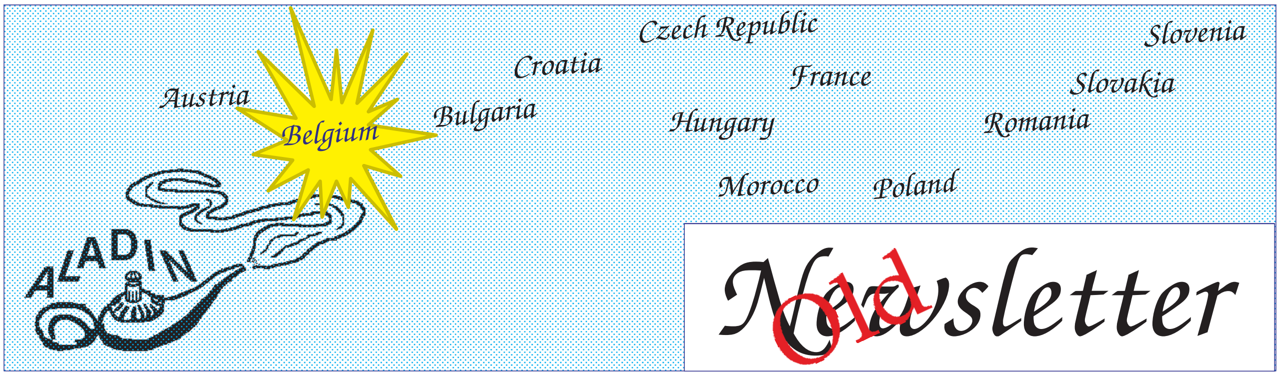
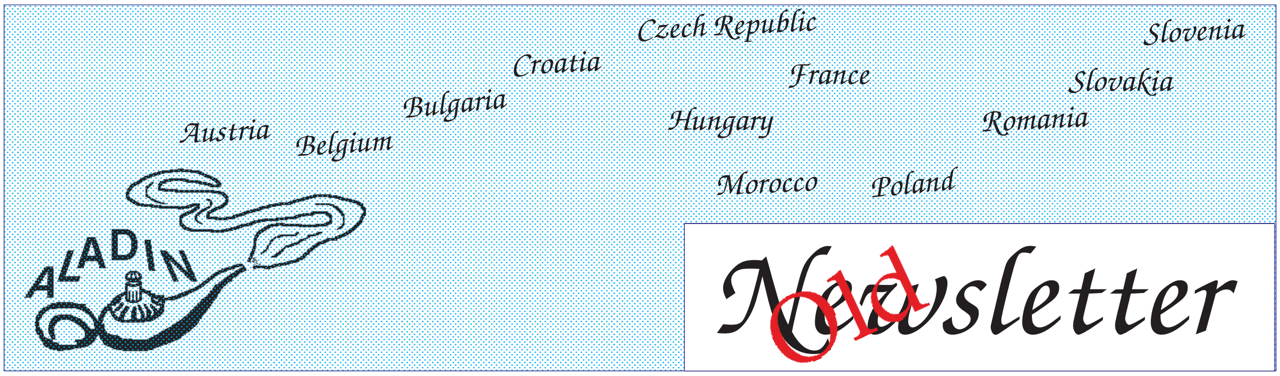
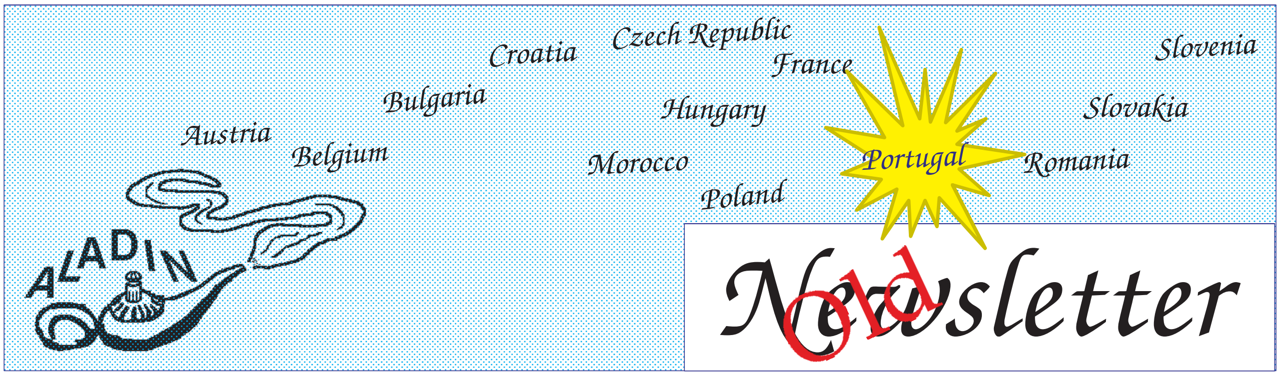


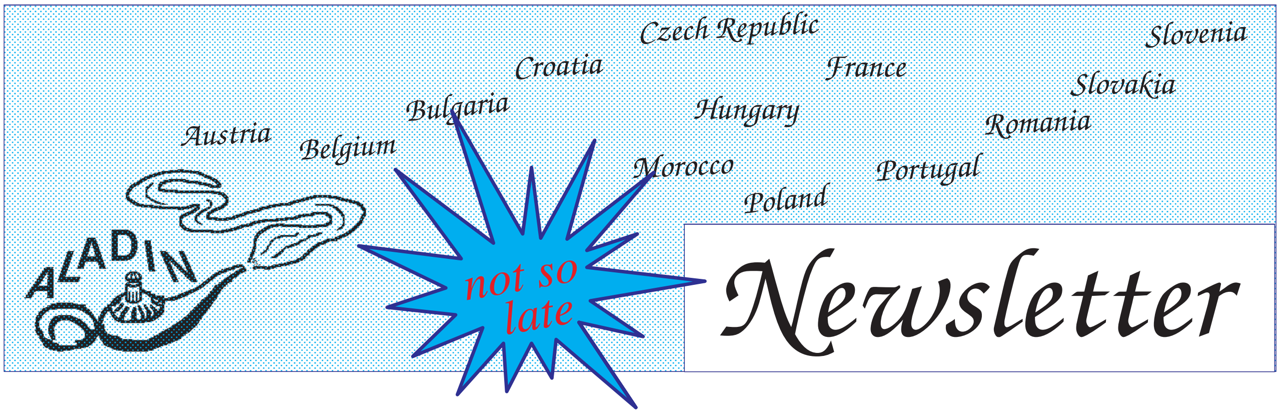
Number 5 **October 1996 - December 1997**



Number 6 **January 1997 - March 1997**



Number 7 **April 1997 - June 1997**



Number 8 **July 1997 - September 1997**

This Old-Old-Old-Newsletter presents you the principal events concerning ALADIN during the quarters of year mentioned above. The news about work or events outside Toulouse are related with informations that you sent (for disponibility constraints, the "deported" work deals with the previous quarters).

So, reading this quadruple Old-Old-Old-Newsletter, you will know everything about ALADIN activities (more precisely everything I was told about) between October 1996 and September 1997 (except for the work realised outside Toulouse : between April 1996 and June 1997).

From now on, the Newsletters will recover a quartely rate. In order to transform this pious hope in reality, please do bring to my notice anything that you would like to be mentioned in the next Newsletter (number 9) before the 10st of January 1998.

Any contribution concerning annoucements, publications, news from the ALADIN versions on workstations or on big computers, verifications results, ... will be welcome. This deadline is particularly important for the report of the deported work each representative should sent every quarter. About this, please see the figure and its coments on page 19. Once receiving all information in time, I will have no longer any good reason to delay the publication of the Newsletter number 9 (planned for late January 1998).

If needed, please contact :

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email : patricia.pottier@meteo.fr

Many thanks for all of you who have sent me most of the informations reported here.

Main events

These twelve months proved to be rich in several events : the 1st Assembly of Partners, two new members (Belgium and Portugal), many progress in the ALADIN workstation versions, new ALADIN on big computer, third ALADIN Workshop, the ALADIN training course, some thesis ended with succes, others going on and others beginning and, as usual, a huge work realized in our thirteen countries, ... Hopefully, I do not forget anything !

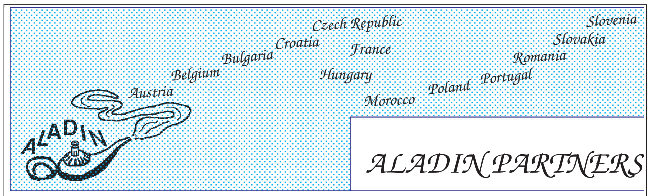
The 1st Assembly of ALADIN Partners, Paris, November 25th, 1996 - The Memorandum of Understanding

On the occasion of the first Assembly of Partners (Mondays 25th November 1996, Paris), the Memorandum of Understanding has been signed by eleven directors of National (Hydro)Meteorological Services (Austria, Belgium, Bulgaria, Croatia, Czech Republic, France, Hungary, Poland, Romania, Slovakia and Slovenia)). It fixes the frame of evolution of the ALADIN international cooperation. It first recalls the current principles guiding research, development and maintenance of ALADIN. Then, it intends to precise the conditions of use of the ALADIN software. Conditions of membership to the ALADIN Project are then defined.

On the occasion of this Assembly, a brochure was prepared by the ALADIN international team at that time in Toulouse : this document summarizes the progress report of the ALADIN project as presented at this Assembly.

Welcome : Belgium et Portugal

Two new partners joined the ALADIN project, respectively Belgium at the end of 1996 and Portugal in 1997. Thirteen countries !... I am not superstitious but don’t you think it will bring us luck ?... In any case, welcome to our new colleagues. New lines have been added in the yet long story of the cooperation in the ALADIN project...



Starting dates of cooperation
in the ALADIN Project
updated on dec 01, 1997

COUNTRY	STARTING DATE
FRANCE	MARCH, 1st 1991
CZECH REPUBLIC	MARCH, 1st 1991
HUNGARY	MARCH, 1st 1991
ROMANIA	MARCH, 1st 1991
AUSTRIA	OCTOBER, 16th 1991
POLAND	OCTOBER, 16th 1991
BULGARIA	MARCH, 1st 1992
SLOVAKIA	NOVEMBER, 1st 1993
SLOVENIA	NOVEMBER, 16th 1993
MOROCCO	NOVEMBER, 16th 1993
CROATIA	APRIL, 1st 1995
BELGIUM	OCTOBER, 15th 1996
PORTUGAL	APRIL, 1st 1997

Mouvements in ALADIN Toulouse team

During the second half of 1997, several important changes occured in the Meteo-France ALADIN team. Most of you know already that Claude Fischer has joined our team last August. He will be mainly in charge of the follow-on of our PhD students and some code related tasks like the usual so-called phasings. He is far from being a beginner in NWP and will be an important partner in all future scientific ALADIN activities. A few weeks before the arrival of Claude in GMAP, it was known that Joel Hoffman would leave CNRM/GMAP after almost four years of service mainly dedicated to ALADIN. After an intermediate period of four months, he will join school as the person in charge of initial training. Due to the next departure of Joel, the post of head of CNRM/GMAP/EXT was free. Since the 24th of November, we know who will take this responsibility from now onwards : Dominique Giard. She has been working in GMAP now for several years in the AAD (Analyse et Assimilation de Données) and MOD (Modélisation) teams. All those who had to work either on the DFI or on the 923 configuration or on ISBA know very well this very competent colleague who manages to be at the same time bubbling and discreete !

Life continues and there is no doubt that the ALADIN activities in Toulouse will be conducted in satisfactory way. Good luck to our tree colleagues in their new responsibilities.

Annoucements

1. 2nd Assembly of ALADIN Partners to be held in Bruxelles on December 5th, 1997

As decided during the 1st Assembly of Partners, a 2nd Assembly will be held very soon in Bruxelles with the purpose of reviewing the actions of the past year and discussing the objectives of the project and the future actions, ... and many others things you will be told about in the next Newsletter.

