

## THE EARTHSHAPE VISION:

**EarthShape** enriches ecologic and biologic research. It contributes to a better understanding of mechanisms that span different scales in space and time, and shape observable ecologic patterns. Understanding the drivers and mechanisms leading to abiotic patterns across different scales provides an improved basis for research linking geological and ecological processes.

The **EarthShape** priority program defines testable hypotheses centered on quantifying the influence of biota on Earth surface processes. We do this by creating a unique opportunity for interdisciplinary research that spans traditional boundaries between the geosciences, biology, geomorphology, soil science, and hydrology.

## CONTACT INFORMATION:

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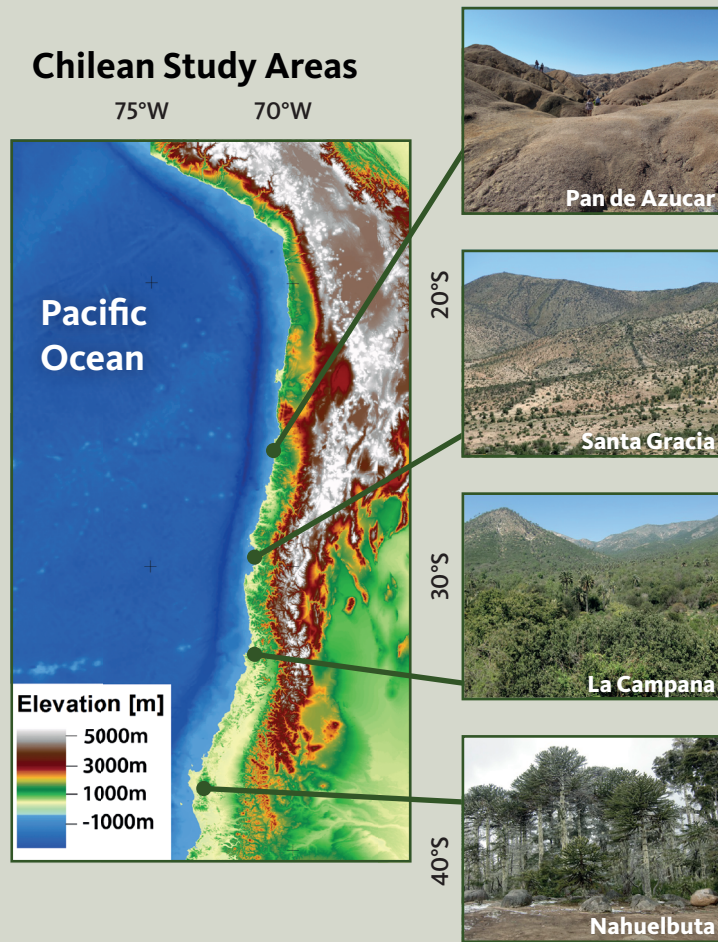
**EarthShape** is a German-Chilean priority research program sponsored by the German science foundation (Deutsche Forschungsgemeinschaft, DFG-SPP 1803). **EarthShape** challenges the Geoscience paradigm that Earth surface processes are controlled primarily by climate (via erosion) and tectonic forces (via mountain building). We do this by investigating the influence of biota that shapes the terrestrial Earth surface.

**EarthShape** is coordinated by Prof. Todd Ehlers from the Department of Geoscience at the University of Tübingen, Germany, and Prof. Friedhelm von Blanckenburg from the Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences. This research initiative includes a consortium of 13 interdisciplinary projects comprising 17 PhD students and 33 German and 19 Chilean investigators from the fields of Geology, Ecology, Soil Sciences, Geography, Microbiology, Geophysics, and Geochemistry. The **EarthShape** program is open to collaboration with scientists from around the world and is intended to be an international focal point for surface processes research.



