Czech Republic Slovenia Croatia France Slovakia Spain Bulgaria Hungary Romania Austria Poland Morocco

ALADIN Newsletter

**Number 3** **July 1996**

# What was important during the second quarter of 1996

*This Newsletter 3 presents you the principal events concerning ALADIN during the second quarter of 1996.*

*The news about work or events outside Toulouse are based on informations that I have received from you and essentially concern the first quarter of 1996.*

*Please do bring to my notice anything that you would like to be mentioned in the Newsletters.*

*For any comments, please contact :*

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## Protection of ALADIN software

It has become obvious that, in the framework of the ALADIN project, our common intellectual property needs protection. Météo-France intends to protect the ALADIN software through its registration at the ''Agence pour la Protection des Programmes''.

All the Institutes who had a valuable contribution in the development of ALADIN are considered as co-authors of this software. Their directors have got a letter asking their permission for Météo-France to register the ALADIN software in the name of all partners.

This was the first step to a legal regognition of our common effort ...

## Memorandum of Understanding between the ALADIN partners (MoU)

The last (and future) evolutions of ALADIN make it now necessary to get a minimum of formalization around the project in order to keep it as successful as it has been during the last five years.

A draft proposal for a Memorandum of Understanding (MoU) between the National (Hydro)Meteorological Services (NMS) of Austria, Bulgaria, Croatia, Czech Republic, France, Hungary, Morocco, Poland, Romania, Slovakia, Slovenia and Spain concerning the Limited Area Spectral Numerical Weather Prediction System named ''ALADIN'' has been drawn up and sent to every Directors of NMSs for comments and proposals of improvement or modification. A version acceptable to everyone will be produced then and submitted to the signing procedure.

This MoU first recalls the current principles guiding research, development and maintenance of ALADIN (more precisely ARPEGE/ALADIN, to recall the interdependency of the two systems).

Then, it intends to precise the conditions of use of the ALADIN software.

Conditions of membership to the ALADIN Project (for present partners), conditions of adhesion to the ALADIN Project (for new partners) and conditions of withdrawal from the ALADIN Project are then defined.

## Project Review

An impromptu ALADIN Project Review took place on Monday 22th of April 1996 on the occasion of the ACTIM meeting. The ALADIN visitors present at that time in Toulouse and the permament Toulouse staff contributed to the success of this review. Ten directors of NMSs from Central and Eastern Europe attended it.

The presentations began at 18:00 with :

- Historical account of ALADIN by Jean-François Geleyn
- Organisation of the collaboration by Joël Hoffman
- The scientific challenges by Gabor Radnoti
- PhD subjects by Marta Janiskova
- ALADIN/LACE pre-operational project by Radmila Bubnova
- ALADIN on workstation by Mark Zagar
- ALADIN used for the COMPARE project at Météo-France by Nedjelkja Brzovic
- Technical aspects at Météo-France by Emmanuel Legrand

A document that summarizes these presentations was distributed to the participants.

The review of the collaboration was then pleasantly discussed around a cold buffet offered by Météo-France/CNRM.

## Project Review (2)

A few weeks later, another ALADIN project review was presented to Météo-France Directeur Général et some directors from other Météo-France services. Some of the previous actors who had come back home were replaced by new ones ... and all the presentations were made in French (it was the first French presentation for many of them and, according to the French speaking people attending, they were very clear presentations). The program of this ''Session d'information sur le project ALADIN'' was :

- Historique du projet ALADIN par Jean-François Geleyn

- Organisation de la collaboration par Joêl Hoffman
- Les défits scientifiques par Jaouad Boutahar
- Les thèses ALADIN par Radmila Bubnova
- ALADIN utilisé pour le projet COMPARE à Météo-France par Mark Zagar
- Le projet pré-opérationnel ALADIN-LACE par Radmila Bubnova
- Le projet pré-opérationnel ALADIN-MAROC par Samir Issara
- ALADIN sur station de travail (exemples slovène et roumain) par Mark Zagar et Liviu Dragulanescu
- Les aspects techniques à Météo-France par Emmanuel Legrand.

## Money Funding asked for some cooperations based on the ALADIN project

### *1. INCO-COPERNICUS concerted action, so-called ‘‘ALADIN-INCO’’*

A concerted action proposal was submitted to the INCO-COPERNICUS "Environmental" call in Brussels at the end of February. Our proposal has been rejected as "average" in terms of conformity with the aims of the financing. This was of course one of the weakest points (if not the weakest one) of our proposal. The lesson is that we should not any more try to twist a subject to fit in the pre-chosen work plan if the latter is too far away from our own aims. Sorry to all of you for the work for no result and nevertheless thanks for your help. Please pass the information to your individual partners with the same thanks.