2. ALADIN Workshop to be held in Toulouse on February 18-20th, 1998

Due to the increasing number of implementations of ALADIN in our community, it has been decided to organize a workshop in Toulouse in February 1998 on the external use of ALADIN and workstation versions. There are different types of implementations : those on workstations which need a suitable coupling model and those on bigger computers which can be coupled only with ARPEGE. All these implementations create a new necessity : an increased communication at the technical level between us and a well established coordination for all future evolutions of the code.

The proposed workshop will help us to well identify the way how we should work together from now onwards, on the technical point of view (code management, machine dependance, ...).

Please contact Joel.Hoffman@meteo.fr for any comments on this project.

3. Major change in the ALADIN code

In October 1997, Jean-François GELEYN sent a letter to all ALADIN-Members NMSs' Directors and all ALADIN contact points for operational or pre-operational applications in order to clarify the situation about the potential replacement of the current surface parametrisation of ALADIN by the so-called "ISBA" more realistic and advanced scheme. The importance of the switch to ISBA, the constraints dur to the nature of this change and its interference with the porting of ARPEGE from C98 to VPP700 in Toulouse transform this replacement in a real challenge : all ALADIN operational and pre-operational applications will have to be moved to ISBA on the same day and the same nertwork as in ARPEGE ... with a very tense calendar.

An international recognition : ALADIN in the WMO Bulletin

A complete presentation of the ALADIN project can be found in the last WMO Bulletin (Vol. 46, n°4, pp 317-324, October 1997). The Bulletin introduced this article like this : "... a detailled description of the ALADIN project for mesoscale modelling for weather forecasting and atmospheric research, written by some of the 110 members of the international scientific team. ALADIN has its roots in the firm belief that international cooperation between NMSs, whatever their technological capacities, is both essential and mutually beneficial".

Contacts & Informations

These informations (and others) are 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.

Some mailing lists exist to make our correspondance smoother :

- 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.
- 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.
- a more specialised list was created for exchange of information within people working on 3DVar : **3dvar-aladin@meteo.fr**.

For subscribing to the above mentioned lists, please send an e-mail to majordomo@meteo.fr with the following text in the body of the e-mail :

subscrive name-of-list address-email.

You can also check in what lists you have already subscribed (or you have already been subscribed) with the command "which" in the body of the e-mail. For exemple :

once sending this e-mail to majordomo@meteo.fr (the subject of the message does not matter) :

which patricia.pottier@meteo.fr

subscribe 3dvar-aladin@meteo.fr patricia.pottier@meteo.fr

I will know the lists I have previously subscribed and I will ask to be part of the 3dvar-aladin list.

If you ever want to remove yourself from one of the mailing lists, you can send mail to "majordomo@meteo.fr with the following command in the body of your email message:

unsubscribe name-of-list address-email.

The LACE team has also created lists that are more dedicated to the exchange of information inside RC-LACE :

- **lace_talk** : RC LACE broad range discussions (this list is reserved only for RC LACE members)
- **aladin_talk** : ALADIN related discussions
- **extreme_weather** : Extreme weather events announcements and discussions.

These lists are directed by majordomo utility (but in CHMI instead of Météo-France) and can be used in a similar way than the one explained above. For subscribing to one of them one has to send an e-mail to majordomo@chmi.cz (more details : janousek@chmi.cz).

A preliminary version of RC LACE homepage has been prepared by Martin Janousek : itt is situated at the http**://www.chmi.cz/meteo/ov/lace** address.

Money Funding asked for some cooperations based on the ALADIN project

1. *INCO-COPERNICUS keep-in-touch, so-called ''ALADIN-KIT''*

The ALADIN-KIT proposal submitted to the European Communities and accepted allows us to cover mission expenses for some meteorologists from the National Meteorological Services involved in the previous PECO funding (i.e. Bulgaria, Czech Republic, Denmark, France, Hungary, Poland, Romania and Slovakia). It will cover expenses for one person per country and for four meetings in 1997 and 1998. The funding will be (or has been already) used for financing participations to the following meetings : - EWGLAM/SRNWP in Budapest (October 1997), - Worshop in Toulouse (February 1998) - Workshop in Prague (June 1998), - EWGLAM/SRNWP in Copenhagen (October 1998).

2. *Embassies support*

For 1996, fundings from the Ministery of Foreign Affairs have been made available late in 1996. This is the reason why a large number of visitors came in Toulouse during the last four months of 1996 and the first quarter of 1997.

For 1997 fundings, the same delay was foreseeable so visits supported by the Ministery of Foreign Affairs have been planned from July 1997 to June 1998.

The request for 1998 fundings have been sent to the Ministery for most of the countries. More details can be asked to Météo-France/DGS/IE/Arlette Rigaud (arlette.rigaud@meteo.fr).

The (pre-) operational ALADIN models on big computers

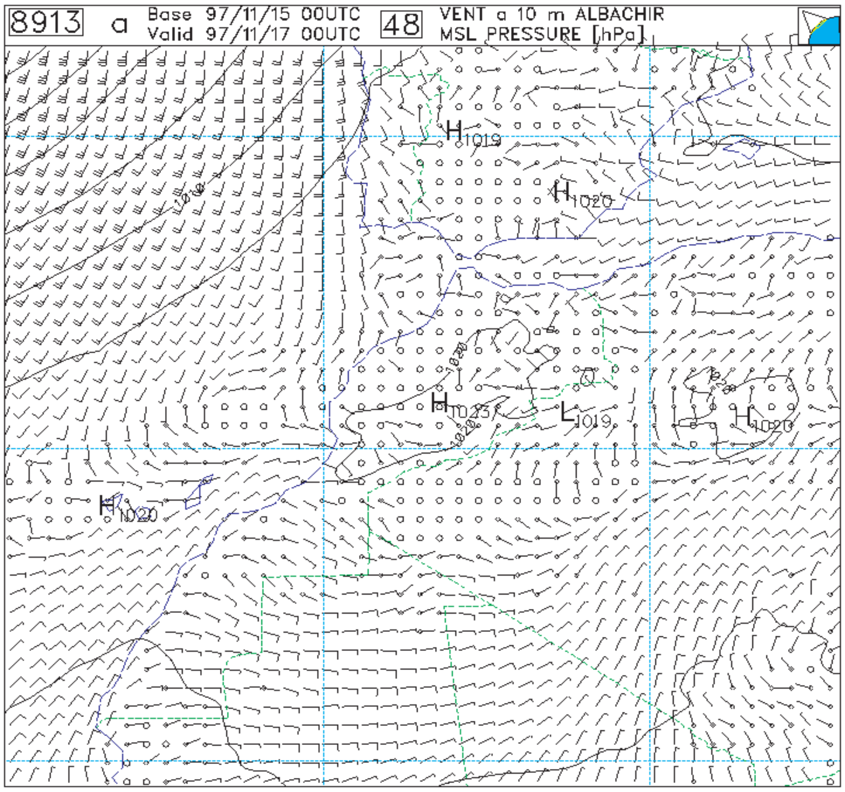
1. *Operational ALADIN-MAROC in Maroc-Météo*

(more details mehdi.elabed@meteo.ma)

The Aladin model is running in Morroco operationally since March 1996. At the begining the resolution of the model was about 31 km (due to data transfer limitation) and since July 1996 it became about 16 km (thanks to full pos: 31 km coupling files are still transfered via the data link and after they are transformed into 16 km resolution files with the ee927).

The operationnal suite is run twice a day in parallel with the operationnal suite of ARPEGE at Meteo-France (from 00 and 12 UTC). The ALADIN-MAROC is using a two time level semi lagrangien scheme with a time step value equal to 675 s and an horizontal resolution about 16 km. The integration of ALADIN-MAROC uses the same physics than the ARPEGE model and it is done over the domain centered on Morocco : 18.4 N to 43 N in latitude, 19.8 W to 9.8 E in longitude.

The post-processing is performed every three hours and graphical charts are produced with NCAR graphical software via CHAGAL and sent to forecast center in Casablanca. The GRIBs files are produced and sent to the forecaster work station SYNERGIE.



The computation resources used in Casablanca are based essentially on the:

- J916 CRAY vectorial computing system with 6 processors and 2 Gigabytes central memory;
- CRAY Superserver 6400 with 7 SPARC processors and 1 Gigabytes central memory;
- An archiving system which is a robot with 2.64 Terabytes storage capacity.

For getting coupling files from Toulouse a 64 kilobytes/s data link is used to link Casablanca to Toulouse.

The ALADIN-MAROC is running operationally with data assimilation cycle and CANARI analysis. Until now the observations files are still received from Toulouse (like the coupling files) but a project of installing a meteorological Data Base (BDM) is nearly finished and will be soon operational. Then the observation files will be prepared in Casablanca (via message switching system TRANSMET). The same project will deal also with the installation of the BDAP.

Other projects are being held like the installation of a control and monitoring suite, and also a statistical adaptation forecasting of the ALADIN forecasted field.

For the model development, efforts are focused on the amelioration of the forecasting of precipitation. Thus studies are being held in order to get more information about the precipitation forecasting in Morocco and in order to improve the forecasting of this field.

2. *Pre-Operational test on ALADIN-FRANCE in Météo-France*

ALADIN-FRANCE is in pre-operational test since March 1996 on the CRAY C98. Its domain is centered at the pole of dilatation of ARPEGE with a 12.71 km resolution and covers an area of about 2500x2500 km2 in 189x189 points. The vertical resolution is given by 27 layers. It is integrated twice a day and the forecasting range is 36 hours. The time-step is 491s and the numerical schema uses a semi-Lagrangian two-time level scheme. The Digital Filter Technique is used for the initialization of the model. There is no data assimilation. The post-treatment is FULL-POS and after the forecast, the BDAP (analysed and forecast data bank) is filled with ALADIN data on a LATxLON grid. These products are accessible via SYNERGIE software. The French forecasters are evaluating the forecasts since July 1996.

Both objective (numerical scores) and subjective evaluations (by the forecasters) have been realized and their results induced Météo-France's Director to decide that ALADIN-FRANCE will be fully operational at the turn of the year. More details next quarter.

3. *Pre-Operational ALADIN-LACE in Météo-France*

(more details bubnova@chmi.cz)

ALADIN has been exploited operationally for six Central European countries (Austria, Croatia, Czech Republic, Hungary, Slovakia, Slovenia: RC LACE group) since 1st July 1996.

The application runs twice a day up to 48h range on CRAY J916/12 machine of Meteo-France (contracted CPU). The products are sent to the Telecommunication and Archiving Centre (TelArc) in Vienna via Toulouse- Reading-Vienna line. Some products are distributed via satellite RETIM system and a small subgroup of the products is available to SELAM group (Romania, Bulgaria) and to Poland.

Short description of the current configuration.

transform grid: 216 x 192 with C+I area: 205 x 181

truncation: elliptical 71/63

number of levels: 27

map projection: Lambert

grid resolution at the reference point: 14.73 km

advection scheme: semi-Lagrangian

time-stepping scheme: two-time-level semi-implicit

initialization: double-pass Dolph-Tchebychev DFI

physics: the same like ARPEGE operational

mode: dynamical adaptation

library used for the application: AL07/CY16T1

The application is maintained by a small RC LACE team situated in Toulouse. The team does also a basic verification of model results based on classical types of scores and it has at disposal the parallel suite environment for testing new modifications and as well as new libraries.

