

Home

Online Library

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

RSS Feeds

General Information

Submission

Review

Production

Subscription



Volumes Contents of Volume 22

Adv. Geosci., 22, 79-84, 2009

www.adv-geosci.net/22/79/2009/

© Author(s) 2009. This work is distributed under the Creative Commons Attribution 3.0 License.

## A statistical study of *Weinmannia* pollen trajectories across the Andes

C. F. Pérez<sup>1,3</sup>, M. E. Castañeda<sup>1,3</sup>, M. I. Gassmann<sup>1,3</sup>, and M. M. Bianchi<sup>2,3</sup>

<sup>1</sup>Departamento de Ciencias de la Atmósfera y los Océanos, FCEN, UBA. Pabellón II, 2do piso, Ciudad Universitaria, 1428 Buenos Aires, Argentina

<sup>2</sup>INIBIOMA-CONICET-UNCo, calle Quintral 1250, 8400 San Carlos de Bariloche, Rio Negro, Argentina

<sup>3</sup>Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires, Argentina

**Abstract.** Recent airborne pollen records data from Northern Patagonia (San Carlos de Bariloche, Argentina, Lat. 41.1435° S, Long. 71.375° W, 800 m elevation) suggest that pollen transport takes place from the west to the east slope of the Andes. However, the atmospheric characteristics responsible of this transport have not yet been studied. The aim of this paper is to assess potential source areas and to describe the involved atmospheric mechanisms of the trans-Andean pollen transport. Methodology relies on the analysis of backward trajectories of air masses calculated with the HYSPLIT 4.9 regional model for particular days where airborne pollen of *Weinmannia trichosperma* Cav. was detected east of the Andes. This pollen type was selected because it is found regularly at localities in eastern Patagonia beyond its present-day distribution. *Weinmannia's* substantial presence during early Holocene times would also benefit from better knowledge of its transport mechanisms. Correspondence between atmospheric trajectories and the position of sources was checked using GIS maps. Mode T, Principal Component Analysis (PCA) with Varimax rotation was used to identify the main spatial structure of geopotential height anomalies producing the calculated trajectories. Eighty-eight cases showed that the calculated directions of trajectories trended from the Northwest to Southwest passing over the Chilean region of *W. trichosperma* distribution. PCs results showed two patterns of negative anomalies over southern Patagonia. The prevailing circulation pattern which drives airborne transport is the presence of a trough located south of 37 to 40° S with its axis over western Patagonia. The synoptic situations for two cases highly correlated with principal component scores were described.

Full Article in PDF (PDF, 1573 KB)

Citation: Pérez, C. F., Castañeda, M. E., Gassmann, M. I., and Bianchi, M. M.: A statistical study of *Weinmannia* pollen trajectories across the Andes, Adv. Geosci., 22, 79-84, 2009. [Bibtex](#) [EndNote](#) [Reference Manager](#)



Search ADGEO

Library Search

Author Search

News

New Tax Regulation for Service Charges

Recent Papers

01 | ADGEO, 27 Jan 2010: Recent variation of the Las Vacas Glacier Mt. Aconcagua region, Central Andes, Argentina, based on ASTER stereoscopic images

02 | ADGEO, 17 Dec 2009: First insights on Lake General Carrera/Buenos Aires/Chelénko water balance

03 | ADGEO, 17 Dec 2009: A Terrestrial Reference Frame (TRF), coordinates and velocities for South American stations: contributions to Central Andes geodynamics

