Discussions on next steps on "interface" and AAA/HIRLAM convergence

The discussion started from the experience of HIRLAM implementation in the IFS/ARPEGE/ALADIN frame. This has included:
- Recoding from f77 to f90 standards
- Dynamical – physics interface structure definition (specific APLPAR routine)
- Development of a specific nomenclature for HIRLAM
- New set up routines
- Modification of some dynamics routines and an updating of tendencies computation

The encountered problems concerned the absence of TKE definition as a prognostic variable, the necessity of definition of some pseudo-fluxes, diagnostics, turbulence scheme, namelists and partial mixture of the packages.

The HIRLAM physics package is already included in the cycle 29T2 with the participation of HIRLAM people to the corresponding phasing in Toulouse.

The HIRLAM code implementation in further cycles should be made in a more coherent way.
- Duplicated routines have to be phased
- There will be less and less specific routines (the corresponding tendencies computation routines will disappear; only the specific APLPAR will remain}
- Already the cycle 31 contains a higher generalization and flexibility of the data flow

Every further phasing has to include, besides the own updating routines, a checking of compatibility with all other changes. As practice, a first compatibility checking with the ECMWF release was proposed.

The ALARO-0 physics package will be implemented in cycle 32. The TKE flux-tendency formulation will be carried out under a switch; it will be the subject of one-month stay of Bart Catry in Toulouse. An important work was carried out for dynamics-physics interface aspects but the next developments depend on the evolution of the general framework.

The decision of 2005 was to separate to time step organization from the interface business. For the future, the situation should be revised. A flexible organization of the time step and a generalized interface are required by more and more inter - comparisons demands and for the assessment of the impact on stability of the dynamics/physics calling position inside the time step for the full 3D model..

Such flexible time step system could lead to the necessity to make the things twice. It is difficult to evaluate the necessary efforts. The HIRLAM experience showed that the understanding of general frame was the most time consuming and that the main difficulties were related to the conversion of tendencies to flux formulation (not fully achieved). It seems that a more conceptual way of thinking, based on an agree set of equations is necessary and, as well, further developments should be not thought for the present situation. Maybe it is worth to address the problem to ECMWF.