### *2. INCO-COPERNICUS keep-in-touch, so-called ‘‘ALADIN-KIT’’*

A keep-in-touch for the previous EU PECO-Action ‘‘Validation and pre-operational evaluation of a fine mesh spectral limited area numerical weather prediction model used in dynamical adaptation’’ was submitted to the same INCO-COPERNICUS call, under the Acronym ‘‘ALADIN-KIT’. This proposal has been evaluated by the Commission.

For the following criteria "ALADIN-KIT" was judged :

- 1. Conformity with the scope and objectives of the program: "excellent"
- 2. Benefits expected from cooperation between the European Union and the Countries of Central Europe : "very good"
- 3. Scientific and/or technical quality : "good"
- 4. Credibility and technical efficiency of the partnership : "very good"
- 5. Benefits expected : "excellent"
- 6. Feasibility of the work plan and quality of management : "excellent"
- 7. Stabilization of RTD potential : "very good".

The global evaluation for "ALADIN-KIT" is "very good" and it has been classified in the field 6 (Information Technology) of the program.

In this field, 5 proposals have been classified "excellent" and will be financed. Half of the 35 "very good" proposals (including ALADIN-KIT) will be financed : so we have a 50 percent chance of being financed.

The final choice within the "very good" proposals will be completed soon.

### *3. ‘‘Réseau-Formation’Recherche’’ : PhD Studies*

Last February, the French Ministry of ‘‘Education Nationale, Enseignement Supérieur et Recherche‘‘ accepted our proposal for a new ’’Réseau Formation Recherche‘‘; it consists in financing five new PhD studies.

The beginning of study of Doina Banciu was delayed to August due to some administrative formalities. Filip Vana will begin his study at the same period and Mark Zagar later this autumn. The last two studies will begin at the end of this year or next year (Marta Janiskova and Ilian Gospodinov).

### *4. Embassies support*

As usual, the documents for embassies support have been submitted by DGS/IE in Météo-France to the relevant authorities. The political and financial decisions have now been taken in the French Ministries. More details should be asked directly to DGS/IE (arlette.rigaud@meteo.fr).

## The (pre-) operational ALADIN models on big computers

This is the present situation ...

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

ALADIN-France is in pre-operational test since the 11.03.96 on the CRAY C98 computer in Météo-France. The forecasters in Toulouse are now evaluating the ALADIN forecast available on SYNERGIE system.

No major change in ALADIN-France during these 3 months. The coupling files are still prepared via the configuration 926 (E926) that will be replaced by the ‘‘E927’’ version of Full-Pos in July.

Several meetings have been organized in regional centres of Météo-France (Lille, Aix en Provence, Paris) for presenting the ALADIN-France application to the regional and local forecasters. The dissemination of the ALADIN-France products to the local centres (more than 100 in France) will be based on one of the new RETIM channels, scheduled end of summer, while the 7 regional centres are about to receive them via the dedicated link they have with Toulouse, that have been upgraded end June to 128 KBit/s minimum.

### *2. Pre-Operational ALADIN-CEE in Météo-France*

The pre-operational ALADIN-CEE who has been faithfully running on Météo-France C98 since the 31st May of 1994 was stopped on the 1st of July of 1996.

## 3. Pre-Operational ALADIN-MAROC in Météo-France

This version has been running in Toulouse on the Cray C98 since february 1996. As a temporary solution, before full replacement by ALADIN-Maroc/Casablanca, Météo-France has developed and put into operation the feeding of the SYNERGIE system installed in Casablanca by the results of ALADIN-Maroc/Toulouse using the 64KBit/s link.

## 4. ALADIN model and ALBACHIR forecasting suite in Maroc-Météo

*The Moroccan forecasting suite based on the ALADIN model was named ALBACHIR* by ''Sa Majesté Le Roi du Maroc''.*

The ALBACHIR suite will be run on a Cray J916 computer (also used for research tasks). It is expected to be operational this summer.

For the present pre-operational ALBACHIR suite, the ALADIN model is run twice a day (with assimilation cycle) : it uses the coupling files produced by Météo-France at 31 Km resolution and provides forecasts until 48 hour range on a domain covering Morocco (still at 31 Km resolution). These products are used by the forecasters through a SYNERGIE interface.

The future suite is also under test now. With the replacing of the E926 configuration by the EE927 one, the coupling files can be produced at 16 Km resolution. The ALADIN model will be run in semi-Lagrangian two-time-level with a 675 second time-step. The initialisation will be made using digital filters. 20000s CPU are necessary to compute a 48 hour forecast. FULLPOS will be then used to provide the forecasted fields at a 0.15 degree resolution visualized on a SYNERGIE station.

