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The IAG Working Group on Denudation and Environmental Changes in Different Morphoclimatic Zones (DENUCHANGE): Scientific need, activities and outcomes since the year 2017

Achim A. Beylich¹ and the DENUCHANGE Team*

¹Geomorphological Field Laboratory (GFL), Selbustrand, Norway (achim.beylich@geofieldlab.com)

*A full list of authors appears at the end of the abstract

The working group on *Denudation and Environmental Changes in Different Morphoclimatic Zones* (DENUCHANGE, <http://www.geomorph.org/denuchange-working-group/>) was approved as a new working group of the International Association of Geomorphologists (IAG) during the 9th International Conference on Geomorphology, 6-11 November 2017, New Delhi, India.

The key question of DENUCHANGE is:

What are the contemporary chemical and mechanical denudation rates in different morphoclimatic zones on the Earth?

Denudation is controlled by a range of environmental drivers and can be significantly affected by anthropogenic activities. The better understanding of possible effects of ongoing and accelerated environmental changes on present-day denudation requires systematic and quantitative studies (environmental monitoring) on the actual drivers of denudational processes. Only if we have an improved knowledge of drivers and quantitative rates of contemporary denudational hillslope and fluvial processes as well as of the (dis)connectivity in landscapes and between hillslope and fluvial systems across a range of different selected climatic environments, possible effects of global environmental changes on denudation can be better assessed. Special focus is given to selected morphoclimatic zones that are expected to react particularly sensitively to ongoing and accelerated environmental changes, and the key focus of DENUCHANGE is therefore on (i) cold regions (including glacierized, glaciated and unglaciated cold climate environments), (ii) temperate regions, (iii) arid / semi-arid regions and (iv) tropical regions. The different morphoclimatic zones are defined by morphometric characteristics/signatures detected in the various zones.

DENUCHANGE

- Provides a detailed compilation and comparison of contemporary chemical and mechanical (drainage-basin wide) denudation rates in selected and clearly defined drainage basin systems in selected cold regions, temperate regions, arid / semi-arid regions and tropical regions worldwide;
- Provides a process-oriented, coordinated and integrated analysis and compilation of the respective key drivers of contemporary denudation occurring under the different present-day morphoclimates;
- Addresses the key question how environmental changes are affecting contemporary denudation rates in different morphoclimates. This also includes human activities in different morphoclimatic

zones, in the context of environmental changes in the Anthropocene.

DENUCHANGE test site fact sheets were developed and key catchment information together with meteorological and hydrological data have been collected from 35 accepted DENUCHANGE field test sites (by March 2022). The collected catchment information and data will be compiled in a database.

The DENUCHANGE field test site catalogue has been published in February 2022 as an interactive PDF-file including short and well illustrated presentations of 22 accepted DENUCHANGE field test sites which are currently in operation within the DENUCHANGE network. Each presented field test site is linked to an interactive map. Key information on each field test site includes short descriptions of the field sites and the methods and techniques applied, and key meteorological and hydrological data. Both field test sites with available longer data records and newly established field sites are included in the catalogue.

Two special issues to the scientific journals *Landform Analysis* (2018) and *Geomorphology* (2021) have been produced by the DENUCHANGE group, and synthesis/review papers related to the defined key questions and tasks of DENUCHANGE are currently in preparation.

DENUCHANGE Team: Members of the IAG Working Group DENUCHANGE