Climate Variability and Change in the Andean Highlands

**ABSTRACT**

The Altiplano region of Bolivia and Peru is vulnerable to both climate variability and climate change. Its proximity to El Niño and the Southern Oscillation (ENSO) yields changes in the rainy season from year-to-year. In addition, the region depends on snowpack and glacial meltwater for water resources during the long dry season, which is diminishing due to greenhouse warming. As part of a larger study to understand how market forces and climate change are affecting highland agriculture, this research explores recent and future climate variability and change in the region. The observed 20th century climate and recent trends are evaluated using global gridded datasets, and station data. In addition, several global climate models employed in the Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC) are evaluated for the recent period. Preliminary analysis of the 21st century scenarios for the highland region are also presented.

**METHODS/DATA**

Analysis employs global coupled model data from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4) archive at Lawrence Livermore National Laboratory (LLNL). Employed are 10 models with simulations for the 20th century and SRES A2 scenario (stabilization of CO2 at ~750 ppm) for the 21st century.

The Climate Research Unit (CRU) at the University of East Anglia, 5 degree gridded observations of temperature and precipitation (Mitchell and Jones, 2005) are used to evaluate recent climate and for comparison with the model data. Evaluation of the CRU data against individual station precipitation in the region showed reasonable agreement.

**REFERENCES**


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