4. *The operational implementation of ALADIN-BELGIUM*

(more details Luc.Gerard@oma.be)

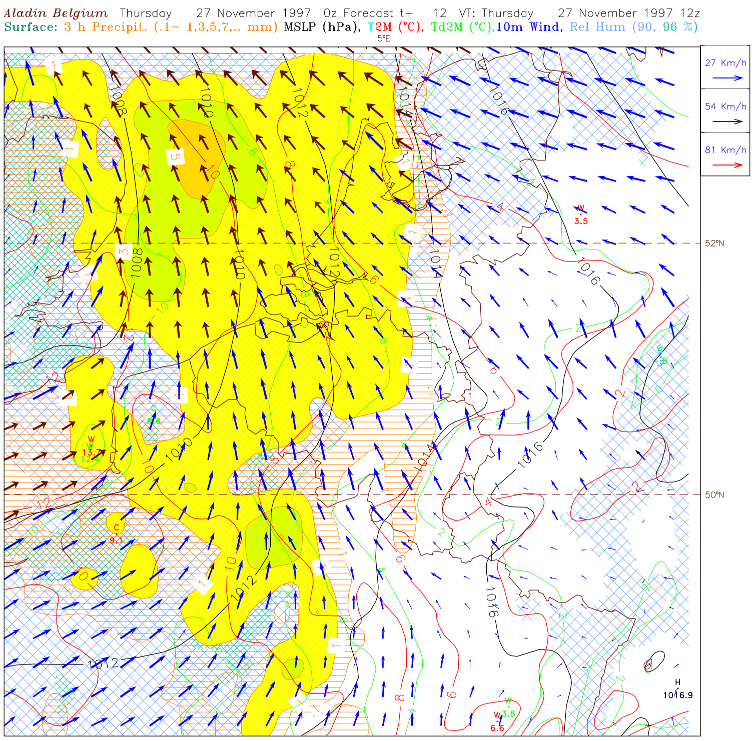
After nearly one man-year work, ALADIN-BELGIUM is expected to go fully operational very soon.

The computer is a CRAY J916 with 12 processors. A disk of 6.5 GB has been reserved for the model. The operational forecast is given a specific queue with higher priority.

The domain (C+I+E) is a square 108x108, (C+I) is 97 x 97 points of 7km, in a Lambert tangent projection. We use the same 27 levels as ALADIN-FRANCE, the time scheme is two-time level semi-Lagrangian, with a time step of 270 seconds. The coupling is obtained every 3 hours from the output of ALADIN-FRANCE, and we execute runs at 36 hours ranges two times a day.

Data sent from Toulouse in the initial resolution of ALADIN-FRANCE (12 Km), are preprocessed as soon as they arrive to produce the 7 km-resolution coupling files. The forecast job is launched in ‘‘blocking’’ mode (asking and waiting the coupling files as they are needed). The full operational chain can be completed in 1/2 hour real time.

The post-processing includes the production of files in the original model Lambert geometry (on model levels), and files in longitude-latitude, with half and quarter resolution (for the precipitations fields) on standard pressure levels.



The longitude-latitude files are converted in GRIB, after scaling, offset, advection or a few other possibilities (we developed a specific program to do all this), and then transferred to an HP 9000-800 workstation to produce graphics.

The Lambert files are used by specific programs to perform:

- pseudo-soundings and listing extraction (home-developed program)
- extraction of vertical cross sections (4 standard cross sections are produced every 6 hours for 7 parameters): for this we had to adapt, customize and optimize the program ***ascs*** to our specific needs.

Substantial work had to be done on our operational graphic workstation programs (based on a locally enhanced version of Magics), to provide a satisfying flexibility, allowing interactive choices, drawing of vertical crosssections, superimposition of model and observation data, and superposition of ALADIN data to satellite and radar pictures.

The full implementation of the operational chain (doubled by an experimental chain) implied the organization of the file systems, the development of effective scripts (we are short of operational staff) and of several tools (to visualize, convert, extract information from FA files), as well as efforts of documentation.

The forecaster has also access to the ALADIN France forecasts via the RETIM-4 system.

The formation of the forecasters to the exploitation of ALADIN is on way, and some staff reinforcements will be necessary.

5. Future ALADIN-LACE in CHMI

(more details : janousek@chmi.cz)

In order to provide a computing solution for the ALADIN operations in Central Europe beyond June 1998, the Czech Hydrometeorological Institute took the initiative to acquire a relevant supercomputer facility and to set up necessary environment for the R&D and the operations.

In April 1997, the Invitation to Tenders was issued by CHMI in order to get an appropriate supercomputer solution in a competitive environment. The computer vendors were asked to propose such a system which would be able to run ALADIN benchmark version (which had been developed by R. Bubnova on the cycle preAL06/CY15T4) in the configuration relevant to envisaged model configuration of ALADIN/LACE in late 1998. Further, a number of other technical and managemental constraints on the future computer system was submitted in order to receive a seamless and comfortable solution for the team of scientists and software analysts in Prague.

On 15 June, three bids were obtained from vendors. After in-depth evaluation of the tenders and additional negotiations with vendors the Director of CHMI decided on 28 July that the most favorable solution was offered by NEC Corporation.

The selected supercomputer system is based on the model NEC SX4C/3A equipped by 3 processors (with 2 GFlops/s peak performance, vector architecture), 4 GBytes of central memory (shared memory architecture, like CRAY C90, T90 or J90 series), 67 GBytes of disk space (HiPPI and SCSI RAID disks with redundancy). This UNIX-based system will be fully configured to run in similar way as LACE experts are used to in Météo-France. The necessary compilers (FORTRAN 77, FORTRAN 90, C and C++) as well as the debugging and optimizing tools will be available on the system. SX4 is a shared-memory system which provides the comfort of simpler programming paradigm for globally-addressable memory however which has proven to run effectively distributed-memory version of ALADIN via the MPI library calls.

The system's installation in CHMI is scheduled to December 1997. The acceptance tests are planned to be completed within January. This provides the opportunity to start the model porting and the operational suite development in February 1998. The final ambitious target is to set up the operational suite till May 1998 in order to be able to start the full operational run in June 1998.

The ALADIN models on workstations : activities since September 1996

1. Austria

ZAMG started the investigation of the possibility of using FULL-POS at the archiving centre of RC LACE and potentially later for integration purposes.

During the third quarter, the system is intended to be pre-operational (daily run) and it should become fully operational during the last quarter of 1997.

2. Bulgaria

Several successful runs of ALADIN were performed with AL05 and the new auxilary library XRD04 on SELAM domain. There were experimental runs with T2 semi-Lagrangian, T3 semi-Lagrangian and eulerian. The 24 hour forecast of 3T semi-Lagrangian takes 3 hours 40 minutes user time. The EE927 run cound not be performed because in the local version of code, the SELAM domain is not supported.

The machine is a IBM R/6000 platform, with AIX 4 operating system, with XLF FORTRAN (full standard FORTRAN 90 with some extensions to FORTRAN 95 and C++ compilers version 4.1 for AIX). The hardware configuration looks like follows: 144 MB RAM, 5G disk storage.

Now, developments are made to adapt the GRADS system for visualization of ALADIN's results instead NCAR graphics system that is too expensive.

3. Croatia

Negotiations with the University of Zagreb in order to start some collaboration on the workstation version of ALADIN.

4. Czech Republic

CHMI concentrate their efforts on building the supercomputer centre in Prague, therefore they had no activities on that project.

5. Hungary

At HMS the first steps were done for the definition of the exact requirement for the workstation where the workstation version of ALADIN can be used. For the spring 1997 an HP workstation was upgraded to fulfil the above mentioned requirements. The adaptation work on HP had been started and finished rather quickly with making the workstation version of ALADIN working on HP platform. However probably due to the non-efficient Fortran 90 compiler and the operation system the execution of the model was extremely slow, which would make the operational use impossible. Due to the importance of applying the workstation version of ALADIN in Hungary during September 1997 some further negotiations took place for buying a workstation appropriate for operational usage. After contacting several companies the DEC company was chosen and a DEC Personal Workstation 600. A machine is already ordered and has to be installed until the end of 1997. For the future the main goal is to put the workstation version of ALADIN into operations for the beginning of 1998 using initial and lateral boundary conditions provided by ALADIN/LACE.

6. Portugal

At IM (Instituto de Meteorologia), with support of Romania, the installation of both AL05 and AL07 Workstation versions of ALADIN on alpha station 500 (512 MB) was realized using the operating system Dec Unix v3.2. However there are still some problems with version 4.0 of Dec UNIX.

7. Romania

In Bucarest ALADIN is full operational since August 1st, 1997. It is run once a day starting from ARPEGE boundary condition. The operational package contains the model cycle05, a verification software VERAL (against SYNOP and TEMP data), graphical software ImageMagick, NCAR and VIS5D for visualitation, HRID package. Since November 1st, the model was coupled with a wave model for Black sea which provide information on height and direction of waves and swell. In parallel the cycles 6 and 7 were implemented, the first one in all configurations (1, ee927, FULL-POS, 701-CANARI analysis) but was just an intermediate cycle and will never be used. For cycle 7 all configurations are working well except 701 which is in progress. In the near future an air pollutant transport and diffusion model will be coupled with ALADIN, and we are working on the coupling with a hydrological model.

8. Slovakia

SHMI is working on SUN platform - SUN HS21 HyperSPARC machine with compiler Fujitsu Fortran 90.

The first successful tests were already performed during 1996. A small delay in the schedule was caused by upgrading the auxiliary libraries. The first preoperational execution of CY14T3/AL05 was done in August 1997. New version - CY16T1/AL07 was successfully implemented in November 1997. The VIS5D tool was chosen for visualization of model outputs and an interface was written for visualization part.

The workstation version of ALADIN for Slovakia is ready to be used operationally for specific case studies and specific customer requirements from the beginning of March 1998.

Some activities will start after buying a more powerful workstation because of relative slow execution time on present SUN HS21 machine.

9. Slovenia

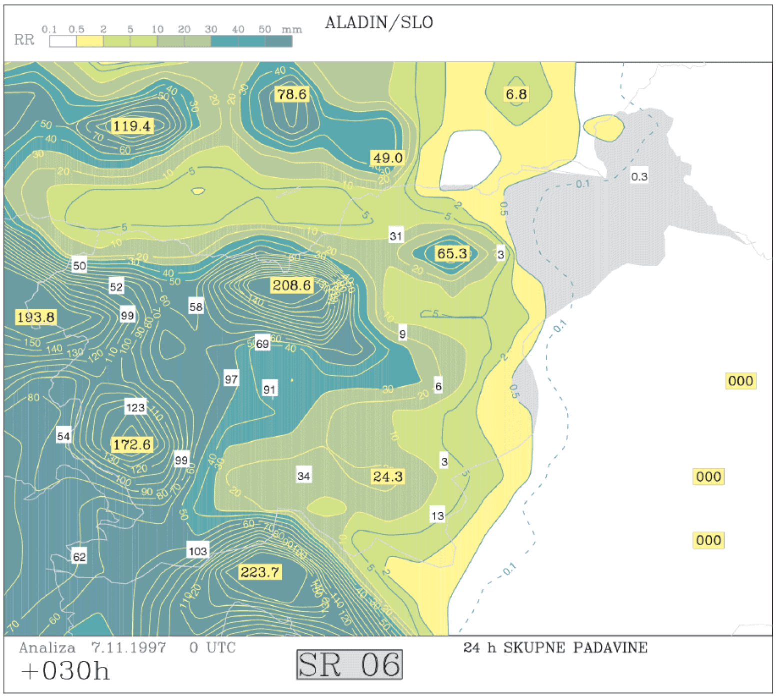
Since the beginning of the development of the workstation version of ALADIN, it was planned to apply it also at HMIS, in the final stage also as the operational LAM of our institute.

In May 1996, the hardware was shipped and the installation followed soon after. A Digital Equipment Corporation (DEC) Alpha station 600 at 333 MHz was chosen (see Jerman, 1996 for details) as the computational platform and the decision was by that time strongly influenced by the compatibility with CRAY architecture and by the fact the Rumanian colleagues have already made a great deal of work. Later, quasi-operational benchmarks and, not last, the problems other people experienced when trying to port the ALADIN code to other platforms, such as SUN (Spaniel, 1996), HP, convinced us that the decision to base on DEC was the correct one.

In August 1996 the model was for the first time run in the ALADIN/SI geometry (69*69 points, 27 levels, 10.7 km resolution) what means all the necessary model configuration (EE927, 001 and FULL-POS) were working. The cycle 05 of ALADIN was used by that time. Intensive tests were done later, comparing the results of simulations at different geometries of the model, etc. (Zagar and Gregoric 1996). The study about the influence of different LBC (whether from ARPEGE global forecast or from ALADIN/LACE) was performed this summer (N. Pristov) and will be published in the Budapest EWGLAM Newsletter.

