



"Climate Change Research in the Tropical Andes: Science and Adventure Travel"

Presented by Dr. Donald Rodbell

March 24, 2005

The tropics play an important role in global climate because they are a major source of two of the principal greenhouse gases: water vapor and methane. However, until the last decade or so, detailed climatic records from the tropics have been rare, with most paleoclimatic researchers focusing their efforts on the middle and high-latitude regions of the globe.

Changes in the extent of alpine glaciers can be used as an archive of regional climatic change because these glaciers, unlike their polar ice-sheet cousins, are quick to respond to changes in regional temperature and precipitation. This is especially true for alpine glaciers in much of the tropical Andes because these glaciers have high activity ratios and adjust their aerial extent in response to climatic forcing on decadal time scales.

The presentation will focus on records of climatic change based on changes in the aerial extent of alpine glaciers in the tropical Andes, as deduced from lake sediment cores, mapping, and radiocarbon dates. Cores from glacial lakes in the tropical Andes provide continuous, high-resolution proxy records of glacial flour input and paleoglacier extent, storm-induced sedimentation, and hydrologic balance. Here we review cores that span the last 12,000-25,000 cal years from glacial lakes located from 2°45' - 13°54'S and from 2500-4920 masl. Lakes located proximal to and inside of the limits of the last glacial maximum indicate that deglaciation was underway by ~21 kcal yr B.P., earlier than deglaciation in the middle and high latitudes of both hemispheres. Relative changes in glacier extent inferred from these records are

consistent with radiocarbon-dated moraines in several valleys in the Peruvian Andes. Collectively, these archives record a very dynamic late Quaternary and Holocene, with ice margins responding rapidly to changes principally in regional moisture balance rather than temperature.

Presenting February's program is Donald Rodbell. He has worked on the glacial geology and climate history of the tropical Andes for 18+ years. He is a Professor of Geology at Union College, where he teaches courses on Environmental Geology, Glacial Geology, Geomorphology, Lakes and Environmental Change, and Global Climate Change. Prior to coming to Union College, he worked as a research scientist at Ohio State University and at the U.S. Geological Survey. He lives with his wife and two daughters in Glenville NY.

Meeting logistics: The meeting will take place on Thursday, March 24 at the Ramada Inn (1305 Buckley Road, North Syracuse). A social hour will be held at the hotel from 5:30 p.m. to 6:30 p.m., followed by a buffet dinner at 6:30 p.m. Dr. Rodbell's presentation will begin at 7:30 p.m. The cost of dinner is \$20 for members, \$22 for non-members, and \$15 for student members. People may also attend only the presentation may due so for a nominal fee of \$3. Please RSVP by Monday, March 21, 2005 to Bonnie at Parratt-Wolff via e-mail at bolney@pwinc.com or 437-1429.

May 19, 2005

The CNYAPG presents Dr Barbara Tewksbury of Hamilton College. She will speak about "When the Seas Rise Up: A Geologist's Perspective on Tsunami"