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Environmental records from temperate glacier ice on Nevado Coropuna saddle, southern Peru

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Abstract. We investigated past climate variability and the zonal short and long-range transport of air masses in tropical South America using chemical, isotopic and palynological signals from a 42 m-long ice core recovered in 2003 from the saddle of the Nevado Coropuna, southern Peru (72°39´ W; 15°32´ S; 6080 m a.s.l.). We found that precipitation at this site depends mainly on the easterly circulation of air masses originated from the tropical Atlantic Ocean. Nevertheless, sporadic Pacific air masses arrivals, and strong cold waves coming from southern South America reach this altitude site. In spite of post-depositional effects, we were able to identify two strong ENSO (El Niño-Southern Oscillation) event signatures (1982–1983 and 1992) and the eruptive activity of the nearby Sabancaya volcano (1994).

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