Discussion

discussion

- current status, open questions/problems
- recommended/possible resolutions, GCM tests, MUSC testbed,
- climate, load/benefits
- usefulness and desirability of combining parts of ALARO with other parameterizations, e.g. combining with SURFEX
- future issues (microphysics, …)
-
- physics in lam eps, e.g. multiphysic: process-based and/or parameter-based stochastic physics instead of varying just options in schemes
- until what horizontal resolutions 1D physics is justified? Alias, when one is obliged to go for 3D physics? Any strategies?

TOUCANS

- **shallow convection scheme**, first version can be further improved
  - tuning
  - revisit of vertical profile and new fit to the functions based on LES
- **code cleaning** and debugging, organization according to documentation
- test available options for mixing length computation (new methods more in long term)
- **TOMs validation** as more impact was expected, revision
- continue developments on prognostic mixing length: the outcome is questionable (dangerous, speculations) maybe after TKE based tested

- **Scientific paper** with focus on TTE
- **Testing other choices** (model I, model II, EFB, QNSE, RMC)
  - can be project for students
  - Mario Hrastinski will test EFB
- 1D-2D development, testing, is Meteo-France interested?

ACRANEB2

- parameterization of an impact of cloudiness on broadband surface albedo (topic for newcommer, low priority) tools are available,

- Testing aerosols impact, sensitivity study for NWP
- (usage in microphysics)

clouds

- Treatment of cloud cover / cloud condensates inside various schemes (radiation, microphysics, adjustment, diagnostics) should be unified as much as possible
- next step is **Stratiform cloudiness**: different in adjustment and in radiation
- testing, modifying schemes, the outcome is not sure
- based on results, decision on further steps

convection

Non-saturated downdraft – tuning
- first tuning was done in ALARO-1vA
- todo: repeat tuning with ALARO-1vA+ShallowConvection
- todo: validation: switch on/off, HighResolution NH (correct setup)
- Bugfix (corrections S. Briceag) included in cy43t2 (not yet cy43t1).

CSD
First code is in cy43t1, some fixes over it (cy43t2), ongoing tests,
– retuning to latest ALARO-1 version, validation, testing, ...

microphysics

Prognostic graupel was coded by Michiel Van Ginderachter,
Michiel and Joris can provide the current code with documentation

- phasing into aplmphys should be done

- prognostic hail – probably not needed

In direction of 1.5 moment scheme (liquid 2 momentum, for solid is very complicated, staying with 1 momentum)

ALARO-SURFEX

- use it or not ?
- what configuration ?
- how to couple ALARO without SURFEX with ARPEGE using it ?
  see Wafa's contribution.

- relations between TOUCANS and SURFEX (e.g. TEB)…

- Work should continue on the base Cy43t1 + surfexV8
- Physiography data

- working group: Rafiq, Martin Dian, ??
- Working days / training in 2017 ?

Interfacing physics parameterizations

Turbulence, shallow convection

- coupling with SURFEX first
- im is to be ready for next phasing cy44

Acraneb2 can be tested inside AROME,

- is it working in cy43t1 ?
- 3D tests are ongoing in HIRLAM radiation group
- Impact of aerosols ?

ALARO-1 next version

Well tuned versions can get a name, also linked to the aladin library

- ALARO-1vA Feb 2015
  inside cy40t1bf5
- planned ALARO-1vB
  + screen level May 2016
  + modset with CHMI e-suite ingredients (shallow convection scheme, exponential-random cloud overlaps in radiation and cloud diagnostics, improved sunshine duration and direct solar flux at surface, 10m wind interpolation) ? Oct 2016
  inside cy43t1
- expected: ALARO-1vC
  - add non-saturated downdraft research in cy43t1
  - if something new (prognostic graupel,…)

- foreseen: baseline version including CSD

3D effects in radiation:

expensive, lateral transport inside halo

DDH

Technical fix cy43t1
under new phys-dyn interface should work