Geophysical Research Abstracts
Vol. 17, EGU2015-13163, 2015
EGU General Assembly 2015

Monitoring of soil temperatures in an Atlantic high mountain environment: The Forcadona buried ice patch (Picos de Europa, NW Spain).

Jesus Ruiz-Fernández (1), Gonçalo Vieira (2), Marc Oliva (2), David Gallinar (1), and Cristina García-Hernández (1)

(1) Department of Geography, University of Oviedo, Oviedo, Spain (ruizjesus@uniovi.es), (2) Centre for Geographical Studies, University of Lisbon, Lisbon, Portugal.

Ground temperatures in the area of a buried ice mass located at Western Massif of the Picos de Europa (Cantabrian Mountains, Northwestern Spain) are studied. Ground temperatures were measured at depths of 10 to 50 cm at intervals 2-hour intervals from 2006 to 2011. Ground temperatures showed two distinct seasonal periods: 1) continuous thaw with diurnal oscillation, from late summer to early autumn, and 2) near-0ºC, isothermal regime from mid-autumn to late summer. Snow cover thickness controls freeze-thaw cycles in the latter. Transition periods are of very short duration. The small annual number of freeze-thaw cycles in the soil (0 to 16) was controlled by the depth of the snow cover. Extreme minimum temperatures in the soil oscillated between 0.3 and -6.3ºC. Monitoring of soil temperatures on the ice patch resulted in slightly negative mean annual temperatures about 0ºC. These conditions may reveal that the buried ice is close to melting point and in disequilibrium with the current environmental conditions of the massif.