IAG DENUCHANGE business and planning meeting

(virtual meeting)

18 May 2022, 15:00-16:00 CEST

Meeting summary report

Business meeting participants

Achim A. Beylich (Norway)

Irene Bollati (Italy)

Valentin Golosov (Russia)

Artyom Gusarov (Russia)

Milica Kasanin-Grubin (Serbia)

Małgorzata Kijowska-Strugala (Poland)

Waldemar Kociuba (Poland)

Katja Laute (Norway)

Dongfeng Li (Singapore)

Małgorzata Mazurek (Poland)

Peter Molnar (Switzerland)

Estela Nadal Romero (Spain)

Ana Navas (Spain)

Eliza Płaczkowska (Poland)

Olimpiu T. Pop (Romania)

Juan Remondo (Spain)

Nurit Shtober-Zisu (Israel)

Francesca Vergari (Italy)

Zbigniew Zwoliński (Poland)

Welcome of meeting participants

Achim A. Beylich (Norway) opened the meeting and welcomed all business meeting participants. In total 19 participants from 10 different countries participated in the business meeting. The meeting agenda was presented and approved.

DENUCHANGE virtual event during the International Geomorphology Week 2022

DENUCHANGE organized a virtual event (round table discussion) during the International Geomorphology Week 2022. The DENUCHANGE round table discussion took place as a public virtual event on 1 March 2022, 15:00-16:00 CET. The main purpose of this virtual event was to discuss relevant issues connected to the preparation of a proposal for a continuation of DENUCHANGE (possible second term, 2022-2026) after September 2022 (see also below).

DENUCHANGE scientific session at EGU 2022 in Vienna, Austria, 23-27 May 2022

A DENUCHANGE scientific session GM4.1 *Hillslope and fluvial processes and associated source-to-sink fluxes and sedimentary budgets under changing climate and anthropogenic impacts,* co-sponsored by IAG, convened by Achim A. Beylich, Katja Laute, Dongfeng Li, Ana Navas and Olimpiu T. Pop, was successfully organized on 24 May 2022, 8:30-14:05 CEST, during the EGU General Assembly 2022, 23-27 May 2022 in Vienna, Austria. The EGU General Assembly was for the first time organized in a hybrid format. Detailed information on the DENUCHANGE scientific session can be found at https://meetingorganizer.copernicus.org/EGU22/session/43953. The session included 30 accepted abstracts and presentations. The session was chaired on-site by Achim A. Beylich and Olimpiu T. Pop and the session contributions were given as 7-minute oral presentations. A wide range of interesting topics, environmental setting, spatiotemporal scales and methodological approaches was covered by the session contributions.

DENUCHANGE session section during the IAG International Conference on Geomorphology in Coimbra, Portugal, 12-16 September 2022

DENUCHANGE will organize a scientific session section as part of the Thematic Session 5 on *Forms, Processes and Landscape Change* (including 42 accepted abstracts and being convened by Achim A. Beylich, Luca Mao, Osmar Carvalho, Roberto Verdum, Adélia Nunes) during the 10th IAG International Conference on Geomorphology in Coimbra, Portugal, 12-16 September 2022. The conference will be organised as an in-person event. An in-person DENUCHANGE business meeting (one hour) and a social DENUCHANGE event (joint lunch or dinner) will be organised during the conference. Detailed information on the conference and the various conference sessions is found at the conference website under https://www.icg2022.eu/.

DENUCHANGE synthesis and review papers

Juan Remondo (Spain) presented updated information on the multi-authored review/synthesis paper on *Denudation, global change and the Anthropocene* (Cendrero, Remondo, Forte et al.). The nearly final version of this review/synthesis paper was sent to DENUCHANGE colleagues for final commenting. The finalized paper will be submitted very soon to the journal Earth-Science Reviews (Elsevier).

Book project on Climate and Anthropogenic Impacts on Earth Surface Processes

Achim A. Beylich provided updated information on an edited book project (Elsevier) on the theme of *Climate and Anthropogenic Impacts on Earth Surface Processes*. The book will be edited by Achim A. Beylich, Dongfeng Li, Daniel Vázquez Tarrío, Mario Morellon Marteles and Marc Oliva. The book structure and outline developed by the invited book editors is currently under review. DENUCHANGE colleagues will from June 2022 onwards be invited to contribute to this edited book.

Proposal for extension of DENUCHANGE by a second term (2022-2026)

The proposal for extension of DENUCHANGE by a second term (2022-2026) has been submitted to IAG. Achim A. Beylich submitted the proposal together with the IAG annual report 2022.

