service

(more details valery.spiridonov@meteo.bg or andrey.bogatchev@meteo.bg)

Last news in Newsletter 16.

5. Operational ALADIN-FRANCE in Météo-France

(more details samuel.westrelin@meteo.fr)

Since the 20th of june at 12H00 UTC, ALADIN coupling files are produced by an ARPEGE based on a variational analysis with four dimensions (4DVAR). 4DVAR consists in minimising the distance between the model trajectory and observations over a temporal range (currently 6 hours).

The tests done showed substancial improvements at the global scale and particularly over the southern hemisphere.These changes are due to :

- a better use of asynoptic observations as satellites, planes data and hourly synop which are considered +/- half an hour around their observation time ;
- increments produced by an observation are coherent with the meteorological situation : an information about baroclinic instability will modify the first guess in a baroclinic way ;
- the model is used in the analysis to get the trajectories so that the "shocks" between the first guess and the analysis are reduced.

6. Workstation version at French Meteorological Service

(more details jean-marc.audoin@meteo.fr)

No differences now between the operational ALADIN-France version and the workstation version.

On the workstation SUN, with the compilator F90 Fujitsu and the ALADIN version export_AL11T2_01 (with some bugfix), tests were executed with the option LMESSP=TRUE (mono processor and distributed memory). Using the two methods (dummy message passing and modifications of Josef Vivoda and Andrey Bogatchev on the MPI routines), the Fpos configuration can run but within an abnormally long time, of course for a big domain as FRANX01 (about 2221281 points).

Also a version AL13 (al13_main.01, cy22t2_main.01 and xr22_main.02) is going to be implemented. Some tests, for the configurations 001 and Fpos, have been made on the French domain, with the option LMESSP to FALSE (shared memory). For instance, the use of the tool progrid shows that the combination (Fpos and progrid) produces the same grib files as the previous cycle. As the new source contains the modifications of Josef Vivoda and Eric Sevault, some tests with the option LMESSP= TRUE were made, but unfortunately the large drift (about 3 times more) in the performance remains. Further investigations are required to understand and reduce this extra-cost.

7. Operational version at Hungarian Meteorological Service

(more details horanyi@met.hu)

Regarding the operational setting there were no major changes encountered during the first quarter of 2000: two model runs/day and 24 diag.pack (CANARI) runs/day are the main operational jobs.

At the begining of the year a new binary was created for the ALADIN code usingthe native mpi library of the SGI machine (instead of MPICH).

The model integration is now using 10 processors and the two remaining processors are devoted to the auxilary jobs (like ee927, file preparations, etc.).

Work had been started to port the FESTATt tool (computation of background error statistics) to the HMS environment. The first preliminary statistics and plots were obtained for the end of the period.

The generation of automatic forecasts was extended over 65 locations using the raw model products of the ALADIN/HU model.

During the second quarter of 2000, there were two main changes in the operational suite :

- On the request of the aviation meteorologists we have extended the hourly post-processing frequency until 24 hours (so during the 48 hours forecast post-processed outputs are produced hourly until 24 hours and 3 hourly afterwards).
- Cycle AL12 was installed and put into operations on the last days of June.

Other important events of interest:

- A two-weeks long workshop took place in Budapest with the primary aim to run ALADIN 3DVAR on the Origin 2000 machine in Budapest. This goal was achieved and now we are able to run 3DVAR ALADIN on the 12 processors of our computer (a detailed report is available in this Newsletter).
- AL11T2 was also installed with the aim to run the non-hydrostatic version of the ALADIN model. There are still some problems (instabilities) detected, which are going to be investigated in the near future.
- An action related to the surface parametrisation of the model was continued and a local soil texture data base was included into the climatological information of the ALADIN model. The effect of the more detailed and realistic data over Hungary will be studied in the near future.

8. *Operational ALADIN-LACE in CHMI*

(more details can be asked to Project Leader or Prague Team Leader)

1. Evolution of the ALADIN/LACE application.

To start with, the entering of the last year of the 20th century went rather well, without any real trouble caused by the famous Y2K bug. Only a small mistake (in fact two mistakes compensating each other) was detected later on in the encoding of date to GRIB bulletins and corrected. Also on the 29th February 2000 everything went smoothly .

Following the positive scores of the parallel suite named "HUCOE/HUTIL" , the change was introduced into the operational ALADIN/LACE application on 23/02/2000 for 12 UTC network time.

