

# ACCORD

A Consortium for COnvection-scale modelling  
Research and Development

**Side meeting on 3D physics**

Eric, Claude, Martina, Jeanette for Friday 8 April 2022. ASW closing session.

# Meeting overview in brief

- **Meeting goals: discuss proposals for short-to-mid term planning, discuss both scientific challenges and link with code infrastructure**
- **We addressed turbulence & radiation**
- **Talks:**
  - Rachel: motivation for adding some 3D effects in turbulence (in mountainous areas, lateral mixing in strongly convective clouds)
  - Ryad: code infrastructure to do so ... (using the SL halos). Ready (bug-free) in CY48T2.
  - Kristian: geometric effects in radiation, cost issues (grid, time stepping) and optimization in using SPARTACUS
  - Jan: proposal for a coarse grid approach using fine grid information, with SPARTACUS

# Turbulence

## • short term and mid term seem clear:

- implementation and validation of quasi 3D
- Study the Goger et al. Approach (in mountainous areas)
- Study the Moeng et al. Approach (strong convection clouds)

## • Towards a “full 3D” turbulence.

- Focus on what observations can teach us and others have already done, studies on scale analysis exist
- Full 3D would require to compute horizontal divergence of horizontal fluxes (message by Dmitrii and Didier R.) ... and first check which terms really matter (US community and /or Méso-Nh)
- From the code point of view, we probably have all relevant infrastructure for 3D turbulence, or we know how to code what's missing

# Radiation

- **Poor man's solution TICA**
- **Coarse grid approach with SPARTACUS which parametrizes 3D subgrid fluxes seems feasible**
  - Study the IFS solution for coarse grid radiation computation; draft specs for the LAM solution (how to design the needed interpolation)
  - Call to SPARTACUS in LAM (issue of code version)
  - Enhancements (based on Jan's proposal): use fine grid fields for computing a realistic cloud overlap, for a more direct computation of effective cloud edge length, for evaluating cloud optical saturation
- **Initial steps (how could we organize this work ?):**
  - Form a small task team to draft the work plan & evaluate manpower needs (MG will contact key experts when preparing the RWP-2023)
  - Then discuss staffing possibilities ...we need an EcRAD expert in ACCORD ...

# Titre

- **Text 1**

- Text 2

- Text 3

- **Text a bit longer blablabla**

- Text xxxxx