



Integration of Expert Model Components into the Object Oriented Decision Support System DANUBIA



- the Example of Snow Modelling

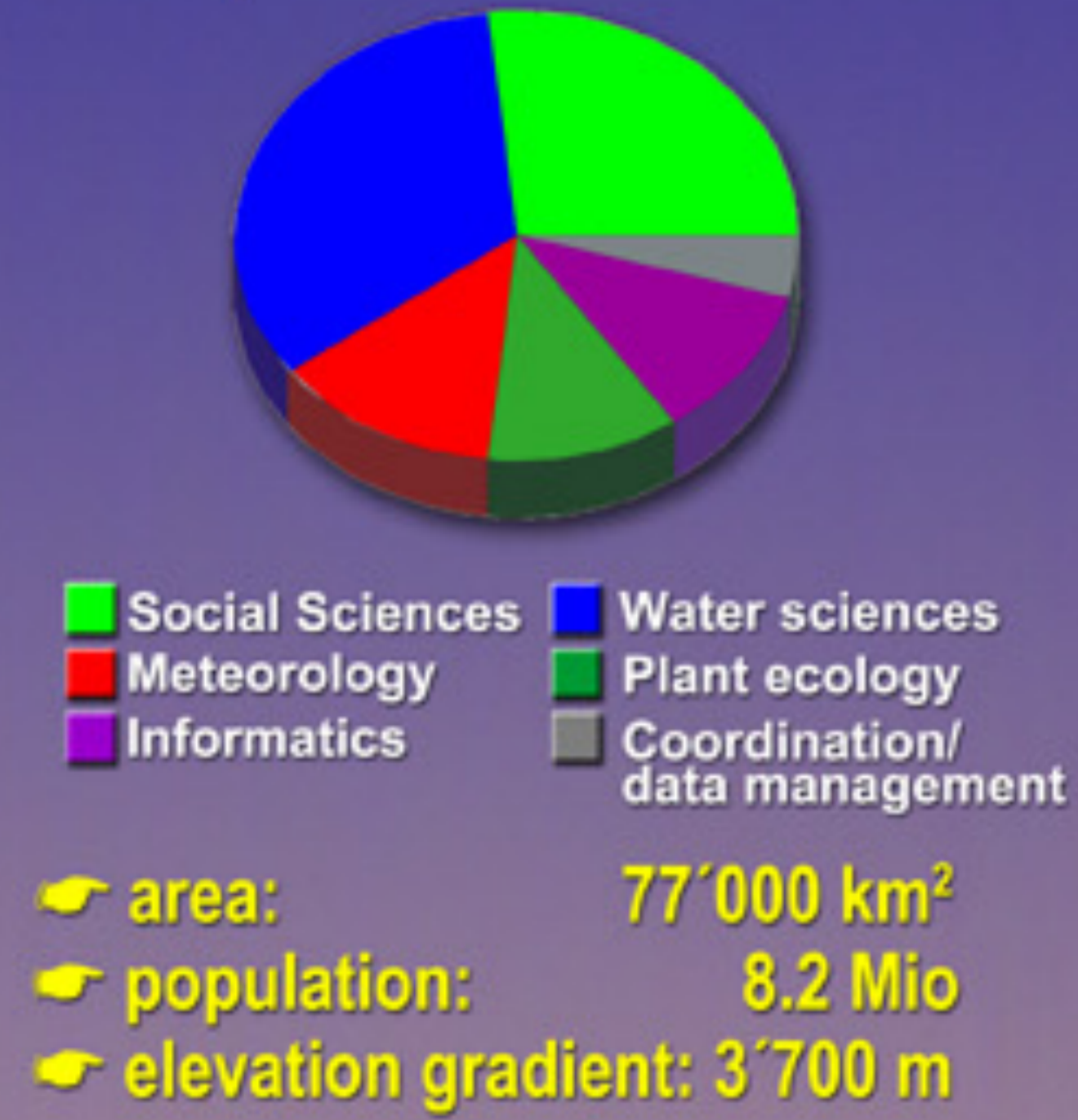
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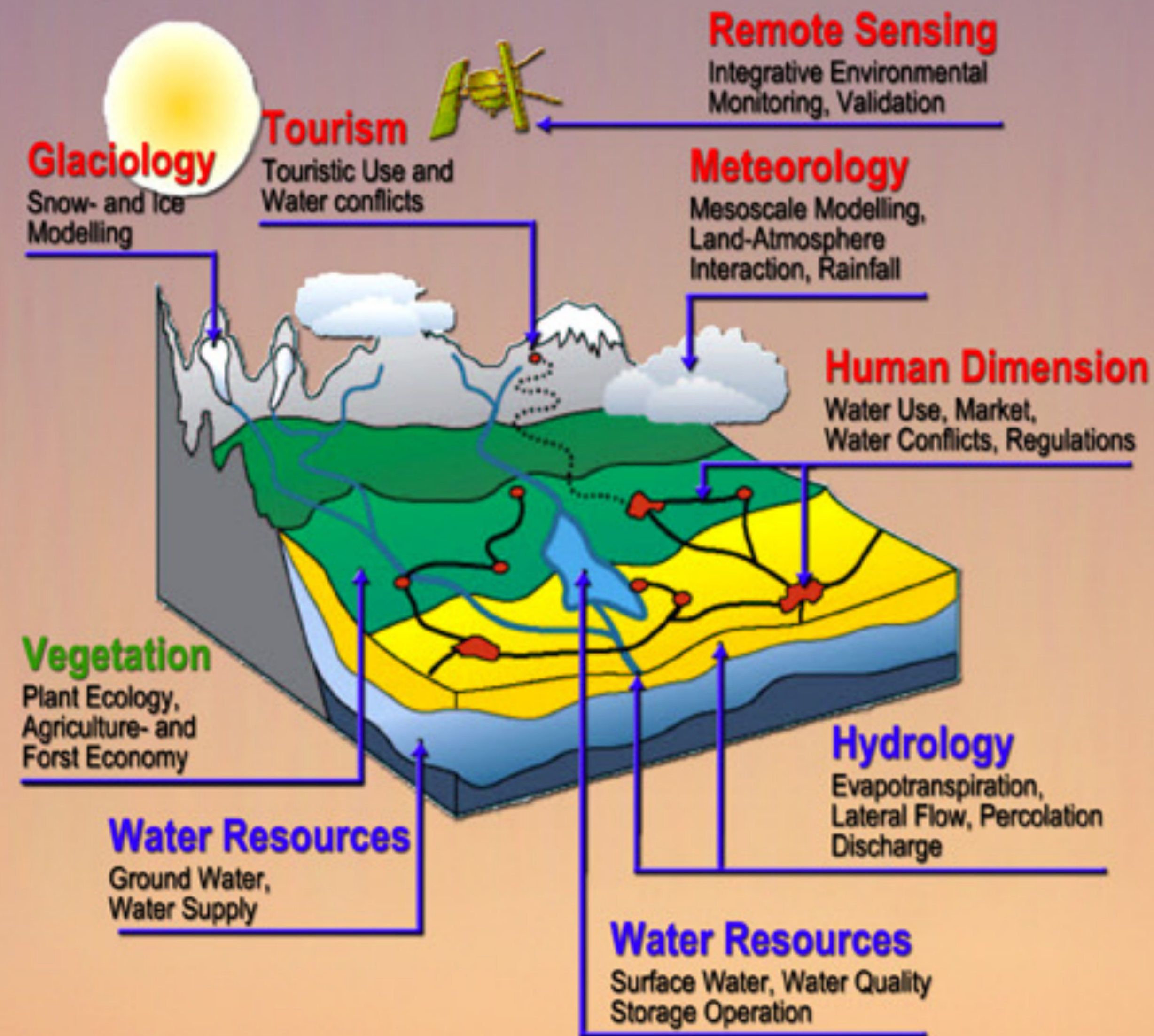


