SECOND MEMORANDUM OF UNDERSTANDING, 2001

between the National (Hydro)Meteorological Services of

Austria, Belgium, Bulgaria, Croatia, Czech Republic, France, Hungary, Moldova, Morocco, Poland, Portugal, Romania, Slovakia, Slovenia and Tunisia

concerning the ALADIN Project

version adopted on May 31, 2001 during the informal Assembly of ALADIN Partners

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Signatures

1- Definitions

IFS = Integrated Forecasting System: the ECMWF name for the jointly developed IFS/ARPEGE global NWP system.

ARPEGE = Action de Recherche Petite Echelle Grande Echelle: the Météo-France name for the jointly developed ARPEGE/IFS global NWP system.

ALADIN = Aire Limitée Adaptation dynamique Développement InterNational: the limited area version of ARPEGE.

ALADIN SYSTEM = The software of the ALADIN system 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 and 2, 131, 401, 501, 601 and 801 from the research point of view at the time of the signing of the second 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".

Partners = The NMS signatories of this MoU (also designated in some places of this MoU by "Full Members").

SRNWP = Short Range Numerical Weather Prediction network: EUMETNET encompasses a SRNWP-Coordination programme that aims at promoting common actions between the four relevant groups at the European level (ALADIN-COSMO-HIRLAM-UM) on various high-resolution NWP issues.

ALATNET = ALAdin research and Training NETwork: this network, based on five of the ALADIN

Partners and supported by the European Union for the period March 2000 to February 2004, coordinates nine PhD and three Post-Doc ALADIN-related studies together with twelve scientific sub-topics of the ALADIN scientific plan; it also organises specific training actions and it is open to non-ALADIN EU-eligible countries.

RC-LACE = Regional Centre - Limited Area modelling for Central Europe: the common endeavour of six NMS of Central Europe (At, Cz, Hr, Hu, Si, Sk) that put together some of their manpower, technical and financial resources for research and operational common activities inside the ALADIN ensemble.

SELAM = South-East european Limited Area Modelling: an agreement between three NMS of South-East Europe (Bg, Md, Ro) to coordinate their NWP actions inside the ALADIN Project, especially for technical issues.

2- Object of the MoU

The ALADIN Partners have decided to jointly develop, improve and maintain the ALADIN System. This MoU defines the rules of this collaboration which covers both the research and development and the operational aspects of the project. For those Partners which are Members of ECMWF and/or ECOMET the obligations resulting form this MoU do not supersede those from the membership to these organisations. All 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" which delegates its power in the domain of Technical Coordination of the ALADIN Project to a Technical Cooperation Standing Committee (TCSC, see Paragraph 7.4 for further details).

3- Preamble

The ALADIN Project was launched 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 Moldova were entering the project at the time of signing of the first ALADIN MoU on 25/11/96 in Paris. Partners already participating in the project or admitted into it at that time and having technical problems for an immediate signing of the first MoU (Moldova, Morocco and Spain) had six months to regularise their situation, time during which they were not submitted to a selection procedure . Spain finally decided to withdraw from the project and only Moldova and Morocco regularised their signing. Portugal, that was candidate to enter the project at the time of signing of the first MoU, was admitted in April 1997. An updated version of the first ALADIN MoU was unanimously approved by fourteen Partners at the third Assembly of ALADIN Partners on 6/11/98 in Prague, one important novelty being the reference to a software agreement between ECMWF and Météo-France that grants to ALADIN agreed Partners access to the necessary parts of the IFS code for their limited area NWP work. Finally Tunisia was admitted in the project in April 2001, so that it is for approval by fifteen "first generation" ALADIN Partners that this second MoU was prepared, following guidelines given at the fifth Assembly of ALADIN Partners on 24/11/00 in Vienna. Finally the first non-"National Use" commercial action about ALADIN products (following the rules of the first MoU) was agreed between the Slovenian ALADIN Partner and Friouli early in May 2001, just before the signing of the second MoU.

The second Assembly of ALADIN Partners in Brussels on 5/12/97 agreed that all rules concerning the exchange and possible selling of ALADIN numerical products are superseded by humanitarian considerations in case of emergency situations (like the Central European flooding of July 1997 or the forest fire consequences around Indonesia in fall 1997), this remaining true only for a limited period of time. This principle is reconfirmed at the occasion of the signing of the second MoU.

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 of Partners. The same principle applies to the TCSC.

New definition of Membership

This definition is based upon two geographical areas ("A" and its complement "B" consisting of all Countries outside Area "A"; see Appendix "A" for the precise and permanent definition of the Area "A") and three categories of participants to the ALADIN Project: Full Members, Associated Members and Users. Full details about this new structure will be given in the ensuing Sections but this first definition in the Preamble will help the further terminology of the MoU:

- 1) A Full Member is a NMS in a country of Area "A" having a higher level of duties and rights with respect to the project, those roughly corresponding to that of the first ALADIN MoU.
- 2) An Associated Member is either (i) a meteorological organisation (NMS or other) with "civil-service-type operational missions" (point to be verified by the Assembly of Partners) located inside Area "A" and having a lower level of duties and rights with respect to the project (for the distinction from those of a Full Member, see Section 11 as well as Paragraphs 6.4, 6.5 and 7.1) or (ii) a NMS in a country of Area "B" that has some manpower dedicated to ALADIN tasks of common interest (in principle mainly through visits to a Partner) under the control of the Assembly of Partners.
- 3) A User is a meteorological organisation having entered a commercial type of relationship with a Full Member for ALADIN-related products and/or services, but that also wishes to be associated to the life of the project.

