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## Retrieving paleoclimatic information from the isotopic records of the ice cores drilled on Mt Ortles, Eastern Alps, Italy

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While ice cores in the Alps have been drilled for about 50 years, very few attempts to obtain temperature reconstructions from the isotopic records of Alpine cores have been successful.

The proximity to a densely populated and developed area, as well as the presence of a dense network of meteorological stations which have been operating for over two centuries, make the Alpine glaciers a unique spot to obtain paleoenvironmental and paleoclimatic information through ice coring.

In autumn 2011, four cores were extracted from the accumulation area (3859 m a.s.l.) of the Alto dell'Ortles glacier, in the Eastern Italian Alps: three were drilled down to bedrock to an approximate depth of 75 m. The glacier is currently transitioning from a cold to a temperate state: the first 30 m of firn are characterized by a temperature at the pressure melting point, while the underlying ice is still preserved in a cold state. Carbon-14 determination on Water Insoluble Organic Carbon (WIOC) supported a time scale extending back to about 7000 years before present; this is one of very few ice cores in the Alps covering such a long period.

A novel approach was recently used to refine the dating of these cores (Gabrielli et al., CP, in discussion). Here we present a comparison between the  $\delta^{18}\text{O}$  records from core #1, #2 and #3 based on the revised chronology and an instrumental temperature series dating back to 1775 C.E., using different low-pass gaussian filters with increasing sigma values. The linear regression between temperature and isotopic data is characterized by an increasing  $R^2$  and an increasing slope when increasing the sigma of the low-pass gaussian filter. The overall agreement between temperature and  $\delta^{18}\text{O}$  is robust, with few periods characterized by opposing trends.

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