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Holocene deglaciation of Byers Peninsula (Livingston Island, Maritime Antarctica) inferred from lake records

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The South Shetland Islands are located in the northwestern tip of the Antarctic Peninsula. This area has been one of the regions in Earth where the climate warming recorded during the second half of the XXI century has been more significant (+2.5 ºC). However, a slight decrease in the rate of warming has been observed during the last decade.

The HOLOANTAR project aims to provide accurate data on the Holocene climate conditions in this region in order to better frame this warming trend within the natural climate variability in the region. Our research is focused on the westernmost part of Livingston Island, Byers Peninsula, the largest ice-free area in the South Shetland Islands where tens of lakes and ponds are distributed.

During the field work campaign in November-December'12 we collected the complete sedimentary sequence of four lakes distributed along a transect following the deglaciation of the peninsula: Chester, Escondido, Cerro Negro and Domo lakes. Geochemical, biological and geochronological studies are being undertaken on several of these cores. The ongoing analisys of their properties are providing insights about the Holocene palaeoenvironments and palaeoclimate conditions in Byers.

In this communication we introduce the chronological framework for the Holocene deglaciation process in Byers Peninsula based on OSL, C14, Pb210 and Cs137 datings, as well as on tephrochronological data. According to these data, the deglaciation in Byers Peninsula started during the Early to Mid Holocene and continued through the Late Holocene, when the lakes distributed along the present-day moraines were formed.