SUMMARY OF SECTION 3:

**NWP PERFORMANCE ASPECTS AND MODEL PHYSICS**

Tuesday 8 April 8.30-10.10
chairs Laura Rontu and Radmila Brozkova

Four overview presentations were given
(correct place for these would be a plenary session)

**Francois Bouyssel: ARPEGE and ALADIN-Fr**
- operational updates, important: new observation types in
  data assimilation
- physics developments: towards a consistent formulation for
  ARP-ALA-ARO; plans to test SURFEX and 3MT

**Sander Tijm: HIRLAM physics**

Overview of mesoscale developments, mesoscale questions, synoptic scale developments
- Mesoscale within HARMONIE. EDMF – shallow convection PBL validation database with observations for cases: www.knmi.nl/~tijm/HARMONIE_cases.html
- use of AROME fine-scale orography leads to elevation-related temperature differences even over Netherlands
- Synoptic scale developments: new surface parametrizations ("newsnow"), new versions of KF-RK

**Ludovic Auger: AROME status report**

- Testing, daily runs, now also more systematic objective scores, that allowed to find problems and suggest corrections: precipitation, firework, herringbone, computing
- Data assimilation working now, 3DVAR rapid update cycle; positive impact from radar winds
- CANOPY: prognostic formulations within the surface layer

**Patrick Le Moigne: SURFEX**

- CANOPY described in more detail
- Flake implementation started
- ECOCLIMAP v2 for extended Europe
- SURFEX within ALADIN – implementation aspects

In the session, six presentation were given to report new developments in various areas:

**Lisa Bengtsson:** AROME forced by different boundary and initial conditions from HIRLAM and ALADIN : significant sensitivity found

**Radmila Brozkova**: Aspects of 3MT – microphysics in cloudy clear/seeded environment in <u>time</u> and space

**Luc Gerard**: Overview of 3MT new developments – peaceful aims of combination new developments in cloud/precipitation parametrizations

**Eric Bazile: TKE-shallow convection.** CBR modifications, TKE+KFB+Cloud top entrainment+limited deep convection. In perspective: try combination with 3MT.

**Bent Hansen Sass**: **Greenland temperature problem**. During polar night, far too cold near-surface temperatures. Search of solutions within DMI operational setup.

**Katerina Kurzeneva: Lake parametrization in HIRLAM**. Flake implementation, lake data base and first experiments inHIRLAM – ready for further testing and improvement.

Short comments and questions w ere made after the presentations, very short general discussion was possible in the end.

**Session discussions touched the problem of different schemes and approaches.**

A lot of work has been done on shallow convection and turbulence (CBR+KFB, EDKF, EDMF, ...), and on deep moist convection (3MT, KFB). Is it clear where we are going (many schemes, in what are they different)? How to handle the shallow (non precipitating) and deep moist convection together? Combination and coexistence of different schemes – interfaces, assumptions, coexistence, double (zero?) counting?

Detailed notes by Piet Termonia (attached)