On February 17th, 1997, a quasi-operational status was given to ALADIN/SI model. It is since then run every day in the morning. The initial and boundary conditions are prepared in Toulouse from the ALADIN/LACE model. The geometry of ALADIN/SI was slightly modified comparing to the original, in order to use the available computer power in an optimal way. Nowadays it contents 72x72 grid-points, 27 vertical levels and the horizontal resolution of 11.2 kilometers. On the computer, described previously, the 48 hours of forecast is performed in roughly 100 minutes. The integration begins at around 04:15 UTC (when the LBC's are prepared and transferred via the Internet) and the results are available at around 06:00 UTC. The forecast material is visualized in several ways: point values time development, two-dimensional fields at different height and pressure levels using VIS5D software (figure 1) and, lately, as forecasted IR satellite image. Using Full POS other parameters are also computed but not yet operationally used (potential vorticity, cloud water, ...). The visualization using NCAR is also in the final stage of development and will be put into the list of operational products soon.

During October 1997 major changes from basic ALADIN model were taken into account so the cycle 07 of ALADIN was adapted to fit on a DEC platform and the parallel suite was established. The comparison of the results showed the changes did not affect the reliability of the model and the scores were better than for the previous version. So the latest version was put into operation at the end of November.



Forecast of total precipitation, 1997/11/10 00 UTC + 36h.

Descriptions were written for the implementation of AL07 on DEC workstation, which will be offered to ALADIN community through AWOC (ALADIN on WOrkstation Coordination Committee).

At the same time an afternoon run of ALADIN/SI was added which is very appreciated especially as the guideline for the short range weather development on the forecoming day.

Modifications of operational scripts for ALADIN/LACE in Toulouse, prepared by the LACE Toulouse team, will allow for an on-line production of LBC's for ALADIN/SI, what means the final forecast of the later will be available just 10 minutes after that of ALADIN/LACE and for example the use of the fresh forecast, which would be very precious for the 04:00 UTC Terminal Aerodrome Forecast, will be possible.

First efforts in implementation of distributed memory version of ALADIN on the cluster of 2 DEC workstations were done in October. If the tests will be successful the number of workstations in cluster will be increased.

References: Proceedings of the Workshop on Workstation Version of ALADIN, Ljubljana, Slovenia, 16-17 September 1996

''Réseau Formation Recherche'' : PhD Studies

The first "Réseau Formation Recherche" ended successfully with the defense of the last two candidates. The five candidates of the new "Réseau Formation Recherche" have begun their work with the objective to be as successful.

- Andras Horanyi defended his thesis "Sensitivity studies of frontal waves using the adjoint method" in Budapest in November 1996. The thesis is dealing with the study of the dynamics of frontal waves using the adjoint method. The dynamics of the frontal waves are explained in the first chapter. The second chapter is dealing with the applied models i.e. the ARPEGE/ALADIN model and its tangent linear and adjoint versions. Chapter 3 recalls the basic principles of sensitivity studies using the adjoint models, i.e. how sensitivities of a given characteristic of the frontal waves with respect to initial conditions can be calculated with the integration of the non-linear and adjoint models. The last chapter describes the experiments performed (including the description of the idealized frontal waves used for the experiments) and the obtained results with the relevant conclusions. The thesis is in Hungarian, therefore in case of interest it is recommended to read the reference (Horanyi A. and A. Joly, 1996: Some aspects of the sensitivity of idealized frontal waves. Contributions to Atmospheric Physics (Beitrage zur Physik der Atmosphere), Vol. 69., No. 4. 517-533) or contact directly the author (horanyi@met.hu).

- Mihaela CAIAN defended with success her thesis in Toulouse (and in French !) on Saturday 23rd of November 1997. The title of her work was a question : "Maille variable ou domaine limité : quelle solution choisir pour la prévision à échelle fine ?". The answer can be asked directly to the author or can be found in her report (in French) or in the article "Some limits to the variable mesh solution and comparison with the nested LAM one", published in the Quarterly Journal of Royal Meteorological Society, n°539, vol.123, pp.743-766, April 1997. From a practical point of vue, the main result of this thesis is that the best strategy for dynamical local adaptation is a coupling between a moderately stretched global model and a higher resolution LAM without too big a jump between both mesh sizes.

- Doina BANCIU has continued her study about physical parameterizations, more precisely : "Specific small scale moist diabatic forcing in ALADIN at the limit of the hydrostatic assumption". A downdraft parameterization has been added to the deep convection parameterization, following the Ducrocq and Bougeault scheme (Weather and Forecasting, Vol.10, pp. 380-399, June 1995). A first tuning of the free parameters of the scheme has been done inside the global ARPEGE model. Also some experiments with ALADIN model at high horizontal resolution (~7km) have been carried out for two specific situations: Vaison La Romaine flash flood and the 7 June 1987 squall line cases. The results have shown that the

ALADIN model failed in the simulation of squall lines (which had an important contribution in both cases) even with the improvement due to the downdraft parameterization (less than it was expected and quite difficult to evaluate it). The importance of the initial conditions and that of a detailed microphysics are recognized for similar simulations. A work has been started for introducing into the model predictive equations for water cloud, by adapting for the ARPEGE/ALADIN framework the Rash and Kristjansson parameterization scheme.

- Filip VANA has also continued his study about "The dynamical and physical control of kinetic energy spectra in a NWP spectral semi-Lagrangian model". The aim of models simulating atmospheric motions should be, among many other things, to obtain for the scale of motions they can represent the right level of kinetic energy and a reasonable shape for its spectrum. However to obtain this takes some difficulties because the dissipative processes in the NWP taking influence on the kinetic energy spectra cannot be treated within a unique framework, the horizontal and vertical processes are resolved at such differing scales that they require different methods. The most of dissipation along vertical is an integrated part of parametrisations techniques which have other important independent aims (like control of energy and water cycles) and therefore is not easy to tune this only for the kinetic energy problem. The main interest of this study will therefore concerns about the horizontal part of the dissipative processes. Horizontal diffusion ideally should following the turbulence theory have a non-linear flow-dependent character. For the technical reasons, this is not possible in the case of spectral models, where the horizontal diffusion must remain linear. To remove this disadvantage there is idea that this study could investigate the diffusivity of the semi-Lagrangian time discretisation method and try to make the difussivity of this method flow-dependent. The aim of this research study is to diagnose the current situation regarding all these problems in the ALADIN spectral limited-area model and to suggest some ways to improve the situation in the needed aspects.

- Marta JANISKOVA is finishing her work on the "Inclusion of simplified, differentiable and sufficient realistic physical parametrisation in incremental four-dimensional variational data assimilation". A set of simplified physical parametrisation has been developed together with its tangent linear and adjoint versions) for including into incremental 4-dimensional variational assimilation (4D-Var). The set contains a simplified computation of radiative, vertical diffusion, orographic gravity waves, deep convection and stratiform precipitation fluxes. The first validation of the simplified physics has been done comparing forecasts performed up to 24 hours. Although the experiments have been performed on few cases, the simplified scheme seems to behave quite reasonably. The importance of regularization arises during the validation of the tangent linear model and some thresholds in physical parametrisations which can affect the range of validity of the tangent linear approximation had to be removed. The next step (which is just starting currently) is the progressive introduction of the simplified parametrisations in 4D-Var system for testing on specific case studies to evaluate the gain of this physics compared to an adiabatic model, in terms of analysis increments due to a better description of physical processes in the evolution and organization of a cyclone system.

- Mark ZAGAR has started his work on "Prediction of small-scale events using second-level dynamic adaptation". The subject was effectively split in two parts. First one is dealing exclusively with the effects of high resolution modelling and thus better representation of orography in the model on the dynamic adaptation process when the model resolution changes. This part of research was successfully evaluated and an article is on the go. Good results were obtained in predicting the surface wind over a small domain in high resolution. Only one-half of an hour of integration was found necessary to obtain the high-resolution forecast, based on the output of a coarser mesh model. The second part aims to applying a similar approach for predicting other meteorological events in small scale, where good vertical depiction plays the major role - low cloudiness, fog, shallow convection - but local modifications of forecast precipitation pattern due to the forcing with terrain-adapted wind will also be under scope.

- Ilian GOSPODINOV has started his work on "Conservation Properties of a two-time level semi-Implicit semi-Lagrangian Scheme in the Framework of a Limited Area Model". The current activities of this work are carried out on a one dimensional shallow water model. The objective is to diagnose and to assess the main sources of loss of any quantity due to the semi-Lagrangian technique of advection in a model environment that keeps only its basic features. The subsequent goal is to develop and test a new semi-Lagrangian based procedure, involving other dynamical characteristics, that would have better conservational properties. This goal is to be achieved without loosing other wishful properties of the semi-Lagrangian scheme (accuracy, robustness and efficiency). The proposed technique will be extended to a three dimensional one and will be tested in a limited area model environment at a later stage of this work.

Activities of the data assimilation working group in Toulouse, April-May 1997

(more details horanyi@met.hu)

In spring 1996 the importance of working on the data assimilation development and research for ALADIN was underlined in the working plan of the Project Scientific Officer (PSO) of RC LACE. During summer a detailed working plan was compiled and a questionnaire was distributed between the ALADIN countries in order to estimate the potential on working on data assimilation inside the ALADIN community. After evaluating the answers Météo France (Jean-François Geleyn) proposed to establish a working group in Toulouse (hosted by Météo France) in order to start the work in that topic.

The following scientists took part in this initial activity regarding data assimilation of ALADIN:

Liviu Dragulanescu (Romania), Lora Gaytandjieva (Bulgaria), Gregor Gregoric (Slovenia), Andras Horanyi (RC LACE), Samir Issara (Morocco), Maria Monteiro (Portugal), Neva Pristov (Slovenia), Roger Randriamampianina (Hungary), Maria Siroka (Slovakia).

Beside them the project was very actively supported by the CNRM/GMAP and SCEM/PREVI/COMPAS groups of Meteo France in Toulouse and especially by Vincent Casse, Philippe Caille, Jean-Francois Geleyn, Patrick Moll, Jean Pailleux and Jean-Noel Thepaut.

The main objectives of this period were on the one hand to gain experiences on the optimal interpolation scheme for ALADIN (called CANARI and adapted to ALADIN by Moroccoan colleagues from the ARPEGE system) and on the other hand to start the development work on the variational data assimilation scheme for ALADIN.

Concerning optimal interpolation scheme some expertise was gained using this system and the results show improvements especially at the very beginning of the integration period. Nevertheless some further work seems to be desirable on that respect. Concerning variational data assimilation the basic framework of the software was created, however there are still lot of work needed to be done for a scientifically correctly working variational data assimilation scheme for ALADIN (especially developments are needed regarding the background term).

Thrid ALADIN Workshop on the use of ALADIN products in forecasting practise and verification matters, Budapest, 16-18 June, 1997

This worshop organized in Budapest by RC LACE gave the opportunity to all participants to discuss the actual state of art as far as apllication of ALADIN products and verification are concerned.

The workshop was decomposed into different sessions and these sessions were followed by round-table discussions :

- Aviation meteorology
- Subjective evaluation
- HRID
- Objective verification (verification projects)
- Comparison of the performance of ALADIN model to other models
- Interesting case studies
- General problems, visualisation, WWW

Proceedings of the Workshop and main conclusions of the round-table discussions can be asked to horanyi@met.hu.

September ALADIN training, September 1997, Toulouse

Following a suggestion coming from RC-LACE, a training session was organised last September in Toulouse by GMAP. Most of the trainees were newcommers in the ALADIN project and could benefit from a complete training covering many aspects of the ALADIN project such different as : historical account of the project, management of the project, operational aspects at Météo-France, operational ALADIN-LACE, problems of maintenance and validation, physics, dynamics, structure of the code, coding rules, clearcase and librairies, namelists, climatological files, digital filter initialisation, data assimilation, e923 configuration, FULL-POS post processing, SYNERGIE, ...

Around 50 hours of lectures were given by 12 persons from CNRM/GMAP, PREVI/COMPAS and RC-LACE/TT. The participants could practice their new knowledge by working on small studies including bibliography work and final presentation of their results (about 100 hours including personal work and discussions with mentors).