** BACHIR is a religious term and ALBACHIR can be translated in French by ''le bon augure''.*

## 5. Preparing ALADIN-LACE in Météo-France

The April-June period has been intensively devoted to the preparation and installation of ALADIN-LACE. People involved in this work are the RC-LACE Toulouse team and the Météo-France Computer and Telecom Division. As it was planned the operational start of ALADIN-LACE (and the operational death of the old ALADIN-ECO after more than 2 years of existence) took place July 1st. The main differences with restpect to former ALADIN-ECO are:

- the domain is slightly smaller, but with higher resolution (15 Km compared to 18 Km)
- it is run entirely (coupling task included) on the Cray J916/12 of Météo-France, in parallel with ARPEGE, while ALADIN-ECO was run on the same computer as ARPEGE (the Cray C98), but therefore after ARPEGE: results are available earlier
- it runs twice a day until 48h
- it is monitored fully operationally, and the results are stored in the operational databases

Since RC-LACE and ZAMG (Austria) are paying for this improved application they have some privileges as far as the products are concerned, but the domain has been chosen for covering still Bulgaria, Romania and Poland, who have access to a large number of products, as a tribute to their participation to the ALADIN project.

### 6. *Boundary conditions supply for various ALADIN versions*

Boundary conditions for ALADIN-Romania and ALADIN-Slovenia are now produced on a regular basis. They are made available at Toulouse and fetched by the users. Therefore the current situation is 5 coupling tasks running on the operational suite on the C98, with ALADIN-France and the 2 versions for Morocco (ALADIN-Maroc/Toulouse having a smaller domain than ALADIN-Maroc/Casablanca). This should be reduced in the future when ALADIN-Maroc Casablanca will become fully operational (hence ALADIN-Maroc/Toulouse becoming useless), and also if ALADIN-Slovenia takes its boundary conditions from ALADIN-LACE rather than from ARPEGE.

## 3. The ALADIN models on workstation

- Our Romanian colleagues are very close to start an operational suite in Bucarest. They have done some experimental runs (comparison with the CRAY runs and with the operational ALADIN in Toulouse) for few interesting cases.

  On their DEC ALPHA Station 250/4, it takes 3.5 hours for 48 hour integration starting with 12, once per day. The domain resolution is 12.36 Km and contains 100*100 points and 27 levels.The time-step is 432s for the moment, with a 6 hour post-processing frequency. The libraries currently used are the last ones available before distributed memory cyle.

  The main point to run the operational suite is the availability of the coupling files in Bucarest.

- In Slovenia, the first operational runs on the small domain over Slovenia should be realized this summer. Later, at final stage, the outputs of ALADIN/Slovenia will be available on a local SYNERGIE and will provide the forecasters all local information on wind, precipitations, temperature, humidity, cloudiness, ....

  For the moment, ALADIN runs in configuration 001 perfectly, Full-Pos runs also but there are still some small problems probably with memory. The first results for pressure, model and height levels for lots of variables have been obtained ; an extensive testing is just going on. The EE927 configuration is also under process and, with the help of Ryad EL KHATIB (France) and Liviu DRAGULANESCU (Romania), it is expected to be able to produce the coupling files at the beginning of August.

  The runs are realized on a DEC ALPHA Station 600-5/333 with an old ALADIN code (cycle 4) but with modifications provided by Liviu Dragulanescu (Romania) concerning EE927. Some performance tests were realized on a domain 24*24 points with 28 Km resolution (equivalent to the ARPEGE coupling files). It takes around 100 seconds real time on empty machine for 6 hour integration with ALADIN in 2 times-level semi-Lagrangian configuration and time-step of 432s (the same integration but in 3 times-level and a time-step of of 216s takes 30 seconds CPU time on CRAY C90).

## Final ALADIN-CEE Quasi-Operational Bulletin

On the 1st of July, you received the last *ALADIN Quasi-Operational Bulletin.* Since the 1st of June 1994, 30 bulletins gave you informations on the quasi-operational ALADIN-CEE suite.

Due to the successful work of the LACE team in Toulouse, it was possible to stop this suite ... and the corresponding bulletins.

## ... and first ALADIN-LACE Bulletins

ALADIN-LACE took the place of ALADIN-CEE and the ALADIN-LACE Bulletins appeared.

On the 2nd of July, the *ALADIN-LACE Bulletin number 1* gave you notice of the delay of the afternoon operational suite due to an unexpected problem on the CRAY C90.

On the 4th of July, the *ALADIN-LACE Bulletin number 2* was pleased to inform you that the youth problems in the geometry of ALADIN-LACE were solved and where the GRIB files produced by ALADIN-LACE could be found.

