Requirements for using integrated hydrological models for climate impact assessment studies

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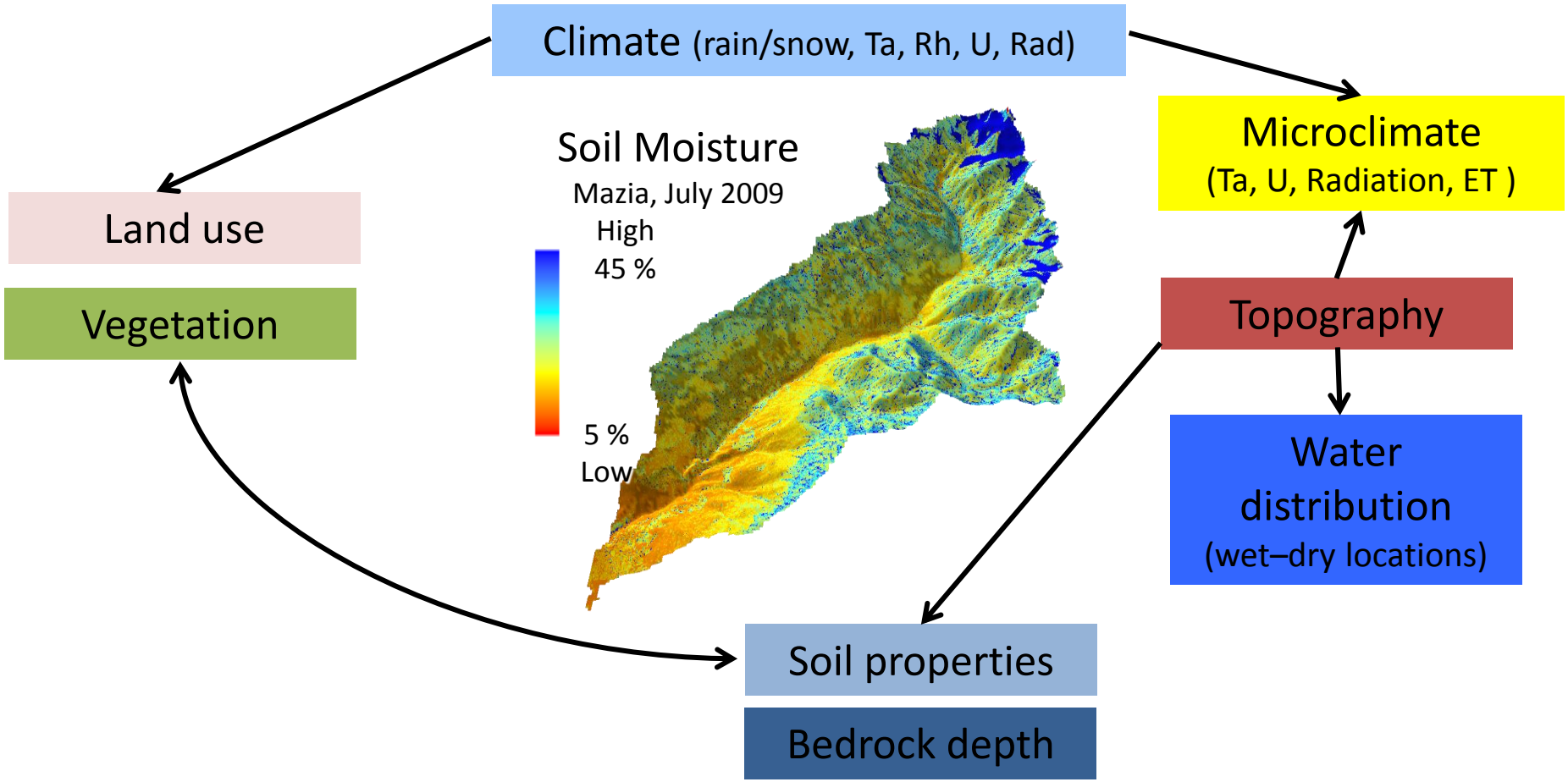
Modelling impacts of CC on mountain hydrology

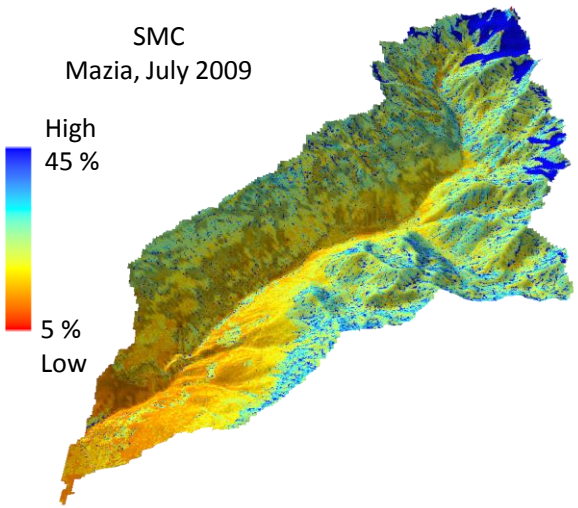


How CC is influencing snow, evapotranspiration, soil moisture **patterns** and runoff production in alpine regions?

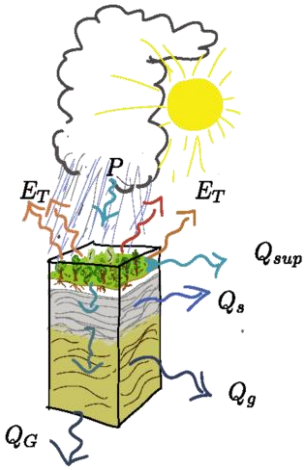
How to identify the **most vulnerable areas** in terms of topography/land cover?

