

MEMORANDUM OF UNDERSTANDING, 1996

between the National (Hydro)Meteorological Services of

**Austria, Belgium, Bulgaria, Croatia, Czech Republic, France,
Hungary, Poland, Romania, Slovakia , and Slovenia**

concerning the Limited Area Spectral Numerical Weather Prediction System

**named «ALADIN» (short for ARPEGE(IFS)/ALADIN), valid for four years after its
signing by all Partners**

version, adopted at the 1st Assembly of Partners in Paris on 25/11/96



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1. Preamble:

The ALADIN project was launched back in November 1990 when Météo-France proposed to six National (Hydro)Meteorological Services (NMSs) of Central and Eastern Europe to jointly develop, improve and maintain a Limited Area version of the IFS/ARPEGE global Numerical Weather Prediction (NWP) software.

In September 1991 the effective work started with the participation of seven NMSs (Austria, Bulgaria, Czech Republic, France, Hungary, Poland and Romania). In November 1993 three new Partners joined in

(Morocco, Slovakia and Slovenia), in April 1995 two other Partners completed the team (Croatia and Spain). Now Belgium and Moldavia are entering the project at the time of signing the current MoU. Partners already participating in the project or admitted into it and having technical problems for an immediate signing of the MoU (Moldavia, Morocco and Spain) will have six months to regularise their situation, time during which they will not be submitted to the selection procedure mentioned later in section 6. It should also be noticed that Portugal is now candidate to enter the project.

Despite the fact that operational aims could not be exactly the same for all Partners, the informal agreement that helped to maintain a successful dynamics for the project did not need updating or revision for the last five years.

Now several evolutions make it necessary to get a minimum of formalisation around the project. Let it immediately be clarified that this formalisation is not aimed at modifying the principles that have successfully been obeyed up to now but at creating a protecting environment for their further application.

The reasons that are pleading for the signing of a MoU are the following:

- (i) the code is currently undergoing a transition from quasi-operational to pre-operational status at roughly the same time for five applications, one of them being already subject to a contractual agreement between Météo-France, RC-LACE (NMSs of Czech Republic, Croatia, Hungary, Slovakia and Slovenia) and ZAMG for pre-operational running of an ALADIN-LACE application in Toulouse. It is understood that the concerned Partners did verify that no contradiction exist between the present MoU and the above-mentioned agreement,
- (ii) up to now the common intellectual property around the ALADIN code was protected by its «machine dependency» and by the «dead branch» character of its preliminary workstation versions; when the so-called Cycle 6 of the ALADIN library will have been created (Fall 1996) this implicit protection will have disappeared and
- (iii) it is likely that several new NMSs will ask to join the ALADIN project in the near future, at a time when the recomposition of the NWP «geography» is a constant subject of concern for NMSs' management inside the ALADIN group as well as outside it, in particular in the framework of the so-called Short Range Numerical Weather Prediction (SRNWP) network, under the umbrella of EUMETNET.

However this MoU is not dealing with such technical aspects like computing resources and telecommunications, since it is thought that those cannot be dealt with at the level of all ALADIN Partners.

All other questions raised by the application of this MoU (and more generally the maintenance of the momentum and the preservation of the spirit of the project) will be treated by an «Assembly of Partners» (the difference to a Council being that this Assembly will have to tackle directly -i.e. without Committees- all types of problems linked to its duties) that will meet at yearly intervals in one of the Partners country. The composition of this Assembly may depend on the problems to be tackled at one given meeting, but delegates will need to be entrusted by their Directions for their participation. Extraordinary meetings may be conveyed under unanimous agreement of the Partners.

The main tasks of the «Assembly of Partners» will be:

- to verify the correct application of the present MoU by all Partners;
- to review past actions since its last meeting;
- to discuss the research objectives of the project, to register and to monitor the manpower commitments of all Partners for the realisation of these objectives;
- to maintain a consensus on the main issues related to the project;
- to initiate additional actions favouring the project;
- to try and solve potential conflicts between Partners.