## Summaries of the participations in the ALADIN projects

The last summaries of the participations in the ALADIN project were prepared at the beginning of July 1996. As explained in the M.of U., the total participation updated on the 30 of June 1996 is calculated considering the Toulouse part of the work until this date and the deported part until the previous quarter (31 of March). Please find in annex a few graphics illustrating this summary (figures 1, 2, 3 and 4).

The estimation has been realized according to the following rules (more details will be avaiblable in the next version of the MoU in appendix) :

- the unit is half a month (for one given person).
- the actions in Toulouse are registrated immediately while a three months' lag is applied to the deported contributions due to the experienced difficulties in collecting the information ... *by the way, we are still expecting some contributions for the second quarter of 1996 ... The informations sent by each correspondant are used twice : first, to calculate the summaries (for this part, we need the name and the effort of each participant in the above-mentioned unit) and then, to indicate in the Newsletter the ALADIN deported developments (topics and the people working on them).*
- the stays from one country to another are registrated as full time work on the project.
- other actions are split in two categories : (i) coordination tasks for the project and (ii) dedicated work on one subject belonging to the recognised topics (research, development and maintenace tasks on and around the ALADIN code; enhancement of diagnostic tools specifically related to the ALADIN results or downstream adaptation procedures linked to the ALADIN products).

## ALADIN deported developments during the first quarter of 1996

In this part, you will find informations sent by the representative of each country for the national participations. As a very few of them were received for the second quarter of 1996, the corresponding informations will be part of the next Newsletter.

For more details, please contact directly the authors.

On the other hand, do send me any information that you would like to be indicated here.

## *1. Work for ALADIN in Austria*

- evaluation of ALADIN surface fields over the territory of Austria ; G. HERMANN and Klaus VON DER EMDE

## *2. Work for ALADIN in Bulgaria*

- decoding of ALADIN GRIBs and preparing for visualization and use in statistical schemes : AndreyBOGATCHEV in collaboration with Istvan IHASZ (Hungary)
- implementation of HRID for running on IBM R6000 workstation : Andrey BOGATCHEV

## *3. Work for ALADIN in Croatia*

- theoretical studies dealing with objective interpretation of special phenomena under hydrostatic and non-hydrostatic conditions as well as their practical implication to the processing and post-processing of NWP products; publishing of the paper ‘‘Atmospheric static stability with respect to static energy changes’’ : Drazen GLASNOVIC
- GRIB data decoding and preparation of ASCII files for the limited area around Croatia with resolution 0.25 degrees : Nedjeljka BRZOVIC (in cooperation with Istvan IHASZ, Hungary)

  *MSH of Croatia would like to express gratitude to Hungarian colleague Mr. Istvan Ihasz for his great help.*
- data acquisition and archiving : Dijana KLARIC
- visualization of fields : Jadranko SMITLEHNER
- meteograms for Croatian stations : Dijana KLARIC
- ALADIN surface parameters as input for ‘‘Model for Forest Fire Protection’’ : Dijana KLARIC and Marija MOKORIC

## *4. Work for ALADIN Czech Republic*

- further development of the plotting software for ALADIN GRIBs : Martin JANOUSEK
- further development of the plotting software for ALADIN prognostic TEMPs : Jirina SOKOLOVA and Filip VANA

## *5. Work for ALADIN in Hungary*

- final compilation of his Ph. D. thesis : Andras HORANYI
- preparation of RC-LACE Council, TAC and SAC meetings : Gabor RADNOTI
- operational preparation of GRID email messages from ALADIN GRIB files to Zagreb : Istvan IHASZ (in cooperation with Nedjeljka BRZOVIC, Croatia)

- operational archiving of EMDE-list : Istvan IHASZ
- operational application of Prague list products : Istvan IHASZ

## *6. Work for ALADIN in Morocco*

- Full-Pos for ALADIN-Maroc : Mehdi ELABED
- EE927 configuration for ALADIN-Maroc : Jaouad BOUTAHAR

## *7. Work for ALADIN in Poland*

- nothing this quarter

## *8. Work for ALADIN in Romania*

- implementation of the workstation version of ALADIN : Doina BANCIU, Elena CORDONEANU, Liviu DRAGULANESCU and Vladimir IVANOVICI

## *9. Work for ALADIN in Spain*

- familiarization with the CANARI code and the data preprocessing in general in order to be able to implement the ALADIN system on the Spanish CRAY in 1996 : Javier CALVO SANCHEZ and Jacobo ORBE ZALBA

## *10. Work for ALADIN in Slovakia*

- visualization of ALADIN GRIB : Oldrich SPANIEL
- Kalman filtering : Josef VIVODA
- Data collection : Oldrich SPANIEL and Roman ZEHNAL

## *11. Work for ALADIN in Slovenia*

- operational implementing of GRIB and HRID : Gregor GREGORIC and Jure JERMAN

## *12. Deported work for ALADIN realized by Météo-France people*

- nothing this quarter

## ALADIN developments during the second quarter of 1996 in Toulouse

Last quarter, fifteen visitors (and one French student) joined their efforts to the Toulouse permanent ALADIN team. Their main developments were related to :

### *1. About scripts and libraries :*

- preparing cycle 6

  Thanks to the great effort provided this quarter we are close to the cycle 6 of ALADIN library. Some parts of the code are ready (semi-Lagrangien, non-Hydrostatic, coupling, CANARI analysis, reorganisation of spectral tables,..) but we are waiting for others ones to make final tests.

