



Session B:
Climate processes and changes in mountains
Discussion summary for reporting

Participants

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Climate relevant features and processes -1

- Understand processes behind elevation-dependent climate change
- Better understand the regional differences of different mountain ranges (latitudes, heights, ...)
- Improve representation of slowly reacting components (long term memory) like soil, lakes, cryospheric components, vegetation, ground water and also their feedbacks to climate
- Improve representation of BL processes, land-atmosphere feedbacks, convection initiation, cloud feedbacks
- Develop more reliable diagnostics for 2m temperature or 10 m wind
- Improve representation of 3D radiation
- Evaluate variables in “multi-variate context” (interrelationships, ...)

Climate relevant features and processes -2

- Improve the ability of the reanalyses
- Improve rain shadowing effect
- (Compound) extremes (e.g., rain on snow)
- Influence of large scale teleconnections (e.g., NAO) on mountain regions, separation of regional from global forcing/effects
- Operation-to-research: finding the missing links from what users expect; demand-driven approach for determining/defining climate indicators
- From service point of view: urban climate, frequency of Föhn, inversions

Climate requirements for the field campaign & modelling experiment

- Need for climate scale observations for evaluation (HISTALP, Nationalpark Berchtesgaden (approx. 20 years), measuring field of UIBK (approx.. 5 years), Met Service networks)
- Evaluation using reanalyses (e.g., COSMO, HIRLAM)
- Connect one year field campaign measurements to longer term measurements
- Improve gridded “reference” datasets
- Connect one year field campaign measurements in a given area to another region
- Connect model outputs to measurement (derive statistical relationships)

Other relevant activities in climate research

- GEO-GNOME: the global network for observation and information in mountain environments (co-led by CNR, a GEO initiative)
- History of projects on mountain climate should be added to the white paper
- Existing CORDEX FPS LUCAS on land use change impact
- Existing CORDEX FPS on Himalaya
- Existing CORDEX FPS CPS (convection permitting simulations with a focus over the European Alps)
- Propose CORDEX FPS for mountain climate?