Composition of the GLOWA-Danube team

14 Project leaders
 14 Scientists
 21 PhD students
 ... and several administrative cooperators



Issues of integrative global change research in an alpine watershed



DANUBIA approach to integration

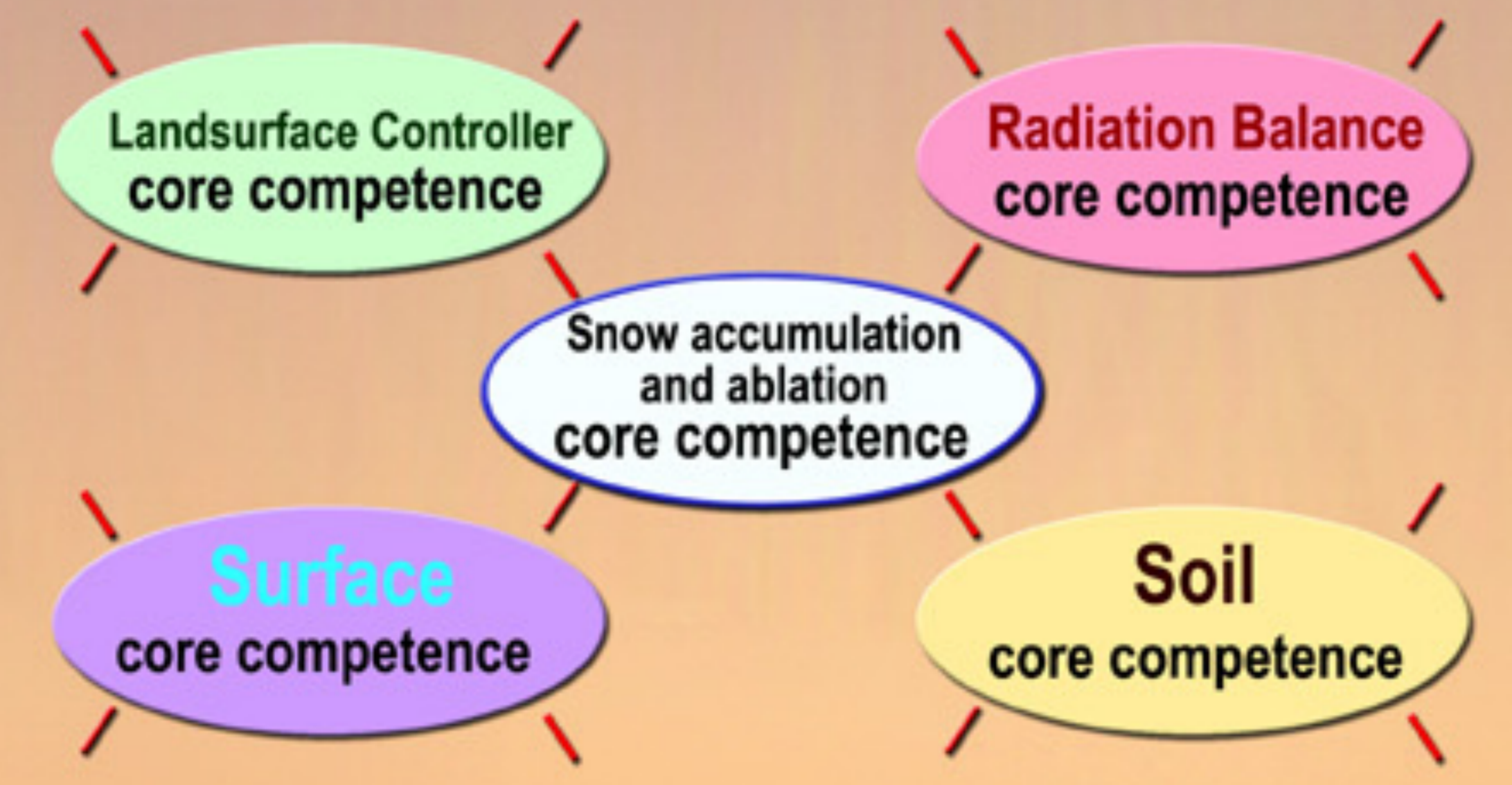
The integrative approach within Danubia is to

- use the **proxel-concept** of spatial representation for all disciplinary processes
- implement the disciplinary components of DANUBIA by designing **objects**
- use the **Unified Modelling Language (UML)** to describe the interfaces between the objects and define the data that are transferred
- implement all components in **Java**
- utilize **web-based techniques** for parallel execution of disciplinary cores over the **www** (using the Java based **Remote Method Invocation RMI**)

