Status of progress, October 2009

List of actions for ALARO-1

1. Radiation

1.1. the new transmission functions are already available in cy35t1
no further concretisation expected for the time being (TK)

1.2. validation and retuning with new transmission functions and climatology of aerosols together with TKE scheme (dry part of PBL) is needed (during summer in Prague)
in stand-by, following unexpected advances concerning Part 2

2. Turbulence

2.1. revalidation of various mixing length computations (Filip)
done, but the 'BL' part may have to be reviewed following the progress on 2.6 (FV)

2.2. stability tests for various scheme variants (stability functions, exchange coefficient computation)(Filip)
in stand-by

2.3. tuning (together with radiation) (see 1.2)
in stand-by

2.4. a posteriori correction of the TKE after the effective computations of ACDIFUS
strategy chosen; may be even complemented by an idea tried in COSMO (for a link with other momentum transporting parameterisation schemes) (JFG)

2.5. study of the possibility to parameterize third order momentum terms (TOMs) on top of e-TKE (i.e. abandoning track '(i)' if '(ii) & (iii)' are proved better (Jean-Francois, Radmila)
still very much in line with all other ingredients; coding should happen soon

2.6. research studies to include moist effects (Jean-Francois, Ivan, Daan)
a solution has been found that solves the initially pending issues and that even allows a completely consistent sequence of moist physics all along the time-step, at little additional computing expense (Ivan, Martin, Jean-Francois, Filip, Daan)

3. Convection

3.1. correction of a bug in "acupu" (between updraft computation and microphysics):
solved - just mentioned for the record

3.2. Luc Gerard's new developments:
progress but not yet a full solution available, let alone cross-checked with respect to other advances (LG)

3.3. prognostic entrainment
the reasons for the initial lack of sensitivity have been found; unfortunately a first attempt at correcting the algorithm 'at minimum' brings further disappointing results (DB)

4. Adjustment

4.1. to implement Rasch-Kristjansson large scale condensation in the 3MT framework
done (Lisa, Radmila, Doina)

4.2. to merge TLS solutions in the 3MT framework
postponed/cancel/standby

4.3. the development of the graupel part such to be possible to use ICE3 (long term)
nothing yet done (Jean-Francois, Bart)

4.4. protection against negative values in sedimentation
ongoing (Martin)

4.5. phasing (even if in preliminary fashion) all aspects of this section, between themselves and with the rest; testing as many options as possible for non-stupidity
postponed, for lack of available ingredients

5. Shallow convection

The idea (see the 2.5 and 2.6 'bricks') is to extend RANS and/or QNSE for the emulation of EDMF (Eddy-Diffusivity/Mass-Flux);
based on Mironov's idea for an emulation of EDMF: the 2nd order momentum production and destruction terms in the TKE equation (not yet seen as implicit terms at that stage) are used to simulate part of mass transport ("counter gradient"). Open question is the turbulent transport of ql, qi.

solved on the paper in liaison with 2.6 (same team)