

## **Plan for Snow Analysis in ACCORD Consortium**

- First ideas were presented on the Surface Meeting, 8-12 February. Inspired by an example of the plan for the Aerosol developments.
- At the meeting, it was decided to elaborate the plan, taking into account different CSCs and operational setups.

### **Why do we need Plans like this at all?**

- Helps to structure our work in such a large community.
- Helps to organize working teams.
- Gives the feeling, how personal work is related to the work of other people and the whole community.
- Helps to see the perspective.
- Helps to formulate, discuss and accept new ideas.
- Helps to organise thinking.

### **We already have RWP. One more plan, why?**

- RWP is too general, no scientific details.
- RWP is focused on managing aspects.
- We need to add new items to RWP. What is the procedure? Without well-defined procedure and preliminary written plans, we have a risk to become very dispersive.

## **Structure of the Snow Plan**

### **General background:**

short description of the state of the art, with references if possible. For modeling, different types of observations (in-situ and space-borne) and DA methods.

### **Code implementations for different CSCs:**

short description of our software, with links.

## **Current status of operational implementations:**

short description of some operational implementations. More information is needed!

### **Tasks to develop snow DA**

1. For the whole ACCORD, for different CSCs, for different operational implementations.
2. Each task contains:
  - Background (justification, why?)
  - Actions (what to do?)
  - Feasibility and resources (easy or difficult, how much time?)
  - Deliverables (what we produce?)
  - People (who will do the work)
3. No priorities are specified; only feasibility is described. This gives more freedom for people and helps to organize initiative, rather than pressing people.
4. Big tasks contain sub-tasks: to see the perspective and for the easier start.

### **Tasks for the whole ACCORD consortium**

1. Accuracy of station coordinates.
2. Coastline and fractions.
3. Glaciers and permanent snow.
4. Specification of observation and background error variances and Gaussian scale for the horizontal OI for the SWE.
5. Parameters of the assimilation scheme and quality control for the satellite SE observations
6. Assimilation of the satellite microwave brightness temperatures for SWE
  - 6.1. Snow microstructure parameterization
  - 6.2. The HUT model code on the CMEM platform
  - 6.3. 1-D assimilation of microwave observations
  - 6.4. 3D assimilation of the microwave observations
7. Assimilation of satellite albedo data, including snow

- 7.1. Choice of albedo product
- 7.2. 1-D assimilation of albedo, including snow
- 7.3. Assimilation in horizontal
- 7.4. 3D assimilation
8. Feasibility of assimilating the satellite SE as a categorical variable
9. Improvement of snow analysis for 2 patches
10. Analysis of the heat profile in snow
11. Snow over sea ice: analysis of heat profile

**Tasks for different CSCs: AROME: TBD**

**Tasks for different CSCs: ALARO: TBD**

**Tasks for different CSCs: HARMONIE-AROME:**

1. Snow analysis in gridPP/Titan software
2. Snow density aspect

**Tasks for some operational applications: MetCoOp:**

1. Improvements for observation monitoring software OBSMON
2. Timing for snow analysis
3. Operational assimilation of the satellite-based SE observations
4. Inventory of the model output for snow

**Welcome to participate!**

- To edit and comment the Plan
- To form the Working teams
- To progress in snow analysis!

**Will be circulated in the beg. of May, but one may ask for access from me already now.**