The basic ideas that should guide the handling (by the Assembly of Partners) of this more complex structure should continue to be those of the previous ALADIN situation: (i) mutually beneficial collaboration because of concretely shared goals; (ii) R&D manpower contribution as the scaling unit of the project and fostering of NWP scientific/practical know-how as its trade-mark; (iii) account permanently taken of the economic situation of the participants.

4- Past and present objectives of 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 five years before the signing of the first MoU in 1996.

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. Similarly the introduction of some operational coordination concern in the second MoU aims at protecting the spirit of the project while avoiding self-detrimental excesses.

The reasons that were pleading for the signing of the first MoU (and are still valid today) were the following: (i) the creation of pre-operational and operational applications by most ALADIN Partners, also in joint mode in the case of RC-LACE (NMSs of Austria, Croatia, Czech Republic, Hungary, Slovakia and Slovenia); (ii) the technical disappearance of the implicit protection of the common intellectual property

around the ALADIN code from the Cycle 6 of the library onwards; (iii) the need to formalise adhesion, participation and withdrawal rules in order to avoid either a too "static" or a too "open" membership of the ALADIN Project.

The first MoU was not dealing with such technical aspects like computing resources and telecommunications, since it was thought in 1996 that those could not be dealt with at the level of all ALADIN Partners. This second MoU substantially differs from the first one on precisely that point (see below) as well as for the four following reasons:

- 1) the evolution of exchange, commercialisation and competition rules (mainly at the WMO and ECOMET levels), as well as the emergence of Internet, made it necessary to modify the relevant parts of the MoU;
- 2) it was found that a single Membership situation may be detrimental to the progress and influence of the ALADIN Project and that the additional categories of "Associated Members" and of "Users" should thus complement that of "Full Members" (identical with that of "first generation Partners" at the time of the initial signing of the second MoU); for instance Bosnia, Egypt and Luxembourg have expressed their interest in a future participation;
- 3) strong disparities between the Partners in their reporting procedure for the work of common interest required a clearer definition of the latter's borderline;
- 4) in 1999 the Belgian, Czech, French, Hungarian and Slovenian ALADIN Partners were selected for an important EU support (for the period 2000/03 - 2004/02) in the framework of a Research and Training Network named ALATNET. Since the work inside the latter, while mainly ALADIN oriented, cannot be restricted to the ALADIN Project's Membership, some adjustment of the MoU became necessary.

As already mentioned, only the Research and Development (R&D) part of the ALADIN Project was codified by the first MoU. However the situation changed substantially since 1996: (i) the emergence of RMDCN (for WMO Area VI ALADIN Partners) eased the telecommunication bottleneck of the technical part of the project, but also shed more light on the growing disparity of computing power availability; (ii) the diversification of the computing platforms and the obsolescence of the initial programming model for parallelisation induced a heavier local maintenance burden than anticipated; (iii) the evolution of the data assimilation part of the ALADIN Project raised the fear that operational requirements could become so contradicting (between Partners of differing economic potential) that the coordination of a partially decentred R&D programme would become impossible. All this creates a threat for what has been the main originality of the ALADIN endeavour, namely its reciprocity and interdependency. Signs of convergence towards a new programming model for parallelisation and recognition that the key to future successful meso-scale data assimilation applications will probably be the correct use of higher resolution data than at synoptic scale (a very federating goal given its high logistic costs) are however mitigating these pessimistic statements.

In order to contribute to a further progressive decentralisation of the project in nearly parallel terms for R&D, training and operations, Météo-France (in its coordination role between ARPEGE/(IFS) and ALADIN developments) should continue to seek algorithmic and coding solutions respecting the constraints for remote, relatively small domain, very high-resolution ALADIN applications, including the simplified use of data assimilation tools. Nevertheless this transversal coordination effort cannot be extended as such to complex applications like for instance those of variational data assimilation. Those indeed require such an amount of local logistic and specific know-how for scientific maintenance that their simultaneous implementation in most ALADIN operational applications would not only deprive all other aspects of the project from needed investments but also overstretch the capacity of Météo-France to coordinate the technical part of the common effort.

The concept of critical mass (mainly but not only for manpower) being here essential, the Assembly of Partners delegates its power in the domain of Technical Coordination of the ALADIN Project to a Technical Cooperation Standing Committee (TCSC). The latter's role is to foster as much as possible the grouping of manpower and of technical realisations in order to avoid the above-mentioned pitfalls and to seek a broadly reasonable balance between the human/technical investments into the remote ALADIN operational

applications and the ambitions of those, especially but not only in terms of data assimilation options.

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

5.1

The ARPEGE(IFS)/ALADIN code is the common intellectual property of all NMSs (Partners or Associated Members which are NMSs) 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 (for example 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 for Partners) to all Full and Associated Members and in any case it cannot be sold to any third party. Through a software agreement signed on 19/02/99 with Météo-France (concerning the access to and use of the IFS/ARPEGE software and appended "G") 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 Full Members, provided this access will not be used by non-ECMWF Member- or Co-operating-States to run routinely in forecasting mode 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. Apart from these conditions, there is no restricted access to any part of the ALADIN software for any Member. In other words: "Un pour tous, tous pour un"!