Météo-France will assume free of charge the Secretariat outside the meetings of the «Assembly of Partners», through provision of the necessary manpower for accomplishing the actions linked to the

2. Current principles guiding R&D and maintenance of ALADIN (more precisely ARPEGE/IFS/ALADIN to recall the deep interdependency of the two systems):

- A) The ARPEGE/IFS/ALADIN code is the common intellectual property of all NMSs, hereafter called the "Partners", which contribute to its evolution according to the rules of the present MoU. The definition of this code corresponds to the ensemble of routines necessary to run the various configurations of ARPEGE/IFS/ALADIN. Hence this definition does not encompass ancillary external pre- or post-processing tools. If necessary (perhaps soon in the case of remote sensed data pre-processing) an amendment to the present MoU could enlarge the above definition of the code. The use of the ARPEGE/IFS/ALADIN code is reserved (free of charge) to those Partners and in any case it cannot be sold to any third party. ECMWF informally accepted that the parts of the ARPEGE system that are necessary to the ALADIN system, that have been mainly developed at ECMWF inside the joint IFS/ARPEGE effort and that are not strategically important for ECMWF can be enclosed in this definition. The definition of the limits of this enclosure will have to be regularly updated through discussions with ECMWF management. There is no restricted access to any part of this software for any Partner. In other words: «Un pour tous, tous pour un» !
- B) Each Partner dedicates a significant part of its NWP and/or modelling human potential to the above-mentioned Research and Development (R&D) and Maintenance tasks on and around the code; in order to clearly identify those tasks (apart from direct work on the code), enhancement of diagnostic tools specifically related to the ALADIN results or downstream adaptation procedures linked to the ALADIN products are considered inside this category of work, but routine validation of forecasts or «black-box-type» use of the code are not. The target amounts of this involvement will be discussed every year during the meeting of the «Assembly of Partners».
- C) Each Partner shall have operational plans for a priority operational application of ALADIN for short range high resolution NWP now or in a foreseeable future. The choice of domains and resolutions of such applications should be complementary of those of the ARPEGE/IFS (or intermediate ALADIN) coupling data which use is recommended for scientific and technical reasons: compatibility of the models (in fact it is difficult to work on ALADIN without working on ARPEGE/IFS) and significant work needed in any case for interfacing with other large scale models and for maintaining such an interface. Development and maintenance of such potential new interfaces should therefore happen outside the ALADIN Project, under the responsibility of the interested Partners and for applications limited to operational backup and R&D purposes.
- D) The principle of evolution of the «ALADIN library» is the regular (about every six to nine months) post-phasing with the Cycles of the IFS/ARPEGE library. All Partners have automatic access to all new developments included in these phasing actions but it is up to them to make the necessary efforts to see their own developments enter the library. This principle is the absolutely necessary complement of principle 2A.
- E) The R&D work around ALADIN is conducted in the respect of the general scientific deontological rules and furthermore follows the guidelines of the SRNWP network for the Partners involved in this network (specific reporting inside the focal points system for a balance between collaboration and competition between the four participating groups to SRNWP, standardisation, participation to EWGLAM-SRNWP annual meetings with some mention of the belonging to the ALADIN action, ...).
- F) The planning of future R&D ALADIN actions is conducted by informal means under the control of the «Assembly of Partners» and aims at building a consensus between the opinions of the individual experts of all Partners. The existence of more and more individual applications of ALADIN will slightly complicate the future application of this principle. On the other hand, a more

diversified R&D around the code will bring additional benefits to all Partners, provided principle 2D thereabove is obeyed with strict discipline.

3. Identification of the object of the MoU:

In order to facilitate the definition of the ALADIN system, the relevant software is being registered by Météo-France in France on behalf of the Partners having participated to the development up to now, with the written agreement of the other ones. This preliminary definition will then be binding for any new Partner that would like to join the project. While the applications based on this software may have different names, the main body (code, system or model) of the software must always be referred to as «ALADIN».