The participants were : Dagmar Dufkova, Vardan Gyurjinyan, Thomas Haiden, Hassan Haddouch, Sandor Kertesz, Maja Telisman Prtenjak, Uros Strajnar, Malgorzata Szczech and Josef Vivoda. Some less regular participants (other ALADIN visitors and GMAP or COMPAS people) could also listen to some of the lectures.

Their teachers or mentors where : Dominique Giard, Eric Bazile, Emmanuel Legrand, Gabor Radnoti, Jean-Daniel Gril, Jean-François Geleyn, Joël Hoffman, Jean-Marcel Piriou, Jean Nicolau, Pierre Bénard, Patrick Le Moigne, Ryad El Khatib and Vincent Cassé.

During the debriefing, the quality of the realized work was underlined : level reached by the traineers in such a short time, quality of the studies, ... The general feeling at the end was rather positive, but some suggestions were made for a possible repetition of this kind of training. Although it is useful to maintain lectures and practise, it would be more efficient to give more emphasis to lectures at the beginning (no practical work during the first week). The other important remark concerned the organisation of small studies : working in twos instead of individually would habe been appreciated

A full set of documents have been prepared for this training course and represents a very appreciable documentation source.

Note on the performance of ALADIN during the extreme precipitation event 4-8 July 1997 in Austria

by T. Haiden (ZAMG)

Prolonged rainfall of high intensity during the period 4-8 July 1997 caused widespread flooding in Central-East Europe. The Czech Republik, Slovakia, Poland, the Oder and March basins in particular, were strongly affected. Large-scale precipitation amounts of the order of 150 mm were increased locally due to orographic enhancement, resulting in totals of more than 400 mm at a highland station (Lysa Hora) in the Czech Republik. In Austria, precipitation totals were highest in the Eastern parts of the country, and again orographic effects determined the location of maximum values (about 200 mm).

The synoptic pattern leading to this extreme event was a low-index situation, with a cut-off upper level low moving over Central Europe and becoming quasi-stationary over Eastern Europe. In the Eastern Alpine area, precipitation activity during the first three days of the episode was mostly due to cold air advection and destabilization aloft, while later on ascent within the occlusion, spiraling in from a northerly direction, was the main cause of lifting.

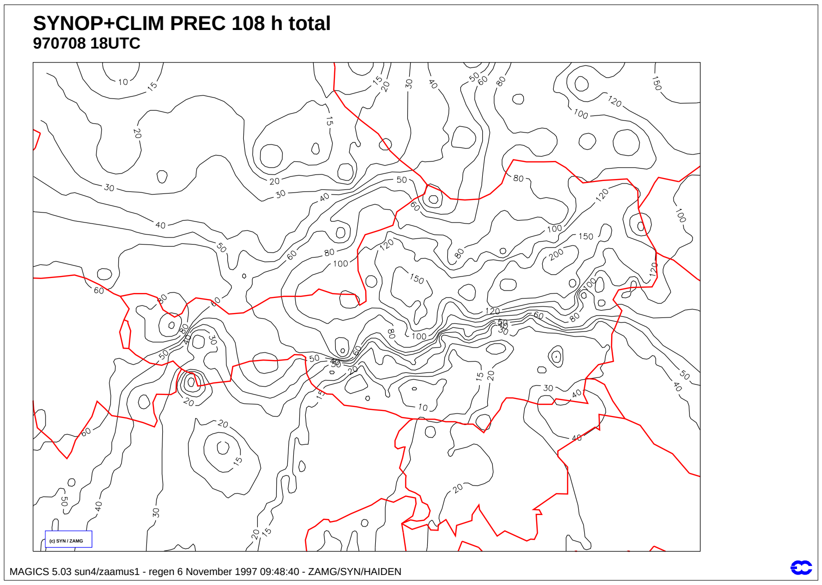


Figure 1: Observed precipitation totals of the 108h-period 97-07-04 06UTC to 97-07-08 18 UTC

from synop and climate station reports, interpolated using an isotropic distance-weighing algorithm.

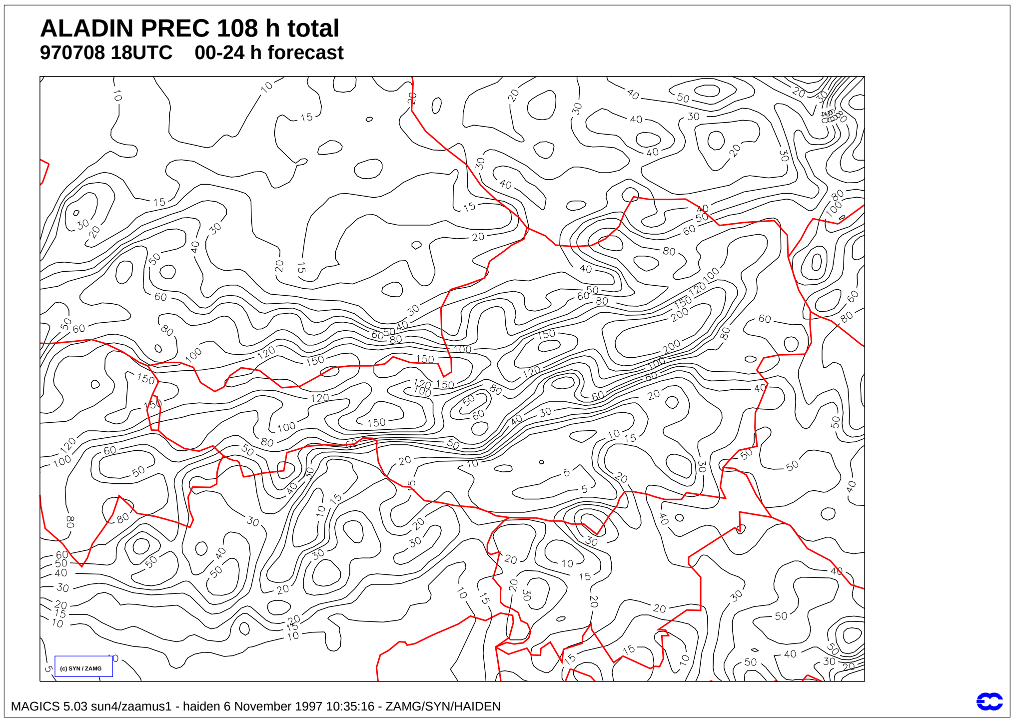


Figure 2: Precipitation totals predicted by ALADIN/LACE (00-24h forecast)

during the 108h-period 97-07-04 06UTC to 97-07-08 18 UTC

The Figures shown indicate systematic errors only, since those are not cancelled out by the process of adding up several short-term forecast fields. For an assessment of the actual predictive power of the model in cases like this, the false alarm rate would have to be considered as well. Nevertheless, the comparison with observations indicates that at least in this strongly orographic event the model was able to predict the mesoscale distribution of rainfall to a degree that allows region-specific flood warnings.

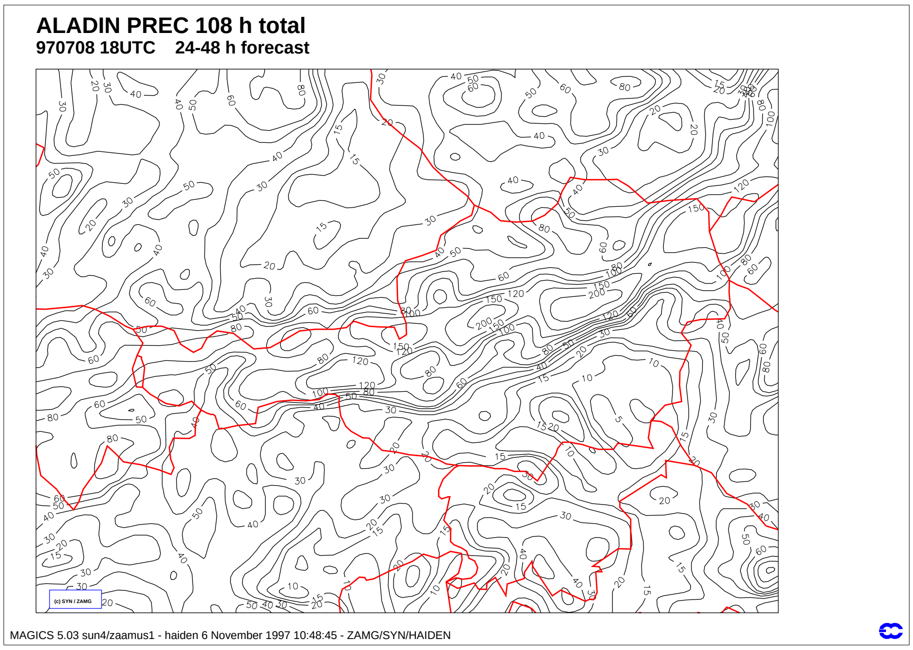
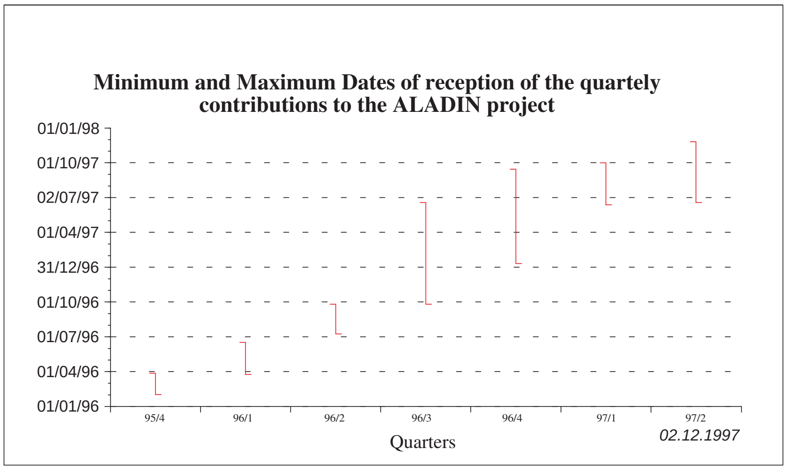


Figure 3: Precipitation totals predicted by ALADIN/LACE (24-48h forecast)

during the 108h-period 97-07-04 06UTC to 97-07-08 18 UTC

Participations in the ALADIN project

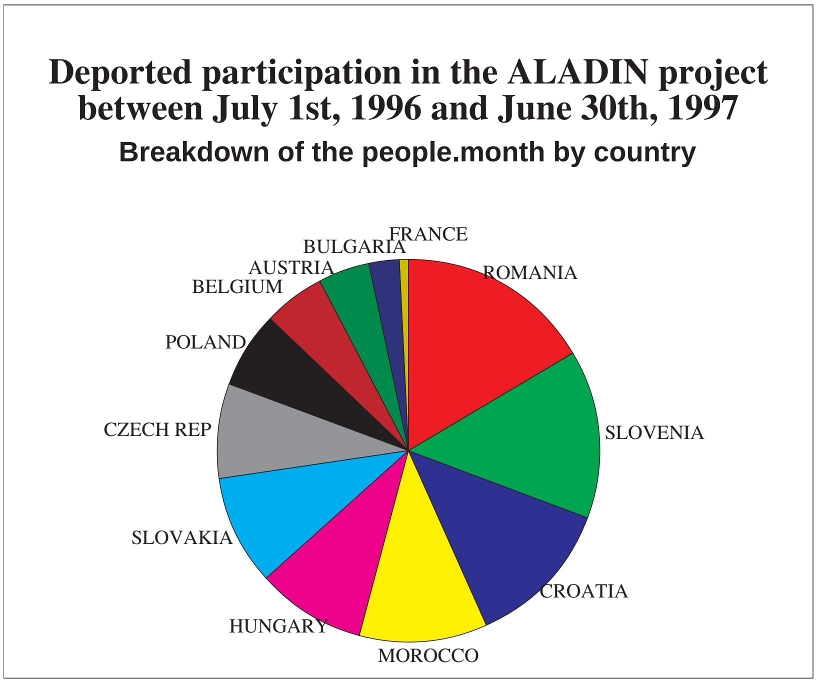
The statistics about the participations in the ALADIN project and the ensuing compilation of the ALADIN developments is drawned up from the contributions sent by the representative of each country. Please find in annexe a few graphics illustrating the last summary of the participation in the ALADIN project.



