

AROME-ALADIN special workshop

April 11-12, 2003, Prague

3 - Status of the AROME project in early 2003

Until recently the choice of software basis for developing Arome was not obvious. Méso-NH was a strong contender since it was very efficiently maintained and advertised by a specialized task force at CNRM. It has a strong world-class research user community, it can be used as a state-of-the-art cloud-resolving model, and there have been recent developments on observation operators and analysis algorithms. The main reasons for choosing Aladin-NH as a basis for Arome, instead, were the largely missing 3D/4D-Var code in Méso-NH, and better perspectives for operational numerical efficiency and software maintenance with the Arpège/IFS/Aladin software. The ultimate selling arguments were the excellent numerical efficiency of the Aladin-NH dynamics as tested according to rules set by the Méso-NH group, together with the good progress on Aladin 3D-Var. Both were largely due to the excellent work and initiative of the Aladin partners in these fields.

One should not get complacent yet, as kilometric-scale NWP is a very competitive area. It is wise to keep looking at other models – starting with Méso-NH itself - and keep asking ourselves what will be the strength and weaknesses of Aladin/Arome. Ultimately we will be judged on Arome's operational and scientific quality. Future work must be carefully planned in order to minimize our weaknesses, highlight our strong points, and be original without overstretching our resources. Collaboration with our competitors is good whenever it serves our taxpayers' interests. Accordingly, Arome will keep relying on Méso-NH for Cloud Resolving (CRM) studies, physics in-depth development and pilot scientific studies. Observation and data assimilation will heavily rely on ECMWF's progress, with outside help on radar, GPS, geostationary satellite and precipitation data assimilation. Technical software exchange is being considered with Hirlam. Contacts will be pursued with other NWP communities in order to look for collaboration opportunities, starting with intercomparison exercises: ultimately LAMs should be compared using scores similar to today's WMO ones on global models.

What is left to the Arome and Aladin teams then? The prime responsibility will be the integration and optimization of LAM systems at 10 and 2,5km resolution. Although most - but not all - of the specialized Arome software components (even the physics!) will be imported, there will be plenty of scientifically challenging work to do on coupling issues (physics/dynamics, large-scale/small-scale, assimilation/forecast, atmosphere/other models) and system studies (Observing Systems Experiments, field experiments, case studies and long-term NWP performance). Furthermore, R&D on postprocessing and the adaptation of data assimilation algorithms to mesoscale problems will remain a big responsibility of regional NWP centres like us for several more years. The activities that claim scientific originality, should be published in the international press, so as to ensure that we are only working on meaningful problems.