Geophysical Research Abstracts
Vol. 21, EGU2019-1052, 2019
EGU General Assembly 2019

Suitability of phytoliths as a quantitative process tracer in the Spanish Pyrenees

Matthias Konzett (1), Jakob Heinzle (1), Janika Kiep (2), Julia Meister (3), and Sabine Kraushaar (1)

(1) University of Vienna, Department of Geography and Regional Research, ENGAGE - Geomorphological Systems and Risk Research, Vienna, Austria (m.e.konzett@gmail.com), (2) Freie Universität Berlin, Institute of Geographical Sciences, Berlin, Germany, (3) University of Würzburg, Institute of Geography and Geology, Würzburg, Germany

The Barasona reservoir, as well as many other reservoirs in the Spanish Pyrenees, suffer from high sediment yields. Therefore, many studies on erosion were conducted in the Barasona catchment since the late nineties. As a result of that, the area is well understood in terms of the governing hydrological and geomorphological processes, which makes it suitable for applying innovative methods.

In this regard, the study aims to evaluate the suitability of phytoliths as a new quantitative process tracer in a sediment fingerprint study in a tributary catchment to the Barasona river.

Phytoliths are minerals from silicia, calcium or opal which grow as a sort of nutrition residuum in the cell structure of a plant. After decomposition these plant geometry specific minerals stay as leftovers in the subsoil and indicate the vegetation cover. They are commonly found in sediment archives and are used in environmental archaeology or indicate paleoclimatic change.

In this study phytoliths concentration of four land use units are tested for their discriminatory power to distinguish the potential sediment sources. In a further step their conservative behaviour along the flow path of the sediments in a tributary of the Barasona river is studied.

The study area Ceguera is a subcatchment of the Barasona river and has a size of 28km^2. It is characterized by a homogenous lithology, which is defined by sandstones. The lateral connectivity from slope to river is ensured because of the dominant v-shaped morphology of the valley combined with steep slopes. A good longitudinal connectivity can be assumed due to the river bed consistency of mainly bedrock with few gravels.