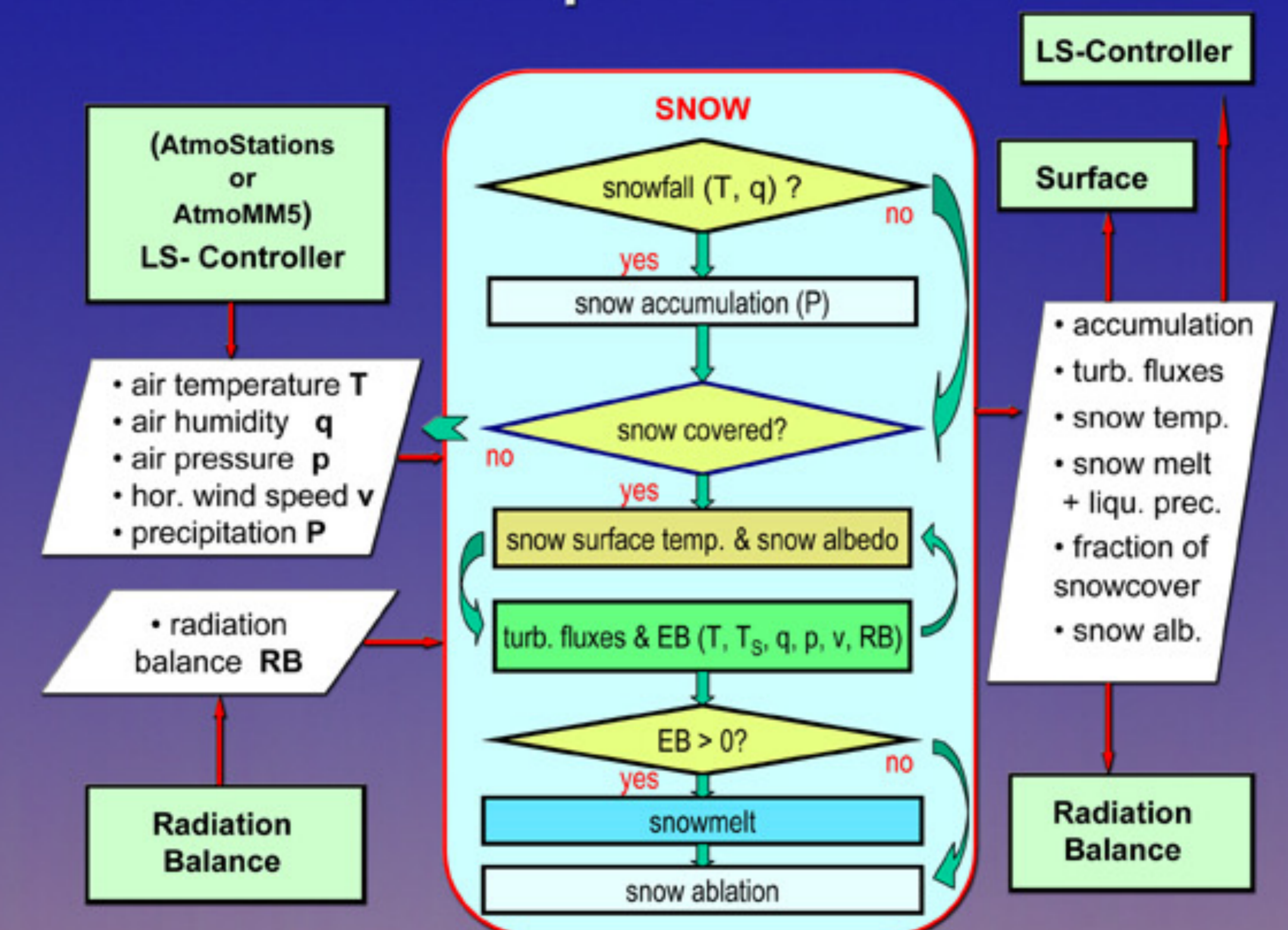
and applies to all partners

Integrative approach, e.g. snow science:

