Submitted Abstract

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Title	Hipercorig Hallstatt History (H3): A Late Pleistocene To Holocene Sediment Record From Lake Hallstatt (Salzkammergut, Austria).
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Abstract

Intramountainous regions are highly vulnerable to climatic changes, global warming and natural hazards with their cascading effects. To holistically understand past environmental changes, frequencies and impact of natural hazards, it is crucial to extend our limited observational and instrumental data with long high-resolution archives (e.g. archeological sites, swamps or lake sediments). The Hallstatt-Dachstein region represents an alpine environment, where the interconnections of geohazards, climate change and evolution of human-environment relations can be tracked over the last 7,000 years.

The study site Lake Hallstatt is located within the center of the UNESCO World Heritage Cultural Landscape Hallstatt-Dachstein/Salzkammergut, Austria, a region with one of the oldest histories of human salt mining worldwide. The Hipercorig Hallstatt History (H3) project reveals a high-resolution sedimentary archive with two parallel cores (core A: 41m, core B: 51m) to study geo-hazards (e.g. earthquakes, debris flows or floods), climate changes and anthropogenic imprints.

We present a lake stratigraphy based on non-destructive core logging data, visual core and lithofacies description and age modelling using 14C dating, incorporated with borehole logging (of hole B, magnetic susceptibility and natural gamma spectrum) and Core-Log-Seismic-Correlation. The core logging involves (i) x-ray computed tomography, (ii) multi-sensor-core-logger data (gamma density, magnetic susceptibility and color spectrophotometry), and (iii) xrf-scanning data. The stratigraphic succession comprises at least four major mass-movement deposits, six >1 m thick turbidite deposits and multiple >5 cm thick flood deposits during the Holocene.

The Holocene and Late Pleistocene stratigraphic record of the H3 long-cores will enable the first integration of archaeological studies covering 7,000 years of human salt mining, including documented prehistoric large catastrophic landslides (dated to: ~1061 BCE and ~662 BCE), mass movements or heavy perception. Also, the H3 core will allow to better assess prehistoric mitigation strategies of natural hazards (e.g. river diversion), showing exceptional high resilience of the local prehistoric community towards natural hazards. This will improve our understanding of the early development and environmental imprint of one of the oldest cultural landscapes worldwide.