Geophysical Research Abstracts
Vol. 14, EGU2012-10390, 2012
EGU General Assembly 2012

Detecting buried archaeological soils with TGA in an agricultural terrace setting in Northern Calabria, Italy

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Agricultural terraces are geomorphologic features created by humans. These structures protect farming land by reducing soil erosion, they collect water in their hydrological infrastructure, and preserve crops and vegetation. Their construction could however negatively affect underlying soils and archaeology present in those soils. However, if a terrace is constructed on a hill slope without destroying the underlying soil, the agricultural terrace could create a stable environment in regard to erosion, and preserve the underlying soil and potential archaeological remains in it.

In order to detect soils within agricultural terraces in Northern-Calabria, Italy, Thermogravimetric Analysis (TGA) was performed on exposures of four agricultural terraces, two agricultural fields in a non-terraced setting and five natural geomorphological features. Results are the detection of a buried soil horizon which contains archaeological remains dating from the Hellenistic period 60 cm below the surface of an agricultural terrace, and a buried soil horizon which contains archaeological remains dating from the Hellenistic period at the interface of an agricultural field and a river valley. Both soil horizons were indentified by an increase in organic components, and a decrease in calcium carbonates relative to their surrounding context.
Conclusions are that the construction of agricultural terraces and fields does not necessarily lead to the destruction of underlying soils. This could open new doors for archaeological field investigations in agricultural areas in southern Italy.
This study was conducted as part of the Raganello Archaeological Project of the Groningen Institute of Archaeology, Rijks Universiteit Groningen, in collaboration with the Institute for Geo- and Bioarchaeology at the VU University Amsterdam.