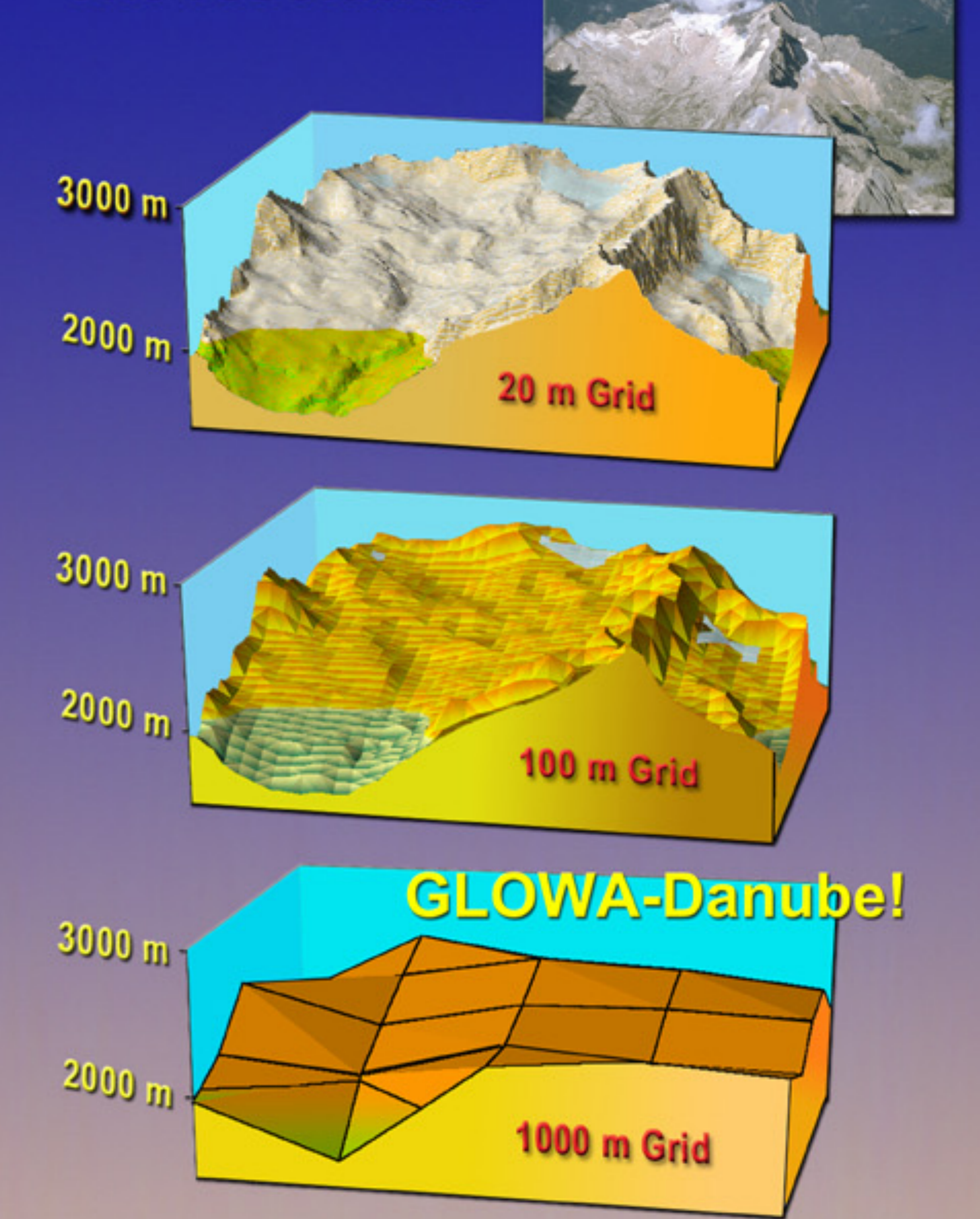
- coupled
- core competence and
- dialog with other disciplines



