

Research

Interests

We study the geodynamic and geomorphic processes that affect the lithosphere. Our research focuses on quantifying the kinematics and dynamics of tectonic, geomorphic and geodynamic processes using numerical numerical models in combination with field, laboratory and geophysical observations. Specific areas of interest include

- 3D dynamics of active convergent orogens including the Himalaya and Andes
- Crustal thermal processes in active orogens
- The influence of climate and erosion on orogen tectonics
- Viscous flow of the crust in modern and ancient orogens

Tools

We have a strong emphasis on the development and use of cutting-edge predictive and interpretative numerical tools that are linked with observations from the field and geochronological, geophysical and remotely sensing data. In particular we use

- 3D thermomechanical geodynamic numerical models ([DOUAR](#))
- Forward and inverse modeling of thermochronometer data using 3D thermokinematic numerical models ([Pecube](#))
- Landform evolution modeling
- Bedrock and detrital thermochronology
- GIS and digital topographic analysis

Projects

Information about research projects can be found on the [Projects page](#).