It is nearly impossible to report our common work or to draw up some up-to-date statistics about the ALADIN project when more than half a year (... and a countless call for contributions) can separate the date I receive the report from the first countries and the date I receive the report from the last ones, ... for the same quarter. The above figure illustrates this problem. The former solution, waiting for the contributions about the deported work without deadline and keeping on asking for them, proved to be a bad one as it prevents everyone from getting some news about our commun work. Then, I suggest to use a deadline as indicated in the MoU for receiving this contribution (that is to say to admit only 3 months delay). Applying this rule, the deadline for the *report of deported work during the third quarter of 1997 will be the 1st of January 1998. A that time, I will prepare the Newsletter and the statistics with the work in Toulouse until the end of December 1997 and the deported work until the end of September 1997.*

In the next two parts ("Deported developments from the third quarter of 1996 until the second quater of 1997 and "ALADIN developments in Toulouse from the last quarter of 1996 until the third quarter of 1997"), you will find the list of the ALADIN developments (in and outside Toulouse) excepted those detailed in the previous pages : PhD studies, developments for workstation versions or operational suite, work on data assimilation,...during the quarters concerned by this Newsletter. The following informations concerning the deported developments are obtained from informations you sent.

Deported developments from the third quarter of 1996 until the second quarter of 1997



During these four quarters, around 70 persons have worked on ALADIN "at home" (i.e. in their NMS : not in Toulouse) and their global effort represents more than 13 people.year during this periode.

1. In Austria

- evaluation of ALADIN forecasted precipitations over the territory of Austria (K. Von der Emde)
- verification of ALADIN pseudo-TEMPs (H. Seidl)
- case study for Meso Alpine Project (H. Seidl)
- experiment with derived quantities, e.g. thermal advection and PVA (H. Seidl)
- development of a quasi-objective synoptic verification scheme for ALADIN products (H. Gmoser, Y. Wang)

- development of a software for verification and operational use of ALADIN-pseudoTEMPs (H. Seidl)
- visualising of ALADIN products (T. Haiden)

2. *In Belgium*

- implementation of ALADIN in Belgium (L. Gerard), informatic and transmission aspects (J. Vanderborght, R. Juvenois, T. Weyn)
- coordination tasks (A. Quinet)
- evaluation of the ALADIN products (J. Nemeghaire)

3. *In Bulgaria*

- Tuning the ALADIN code received from Romania to AIX4 and XLF4.1 compiler on IBM RISC/6000 computer and modifying the workstation version from december 1995 in accordance with changes in code found in version received from Romanie. Several test runs performed. Preparing for automatic run (A. Bogatchev)
- Localized VaPT software for IBM-RISC/6000 and PC/DOS (P. Neytchev)

4. *In Croatia*

- HRID : adaptation for ALADIN-LACE (N. Brzovic, D. Klaric) ; extrapolation scheme (D. Klaric, D. Glasnovic), meteograms based on HRID (D. Glasnovic), new version 3.4 and verification (D. Glasnovic).
- Decoding and archiving : adaptation for ALADIN-LACE (D. Klaric
- Visualisation : adaptation for ALADIN-LACE ; GRADS and meteograms (J. Smitlehner)
- Forest Fire Protection Model : adaptation for ALADIN-LACE (D. Klaric) ; verification (M. Mokoric).
- verification of pseudo-TEMPs (Z. Vakula), verification procedures (M. Mokoric)

5. *In Czech Republic*

- Visualisation of GRIBs : development of PAGB package (M. Janousek)
- Design of the operational information service on the internal WWW server in CHMI (M. Janousek)
- processing and visualisation of TEMPs (J. Sokolova)
- Development of derived products from prognostic TEMPs and for pseudo-TEMPs profiles interpretation (F. Vana)
- development of the tool for pronostic hodograph drawing (F. Vana)

- local instalation of verification packages for pseudo-TEMPs (Z. Huthova)
- maintenance of the operational suite of the ALADIN results : transmission, processing and archiving (M. Janousek)
- preparation of the technical specifications and of the benchmark code of ALADIN for the Invitation to Tenders for the CHMI/LACE supercomputer (M. Janousek, R. Bubnova)
- preparation of observation database for future operational verification of ALADIN's forecast run in CHMI/LACE computer (M. Janousek)

6. *In Hungary*

- Duties as Project Scientific Officer of RC-LACE, organization of 3rd RC-LACE/ALADIN workshop (A. Horanyi)
- forward and backward trajectory calculation based on the ALADIN wind forecasts (I. Ihasz)
- adaptation of the change of the products into the local applications (I. Ihasz)
- trajectory modelling based on ALADIN (I. Ihasz)
- final exam and defense of PhD about sensitivity studies on ALADIN (A. Horanyi)
- seminar and description of ALADIN at HMS (A. Horanyi)
- workstation version of ALADIN on HP (G. Radnoti)
- preparation of the methodology for subjective evaluation of ALADIN and evaluation (M. Sallai, I. Bonta
- comparison of the performance of ALADIN model to the ECMWF model (S. Jenki)
- preparation of visibility forecasts based on ALADIN (F. Wanuch)
- application of ALADIN for aviation meteorology (A. Fovenyi)

7. *In Morocco*

- Preparation of the operational suite with 16 km resolution ("ALBACHIR" forecasting suite) , archiving, CANARI, news CMMAFOC files, fullpos (S. Issara, R. Ajjaji, M. El Abed, J. Boutahar)
- study of the exagerate precipitations in ALADIN-MAROC in August (M. El Abed, J. Boutahar)
- preparation of a system with double imbrication : ARPEGE/ALADIN 16 km/ALADIN 7 km and its test on a special case (J. Boutahar)
- implementation of a new climatology (A. Radi)
- comparison and control ARPEGE/ALADIN (M. El Abed)

8. In Poland

- administration and organisation work (M. Jerczynski)
- • model development in a frame of task "a study of the Tanguay-Ritchie extension of the continuity equation to the temperature equation for a semi-Lagrangian scheme" (M. Jerczynski, A. Dziedzic).
- getting knowledge and skills in NWP and in ALADIN (M. Szczech, P. Wasowicz)
- model implementation on Convex (M. Jerczynski)
- visualisation (P. Wasowich)

9. Portugal

- Portugal became a member of ALADIN project in April 1997. Until September 1997, no deported work for ALADIN was realized in Lisbonne.

10. In Romania

- improvment of the procedures, parts of the new operational system, especially the procedures for getting the files from Toulouse and for graphical representation of the model's outputs using VIS5D (L. Dragulanescu, C. Soci)
- unsplit coupling files, code adaptation (L. Dragulanescu)
- model validation for selected cases (E. Cordonneanu, D. Banciu)
- fullpos on workstation (V. Ivanovici)
- new orography on ALADIN/SELAM (E. Cordoneanu)
- tests for coupling files resolution (M. Caian)
- downdrafts in ALADIN (D. Banciu)
- precipitation verification (C. Dutescu, C. Soci, V. Ivanovici)
- pseudo-TEMPs verification (C. Soci)
- convection parametrisation (O. Valianatos, M. Caian))
- data assimilation (C. Soci)
- cases studies unsing ALADIN and aviation aplications (V. Ivanovici)

11. In Slovakia

- Visualization of fields (O. Spaniel, J. Vivoda, M. Kanokovska, M. Siroka)
- Verification of pseudoTEMPs (Z. Pisutova, P. Wolek, M. Gera, M. Siroka)

- Data collection (O. Spaniel, R. Zehnal)
- ALADIN for workstation (O. Spaniel, J. Vivoda)
- subjective evaluation of ALADIN (J. Vivoda, A. Simon)

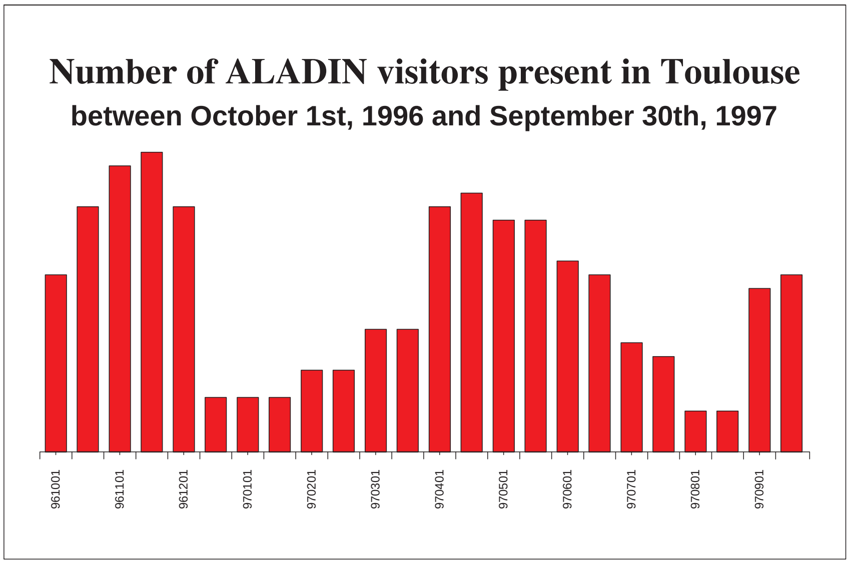
12. In Slovenia

- effort for adaptation of ALADIN on DEC Alpha station for operational purposes of Slovenian met. service, organisation of the code, operational scripts (N. Pristov, G. Gregoric, J. Jerman, M. Zagar, A. Poredos)
- cycle 7, distributed memory, ISP movies (J. Jerman)
- preparation of Workshop on Workstation version of ALADIN (N. Pristov, A. Poredos, J. Jerman)
- verification of ALADIN precipitations (A. Poredos, N. Pristov)
- subjective verifications (U. Strajnar)
- coupling (N. Pristov, A. Poredos)
- dynamical adaptation (M. Zagar)
- MAP case studies and MAP contribution : gravity wave drag (A. Poredos, N. Pristov, G. Gregoric)
- ALADIN-based operational applications (U. Strajnar)
- experiments for WMO/INM Symp. Palma (M. Zagar)
- testing ALADIN/SLO (N. Pristov)
- sensitivity studies of precipitation v. resolution (M. Zagar, G. Gregoric)
- vizualisation : chagal, fa2v5d, vis5d (N. Pristov, S. Gabersek, J. Vehovar)
- file transfer (Matjaz)

13. Deported work by Météo-France

- nothing these quarters.

ALADIN developments in Toulouse from the last quarter of 1996 until the third quarter of 1997



During the most crowded months, not even a tip-up seat was available in Toulouse ! More than 80 stays were organized for around 50 visitors (many of them may have missed us once at home since they came for a second, a third or even a fourth visit in this period) from 14 countries. All have contributed to the above mentionned developments.

In these following lines, you will find a summary of the work achieved in Toulouse, excepted the work detailed in the previous pages. All details and names will not appear there. But we are grateful to all persons who contributed in some way to the project in Toulouse. If one wants more details on a particular subject, please contact claude.fischer@meteo.fr (who keeps reports from Toulouse stays when available) or directly the author (the table on the next page indicates fort each stay during the period October 1st, 1996 - September 30th, 1997 the name of the visitor and the title of his work). The hard permanent workers in Toulouse are welknown and will not appear : Jean-Marc Audoin, Ryad El Khatib, Jean-François Estrade, Cladue Fischer, Jean-Daniel Gril, Joël Hoffman, Patrick Le Moigne, ...

1. Scripts and libraries

- Due to some bad technical options taken at the beginning, the work on ALADIN06 took much more time than expected. It was finally available in April, including the CANARI part (adaptation of the previous ARPEGE optimal interpolation analysis scheme), almost just in time for the 3D-VAR action of April-May 1997, thanks to the efforts of the phasing team.
- The preparation of ALADIN07 is an important step in the evolution of ALADIN : it corresponds to the introduction of everything necessary to run ALADIN on distributed memory machines. This effort started just after the cycle 6 was finished and ended at the beginning of August, only two weeks after scheduled date !

