

MEMORANDUM OF UNDERSTANDING, 1998

between the National (Hydro)Meteorological Services of

Austria, Belgium, Bulgaria, Croatia, Czech Republic, France, Hungary, Moldavia, Morocco, Poland, Portugal, 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 initial signing by eleven of the Partners in Paris on 25/11/96

updated version, adopted at the third Assembly of Partners in Prague on 6/11/98

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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 ARPEGE(IFS) 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) and in April 1995 two other Partners completed the team (Croatia and Spain). Belgium and Moldavia were entering the project at the time of signing of the initial MoU. Partners already participating in the project or admitted into it at that time and having technical problems for an immediate signing of the MoU (Moldavia, Morocco and Spain) had six months to regularise their situation, time during which they were not submitted to the selection procedure mentioned later in Section 6. Spain finally decided to withdraw from the project and only Moldavia and Morocco regularised their signing. Portugal, that was candidate to enter the project at the time of signing of the initial MoU, was regularly admitted in April 1997. Hence, this updated version has been unanimously approved by fourteen Partners.

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 five years before the initial signing of the MoU.

At that time several evolutions made it necessary to get a minimum of formalisation around the project. Let it immediately be clarified that this formalisation was not aimed at modifying the principles that had successfully been obeyed up to then but at creating a protecting environment for their further application.

The reasons that were pleading for the signing of a MoU (and are still fully valid) were the following:

- (i) the code was 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 existed between the MoU and the above-mentioned agreement,

- (ii) up to then 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 was created (May 1997) this implicit protection disappeared and
- (iii) it was (and still is) likely that several new NMSs will ask to join the ALADIN project in the 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) are treated by an «[Assembly of Partners](#)» (the difference to a Council being that this Assembly has to tackle directly -i.e. without Committees- all types of problems linked to its duties) that meets 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 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» are:

- 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.

In particular, the second Assembly of Partners in Brussels on 5/12/97 agreed that all rules concerning the exchange and possible sell of ALADIN numerical products are superseded by humanitarian considerations in case of emergency situations (like the Central European flooding of July 97 or the forest fire consequences around Indonesia in fall 97), this remaining true only for a limited period of time.

Météo-France assumes 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 existence of this MoU and to the decisions of the Assembly.

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. Through a software agreement about to be signed with Météo-France (concerning the access to and use of the IFS/ARPEGE software and appended «E») ECMWF grants access to the whole of the IFS/ARPEGE software (including the «strategic» parts listed in [Annex 2](#) of the mentioned agreement) for all ALADIN Partners, provided this access will not be used by ALADIN non ECMWF Member- or Co-operating-States to run routinely a global model/data assimilation system. An invitation to ECMWF to attend as observer the Assembly of Partners and an exchange with ECMWF in terms of scientific results (for all ALADIN Partners and via Météo-France) are implied. Under all these conditions, there is no restricted access to any part of the ALADIN 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 are discussed every year during the meeting of the «Assembly of Partners».
- C) Each Partner shall have operational activities or 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 slightly complicates the further application of this principle. On the other hand, a more diversified R&D around the code always brings 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 encompasses (i) for access and protection rules, the union of the IFS/ARPEGE and ALADIN libraries at all existing Cycles and (ii) for use rules, the strict limitation of the former to the parts necessary to run existing ALADIN configurations

(1, 701, 923 and 927 from the operational point of view at the time of the signing of the updated version of the MoU). While the applications based on this second definition of the software may have different names, the main body (code, system or model) 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 as «A» but with another organisation in the country of the Partner or with the NMS of a (ECMWF Member- or Co-operating-State) non participating country being involved through an official research agreement, 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 and software protection rules binding the Partners (rules 2A/D/E thereabove and 5C thereafter). The case of a non NMS demand in a (ECMWF Member- or Co-operating-State) 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 two conditions as just mentioned.
- C) Otherwise, no collaboration is allowed with any (NMS or other) institution of a non participating and neither ECMWF Member nor ECMWF Co-operating country. Such type of work, if envisaged, would only become possible through adhesion of the relevant NMS to the ALADIN Project, under the conditions stated in Section 6.
- D) 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 thus has 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 realised in RC-LACE and envisaged in SELAM), it is expected that internal problems to the supra-national entity have been solved independently and this rule 4D 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.
- E) 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 4D 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 was 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

25/11/1996 (date of signing of the initial MoU). The further evolution of the records is monitored by all Partners within the procedure fixing the commitments (accordingly the second part of [Appendix «B»](#) provides the equivalent status at the time of signing the updated version of the MoU). [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 ALADIN software and of its IFS/ARPEGE associated parts, whatever might be the purpose of this dissemination. In particular, in case of benchmark or of use of external computing resources for running the ALADIN code, the Partners must sign a non-dissemination and restricted-use agreement with the provider of computing resources. This agreement must be presented to any Partner as well as to ECMWF, if required;
- 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 or to ECMWF;
- 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 reached a status (the one that made 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. Furthermore, the application of the appended «E» software agreement between ECMWF and Météo-France about IFS/ARPEGE and the need to have an equal access of all ALADIN Partners to the software used for R&D and/or operations inside the ALADIN project, make it necessary to get ECMWF's agreement (that would not be unreasonably withheld and that might depend on a decision by the ECMWF Council) for any further adhesion.

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 as well as ECMWF's position with respect to the planned adhesion (relatively to the application of the appended «E» IFS/ARPEGE software agreement), in case the potential new Partner is neither from an ECMWF Member State nor from an ECMWF Co-operating State;
- 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 later rule, that is meant to protect the interest of the Partners having born the highest share of the development effort since the beginning of the project, has to 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 has 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 (at least for the parts not listed in [Annex 2](#) of the appended «E» IFS/ARPEGE software agreement), 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 and provided that the amendments do not contradict the appended «E» IFS/ARPEGE software agreement between ECMWF and Météo-France.

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".