5.2

Each Full Member and Associated Member of Area "B" 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. The main recognised activities are as follows: (i) direct work with ALADIN potentially beneficial to everybody (ii) maintenance of local applications (iii) development of interfaces to other applications or to the forecasters, with expected and reported feedback. The target amounts of this involvement are discussed every year during the meeting of the Assembly of Partners.

5.3

Each Partner shall have 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 to those of the ARPEGE(IFS) (or intermediate ALADIN) coupling data, whose 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.

5.4

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 Full Members and Associated Members of Area "B" 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 5.1.

5.5

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 Members 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, ...). Concerning the exchange of software between the SRNWP components, the relevant EUMETNET approved rules apply (see Appendix "C"). For the relevant Partners, it is also conducted following the guidelines of the ALATNET contract.

5.6

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 Full and Associated Members. The existence of more and more individual implementations of ALADIN slightly complicates the further application of this principle, especially for the coordination of technical aspects, this having led to the partial delegation of power from the Assembly of Partners to the TCSC. On the other hand, a more diversified R&D around the code always brings additional benefits to all Members, provided principle 5.4 hereabove is obeyed with strict discipline.

6- Conditions of use of the ALADIN software

6.1

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 Member is free to use it for itself, without referring in advance to the others. This also extends to the individual ALATNET "Young Researchers" originating from non-ALADIN countries, in the framework of their PhD or Post-Doctoral studies at the ALATNET Centres. This rule can only be applied provided it does not contradict the ECMWF/Météo-France software protection agreement.

6.2

In a case covered by 6.1 but with another organisation in the country of the Full or Associated Member, or with the NMS of a (ECMWF Member- or Co-operating-State) non-participating country being involved through an official research agreement, or via the above-mentioned ALATNET link, 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 5.1, 5.4, 5.5 hereabove and 8.3 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.

6.3

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, in principle under the "User" status. This type of solution could also be used, if necessary, to solve contradictions appearing through a strict application of the rules of the Research Training Networks of the European Union (concerning the ALATNET effort) and its non-ALADIN connections. It should however not be used to by-pass the necessary homogeneity rule for groupings with joint operational ventures or research actions.

6.4

In case of operational use for the making of Products or Services, based on the ALADIN software, that are sold or licensed by one of the Partners, a royalty justified by the use of a shared intellectual ownership between the originators of the software is calculated on top of the production price of the Product or Service. This royalty is actually apportioned between the co-owners only in case of non-"National Use" of Products or Services based on the use of ALADIN. Associated Members are not allowed to conduct ALADIN-related commercial activities outside their national territory, or outside the group of territories forming a single economic group, when applicable. Users are not allowed to conduct such activities at all. Each Member thus has full rights for National Use of the software, and neither reports to the other Partners nor shares an income resulting from the sale or licensing of Products and Services in case such National Use is made. Appendix "D" to the present MoU fixes the rules governing the establishment of the royalty and its sharing in case of non-"National Use".

6.5

ALADIN Partners agree in principle to abide by the relevant rules of ECOMET concerning commercial use of Products and Services based on operational use of the ALADIN software, in particular as regards the adoption of common guidelines concerning the pricing policy, more details being set in Appendix "D". 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 "B", and taking into account Paragraph 6.4 and Appendix "D". Members acknowledge that the use on the open Internet is "ipso facto" a worldwide exportation that is subject to specific conditions and limitations. In any case, for the use of ALADIN products on an open Internet site the rules which are set for the ECMWF own products at the time of signing the second ALADIN MoU will apply mutatis mutandis for Full Members; such a use on an open Internet is forbidden for Associated Members and Users.

7- Assembly of Partners

7.1 Representation

Each Partner is represented by its Director or his representative, duly mandated. ECMWF is invited as an observer. Associated Members may be invited as observers.

7.2 Meetings

The Ordinary Assembly of Partners meets once a year. An extraordinary meeting can be convened if a two-third weighted majority of Partners agrees. The meeting is held in a partner country. The Chairman is elected at each ordinary Assembly of Partners.

7.3 Main tasks of the Assembly of 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;
- to decide the adhesion of new Partners or Associated Members.

7.4 Technical Cooperation Standing Committee (TCSC)

In order to ensure a permanent technical coordination, the Assembly of Partners sets up a technical coordination standing committee (TCSC) initially composed of 4 Members (France, one RC-LACE representative, one SELAM representative and one representative for the remaining Partners). The mode of designation of the representative is left to the relevant groups. Should other grouping efforts appear besides the RC-LACE and the SELAM ones, the Assembly of Partners will reconsider the composition of the TCSC, in a spirit aimed at preserving the interests of all Members, should they belong to a grouping or not. The exact terms of reference of the TCSC, inspired from the MoU Preamble, will be appended later to this MoU.

7.5 Voting rules

Most of the decisions of the Assembly of Partners are taken to a simple weighted majority. The weighting scale results from the amount of participation of each Partner. At the signing of the MoU, it is given as Appendix "E". It is reviewed at each ordinary session of the Assembly of Partners. For membership issues (see Sections 9 to 11) a double two-third-majority rule (protecting the interest of the Partners having born the highest share of the development efforts since the beginning of the project) is uniformly used.