12/04/2000 for 12 UTC network time: "quadratic coupling": The "quadratic coupling" means that the time interpolation of the large-scale values between the boundary condition refreshments is parabolic in time and not any more linear. Like that the LBC trajectory is described with a higher precision and leads to a small improvement in the general scores. This technique is, however, also quite sensible to be used in rapidly evolving situations, like it was the case of the famous Christmas'99 storm, see some details below in this report. The quadratic coupling belonging to the improvements first applied in ALADIN/LACE and yet nowhere else, further details may be found at the usual web address of RC LACE, the parallel suite had name "aav ".

2. Parallel Suites

During the first quarter of 2000, the Prague Team launched the following parallel tests to assess the impact of different modifications:

- HUCOE/HUTIL suites, modifying the parameterization of clouds (threshold humidity values to have a cloud or not, including parameterization of the depth of the cloud; suites aar, aat). The suite "aat" entered the operational application, with new values of HUCOE=2., HUTIL=1.8.
- 41Levels suite "aas" , testing the impact of higher vertical resolution (anticipation of ARPEGE 41L configuration). The suite revealed a problem of noise due to extrapolation of wind to the stratospheric extra-levels. The scores were mostly negative. It lead to a re-design of future spacing of vertical levels, see R & D.
- Non-linear horizontal diffusion made with Semi-Lagrangian interpolators research suites (aaw, aax). These suites were meant to assess the impact caused by the new way of applying the horizontal diffusion. It helpfully revealed the pluses and minuses of the new scheme. For details see the previous reports on PhD work of Filip Vana.
- LQCPL suite (aav), testing the quadratic interpolation of the lateral boundary conditions in time. The results are slightly positive in geopotential scores in the troposphere.
- Cycle AL12 verification suite (aay), confirming the neutral results with respect to the currently operational AL11/CY21T1+operational fix CYCORA.

The scores may be consulted on www.chmi.cz/meteo/ov/lace/aladin/partests pages.

Otherwise the cycle AL12/CY22/XR22 was successfully ported to SX4 platform and validated. A bug in the cray-type of multitasking (key LMLTSK) has been detected and corrected. The bug concerns other ALADIN teams using Cray platforms. More details on AL12 can be asked to: Gabor Radnoti.

During the second quarter of 2000, the Prague Team launched the following parallel tests to assess the impact of different modifications:

- 37 Levels suite (aaz) , running for about two month. The scores are either neutral or positive in the troposphere. However, there is worse RMSE score of geopotential in the stratosphere, limited, it seems, to several days in April. Further investigation of this score is still necessary. For the time being the suite aaz was stopped.
- Blending suite, still running and subjected to careful validations, scheduled for the month of July.
- Linear grid suite (aba) has been started at the end of June. It consists in using a linear grid type of spectral truncation for all variables but orography. The orography remains the same like it is when using the quadratic grid, in order to avoid 2 delta x waves amplitudes to get excited because of the orographic forcing. This suite reflects recent results brought by the quasi-academic experiment SCANIA.

The scores may also be consulted on ***www.chmi.cz/meteo/ov/lace/aladin/partests*** pages.

9. Operational ALADIN-MAROC in MAROC-Météo

(more details Radi Ajjaji, mrpa650@andante.meteo.fr)

1. Operational suite :

ALADIN-Maroc is running with ISBA assimilation cycle twice a day with 16,5 km resolution, 675s time step and 31 levels. The model version is based on cycle AL08.

2. Operational development :

- Improvement of operational suite script's in order to disable the read errors.
- Test of an Aladin workstation version over Morocco.
- Elaboration of a pre-operational statistical adaptation suite of the maximal and the minimal temperature.

3. Computer facilities:

Maroc-Meteo is planning nearly to upgrade the resolution of the Aladin-Maroc model. For this, a call for proposal is done in order to buy a new powerful computer.

10. Operational version at Polish Meteorological Service

(more details zijerczy@cyf-kr.edu.pl)

Last news in Newsletter 16.

11. Operational version at the Portuguese Meteorological Service

(more details christina.madeira@meteo.pt)

ALADIN/Portugal was declared operational on 24th of April. The AL11T2 cycle was installed in the begin of the year and tested in parallel suite during 2 months (April and May). This cycle has replaced the AL09 one in the operational suite, on June 27 th , 12 UTC run, and the frequency of model outputs was switched from 3h to 1h in operational configuration. During June the new model version -AL12- was successful implemented.

The team reinforcement has allowed us to restart the work to create the CMAFOC files for OI/CANARI in order to process locally the TEMP and surface observations.