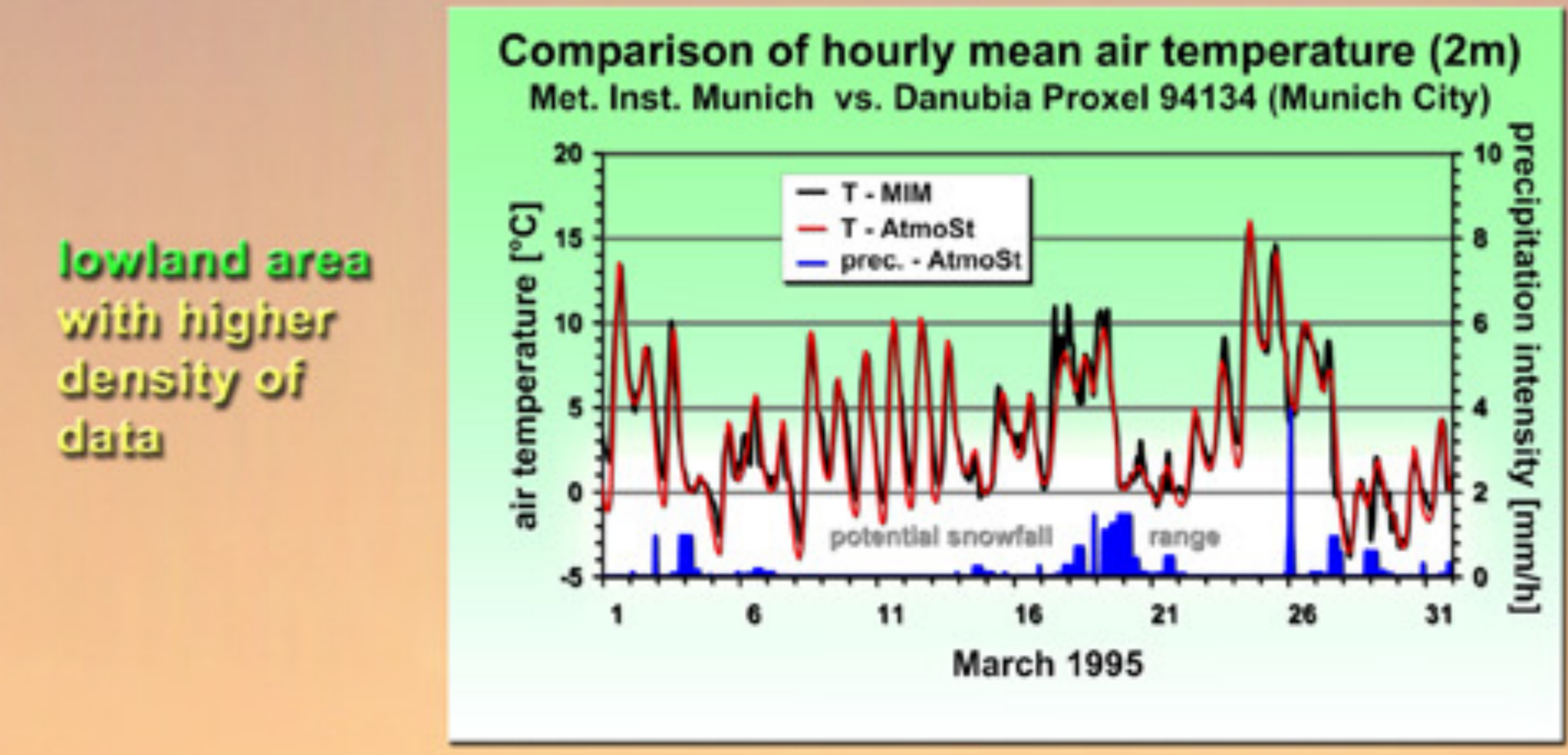
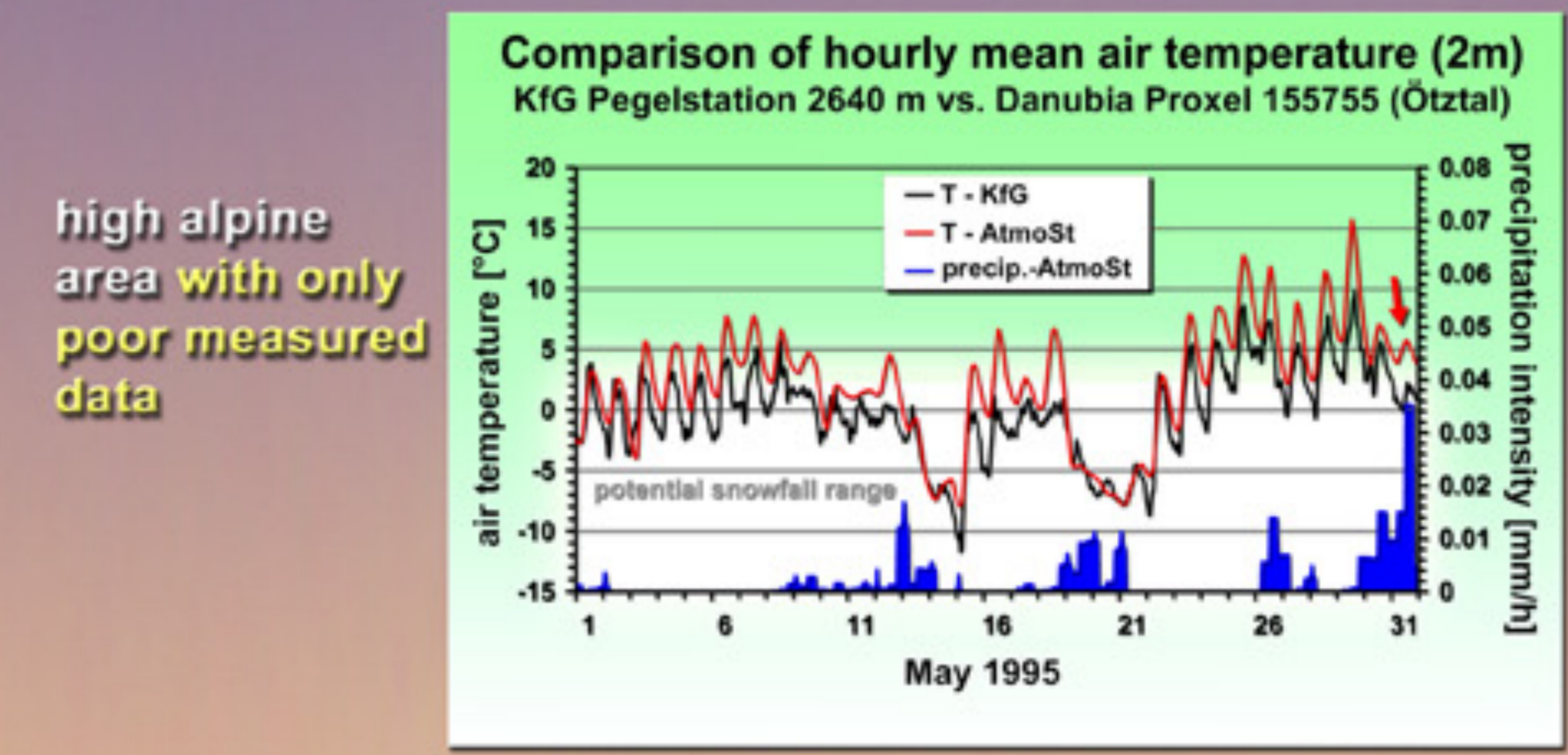
The snow component



