

The added value of an archaeological study and monitoring of permafrost affected soils

Michel Vorenhout (1,2), Vibeke Vandrup Martens (3), and Ove Bergersen (4)

(1) MVH Consult, Leiden, the Netherlands (m.vorenhout@mvhconsult.nl), (2) IBED, University of Amsterdam, the Netherlands, (3) Norwegian Institute for Cultural Heritage Research (NIKU), Norway, (4) Norwegian Institute for Agricultural and Environmental Research (Bioforsk), Norway

Norway is stretched over a large average temperature gradient, and half of the country is located above the Arctic circle. The temperature gradient makes it a great country for permafrost research. Archaeology studies the human history found in soils. Soil is the contextual medium for the finds, and is crucial in understanding local history and the interaction of humankind with climate change. Soil formation may well be studied in the same places where archaeological research takes place. This presentation shows the results from a multidisciplinary archaeological project in Northern Norway, where former inhabited sites were studied for preservation conditions. The sites are located over a North-South gradient. Excavation pits made it possible to study the soil structure, chemical analyses of soils gave information on composition and preservation state. Continuous monitoring of the soils at the sites provides data on current soil temperature, redox conditions and moisture levels. The monitoring data shows the current conditions with freezing occurring at different depths and periods in the soil, and will be combined with historical data gathered by the archaeological research.

We intend to show that this multidisciplinary archaeological approach can be used when studying climate change effects in permafrost affected soils.