12. Operational version at the Romanian Meteorological Service)

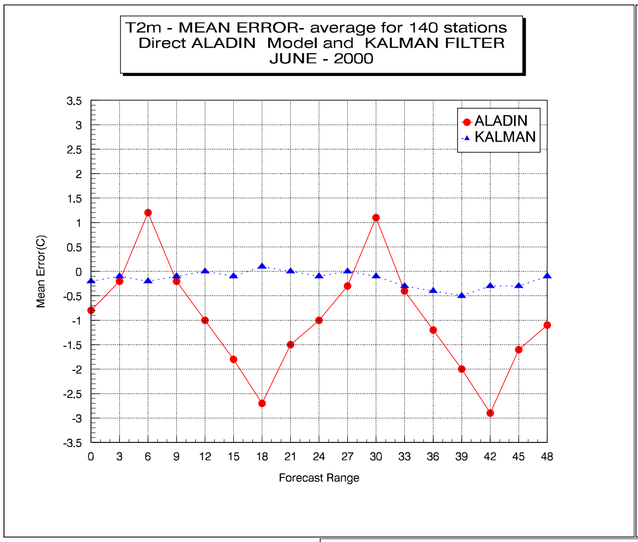
(more details banciu@meteo.inmh.ro)

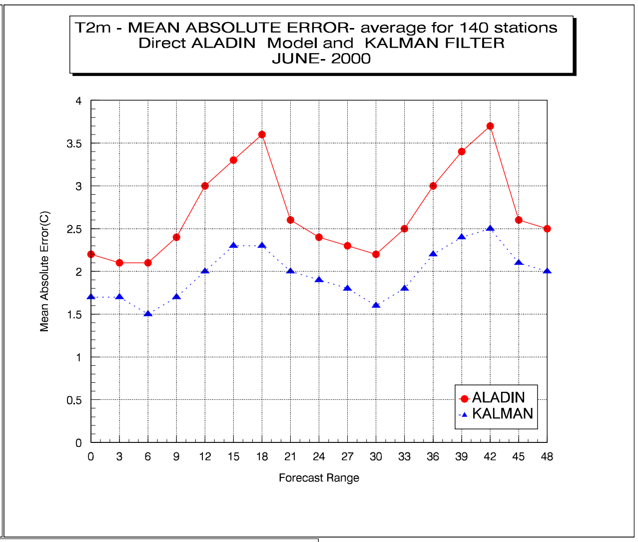
From first of June 2000 the operational version of the Aladin model in Bucharest is al12. The option LMESSP=.F. is still used due to our workstation limitation.

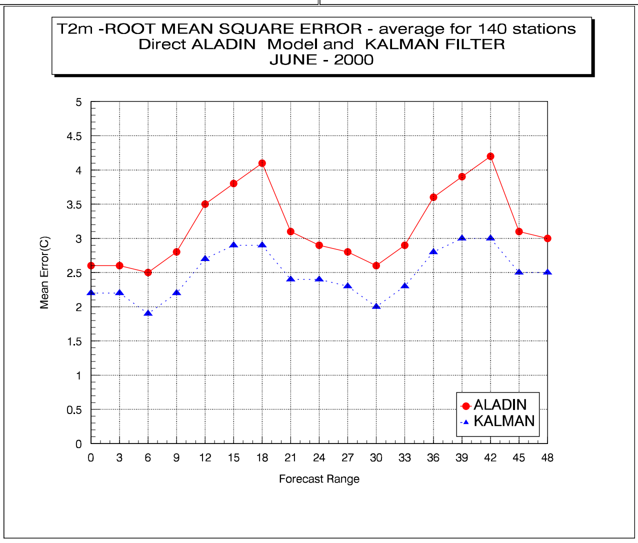
Other changes of the operational systems concern:

- The possibility to use the forecast vertical profiles (emagrammes) under the visualisation MESSIR system.
- The statistical adaptation: the correction of the 2m temperature using Kalman filter is computed for 140 meteorological stations. Daily the verification is carried out also for the corrected temperatures in comparison with the direct model output. An example of the monthly statistical measures can be seen in the below figure, for 2000, June.
- The Black Sea wave prediction system was developed by a nested integration over the western basin (for a grid of 5' x 5') allowing the use of the high-resolution wind Aladin forecast every 3 hours.

• The forecast of a thermal comfort index based on the Aladin output.







13. Operationa version at Slovak Meteorological Service

(more details olda.spaniel@mail.shmu.sk)

Last news in Newsletter 16.

14. Operational version at Slovenian Meteorological Service

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Last news in Newsletter 16.