  Many people were involved in this task : Jaouad BOUTAHAR (Morroco), Liviu DRAGULANESCU (Romania), Samir ISSARA (Morroco), Radmila BUBNOVA and Gabor RADNOTI (LACE team), Patrick LE MOIGNE and Ryad EL KHATIB (Météo-France, GMAP), Jean-François ESTRADE and Vijay SARAVANE (Météo-France, VALPARAISO team).

- High resolution

  Some tests were realised by Uros STRAJNAR and Andrey VELKAVRH at high resolution (2.5 Km) over a domain around the nuclear powerplant of Krsko in Slovenia. Both Eulerian and semi-Lagrangian runs were realised in Hydrostatic option, with an attempt to debug the non-Hydrostatic version.

- Workstation version

  ALADIN is now running on a SUN machine : Oldrich SPANIEL (Slovakia), Jean-Marc AUDOIN (Météo-France, GMAP), Jean-François ESTRADE and Vijay SARAVANE (Météo-France, VALPARAISO team).

- ALADIN-LACE

  The operational ALADIN-LACE suite was prepared by the LACE team in Toulouse (Radmila BUBNOVA, Gabor RADNOTI) and, as expected, the first operational runs were computed on the 1st of July.

- familiarization with the CANARI/ALADIN/FULLPOS system for two Spanish colleagues (Jacobo ORBE ZALBA and Javier CALVO SANCHEZ) with a concrete result (correction of error in the computation of the $\theta_w'$ in FULLPOS).

### *2. About diagnostics:*

- A tool that permits to calculate vertical cross-sections from ALADIN files has been developed and used for the COMPARE project (Nedjeljka BRZOVIC and Jean-Daniel GRIL).

- Some ALADIN runs were realised for the PYREX situations, using different configurations, for various domains and resolution (between 50 and 10 Km) : Nedjeljka BRZOVIC and Ryad EL KHATIB.

### *3. About physics :*

- Neva PRISTOV studied the unrealistic coolings that appear in ARPEGE/ALADIN during the night in winter. She tried to validate a modified version of the physics to solve this problem.

### *4. About analysis and assimilation :*

- Marta Janiskova (Slovakia) continues her PhD study about the development of a simplified physics package for the 4D variational analysis.