DENUCHANGE multimedia presentations from DENUCHANGE field test sites

After the online publication of the DENUCHANGE Field Test Site Catalogue

(Laute, K., Beylich, A.A., and Li, D., Eds., 2022) (https://geofieldlab.com/wp-content/uploads/2022/02/GFL_Geomorphological_Field_Laboratory_Publication_Series_Number3_February2022.pdf),

Katja Laute (Norway) summarized her ideas on possible DENUCHANGE multimedia presentations from defined DENUCHANGE field test sites.

Please get in contact with Katja Laute (katja.laute@geofieldlab.com) before the next business meeting on 29 June 2022 if you wish to participate in this activity.

DENUCHANGE multimedia presentations (by Katja Laute)

The idea is to create several short video presentations maybe around five minutes showcasing for example field methods applied within the DENUCHANGE field test sites. One goal could be to show how similar measurements or instruments are used in different test sites and environments.
Alike to the DENUCHANGE Field Test Site Catalogue we could use the same layout (e.g. for the start and end of the video clips) in order to have a more uniform presentation.
I recommend recording your video file in the MP4 Video format. I also recommend not to record any voice (explanations) in the field directly as it is usually always too noisy. Instead it will be possible to add either explanations as captions into the video file or you record your explanations as a separate audio file which can be added afterwards to the video clip.
It will be no problem to include also single photographs within the video file. It should be also possible to show e.g. some graphs or illustrations like a location or geomorphological map or simple result figures.

→ The total length of the video clip should be around five minutes and maximum ten minutes.

"Storyboard" suggestions for shooting your video clip in the field:

Startslide including title and location (will be added afterwards during the video clip editing)

Timeline 0 to 1 min:

- showing and introducing the setting/surrounding of your site where you want to do the measurement or your instrument is installed
- e.g. you could do a 360 degree round turn or you zoom from a distance closer to your measurement spot

Timeline 1 to 2 min:

- you can introduce your measurement device (e.g. you can zoom on your device or show how it works) or what you would like to measure

Timeline 2 to 4 min:

- you can film the actual measurement

Timeline 4 to 5 min:

- in the end you could show some results e.g. a collected soil sample, tree core or a bedload sample
- we can add one or two figures showing raw data or a graph of preliminary results prepared as a jpeg file

End-slide including name of video producers, affiliation and potential acknowledgement (will be added afterwards)

Suggested minimum technical requirements:

Video resolution (frame width x frame height)	Video frame rate	Video-Bitrate
1920 x 1080	30 frames/second	12 Mbit/s

Possible subgroup within DENUCHANGE

Milica Kasanin-Grubin (Serbia) summarized her ideas on a possible additional direction of work and a possible subgroup within DENUCHANGE.

Please get in contact with Milica Kasanin-Grubin (mkasaningrubin@chem.bg.ac.rs) before the next business meeting on 29 June 2022 if you wish to participate in this activity.

Ideas for possible additional DENUCHANGE research (by Milica Kasanin-Grubin)

How do we know if heavy metals in river sediments have geological or anthropogenic source?

Heavy metals, regarded as common environmental pollutants, have a tendency to accumulate in river sediments. These microelements can either have natural or anthropogenic origin, and it is important to distinguish between the two. Consequently, this information helps to determine the mobility of microelements.

The geological origin of heavy metals in drainage basins is weathering of rocks, and the main anthropogenic sources of heavy metals are mining and smelting, disposal of effluents containing heavy metals, industrial waste and haphazard use of fertilizers and pesticides that contain heavy

metals. The capacity of sediment to adsorb and retain microelements depends mostly on their physico-chemical characteristics, mineralogical composition and grain size distribution.

Pollution indices, often used to quantitatively assess the heavy metal contamination of sediments, offer various approaches for comparing actual values of elements in an evaluated sample with some background values of the environment. Most commonly, in the literature, as the background value the average composition of the upper continental crust, average shale concentration of elements, certified reference material, uncontaminated sediments from the area, and statistical methods, have been used. However, natural background sample as “normal abundance of an element in barren earth material” and “elemental concentration(s) in sediments before industrialization” should be used wherever and whenever is possible. Representative sampling should be done at an area that is close to the area of interest, i.e. with the same geological setting but undisturbed by human action.

The general characteristic of reference samples is that they should correspond petrologically to the tested samples. Reference samples should be of identical or similar sedimentological origin, i.e. from alluvial systems. Also, the reference samples should not have any anthropogenic influence.

Bearing this in mind, it would be very useful to determine the reference samples for specific small watersheds with similar geology. This approach would allow building a network of reference samples that could be widely used for determining the pollution status of river sediments.

Next DENUCHANGE business and planning meeting

The next DENUCHANGE business and planning meeting will take place as a virtual meeting on **29 June 2022, 15:00-16:00 CEST**. The ongoing discussions will be continued and taken further during this upcoming business meeting. Achim A. Beylich will invite to this virtual meeting in mid-June.

Selbustrand, 29 May 2022

Achim A. Beylich