4. Conditions of use of the ALADIN software:

- A) When the problem is to use ALADIN for R&D purposes, even outside the framework of NWP operational use for which it has been designed, each Partner is free to use it for itself, without referring in advance to the others.
- B) In the same case but with another organisation in the country of the Partner being involved, the same rule applies provided that (i) the other Partners are informed beforehand and (ii) the other involved organisation formally agrees to limit itself to R&D purposes and to follow all intellectual property rules binding the Partners (rules 2A/D/E thereabove). The case of a non NMS demand in a non participating country requires unanimous acceptance by the Partners and has to be dealt through the channel of the Permanent Representative of this country with WMO under the same conditions as just mentioned.
- C) In case of operational use generating financial returns to one of the Partners, there will be financial transfer between the Partners only in the case of exportation of products or services based on the use of ALADIN. Each Partner will thus have full rights for national use of the software and selling of products and services. In case of shared use of the software for operational applications (as envisaged in RC-LACE and SELAM), it is expected that internal problems to the supra-national entity will have been solved independently and this rule 4C then only applies for exportation of products or services and for financial transfers outside this entity. Appendix «A» to the present MoU fixes the rules governing the possible financial transfers.
- D) ALADIN Partners are committed to prevent any commercial activities, directly or indirectly based on operational use of the ALADIN software, on the territory of any other Partner without the explicit agreement of the latter. More generally, all ALADIN operational products exchanged internationally outside the European Union are considered as additional products in reference with the Resolution 40 of WMO Congress XII, and thus submitted to the conditions agreed in common listed in appendix "D", and taking into account paragraph 4C and Appendix "A". Concerning the second and third rules of Appendix "A", it is understood that such a dissemination which could be made by a Partner will be made only with the unanimous agreement of other Partners, and on behalf of all Partners which will be together considered as the Originator of the products.

5. Conditions of membership to the ALADIN Project:

Each of the undersigned parties to this Memorandum of Understanding hereby agrees:

- A) to dedicate a significant part of its manpower in NWP and modelling to the common project (research, development, maintenance, verification tools, application software) without any

individual proprietary right for the results of those actions. Once negotiated between all Partners, the amount of involvement promised by each Partner becomes a commitment. Concerning the rules of recording, the initial state will be provided by the appended "B" unofficial record of Météo-France of all ALADIN actions, in Toulouse and elsewhere, since the beginning of the project, updated at the date of signing of the present MoU. The further evolution of the records will be monitored by all Partners within the procedure fixing the commitments. Appendix "C" to the present MoU precises the rules for these yearly commitment/monitoring actions;

- B) to include in the previously defined manpower commitment its own responsibility for the further maintenance of developments it has been promoting in the past;
- C) to make every necessary effort to prevent unauthorised dissemination of the registered software, whatever might be the purpose of this dissemination;
- D) to aim at having (now or in a foreseeable future) ALADIN as priority operational tool for short range high resolution NWP daily applications;
- E) to strictly comply to the «Conditions of use of the ALADIN software» defined thereabove in section 4;
- F) in case of future withdrawal from the project, not to take advantage of its former participation for actions that could be detrimental to the remaining Partners;
- G) to participate to the SRNWP network activities in coordination with the other ALADIN Partners, for Partners who are members of this SRNWP network;
- H) to take part in the preparation of applications to the Commission of the European Union or any other international source of financing for funding of research and/or operational actions concerning ALADIN;
- I) more generally, to work for the continued application to the ALADIN project of principles of section 2, paragraphs A to F and to publicise what it considers to be the success of this endeavour, nationally and internationally.

6. Conditions of adhesion to the ALADIN project:

The above-mentioned principles and the «ALADIN spirit» are clearly against making the ALADIN project a «closed membership club». On the other hand, the project has now reached a status (the one that makes this MoU necessary) that forbids that entry to the «club» could depend only on the willingness of the newcomer to do so. In particular, if there exist shared application ventures or shared research actions between some Partners (like currently in the RC-LACE and SELAM cases) no third party will be allowed to join these shared ventures or actions before having been accepted as a new ALADIN Partner by all other Partners.

Hence the undersigned Partners agree to fix the following adhesion rules:

- A) written proposal of the potential new Partner by at least one of the current Partners to all others, the proposal stating what would be the specific scientific and operational position of the new Partner in case of acceptance;
- B) in particular, the new Partner should be in a geographical situation allowing to get dense enough Lateral Boundary Conditions (LBC) in principle either directly from ARPEGE or via an internationally oriented intermediate action; if necessary, this provision of LBC should become a written commitment of the relevant Partner(s);
- C) signed acceptance by the new Partner of all commitments linked to the present MoU in case it enters the «club»;
- D) absence of veto by more than one third of the current Partners or by a group of Partners having contributed to the project in a proportion higher than one third (the latter rule, that is meant to protect the interest of the Partners having borne the highest share of the development effort since the beginning of the project, will be applied according to the above mentioned manpower amounts in their latest validated version). The vetoes should be expressed less than 45 days after reception by the Secretariat of the letter of proposal, by one of the current Partners, of the potential new Partner.