### *5. About ALADIN coupled with ALADIN :*

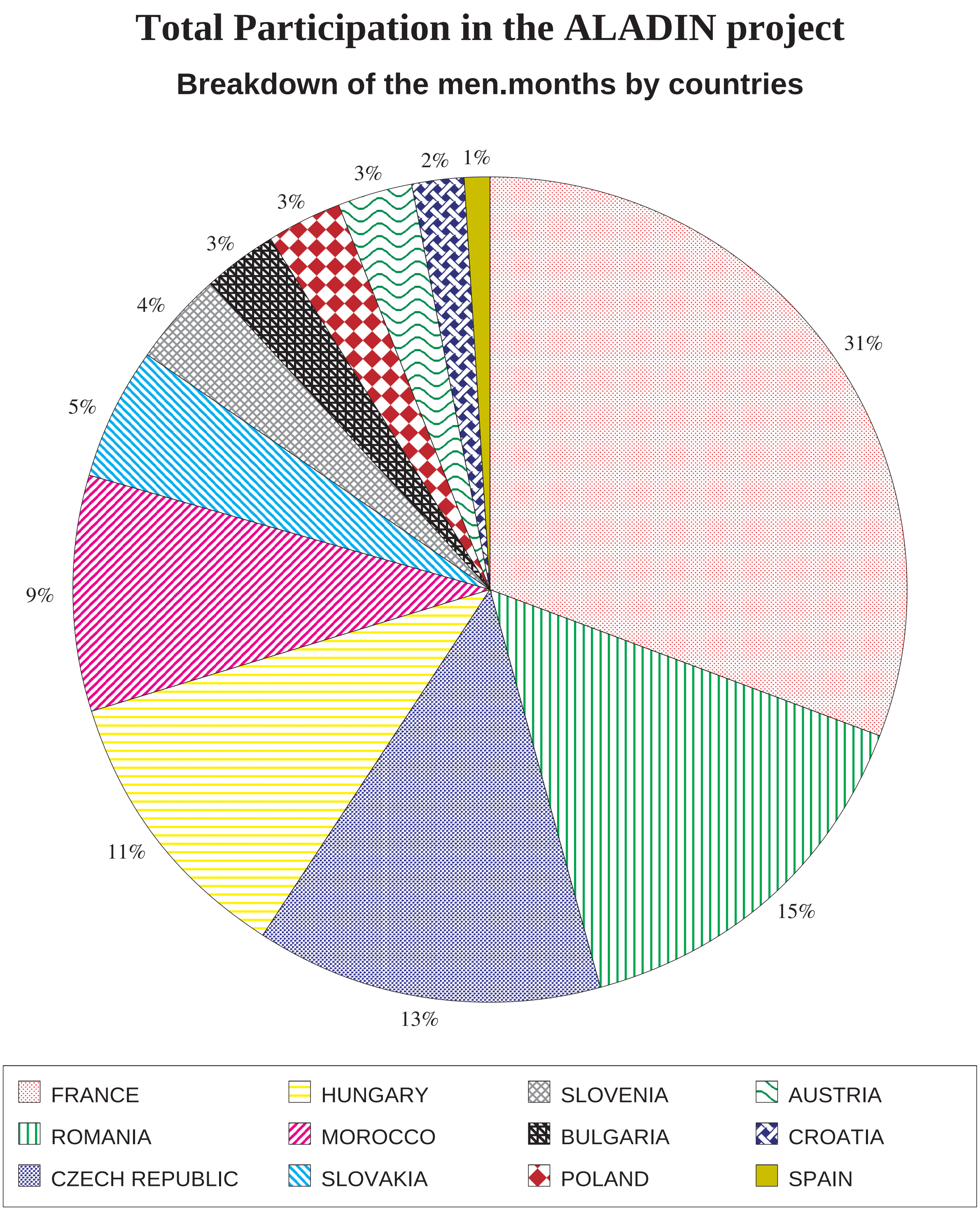
- Fabrice GUILLEMOT made some experiments of coupling ALADIN at hight resolution with another ALADIN at lower resolution. The results (on an exceptionally rainy situation) confirm the necessity to avoid a too great difference between the resolutions of the coupling model and the coupled model. Better results are obtained at 10 Km resolution if we use ALADIN at 10 Km coupled with ALADIN at 20 Km resolution, this one coupled with ARPEGE (compared with ALADIN at 10 Km resolution directly coupled with ARPEGE).

## ALADIN informations available

These informations (and others) are available on a public ftp (updated in July). A WWW server is ... planed to display information on ALADIN. Later, you will be informed by e-mail about the direct access to the ALADIN Web pages.

