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War on glaciers: a multidisciplinary study of the WWI site of Punta Linke (Italian Alps)

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FOTO PANORAMICA SITO + RESTI BELLICI

The study is located area at “Punta Linke”, in the Ortles-Cevedale Group, at 3632 m a.s.l. It belongs to the Italian Alps. The site is particularly interesting due of the presence of a cableway and a depository dating to WWI, recently emerged from the glacial cover.

Figura 1 – inquadramento
Italia

Glaciers are fundamental environmental indicators, very sensible to the variation of the temperature and precipitations, great natural data bases that preserve the stratigraphic memory both of the natural events and of the effects induced by human impact.

The recent phase of withdrawal of the alpine glaciers has been characterized by a marked reduction of the thickness, even at the higher elevations, where the bedrock is progressively outcropping together with trenches and military facilities of the “White War”, as happened at Punta Linke. After the end of the war, the military barracks were abandoned and progressively covered by snow and ice, thus preserving climatic-environmental information related to this site from the end of WWI to the present.

2-Carta forni

During the excavation campaign in 2010 samples of ice have been collected from different contexts of the site and analyzed at the CryoLab of the University of Milan-Bicocca. In particular, a detailed stratigraphic section of the snow and ice infillings has been reconstructed and some thin sections of the sampled ice have been studied.

Particularly significant levels have been sampled to execute analysis aimed at the definition of the time and the modality of archeological structures burial.

Ghiaccio 1, 2 e 3

Lab 1 e 2

The characterization of the glaciological context of Punta Linke (made by the Italian Glaciological Committee in collaboration with the Provincia di Trento - Soprintendenza per i Beni Librari, Archivistici e Archeologici – Settore Beni Archeologici) includes also the reconstruction of the areal and volumetric variations of the glacial area close to the archeological site, starting from the Holocene glacial maximum (Little Ice Age, culminated around the half of the XIX Century).

Rilievi 1 e 2

Moreover, in correspondence with the glaciated saddle between the Punta Linke site and the Mount Vioz, some high resolution geophysical surveys have been performed through a GPR working with 500 MHz and 200 MHz antennas. The GPR data allowed the reconstruction of the bedrock, recognizing the thickness of the glacier and its internal structure.

Radar 1, 2. 3 (assieme)

GPS 1

Radar 4