8- Obligations of Partners

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

8.1

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 for this second MoU is provided by the appended "E" record by Météo-France of all ALADIN actions, since the beginning of the project, updated at 31/03/01. The further evolution of the record is monitored by all Partners within the procedure fixing the commitments. Appendix "F" to the present MoU sets up the rules for these yearly commitment/monitoring actions;

8.2

to include in the previously defined manpower commitment its own responsibility for the further maintenance of developments it has been promoting in the past;

8.3

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 ofthis 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;

8.4

to aim at having (now or in a foreseeable future) ALADIN as priority operational tool for short-range high-resolution NWP daily applications;

8.5

to strictly comply to the "Conditions of use of the ALADIN software" defined hereabove in Section 6;

8.6

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 Partnersor to ECMWF;

8.7

to participate to the SRNWP network activities in coordination with the other ALADIN Partners and with the NMSs interested by ALATNET activities, for Partners who are members of this SRNWP network;

8.8

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; in case of success for such applications by a sub-group of the ALADIN partnership, to make efforts to compensate on other domains in favour of the non-participating Partners;

8.9

more generally, to work for the continued application to principles of the ALADIN Project of Section 5 and to publicise what it considers to be the success of this endeavour, nationally and internationally.

9- Adhesion of new Partners

9.1

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 that forbids that entry to the "club" could depend only on the willingness of the newcomer to do so. In particular, if the adhesion to ALADIN is linked with the association to an existing application venture or research action with existing Partners, such as RC-LACE or SELAM, these existing Partners must verify that there is no inconsistency between their own agreement and the present MoU. Furthermore, the application of the appended "G" 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 at the Full Memberlevel.

Therefore, the adhesion of new Partners supposes the following conditions:

9.2

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 "G" IFS/ARPEGE software agreement), in case the potential new Partner is neither from an ECMWF Member State nor from an ECMWF Co-operating State;

9.3

The compliance to the NMS and geographical conditions stated in the Preamble; the second rule should allow the new Partner to get dense enough Lateral Boundary Conditions (LBC) 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);

9.4

The signed acceptance by the new Partner of all commitments linked to the present MoU in case it enters the "club";

9.5

The 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 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;

9.6

In case the new Partner has been in the project as Associated Member or User, that its "stay" in this category has been at least of one year duration.

10- Withdrawal of Partners (or change of status)

10.1

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.

10.2

Any Partner is free to quit the ALADIN "club"; however if it is part of a joint operational venture (or research 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.

10.3

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 10.2 case), if the "default of participation" is proposed by at least one Partner and 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; for less acute problems, the same rule applies to a transition from the Full Member status to the Associated Member status, provided the Partner has been at least one year long in the first one.

10.4

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 "G" 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.

11- Associated Members

11.1 Definition

An Associated Member is either (i) a meteorological organisation (NMS or other) with "civil-service-type operational missions" (point to be verified by the Assembly of Partners) located inside Area "A" and having a lower level of duties and rights with respect to the project or (ii) a NMS in a country of Area "B" that has some manpower dedicated to ALADIN tasks of common interest (in principle mainly through visits to a Partner) under the control of the Assembly of Partners.

11.2 Obligations of Associated Members

An Associated Member has to comply to rules 8.1, 8.2, and 8.3 as an adapted obligation in Area "B" an as an option in Area "A", to rule 8.5 for the relevant item of Section 6 and to rules 8.6 and 8.9 for the relevant

items of Section 5. It takes part in the project mainly through the channel of one Partner to which it is associated. It has no rights like Partner's ones with respect to (a) non-"National Use" commercial activities, (b) voting rights, (c) the ECMWF-Météo-France software agreement and (d) full access to the ALADIN source code.

11.3 Financial contribution

An Associated Member has to pay a yearly financial contribution at a level negotiated with the Assembly of Partners (according to some established guidelines), account being taken of its economic situation (like at EUMETSAT), its level of involvement in the R&D part of the project, as well as the reasons why it is not a Full Member. This contribution will be shared between the Full Members according to the same rule as for the royalties.

11.4 Adhesion rules

The adhesion of a new Associated Member supposes the following procedure:

- A written proposal of the potential new Member 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 Member in case of acceptance; agreement by one of the proponents to be the associated Full Member of the potential new Member;
- The compliance to the "NMS/operational missions" and geographical conditions stated in the Preamble;
- Signed acceptance text which encompasses general acceptance of the relevant conditions of this MoU as well as particular conditions set during the adhesion negotiation. This acceptance must be ratified by the Assembly of Partners.
- 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 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 Associated Member.
- In case the new Associated Member has been in the project as User, that its "stay" in this category has been at least of one year duration.

11.5 Withdrawal (or change of status)

Adapted rules from 10.2 and 10.3 apply for the withdrawal of Associated Members (or for the change of status from Associated Member to User, again with the one year minimum "stay"). In case of breach of the financial commitments to the project and/or to its associated Partner, an exclusion procedure can be managed directly by the latter, provided the Assembly of Partners is kept fully informed of all the steps of this procedure.

12- Users

12.1 Definition

A User is a meteorological organisation having entered a commercial type of relationship with a Partner for ALADIN-related products and/or services, but that also wishes to be associated to the life of the project.