## Annexes :

*Figure 1*

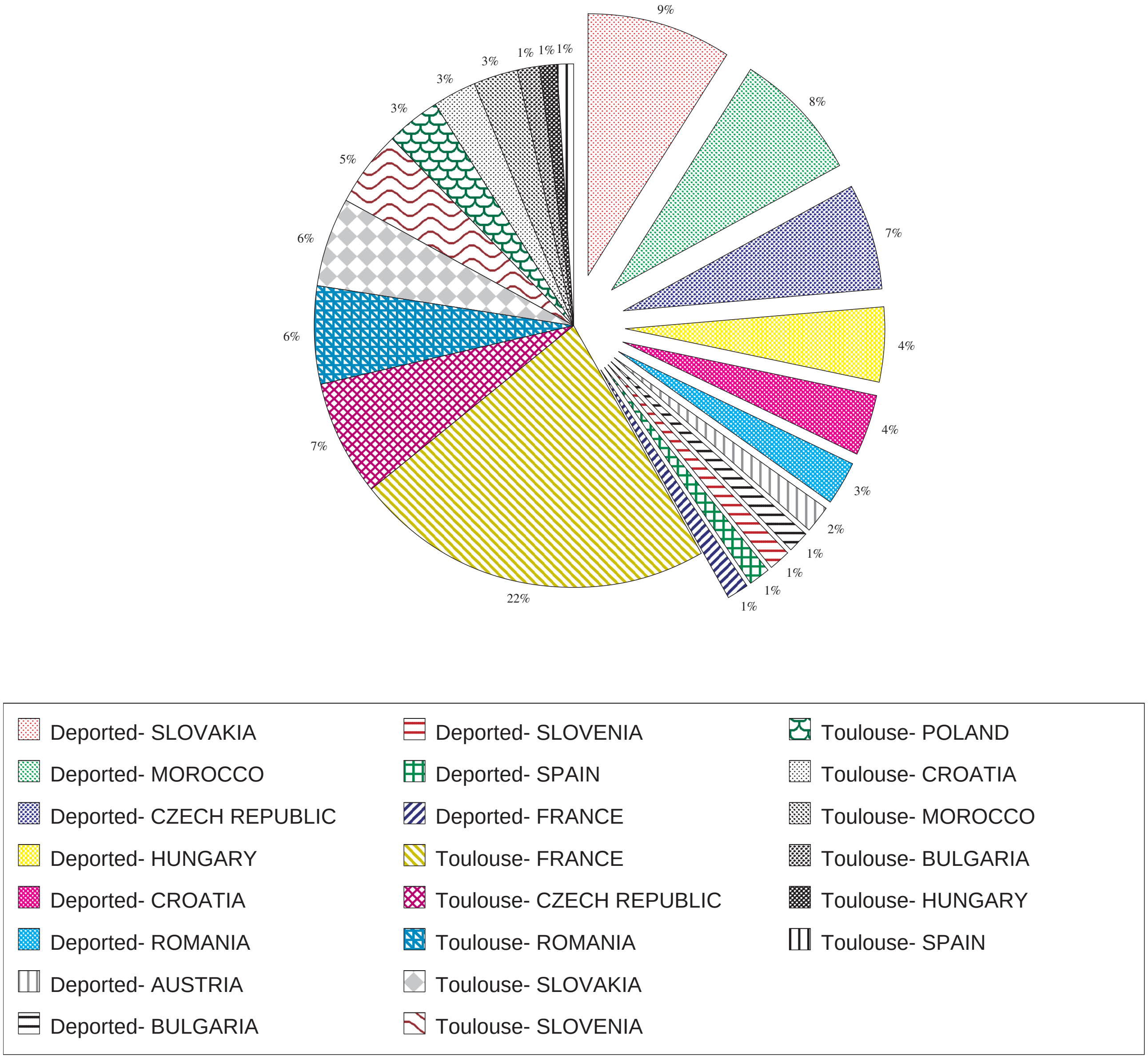



*Updated on 30-JUN-96 (Toulouse) and 31-MAR-96 (Outside)*

*Figure 2*

# Participation in the ALADIN project since the last quarter of 1995

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

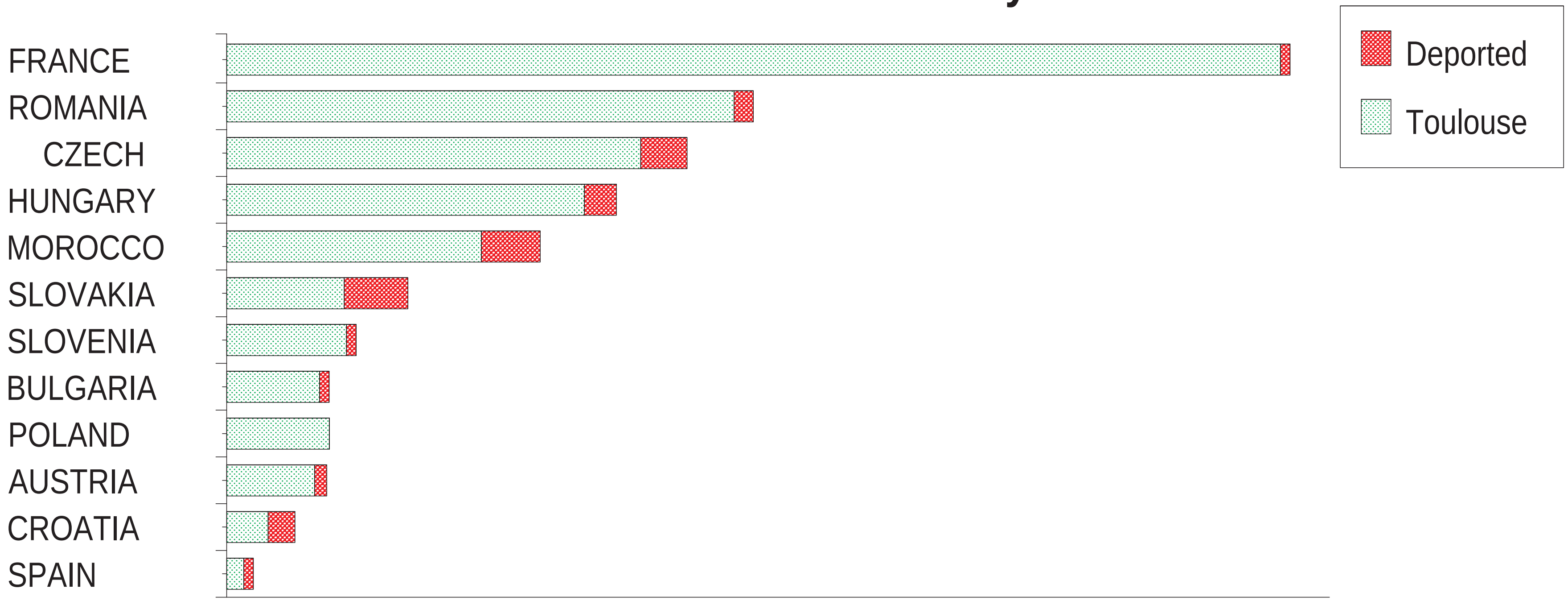



*Between 30-SEP-95 and 31-MAR-96*

