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Press Release

How life shapes the Earth

Tübingen and Potsdam geoscientists coordinate new €6m DFG priority program probing biological effects on topography in Chile

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Tübingen geoscientist Professor Todd Ehlers and Professor Friedhelm von Blanckenburg of the GeoForschungsZentrum GFZ Potsdam are coordinators of a new research program sponsored by the German Research Foundation (DFG). The program allocates €6m over three years for the project EarthShape: Earth Surface Shaping by Biota.

A common Geoscience paradigm holds that the Earth surface is shaped mainly by climate (eroding soil) and tectonics (building mountains). The EarthShape project challenges this paradigm to explore how biological processes form soil, influence topography, and thereby help to shape the Earth's surface. The influence of microorganisms, plants, and animals on the formation of soils and the shape of topography is still poorly understood, but new scientific technology now allows us to identify their roles. Research into biological effects on topography is particularly important for understanding how future climate and biological changes will impact the Earth's surface. The effects of biological activity on landscapes is a key topic in international research; this priority program will help place German-funded research at the forefront of this field of study.

This research initiative will enable scientists from around Germany to work together in an area of coastal Chile. "This project is particularly exciting because for the first time it brings together an unprecedented consortium of different scientific disciplines in the geosciences, ecology, soil science, hydrology, microbiology, and geography to work on a common problem of human relevance," says Ehlers. The program is intended for 6 years, pending renewal after 3 years.

The Chilean study area was selected because it contains one of the largest biological and climate gradients in the world. "It is a natural laboratory to study how biology and topography interact," says von Blanckenburg. The project members will collaborate with leading Chilean scientists from several disciplines. The project involves a new collaboration between German Universities and at least four Helmholtz

Research Centers and is jointly coordinated between the University of Tübingen and the Geoforschungszentrum in Potsdam, Germany.

Professor Todd Ehlers came to Tübingen in 2009 from the University of Michigan, USA. He heads the Earth System Dynamics research group. Professor von Blanckenburg leads the Earth Surface Geochemistry group at GFZ Potsdam and is a professor at FU-Berlin.

The Deutsche Forschungsgemeinschaft awards priority programs like this to provide a community driven mechanism for research on the cutting edge of Science. The program aims to fund large research programs with multiple institutions with an emphasis on collaborative science between disciplines. The project is financed for about €6m in the first 3 years, and renewable for a second 3 years of activity and additional €6m.

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Andean mountain topography formed by interactions between climate, tectonics, and biology.

Photo: Todd Ehlers



Photo from a tropical highland showing how roots reach towards the rock layer to extract nutrients, thereby forming soil. Photo: Friedhelm von Blanckenburg, GFZ Potsdam