

THE ANTARCTIC COLD REVERSAL SIGNAL AT LAGO ARGENTINO, SOUTHERN PATAGONIAN ICE FIELD

Strelin, J.¹, Denton, G.², Vandergoes, M.³, Kaplan, M.⁴ and Putnam, A.²

¹Instituto Antártico Argentino, Universidad Nacional de Córdoba, Argentina

²Department of Earth Sciences and Climate Change Institute, University of Maine, USA

³GNS Science, Lower Hutt, New Zealand

⁴Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY, USA

jstrelin@yahoo.com.ar

Keywords: Late-glacial, Antarctic Cold Reversal, Younger Dryas, Patagonia, Antarctica

For the last six years a team of scientists from Argentina, USA, and New Zealand has been establishing a detailed radiocarbon chronology for the late-glacial Puerto Bandera moraines deposited by outlet glaciers of the Southern Patagonian Icefield alongside the western reaches of Lago Argentino. The latest results show that after a period of ice retraction that began prior to 16,000 cal yrs BP, a late-glacial advance of the Lago Argentino glacier culminated at the outer Puerto Bandera moraine at Bahía del Quemado very close to 13,010 +/- 50 cal years BP. After the glacier receded from the Puerto Bandera moraines, the inland branches of Lago Argentino became vegetated, and bogs accumulated on the newly deglaciated terrain. Radiocarbon samples collected from the basal organic material in such bogs afford minimum-limiting ages of 12,790 cal yrs BP for the abandonment of a spillway through the outer Puerto Bandera moraines east of Brazo Rico and of 12,090 cal yrs BP for deglaciation of the southern Herminita Peninsula, situated 50 km inboard of the Puerto Bandera moraines. The culmination of this late-glacial advance antedates, and the subsequent recession took place during, the European Younger Dryas. A correlative late-glacial advance was also dated on both flanks of the Southern Alps of New Zealand, registered there by the Birch Hill and Waiho Loop moraines. The ages obtained near Lago Argentino, closely tied with those from the Southern Alps, fall within the time of with the Antarctic Cold Reversal detected in East Antarctic ice cores, thus showing that this climate signal spread in the atmosphere across at least the southern quarter of the globe.