

TROPICAL FOREST HISTORY OF THE ECUADORIAN ANDES OVER THE LAST
34,000 YEARS: PRELIMINARY RESULTS FROM POLLEN AND
OXYGEN ISOTOPE ANALYSES OF TRIDENT 163-13 FROM
THE EASTERN EQUATORIAL PACIFIC

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ABSTRACT

Pollen from the upper 2.75m of a core taken 200km west of the Golfo de Guayaquil, Ecuador (Trident 163-13, 3°S, 84°W, 3,000m water depth) documents changes in Andean vegetation and climate of the Cordillera Occidental for ~17,000 years before and after the last glacial maximum. Composition of Andean forests changed repeatedly during the last 34,000 years. Generally, Gramineae and other herbaceous types are more abundant than montane forest representatives between ~34,000-~17,000 yr B.P. and Podocarpus forest dominates the last 10,000 years. Open vegetation was abruptly displaced by successional elements (including Hedyosmum) during late glacial, which were replaced in turn by components of the Andean rainforests now growing between 2,000-3,000m above sea level. The expansion of paramo (grass-dominated vegetation), which presently grows between ~3,500-4,500m in Ecuador, suggests lowering of temperature and decrease in precipitation in the Cordillera Occidental during the last glacial. Two late-glacial climatic oscillations precede the rapid establishment of environmental parameters comparable to those of the present Andean forest (i.e., annual precipitation and temperature of ~2,000-2,500mm and 19-13°C, respectively).