2. Assimilation

- Several works have been done on CANARI (building an ALADIN assimilation suite, adaptation to workstation, impact of SATEM messages) or on the adjoint and tangent linear of observation operators. But the focal period for activities on assimilation was of course April-May (see section about the 3D-VAR action in Toulouse in the present Newsletter).

ALADIN visitors in Météo-France/CNRM/GMAP between October 1996 and September 1997		
NAME	**COUNTRY**	**TOPIC**
AJJAJI Radi		Phasing
BANCIU Doina	Romania	Thesis : "Specific small scale diabatic forcing in ALADIN at the limit of the non-hydrostatic assumption"
BOUTAHAR Jaouad	Morroco	Phasing
BRZOVIC Nedjeljka	Croatia	Mesoscale Alpine Project (M.A.P.)
BUBNOVA Radmila	Czech Republic	RC-LACE
CAIAN Mihaela	Romania	thesis defense CROCUS in ALADIN
CORDONNEANU Elena	Romania	Update of the configurations 923 and E923 (climatological data) to enable the use of finer mesh input data
DRAGULANESCU Liviu	Romania	Phasing Variational in ALADIN
DUFKOVA Dagmar	Czech Republic	Diagnostics of PBL characteristics (e.g. mixing height)
DVORAK David	Czech Republic	Coupling frequencies Phasing Stratospheric dynamics
DZIEDZIC Adam	Poland	Study of COMPARE/PYREX case at resolution 2.5 km in non-hydrostatic ‘‘3-time-levels’’ semi-lagrangian Snow parametrisation in ALADIN
EL ABED Mehdi	Morroco	Phasing
Von Der EMDE Klaus	Austria	COMPARE : further studies + FULLPOS : treatment of Non-Hydrostatic variables
GABERSEK Sasa	Slovenia	FASTEX in ALADIN
GAYTANDJIEVA Lora	Bulgaria	Variational in ALADIN
GERA Martin	Slovakia	ALADIN Non-hydrostatic semi lagrangian
GERARD Luc	Belgium	Physical parameterizations in NH Aladin Phasing E923 + ISBA
GOSPODINOV Ilian	Bulgaria	Non-hydrostatic in two time levels schemes Thesis ‘‘Conservation Properties of a two-time-level semi-implicit semi-Lagrangian Scheme in a framework of a Limited Area Model
GREGORIC Gregor	Slovenia	Variational in Aladin
HADDOUCH Hassan	Morroco	CMMAFOC files
HAIDEN Thomas	Austria	Study of the spin-up problem with comparing its effect in ARPEGE and ALADIN
HORANYI Andras	Hungary	Variational 3D in ALADIN RC-LACE
ISSARA Samir	Morroco	Variational in ALADIN
IVANOVICI Vladimir	Romania	interpolation with SL
JANISKOVA Marta	Slovakia	Thesis : Realization of a simplified physic package for ARPEGE and ALADIN AD/TL versions Phasing
JERCZYNSKI Marek	Poland	Extension of Tanguay-Ritchie formulation of continuity equation to the temperature equation in semi-lagrangian Phasing and Porting
JERMAN Jurij	Slovenia	Phasing
KERTESZ Sandor	Hungary	Application of the simplified physics (especially radiation) in the forecasting model
KLARIC Dijana	Croatia	Sensibility of precipitation fields in ARPEGE/ALADIN while tuning physical parameterizations
MADEIRA Cristina	Portugal	Interactions cloud-radiation-vertical transport for clouds on top of PBL ISBA in 927
MLADEK Richard	Czech Republic	Aerosols in radiation scheme Mesoscale Alpine Project (M.A.P.)
MONTEIRO Maria	Portugal	Variational in ALADIN
NEYTCHEV Plamen	Bulgaria	Fibrillations in ALADIN last winter
PASTIRCAK Vladimir	Slovakia	Problem of spurious precipitations over mountains
POREDOS Ales	Slovenia	Coupling
PRATES Fernando	Portugal	Condition at the bottom limit in non-hydrostatic semi-lagrangian Phasing of semi-Lagrangian Non-hydrostatic
PRTENJAK Maja Telisman	Croatia	Study of fibrillations associated with the parametrisation of shallow-convection
PRISTOV Neva	Slovenia	Coupling in ALADIN Variational in Aladin
RADNOTI Gabor	Hungary	RC-LACE
RANDRIAMAMPIA-NINA Roger	Hungary	Use of satellites data in 3D VAR Variational in Aladin
SANDEV Marjan	Czech Republic	Validation
SIROKA Maria	Slovakia	Elaboration of an assimilation suite for ALADIN Variational in ALADIN Assimilation et phasage cycle 18
SPIRIDONOV Valery	Bulgaria	Development of a parameterisation of snow in aladin, starting from CROCUS, CROCUS in ALADIN
STRAJNAR Uros	Slovenia	Study of the link between gravity wave drag and mountainous precipitation
SZCZECH Malgorzata	Poland	Soil negative temperature treatment in ALADIN
VANA Filip	Czech Republic	Thesis : ‘‘The dynamical and physical control of kinetic energy spectra in a NWP spectral semi-Lagrangian model‘‘
VIVODA Josef	Slovakia	Diagnostic of the individual terms of the Kuo-closure assumption and associated feedbacks
ZAGAR Mark	Slovenia	Thesis : ‘‘Prediction of small scale events through second-level dynamical adaptation of the state planetary boundary layer
ZITOUNI Meriem	Croatia	Validation tools

3. *Dynamics*

- In this area, there has been also several works done, especially on the semi-Lagrangian part of the model (interpolators, successful application of the Tangay-Ritchie technique to the temperature equation, ...) and on the high resolution version of the model, study of the behaviour of wave damping/absorption at the top of the model). A study of a new anti-fibrillation processing was tested and is likely to be implemented in the model.

4. *Physics*

- The CROCUS model originating from the "Centre d'Etude de la Neige" (CEN) in Grenoble has been phased with the most recent versions of ARPEGE and ALADIN. This model describes the evolution of snow on the ground and needs input from atmospheric models. Later, a set of data has been prepared for intercomparison study between the use of ARPEGE and the use of ALADIN for the snow monitoring in the Alps from the CEN with SAFRAN (snow cover analysis program). Although some difficulties were encountered in this intercomparison, it appears that the use of ALADIN gives a positive impact (to be confirmed).
- Precipitation verification, night cooling, adaptation of physics to non-hydrostatic, description of aerosols in the radiation scheme were some of the other topics studied during the period.

5. *Coupling*

- Under the co-ordination of the Project Scientific Officer of RC-LACE, several tasks have been achieved on this topic, which was selected as primary topic for 1997 during the Dublin EWGLAM meeting. The goals were to better understand the influence of the coupling frequency, the resolution gap between coupling and coupled model, the size of the domain, ...

- The last study concerned the method used to interpolate between the different ranges available for coupling. It was shown that the simple linear interpolation was optimal in term of cost and efficiency, although some more expensive techniques could bring some slight positive effects.

6. ALADIN at ECMWF

- There has been an attempt to run ALADIN at ECMWF. It was an interesting exercise with several difficulties to overcome, but it was clearly shown that the implementation of ALADIN in the ECMWF environment was far from easy. This exercise has been stopped.

7. HERA activities in GMAP

The HERA project is a kind of preliminary phase to the largest Mesoscale Alpine Programme (MAP). It is especially dedicated to the study of heavy precipitation events over the Alps. After a proposal was successfully submitted to the European Communities in 1996, six different workpackages could start working in December 1996. One of them consists of comparing different precipitation forecasts computed by four different models in Europe : at the German DWD, the Swiss SMA, the Italian SMR-Emilia Romagna and Meteo-France.

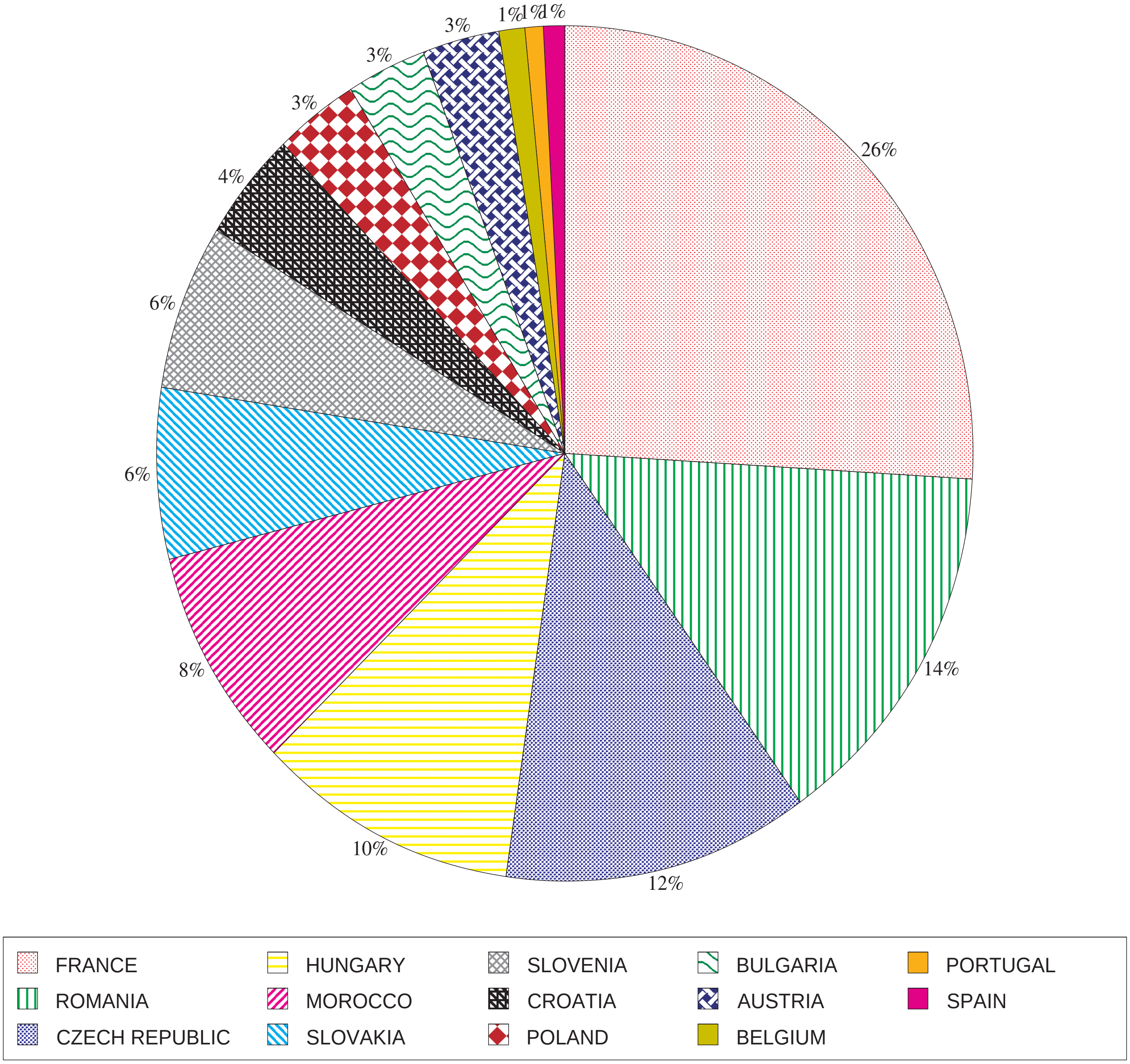
This action is run under the responsibility of CNRM/GMAP in the ALADIN team. The operational suites of ALADIN-PECO and ALADIN-LACE will be used as input to this intercomparison. A final report on this action will be prepared by the end of October 1998.