7. Conditions of withdrawal from the ALADIN project:

The spirit of the ALADIN project also forbids to impose any membership. On the other hand, signing of the present MoU, by current and future Partners, represents a commitment which fulfilment will have to be somehow verified.

Hence the undersigned Partners agree to fix the following withdrawal rules:

- A) any Partner is free to quit the ALADIN «club»; however if it is part of a joint operational venture (or action) around the ALADIN system, it will have to solve the associated problems with the other participants to this venture (or action), beforehand. The same applies if it is part of a LBC operational provision agreement.
- B) if it becomes clear that one of the Partners does not any more fulfil the conditions established by the present MoU, its belonging to the «club» can be terminated, with loss of any anterior rights should it reapply in the future (this obviously also applies to the previous case), if the «default of participation» is recognised by more than two thirds of the other Partners representing more than two thirds of the manpower contribution as defined in the rules for adhesion.
- C) the above-mentioned loss of anterior rights does not apply to the use of the code in its latest version at the time of withdrawal, provided the withdrawing Partner has been participating for at least three years in the project. However, use of the name «ALADIN» will not be allowed for the further use of this «frozen» version of the code.

8. Amendment procedure of the present MoU:

The present MoU may be amended following the proposal of one (or several) Partner(s), under the condition of unanimous acceptance of the amendment by the other Partners.

9. Arbitration Clause

All disputes or differences arising out or in connection with the present agreement shall, failing any agreement to settle it amicably concluded by all parties within thirty days from the receipt of a registered letter by the plaintiff to the other parties, be finally settled under the Rules of Conciliation and Arbitration of the International Chamber of Commerce by one sole arbitrator appointed in accordance with the said Rules.

The place of arbitration shall be Paris and the French procedure law on international arbitration shall apply.

The arbitrator may rule as "amiable compositeur".

Signatures

ALADIN

MEMORANDUM OF UNDERSTANDING

Signed on: 1996 (in English alphabetic order of countries)

on behalf of Zentralanstalt für Meteorologie und Geodynamik (Austria)	Prof. Dr P. STEINHAUSER
on behalf of Institut Royal Météorologique de Belgique	Dr Henri MALCORPS
on behalf of Bulgarian Hydrometeorological Institute	Prof. V.G. SHAROV
on behalf of Croatian Meteorological and Hydrological Service	M. Mladen MATVIJEV
on behalf of Czech Hydrometeorological Institute	Dr Ivan OBRUSNIK
on behalf of Météo-France	M. Jean-Pierre BEYSSON
on behalf of Hungarian Meteorological Service	Dr Ivan MERSICH
on behalf of Institute of Meteorology and Water Management of Poland	Prof. Dr J. ZIELINSKI
on behalf of Romanian Hydrometeorological Institute	M. Marinel IOANA
on behalf of Slovak Hydrometeorological Institute	Dr Stefan SKULEC
on behalf of Hydrometeorological Institute of Slovenia	M. Dusan HRCEK

Appendix A

- In case of potential exportation of products or services derived from ALADIN, the parties will coordinate in order to establish an homogeneous pricing policy.
- The rule of financial return in case of sales to a foreign customer by one of the Parties is based upon the application of a royalty fee on the net income.
- The amount of the fee is 30% of this net income. It will be returned to the co-owners of the ALADIN software, according to the repartition stated in Appendix "B" and regularly updated following Appendix "C".

Appendix B : Participation in the ALADIN Project at 30th September 1996

Estimated according to the appended «C» rules

Nota: Belgium is indicated with 0% participation because it was not involved in the project at this date.

COUNTRY	Person.month	Breakdown
France	233.0	30%
Romania	121.0	16%
Czech.Rep.	100.5	13%
Hungary	87.5	11%
Morocco	67.0	9%
Slovakia	40.5	5%
Slovenia	32.5	4%
Austria	24.5	3%
Bulgaria	21.0	3%
Poland	21.0	3%
Croatia	20.5	3%
Belgium	0.0	0%
TOTAL	769.0	100%

Appendix C: Commitment and monitoring of manpower associated to the ALADIN Project

The unit is half a month (for one given person).