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**ECOLOGICAL, TOPOGRAPHIC, AND CLIMATE GRADIENT INVESTIGATED:**

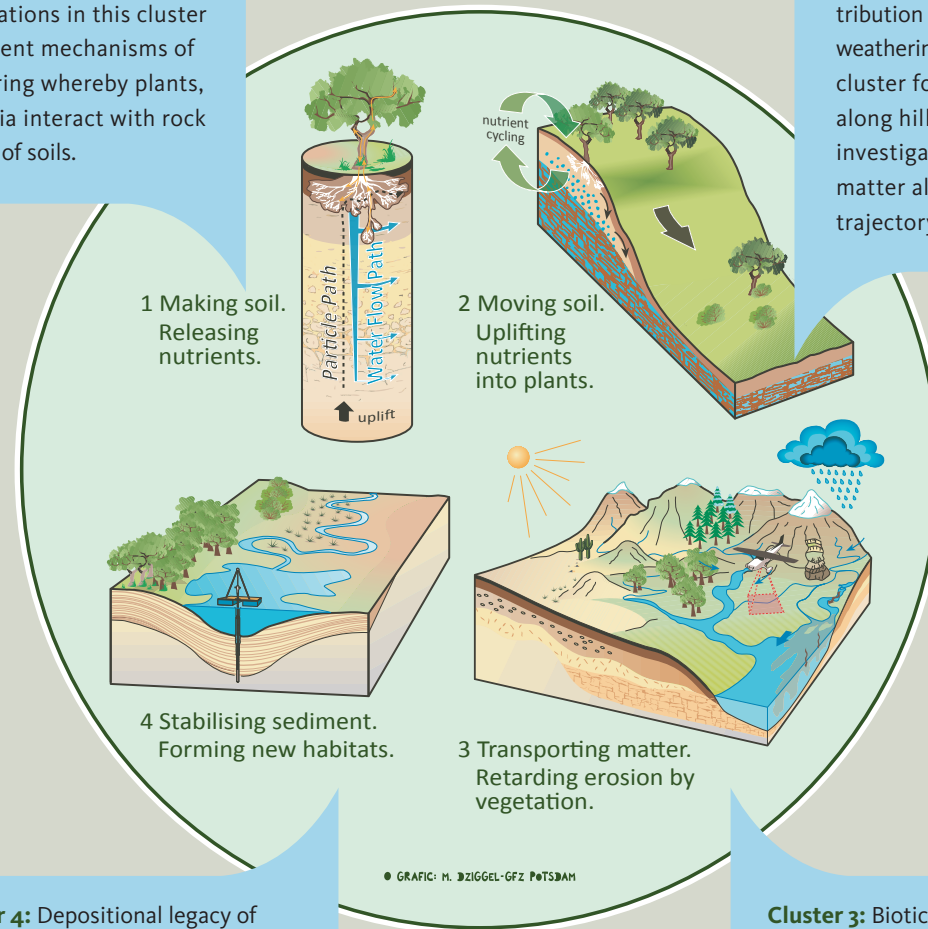


**EarthShape** research will be conducted at four study sites within in the Chilean Coastal Range that features one of Earth’s most spectacular vegetation gradients and is controlled by climate ranging from hyper-arid to humid temperate. It is a natural laboratory to study how biology and topography interact. These areas also avoid the Andes or the coastal areas south of 40 S that were impacted by glaciation during the Last Glacial Maximum.

**SCIENTIFIC MOTIVATION:**

**Cluster 1:** Micro-biota as the “weathering engine”. Investigations in this cluster investigate different mechanisms of biogenic weathering whereby plants, fungi, and bacteria interact with rock in the production of soils.

**Cluster 2:** Bio-mediated redistribution of material within the weathering zone. Studies in this cluster focus on soil catenas along hills slope profiles to investigate the relocation of matter along the transport trajectory.



**Cluster 4:** Depositional legacy of coupled biogenic and Earth surface systems. These studies are intended to target records of vegetation-land surface interactions in different depositional settings.

**Cluster 3:** Biotic modulation of erosion and sediment routing at the catchment scale. Investigations in this cluster will explore the effects of vegetation cover on solute and sediment transport from hill slopes to the channel network.

The scientific goals of the **EarthShape** program are to investigate four linked processes and one computer modeling cluster. Individual projects within the **EarthShape** project investigate one or more these components in the Chilean study areas.