*Figure 3*

# Total Participation in the ALADIN Project

## Breakdown of the men.months by countries

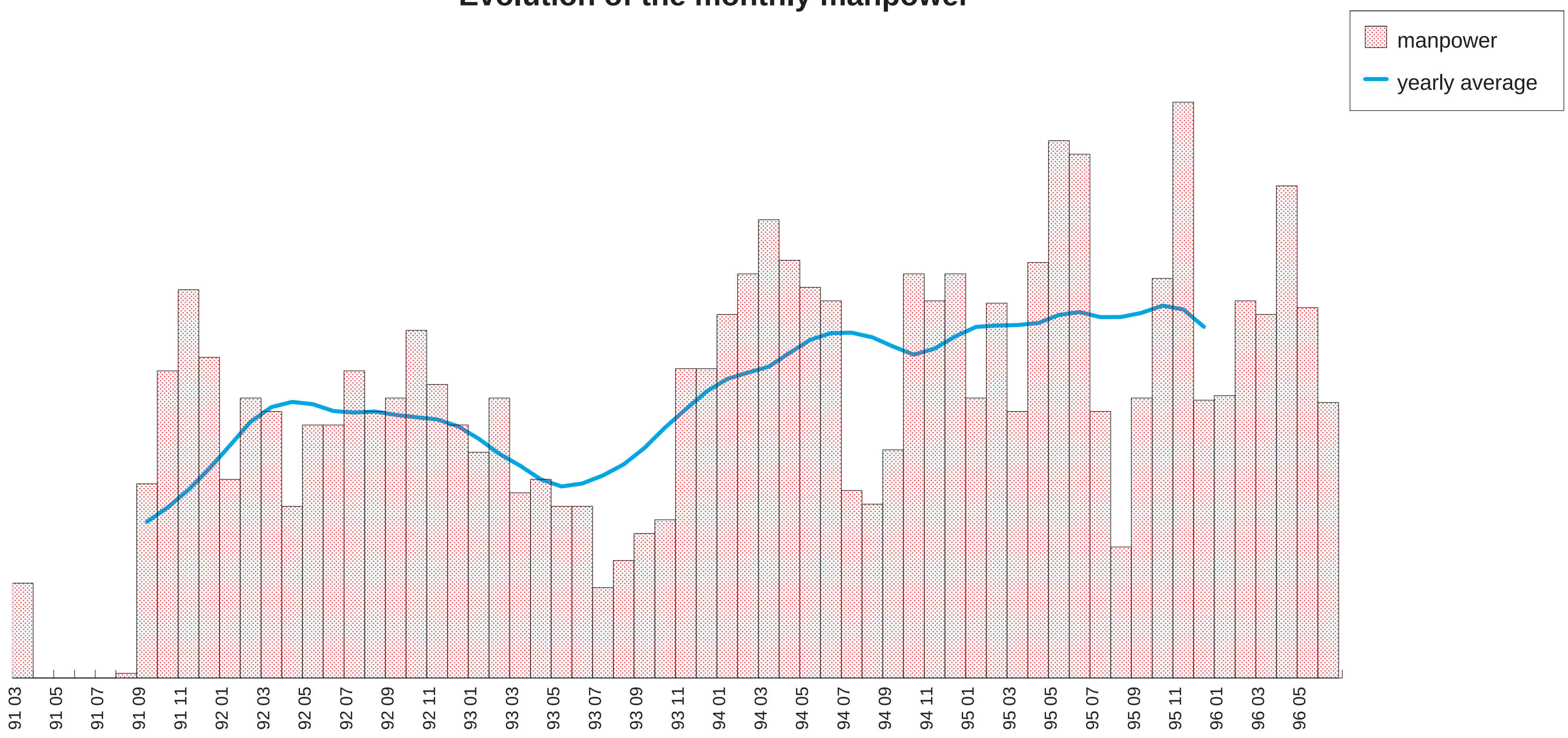



*Updated on 960630 (Toulouse) and 960331 (Deported)*

*Figure 4*

# Participation in the Toulouse part of the ALADIN project

## Evolution of the monthly manpower




*Updated on '30-JUN-96'*