The resolution

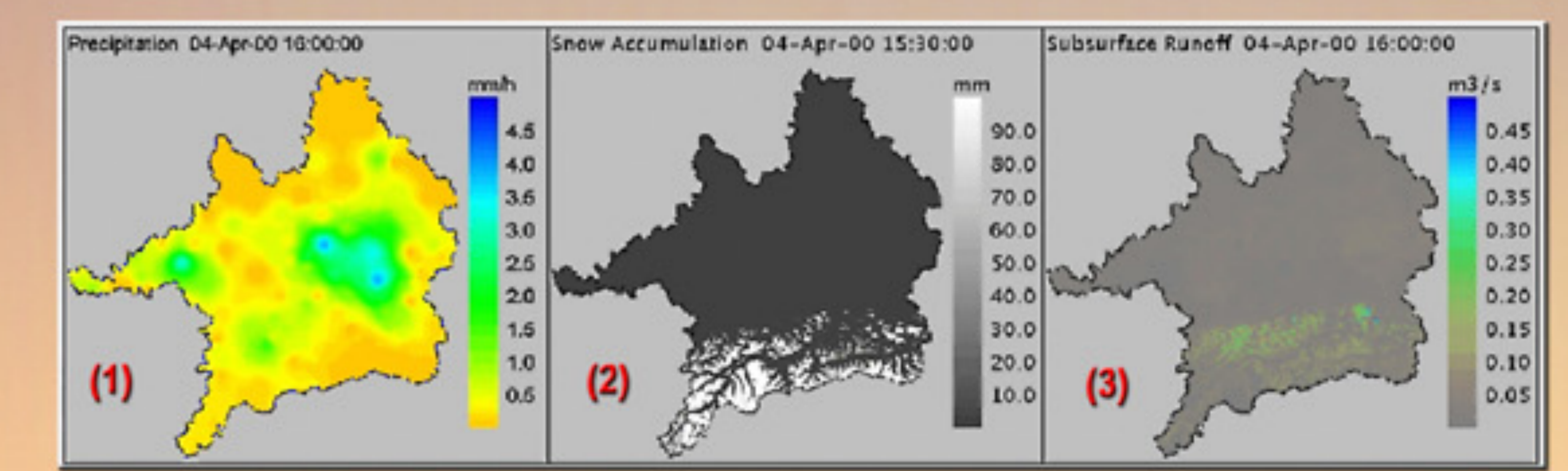


Validation of the snow input data:



Interpolation of air temperature controlling snow accumulation and melt

DANUBIA: dynamics of the land surface



Danube at 1 km resolution, example of a simulation March 2000

- Coupled hourly simulation of:
- (1) Precipitation from station measurements (DWD)
 - (2) snow accumulation water equivalent
 - (3) subsurface runoff (interflow)