12.2 Obligations of Users

Apart from its contractual commercial relationship with its associated Partner (that should in particular follow rules adapted from those of Paragraph 11.2), to make efforts to follow the life of the ALADIN Project (Web-site connections, etc.) and to participate to it whenever appropriate.

12.3 Adhesion rules

In principle, adhesion to the User status is dealt with directly with the associated Partner which has to enter with it in a contractual agreement which complies with the rules of the current MoU. The Partner shall keep the Assembly of Partners fully informed.

12.4 Withdrawal

In case of breach of the financial commitments to its associated Partner, an exclusion procedure can be managed directly by the latter.

13- Appendices

Appendices A, B, C, D, E, F and G are inseparable parts of this Memorandum of Understanding.

14- Amendment procedures of the present MoU

Except for the definition of Area "A" (for Membership questions), and provided that the amendments do not contradict the appended "G" IFS/ARPEGE software agreement between ECMWF and Météo-France, the present MoU may be amended following the proposal of one (or several) Partner(s). The amendment must be unanimously accepted by the other Partners.

15- Arbitration clause

All disputes or differences arising out of 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".

16- Validity of the MoU

This MoU is valid four and half years after its initial signing by fifteen Partners, in Paris on 31/05/01.

Signatures

The signatures for this MoU are on the next two pages.

ALADIN

MEMORANDUM OF UNDERSTANDING

Signed on May the 31st 2001 (in English alphabetic order of countries)

on behalf of Zentralanstalt für Meteorologie und Geodynamik (Austria)	Prof. Dr. Peter STEINHAUSER
on behalf of Institut Royal Météorologique de Belgique	Dr. Henri MALCORPS
on behalf of Bulgarian National Institute for Meteorology and Hydrology	M. Konstantin TZANKOV
on behalf of Croatian Meteordogical and Hydrological Service	Dr. Branko GELO
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 Moldovan Hydrometeorobgical Service	Dr. Valentin SOFRONI
on behalf of Direction de la Météorologie Nationale (Morocco)	M. Azzeddine DIOURI
on behalf of Institute of Meteorology and Water Management of Poland	Prof. Dr. Jan ZIELINSKI

on behalf of Portuguese Meteordogical Institute	M. Fernando QUINTAS RIBEIRO
on behalf of Romanian National Institute for Meteorology and Hydrology	Dr. Ion SANDU
on behalf of Slovak Hydrometeorological Institute	Dr. Stefan SKULEC
on behalf of Agency of Republic of Slovenia for Environment	M. Dusan HRCEK
on behalf of Institut National de la Météorologie (Tunisia)	M. Hamda HAJJI

Appendix A

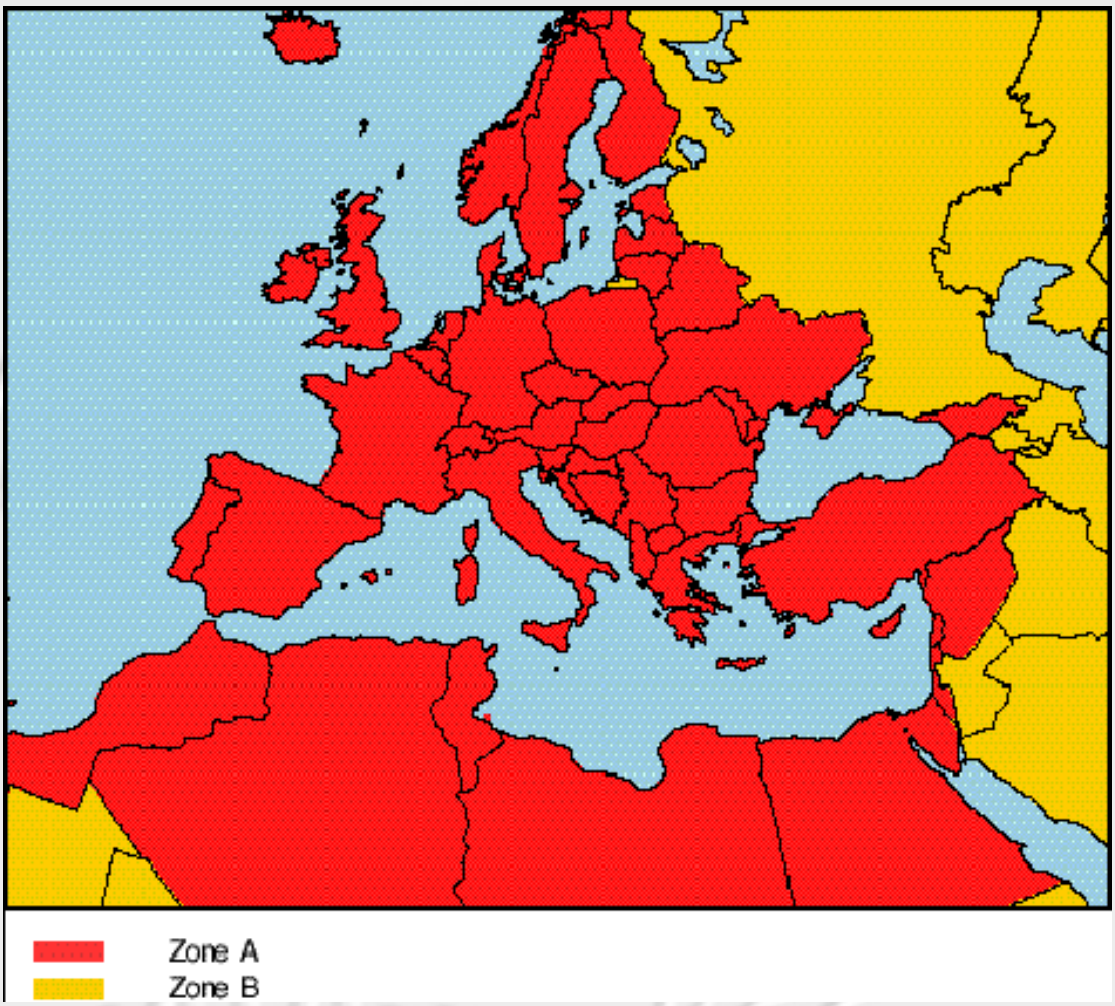
Definition of the geographical Area "A"