For the time being two persons could contribute to the action : Nedjeljka Brzovic from Croatia in March-April-May 1997 and presently Richard Mladek from Czech Republic from September until December 1997. The next stays (three months each) for Richard Mladek are planned for Spring and Summer 1998. An intermediate report for the full HERA project will be available in GMAP by the end of December 1997.

Annexes :

Total Participation in the ALADIN project

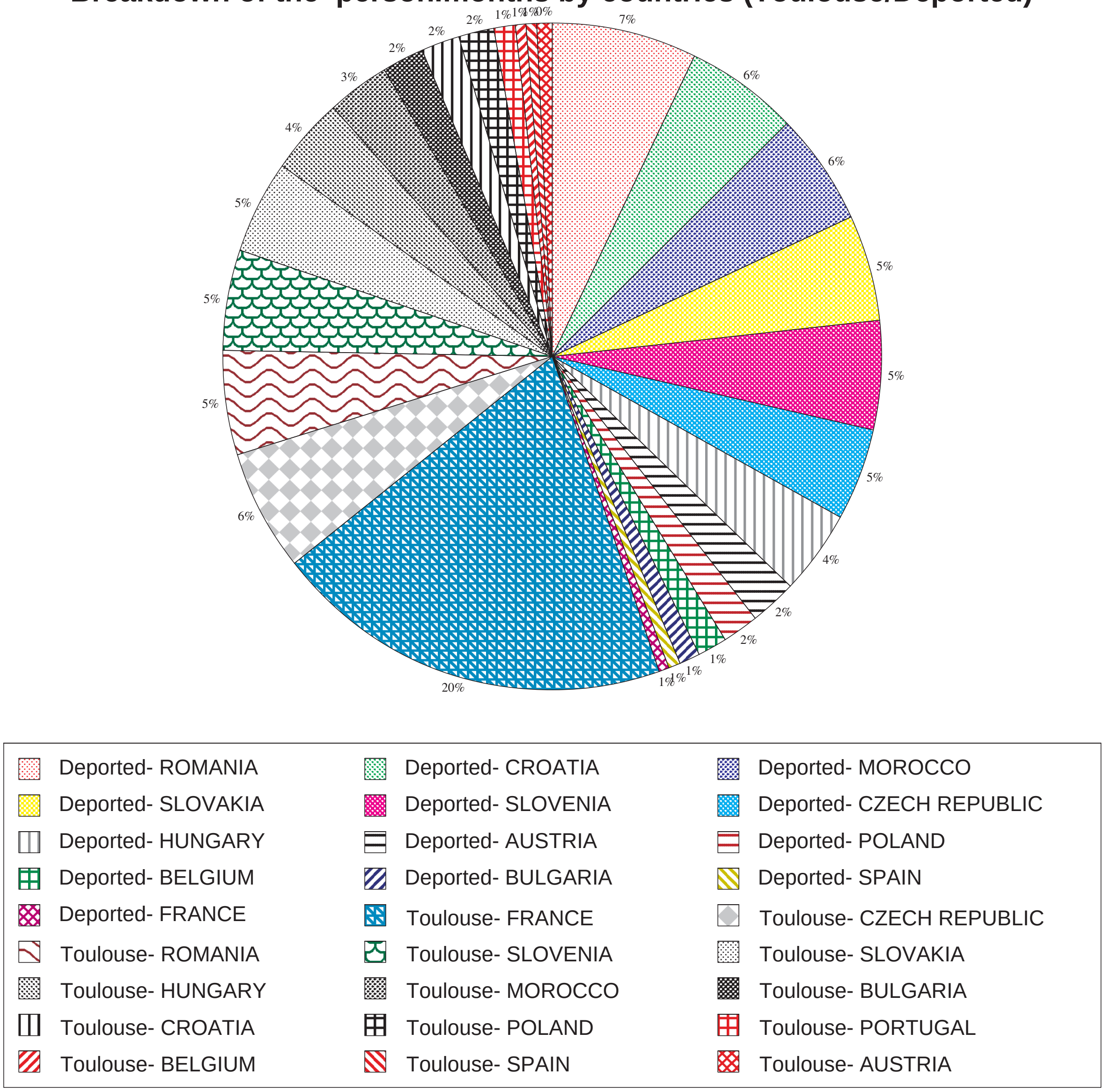
Breakdown of the person.months by countries



Updated on 30-SEP-97 (Toulouse) and 30-JUN-97 (Outside)

Participation in the ALADIN project since the last quarter of 1995

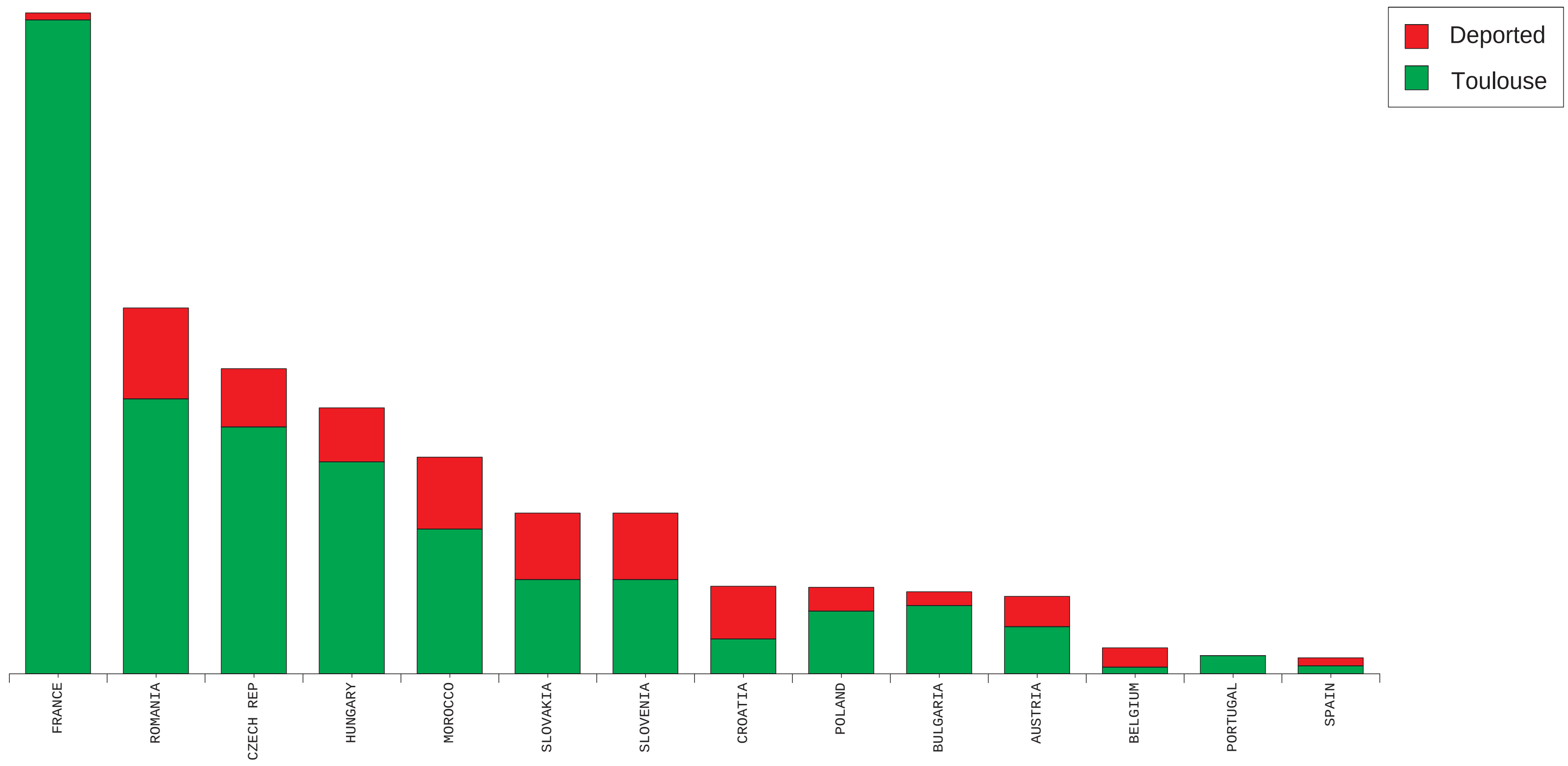
Breakdown of the person.months by countries (Toulouse/Deported)



Between 30-SEP-95 and 30-JUN-97

Total Participation in the ALADIN Project

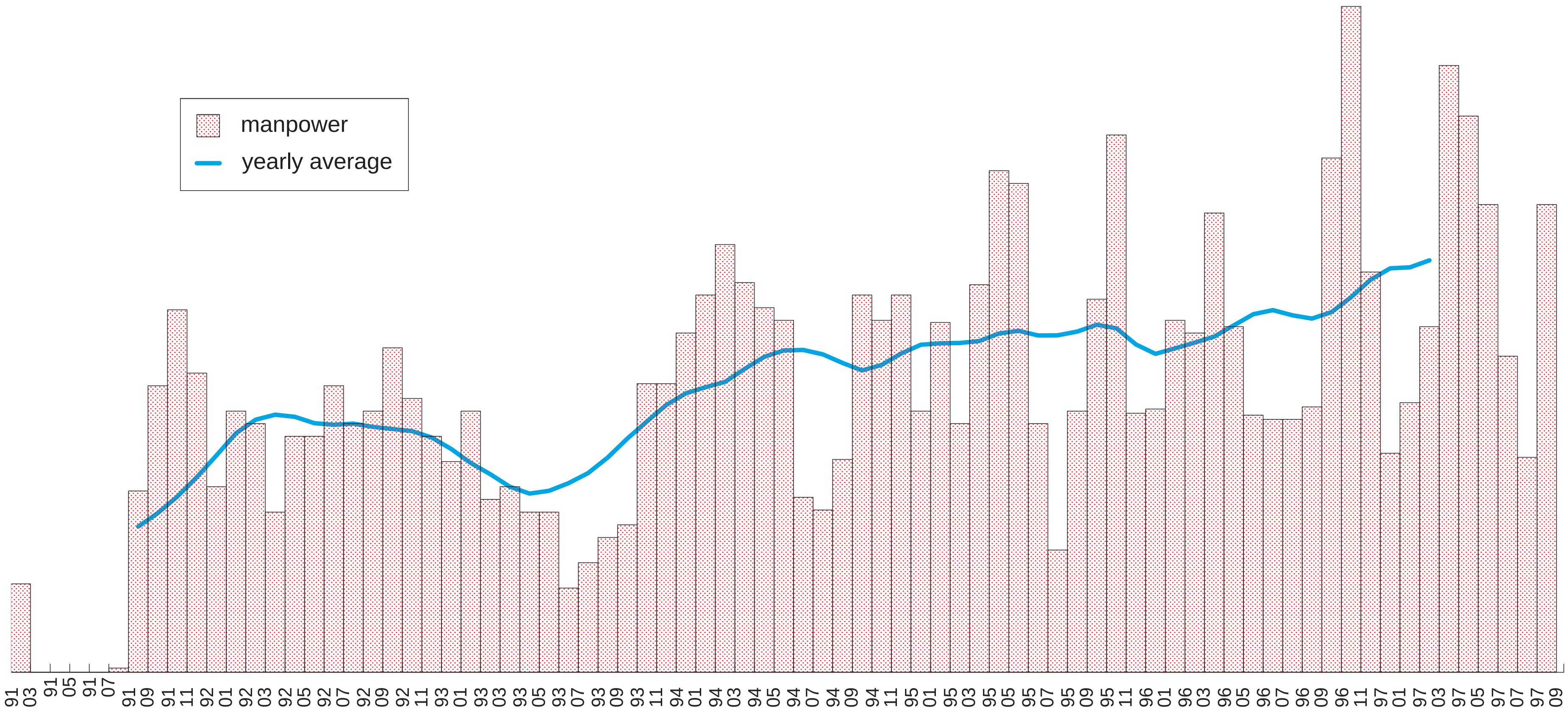
Breakdown of the person.months by countries



Updated on 97930 (Toulouse) and 970630 (Deported)

Participation in the Toulouse part of the ALADIN project

Evolution of the monthly manpower



Updated on '30-SEP-97'