Integrated hydrological models

Full 3d Application



~ 10^6 cells = 10 layers x 10^5 1d columns

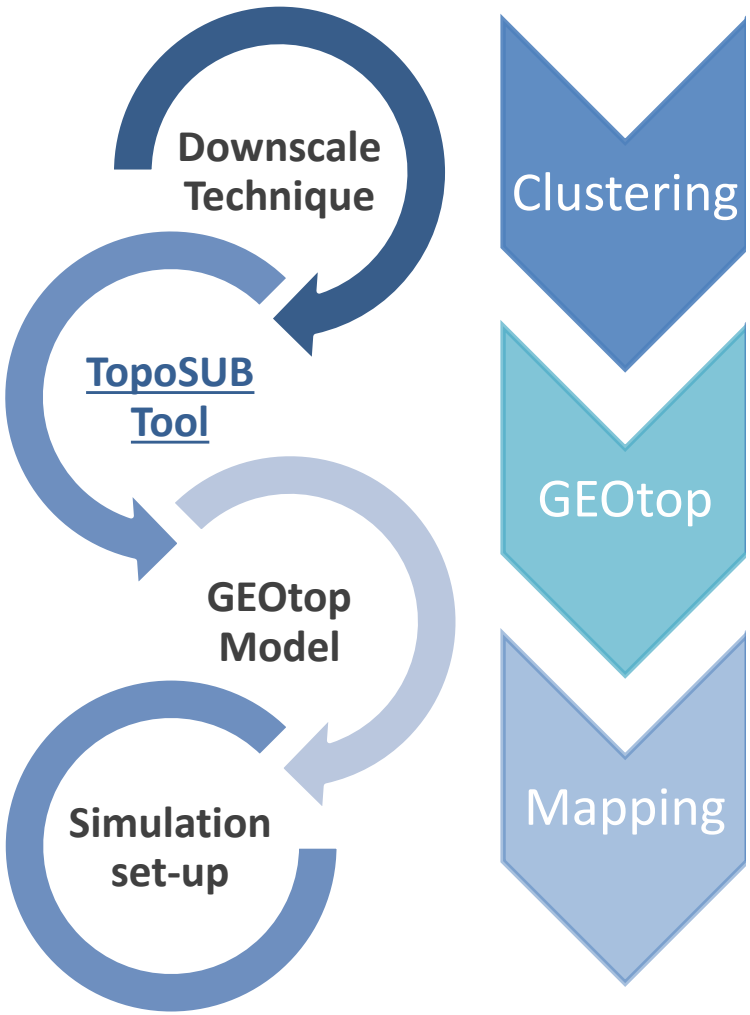


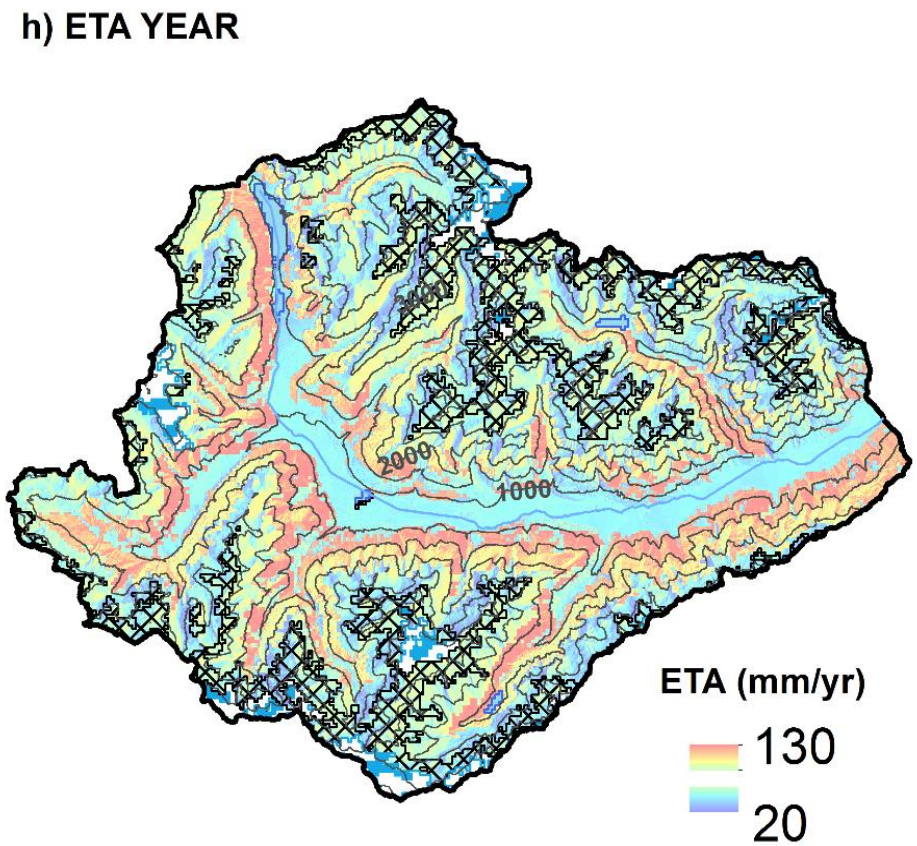
✓ **Heterogeneity** related to land cover / topography.

Computational needs

- large domains;
- long simulations periods;
- numerous model parameters;

A possible approach to reduce computing needs





Come to the poster !

1 Fiddes, J., & Gruber, S. (2012). TopoSUB: a tool for efficient large area numerical modelling in complex topography at sub-grid scales. *Geoscientific Model Development Discussions, 5(5), 1245–1257*.

2 Hartigan, J. A., & Wong, M. A. (1979). A K-Means Clustering Algorithm. *Journal of the Royal Statistical Society. Series C (Applied Statistics)*, *28*(1), 100–108.