The Area "A" corresponds to a compromise between a Euro-Mediterranean definition and the area where the current resolution of ARPEGE is more than half its value at the pole of dilatation of the stretched grid. As already mentioned, the Area "B" encompasses all Countries outside Area "A".

The non-maritime external border of Area "A" corresponds (clockwise) to the one of the following countries (in their limits at the time of initial signing of the second MoU): Norway, Finland, Estonia, Latvia, Belarus, Ukraina, Georgia, Turkey, Syria, Israel, Egypt, Lybia, Algeria and Morocco.

In order to avoid ad-hoc decisions, this definition of a geographical border between Area "A" and Area "B" cannot be amended for the initial duration of the present second ALADIN MoU, i.e. until 30/11/05.

Map of area A



The presentation of material on this map do not imply the expression of any opinion whatsoever concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries

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Appendix B

Conditions for additional data and products according to the Resolution 40 (WMO Cg-XII) Generic Wording

Data and products originating from *(ALADIN Partner*), being the National Meteorological Service (NMS) of *(Country of ALADIN Partner)* and 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 on their re-export for commercial purposes outside the receiving country or group of countries forming a single economic group 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 combined territory of the European Economic Area [EEA] plus Switzerland, Hungary, and Turkey is to be regarded as a single territory in respect of the interpretation of this resolution and the conditions that follow. Where these conditions are not honoured, 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), as provided for under Guideline 3, Annex 2 of Resolution 40.

1. All recipients are to make their best efforts to ensure that the present conditions which have been applied by the Originator are made known to any subsequent recipient.

2. All recipients are to note that collections of meteorological data and products are databases in the sense of article 1 of Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases. Under this Directive, an Originator has the sui generis right to prevent extraction and/or re-utilisation of the whole or of a substantial part of the contents of the database.

3. All recipients are to note that nothing in the transmission or other provision of data and products exchanged, according to WMO Res. 40, ADOPTS (2), shall operate or have effect of any transfer of assignment of the intellectual property rights (IPR) held on the data and products; any such IPR are retained by the Originator.

4. All recipients are to note that additional data and products are provided to the Recipient in order to sustain WMO Programmes at the global, regional and national levels, and, further, to assist WMO Members in the provision of meteorological services in their countries. The conditions attached to the data and products must remain attached during further transmission or other provision as part of those WMO Programmes.

5. All recipients are to note that no commercial use of the data and/or products outside the territory of the Recipient is to be made, unless a specific agreement has been concluded between the Originator and the operator seeking to make such commercial use of the data and/or products.

6. Where the recipient uses these data and/or products of the Originator as input for any regional Numerical Weather Prediction (NWP) model the output of which covers part of, or all of, the combined territory of the European Economic Area plus Switzerland, Hungary and Turkey, the commercial use (directly or indirectly) of that model output within that combined territory is considered to affect the Originator and will therefore be subject to the conditions attached to the data and/ or products.

7. If the Recipient implements new products or services whose construction would suffer significant degradation by removal of the data and/or products, and from which the data and/or products can be retrieved easily, or their use can be identified unambiguously, no commercial use of these new products or services outside the territory of the Recipient is to be made unless a specific agreement has been concluded between the Originator and the operator which makes the commercial use. This agreement may be combined with the one referred to in Paragraph 5 for the commercial use of the data and/or products.

8. Free and unrestricted access to the data and products is granted for research and education for their non-commercial activities; but all other conditions (as listed above) remain attached, particularly where the data and/or products are subsequently released or used outside the territory of the Recipient. The Recipient is to 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. The Originator reserves the right, in order to secure that the conditions will be honoured, to request, through the Permanent Representative of the country concerned, those entities which wish to make use of the data and/or products for research and education to sign a statement recognising that they have been made aware of the conditions.

9. Except for specific agreements provided for in Paragraphs 5 to 8, and unless the transmission of data and/or products is directed towards NMSs with no other possibilities or means of reception, any redistribution of the data and products, physically or electronically, outside the territory of the

Recipient, directly or through a third party which makes the data and products available for commercial use, is considered to be in breach of these conditions.

