A previsão numérica em Portugal: estado da arte e novos desafios
IPMA, 26-27 November 2018

Summary report

The workshop "A previsão numérica do tempo em Portugal: estado da arte e novos desafios" was recently held at IPMA headquarters in Lisbon, during the two days 26-27 November 2018, gathering the Portuguese Institutions for Science and Development of Earth System Models. Andy Brown, Director of Research of the European Weather Center for Medium-range Weather Forecasts (ECMWF) was invited to give a talk on "Global weather prediction at ECMWF: progress and plans". The Agencia Estatal de METeorologia espanhola (AEMET) was also represented by Javier Calvo (Madrid) and Pau Escribà (Barcelona) in order to give an overview on AEMET's deterministic and probabilistic systems, respectively. The following Portuguese institutions were present: Instituto Português do Mar e da Atmosfera (IPMA), Instituto Dom Luiz (IDL-FCL/ULisboa), Centro de Engenharia e Tecnologia Naval e Oceânica (CENTEC-IST/ULisboa), Marine Environment and and Tecnology Center (MARETEC-IST/ULisboa), Instituto de Ciência da Terra (ICT-Universidade de Évora (ICT-UÉvora), Centro de Estudos do Ambiente e do Mar (CESAM-Uaveiro), Faculdade de Ciências da Universidade do Porto (FCUP-UPorto), Universidade de Trás-os-Montes e Alto Douro (UTAD), Laboratório Nacional de Engenharia (LNEG), Instituto Hidrográfico (IH), Força Aérea Portuguesa (FAP), Instituto de Geografia e Ornamento do Território (IGOT), HIDROMOD. Totally, more than 90 participants were registered.

During May 2018, an Organization Committee was formed by Maria José Monteiro (IPMA), João Paulo Martins (IPMA), Rui Salgado (ICT), Rita Cardoso (IDL), José Castanheira (CESAM) and Mariana Bernardino (CENTEC) under the support of IPMA. The starting point to gather the attention of eventual partners was the dissemination of a "Motivation Letter", issued before Summer. The advertisement of the meeting was done by email and through IPMA's website; a google internet facility was later used to register the participants and share the program and other informations on the workshop organization.

This Summary Report aims at registering the main conclusions and outcomes of the workshop. The Motivation Letter, some of the Session Summary Reports as well as the Agenda of the workshop can be found at IPMA's dedicated website.

Main conclusions and outlook

1. Present Portuguese institutions have shown interest to support IPMA's effort in order to have better forecast products and services through: the contribution to the direct development and improvement of its Short-Range Numerical Weather Prediction (SRNWP) systems; the validation of IPMA's SRNWP forecasts; or by the development of new NWP derived products.

2. IPMA is a (cooperative) member of the ALADIN consortium since 1997 which develops a state-of-art (regional) NWP system under the EUMETNET (European Network for Meteorological Services) umbrella and this information has been acknowledged by the present institutions. ALADIN and HIRLAM are forming one single consortium and so far three different Canonical Model Configurations that should be part of one single SRNWP

system have been acknowledged: ALARO and AROME, developed by ALADIN consortium, and HARMONIE-AROME, (co)developed by HIRLAM consortium, which have been recently referenced in two Proof of Concept papers;

3. It was recognised that, currently, IPMA's goals diverge from those of Academia: IPMA aims at implementing into operations the best possible NWP system which accounts on the resources at play, therefore papers can appear (or not) as a consequence of its work; while for Academia, publications are a compulsory vehicle for science. Future collaborations will foster a convergence of both approaches: Academia should take into account operational needs and constraints in research proposals and at IPMA an effort must be made to increase publication rate;

4. Moreover, it was clear for both sides that, a profitable cooperation between IPMA and other national partners should not be limited to the sharing of data: exchange of technology and know-how should be the primary goal of cooperation and this is only achieved if people (mainly students) can move from Academia to the met service and vice-versa, for instance. This point was particularly emphasized by Andy Brown, based on best practices from other institutions.

5. It is commonly known cooperation is usually built on a step-by-step process to be based on solid connections, therefore one should start by establishing small projects taking into account the actual available resources and motivations and allow for its evolution.

6. Generally speaking, the workshop organization was positively acknowledged. It was commonly accepted it should occur on a regular basis to allow building connections; moreover, it should be separated from the symposium of the Associação Portuguesa de Meteorologia e Geofísica (APMG) since it is focused in just one topic. The frequency of its occurrence has to be studied: if annual, can overcharge too much the teams which usually participate also on the APMG meeting; on the other hand, one could think on taking the status of the Portuguese SRNWP meeting to APMG to allow the debate of further ideas each second year. The place is also important: it should be held at the Universities and other partner institutions as well.

7. To start interaction, IPMA should be able to produce a list of points to deliver to partners but they could also propose common work; annual meetings can be a moment to monitor the common developments and analyse further steps.

8. Due to the existence of multiple SRNWP systems in Portugal, an ensemble system having each member as one of such deterministic solutions, looked as an obvious way to start collaboration and give visibility to a common cooperation framework. However, the balance "resources versus added value to the forecast" is not clear and moreover requires too much technical work, so this idea may not be the most fruitful one.

9. Other topics for cooperation have to be found, like precipitation forecasts in Madeira, Foehn effect (namely in the south coast of Madeira), the high-resolution wind field over Madeira Island and support to aeronautics activities in general, fog prediction systems, wild-fires, etc.