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## Hipercorig Hallstatt History (H<sup>3</sup>) reveals a high-resolution Late Pleistocene to Holocene sediment record at Lake Hallstatt (Salzkammergut, Austria)

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The innovative, new drilling technique of the Hipercorig platform (Harms et al., 2020, <https://doi.org/10.5194/sd-28-29-2020>) enables to recover undisturbed long cores of sediment archives, and hence allows us to study past environmental conditions and changes. Here we present initial results from the Hipercorig Hallstatt History (H<sup>3</sup>) lake drilling campaign 2021, which succeeded to recover two parallel cores (core A: 41m, core B: 51m) from 122 m water depth providing a high-resolution record, within the UNESCO World Heritage Cultural Landscape Hallstatt-Dachstein/Salzkammergut, Austria. The Hallstatt-Dachstein region has a history of over 7,000 years of human salt mining and is one of the oldest documented cultural landscapes worldwide.

We present physical- and litho-stratigraphy based on borehole logging (of hole B), non-destructive core logging data, visual core and lithofacies description, Core-Log-Seismic-Correlation and initial age modelling using <sup>14</sup>C dating. The core logging covers (i) x-ray computed tomography, (ii) multi-sensor-core-logger data with Gamma-Ray attenuated bulk density, magnetic susceptibility and visible light photo spectroscopy. The upper ~15 m of the sediment profile can be unambiguously correlated with previous cores (Lauterbach et al., submitted) thus confirming that the sediments are truly representative for Lake Hallstatt. The entire stratigraphic succession comprises two major lithostratigraphic units: The Holocene unit (0-40 m below lake floor (mblf)) and the Late Pleistocene unit (> 40 m). The Holocene unit consists of variably laminated (sub-mm to 5 mm) dark gray clayey-silty carbonate mud interbedded with up to 5.5 m thick mass-movement deposits and thick turbidites. The Late Pleistocene sedimentary succession comprises very thin bedded (1-3 cm) medium gray silty clayey carbonate mud, with some laminated (<1 cm) intervals and multiple cm-thick light gray turbidites. Within the Late Holocene unit, there is a prominent yellowish gray clastic interval of ~4 m with faintly mm- to cm-scale laminated sediments. Another remarkable characteristic of the Holocene unit is the occurrence of at least four major mass-movement deposits containing pebbles (up to 3 cm in diameter) and six thick turbidite deposits >1 m with

different sediment colors and compositions.

Detailed multi-proxy analyzes of the Lake Hallstatt cores will provide new insights into the early history of human settlement and salt mining in this Alpine region and their relation to environmental and climatic conditions and meteorological and geological extreme events.