Appendix C

NWP Software Exchange between participants in the EUMETNET C-SRNWP Programme

Introduction and definitions

This document presents a set of rules for the exchange of NWP software between the National Weather Services (NWSs) who participate in the EUMETNET C-SRNWP Programme. The NWP software may be used for research and/or operational weather prediction and other applications. As most of the participating NWSs belong to cooperating groups and share commonly developed software, the rules for exchange of NWP software owned by such a group apply to exchange from a group, rather than individual NWSs and to another group or NWS. In case of a NWS not being part of a group, such an individual NWS, with its own NWP software, is also referred to as a group in the rules below.

For the purposes of these rules, NWP software includes observation processing, data assimilation and prediction models. It excludes post-processing codes. A *component* is a specific, discrete and limited segment of the observation processing, of the data assimilation or of the model code that performs a self-contained task as, for example, a quality control for a type of observations, a parameterization package or the advection scheme. A component would normally comprise less than 10% of the complete analysis or model system.

In the rules below, the word "model" does not imply only the forecast model(s) itself, but also its associated observation processing and data assimilation software. The rules below are each followed by comments and justifications.

Rule 1.

Each SRNWP group will maintain a catalogue of all the items of software which they are prepared to make available to other groups or NWSs participatingin the C-SRNWP Programme.

Each group will be responsible for maintaining its own catalogue, which will be linked to the SRNWP web pages. The decision as to what is included in the catalogue is made by the donor of the code. The catalogue system ensures that groups can embargo any code which they believe is particularly valuable to themselves.

To give away the software, a group must own it. If software is used under licence or by separate agreement, then it cannot be given away under these rules. Software already imported under these rules might be an exception and may be offered for exchange if part of a more comprehensive module and modified to work inside this module. Otherwise transfer should be sought from the originator of the code.

Rule 2.

On request, SRNWP groups will provide, free of charge, NWP software from their catalogue to other groups or NWSs participating in the C-SRNWP Programme under the terms specified in the following rules. The recipient should specify the purpose of the use of the software, whether research and education or operational and other applications.

Usage is covered by subsequent rules. Exchange should preferably be initiated and monitored by SRNWP national representatives. The purpose of the use determines the amount of software that can be used, see Rule 3 and Rule 6 below.

Rule 3.

The receiving group or NWS will be able to use any software obtained under Rule 2 for research and educational purposes. No software obtained for these purposes can be transferred to a third party outside the C-SRNWP Programme, nor can it be sold.

This rule covers research and educational applications, where full use is granted. There are however severe restrictions on re-export. For such cases, see the following rules, where this is possible for components included in a model owned by the NWS.

Rule 4.

The recipient will respect the intellectual property right of the originator for any code transferred in terms of scientific originality and re-export. Further transfers are only allowed as specified in Rule 3 and Rule 7, depending on the use of the software.

The transferred code cannot be claimed to be original development by the recipient and the originator should be acknowledged wherever appropriate, e.g. in publications relevant to the transferred code. Re-exports of the software is possible to collaborating NWSs inside the C-SRNWP Programme, but not to third parties even within the Nation of the NWS. Re-exports to third parties of the NWS's own model, with incorporated transferred component(s), are of course possible within the limitations of Rules 6 and 7.

Rule 5.

If a component from another group is to be built into a release of a model or used for any other purpose, the owner of the code should be notified, and a report on its use and performance should be sent to the original owner.

It is essential for the provider to know of the use of the software and furthermore, research results relevant to the transferred code should be made available to the originator.

Rule 6.

For the purposes of operational or any other non research of educational applications, only one component from other groups may be imported within any 6 month period.

Whereas the agreement allows free exchange, operational use and the ability to pass on code obtained under the rules, it would take several years to incorporate a whole set of physics. This seems to be a fair balance between allowing other groups or NWS to exploit advances from elsewhere and not allowing them to take all the best ideas quickly and gain unfair advantage.

Rule 7.

Each imported component will become part of the full model of the receiving group or NWS and can be fully exploited by the recipient(s), as far as own use and transfer of the model within the C-SRNWP Programme is concerned. However, transfer of the model to a third party (outside the C-SRNWP Programme) will not confer the rights to further transfer of the imported component to that third party.

If exchange is to be worthwhile this is essential. Even if ownership resides with the originator, it will not be necessary to keep track of ownership of various components, which otherwise may inhibit Rule 1 from being applied to later releases. It is also necessary for the recipient to be able to provide its model to third parties at will, but the rule bars a re-export by a third party if outside the C-SRNWP Programme. It is thus still possible to export the full model anywhere with imported components included. There are no restrictions on the use of a component obtained under Rule 6 in a NWS's own model. All operational practices of the recipient(s) remain unaffected.

Rule 8.

Any usage of the transferred code is the responsibility of the recipient and no guarantee of its correctness can be inferred. The originator has no responsibility for implementation, maintenance and updating of the transferred code.

Software which is exchanged between groups would typically undergo modification by the recipient. However, support for implementation or modification of the code is not covered by these rules, and is at the discretion of the donor, who has no liability in this regard.

Rule 9

Separate agreements may be used to provide more extensive exchanges or provision of software.

If large parts of models are exchanged, such as analysis code or dynamics in its entirety, then it should be done under bi-lateral or other agreements. The rules specified above are not suitable for sharing larger bodies of work between groups or NWSs.

Rule 10.

These rules are subject to periodic review by EUMETNET Council.

NWP software needs to be exchanged freely within SRNWP if collaborations in NWP development which are aimed at improving operational products are to take place. However, overall monitoring and control is desirable. It is suggested that records of exchanges are sent to the SRNWP Coordinator, who will report on a yearly basis to the CO Officer of EUMETNET.