Monitoring of manpower amounts is accomplished every three months.

The actions in Toulouse are registered immediately while a three months' lag is applied to the deported contributions (including Météo-France's visits abroad), due to the experienced difficulties in collecting the information.

The starting point will correspond to the unofficial recording realised up to now in Météo-France (with information provided by the other Partners) at the last monitoring date before the signing of the MoU.

The stays from one country to another (generally but not exclusively in Toulouse) are registered as full time work on the project.

Other actions are split into two categories: (i) coordination tasks for the project and (ii) dedicated work on one subject belonging to the recognised topics (research, development and maintenance 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).

Each Partner indicates in advance (and modifies if circumstances require it) which tasks it will perform in each of these two categories. On item (i) the commitments are a given proportion (not less than one sixth) of the total time of one person. On item (ii) they correspond to specific tasks which outcome can be later verified as delivery.

All the relevant information will be made available to all Partners in order (a) to allow each one to know the likely future developments he may become interested in and (b) to try and avoid unnecessary duplication of efforts.

Appendix D: Conditions for additional data and products according to the Resolution 40 (WMO Cg-XII)

Data and products originating from (*ALADIN Partner*), being the National Meteorological Service (NMS) of (*Country of ALADIN Partner*), hereafter called "the Originator", which are described in the annex to this document (*to be specified*), are made available to sustain WMO Programmes and in particular to assist receiving NMSs in the provision of meteorological services in their countries. The Originator declares that these data and products are part of the additional data and products, in the sense of Resolution 40 (Cg-XII) of the WMO. In conformity with this resolution, the following conditions are placed on their use and all receiving NMSs (hereafter "the Recipient") are notified accordingly. These conditions apply equally to the Recipient and to third parties to whom the data and products are made available by the Recipient. The European Economic Area is to be regarded as a single territory in respect of the interpretation of this resolution and the conditions as follow. Where these conditions are not maintained, even after notification of default to the Recipient, the Originator reserves the right to introduce denial of access of those "additional" data and products to the Recipient (for all purposes).

1. Intellectual property rights in the data and products are retained by the Originator. Nothing in this transmission shall operate or have effect of any transfer of assignment of the proprietary or intellectual rights of the Originator. The Recipient should make its best efforts to ensure that the present conditions which have been applied by the Originator are made known to initial and subsequent recipients.
2. The data and products are transmitted to the recipient in order to sustain WMO programmes at the global, regional and national levels, and to help NMSs meet their national responsibilities. The conditions attached to the data and products will remain attached during further transmission as part of those WMO programmes.
3. Any commercial use of the data and products outside the territory of the recipient is prohibited, unless a specific agreement is concluded between the Originator and the operator which wants to make the commercial use of the data and products.
4. If the Recipient uses these data or products as input for any regional Numerical Weather Prediction (NWP) model output which covers part of or / all of the European Economic area, the commercial use of that model output within the European Economic Area (directly or indirectly) will continue to carry the conditions attached to the data and products.
5. If the Recipient implements new products or services whose construction would suffer significant degradation by removal of the data and products, and from which the data and / or products can be retrieved easily, or their use can be identified unambiguously, the commercial use of these new products or services outside the territory of the Recipient is prohibited unless a specific agreement has been concluded between the Originator and the operator which makes the commercial use.

6. Free use of the data and products for research and education which has no commercial application is granted; but all other conditions (as listed above) remain attached, particularly where the data and / or products are subsequently released or used outside the receiving territory. The Recipient shall make best efforts to make these conditions known to the entities which might make use of the data and products for research and education. The Recipient should also make best efforts to satisfy itself that this special allowance is properly limited to the use for research and education envisaged under WMO Resolution 40. If it proves necessary, the Originator reserves the right to request those entities which wish to make use of the data for research and education to sign a statement recognising that they have been made aware of the conditions.

7. Except in the case of WMO programmes, or of specific agreement provided for in paragraph 3 to 6, any transmission of the data and products outside the territory of the Recipient, or any release which may be followed by a transmission by a non encrypted radio, satellite broadcast or publicly accessible information system and which are thus available for commercial use, directly or indirectly, is considered to be in breach of these conditions.

8. The Recipient shall make its best efforts to make all these conditions known to potential operators which might wish to make commercial use of the listed data and products.

