

Home

Online Library

- Recent Papers
- Volumes
- Library Search
- Title and Author Search

RSS Feeds

General Information

Submission

Review

Production

Subscription

Journal Metrics

 not applicable

SCOPUS[®] SNIP 0.287

SCOPUS[®] SJR 0.054

[Definitions](#)

ARCHIVED IN



PORTICO

[Volumes](#) [Contents of Volume 26](#)

Adv. Geosci., 26, 93-97, 2010

www.adv-geosci.net/26/93/2010/

doi: 10.5194/adgeo-26-93-2010

© Author(s) 2010. This work is distributed under the Creative Commons Attribution 3.0 License.

Connecting European snow cover variability with large scale atmospheric patterns

E. Bartolini¹, P. Claps¹, and P. D'Odorico²

¹Dipartimento di Idraulica, Trasporti e Infrastrutture Civili, Politecnico di Torino, Corso Duca degli Abruzzi, 10129 Torino, Italy

²Department of environmental sciences, University of Virginia, 291 McCormick Road, P.O. Box 400123, Charlottesville, VA, USA

Abstract. Winter snowfall and its temporal variability are important factors in the development of water management strategies for snow-dominated regions. For example, mountain regions of Europe rely on snow for recreation, and on snowmelt for water supply and hydropower. It is still unclear whether in these regions the snow regime is undergoing any major significant change. Moreover, snow interannual variability depends on different climatic variables, such as precipitation and temperature, and their interplay with atmospheric and pressure conditions. This paper uses the EASE Grid weekly snow cover and Ice Extent database from the National Snow and Ice Data Center to assess the possible existence of trends in snow cover across Europe. This database provides a representation of snow cover fields in Europe for the period 1972–2006 and is used here to construct snow cover indices, both in time and space. These indices allow us to investigate the historical spatial and temporal variability of European snow cover fields, and to relate them to the modes of climate variability that are known to affect the European climate. We find that both the spatial and temporal variability of snow cover are strongly related to the Arctic Oscillation during wintertime. In the other seasons, weaker correlation appears between snow cover and the other patterns of climate variability, such as the East Atlantic, the East Atlantic West Russia, the North Atlantic Oscillation, the Polar Pattern and the Scandinavian Pattern.

[Full Article in PDF](#) (PDF, 368 KB)

Citation: Bartolini, E., Claps, P., and D'Odorico, P.: Connecting European snow cover variability with large scale atmospheric patterns, Adv. Geosci., 26, 93-97, doi:10.5194/adgeo-26-93-2010, 2010. [Bibtex](#) [EndNote](#) [Reference Manager](#) [XML](#)



Search ADGEO

Full Text Search [»»](#)

Title Search [»»](#)

Author Search [»»](#)

News

- [Please Note: Updated Reference Guidelines](#)

Recent Papers

01 | ADGEO, 22 Nov 2010: Tropopause and jetlet characteristics in relation to thunderstorm development over Cyprus

02 | ADGEO, 22 Nov 2010: Probabilistic prediction of raw and BMA calibrated AEMET-SREPS: the 24 of January 2009 extreme wind event in Catalunya

03 | ADGEO, 15 Nov 2010: Investigation of trends in synoptic patterns over Europe with artificial neural networks