Actions

SRNWP groups should set up catalogues in order to communicate to other groups which code items are being made available. The Coordinator must establish the necessary links from the SRNWP site.

EUMETNET members should make their arrangements and internal consultations for consideration of software exchange agreement to enable Directors to reacha decision at EUMETNET Council in year 2000.

The SRNWP Coordinator should inform SRNWP groups and NWS when the software exchange system is in operation.

Appendix D

Detailed financial rules

When commercial activities based on the ALADIN software areimplied, two cases must be considered:

- ALADIN Partners, which are members of ECOMET, will follow the rules of this EIG concerning the Products and Servicesbased on the use ofALADIN; they will set a production price according to the guidelines of ECOMET defined for NWP products (setting of a unit price for the European Product Unit, definition of ALADIN output in connection with this EPU in term of grid points at various resolutions, etc); on top they will add a royalty for the use of the ALADIN software (see rule 6.4 in the MoU); finally, they will declare the ALADIN-based Products (not the VAS) into the ECOMET Catalogue, as well as to the Assembly of Partners.
- ALADIN Partners, which are not members of ECOMET, commit to follow the guidelines of this EIG only inasmuch as the use of ALADIN is implied, without an obligation to declare the products into the ECOMET Catalogue.They will nevertheless declare them to their co-partners on the occasion and under the control of the Assembly ofPartners.

When a Product or Service based on the ALADIN software is sold or licensed for non-"National Use" by one of the Full Members, it gives rise to a financial apportionment in favour of the co-owners of the software. This financial apportionment is based upon a royalty fee proportional to the production price of the Product or Service.

The amount of the royalty fee is 40% of the basic price of the Products, i.e. 2/3 of the production price as described hereabove. It will be shared between the co-owners of the ALADIN software, according to the repartition stated in Appendix "E" and regularly updated following the rules of Appendix "F". Once a year, each Member will produce a table for the sales or licenses of products based on the ALADIN software, which are submitted to a royalty fee apportionment, according to rule 6.4. This table will show the shares due to other Members. The latter will then invoice the debtor Member with the corresponding amount (banking costs will be supported by the Partner receiving the money).

Appendix E

Participation in the ALADIN Project at 31st March 2001

Estimated according to the appended "F" rules

COUNTRY	Person.month	Breakdown
France	684.50	22.5%
Czech Rep.	376.75	12.4%
Romania	319.25	10.5%
Hungary	251.00	8.3%
Morocco	240.25	7.9%
Slovakia	214.25	7.1%
Belgium	191.00	6.3%
Slovenia	156.50	5.2%
Poland	147.00	4.8%
Croatia	136.75	4.5%
Bulgaria	114.75	3.8%
Austria	98.00	3.2%
Portugal	96.50	3.2%
Tunisia	8.50	0.3%
Moldova	1.00	0.0%
TOTAL	**3036.00**	**100%**

Appendix F

Commitment and monitoring of manpower associated to the ALADIN Project

The unit is "person-month" and the amounts allowed to be registered (for one given person and one given registration period) are multiple of 0.25 (the "quantum" of the statistics).

Monitoring of manpower amounts is accomplished every three months.

The actions are registered with a maximum delay of 15 days using the http interface tool developed in Météo-France, with the mention of category and type of work (as well as its "transversal" character, when appropriate: LACE-Prague and ALATNET at the time of initially signing the second MoU). No timely reporting means no accounted work.

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

Each Partner nominates an official correspondent who has the right and the obligation to make the reporting of all ALADIN work in his/her centre (stays from outside and work of permanent staff) with a short description of each activity for the ALADIN Newsletter. Météo-France keeps the record of the list of correspondents. The current list at the time of signing of the second MoU is the folowing:

- Austria: T. Haiden; Belgium: J. Vanderborght; Bulgaria: A. Bogatchev; Croatia: A. Bajic; Czech Republic: F. Vana; France: D. Giard; Hungary: A. Horanyi; Morocco: R. Ajjaji; Poland: M. Jerczynski; Portugal: M. Monteiro; Romania: D. Banciu; Slovakia: O. Spaniel; Slovenia: J. Jerman; Tunisia: A. Nmiri.

The following activities are recognised:

- direct work with ALADIN potentially beneficial to everybody;
- maintenance of local applications;
- development of interfaces to other applications or to the forecasters, with expected and reported feedback.

The type of the work should be identified:

- training;
- tuition;
- operational work;
- development;
- maintenance;
- administrative/networking;
- validation.

Only effective work is allowed to be declared.

If some "direct work on ALADIN potentially beneficial to everybody" (the only category considered here) is made in an ALADIN country by a person not belonging to an ALADIN Member (for example an ALATNET young researcher), this work will be registered as participation of the ALADIN country where the work is realised. When a new Member enters the ALADIN partnership, the work previously done by its people in other ALADIN centres is reallocated to it. However, in the case of a Member quitting the ALADIN partnership, no such redistribution takes place the other way round.

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

efforts. The quarterly reports are thus distributed to all correspondents and considered as fully validated only when relevant reports are available. In anticipation each Member indicates at the Assembly of Partners a commitment of the manpower it will dedicate to the ALADIN Project in the following year and its main topics of interest.