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Climate

Integration of data across local and large scales to link within knowledge systems

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USAID
FROM THE AMERICAN PEOPLE

Knowledge Systems

- Local Forecasts & Indicators - from focus groups in Umala, Ancoraimes
- Regional Scientific Assessment - Altiplano climate from station observations
- Global Climate - Altiplano climate variability and trends from global models and datasets

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Local Forecasts & Indicators

Document 11. Climatic Indicators
M. Garcia, J. Gilles and E. Yucra

- Role in traditional Systems
- Current Status and efforts

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Value of Local forecasts

- Important part of risk reduction strategies
- Used to determine when, where what to plant
- Successful application reduces household vulnerability

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Current Status

- Local indicators and forecast methods widely understood but a few experts are relied upon for forecasts
- Declining confidence in utility of traditional forecasts in the face of increasing evidence of their validity

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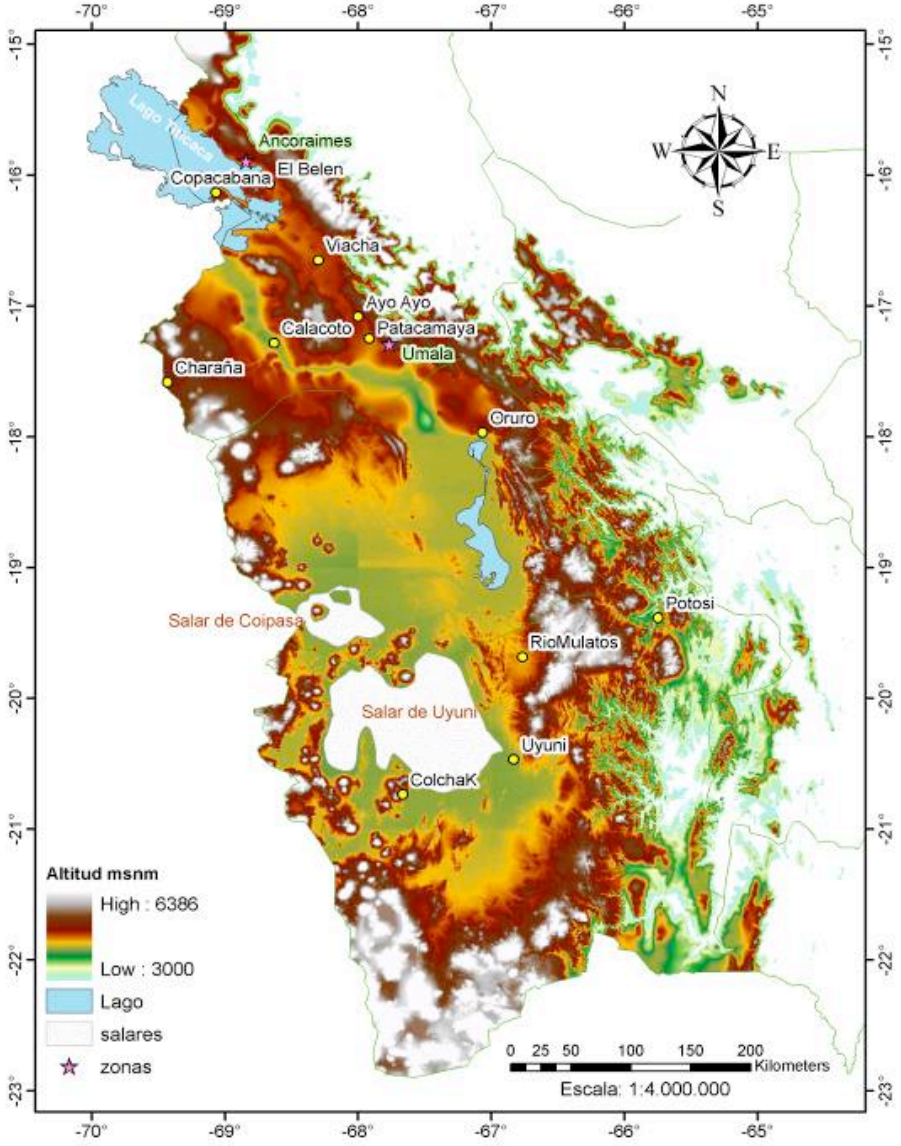
Regional Scientific Assessment



Document 10. Climate Analysis
M. Garcia and E. Yucra

- Mapping Altiplano climate
- Recent trends
- Importance of evapotranspiration

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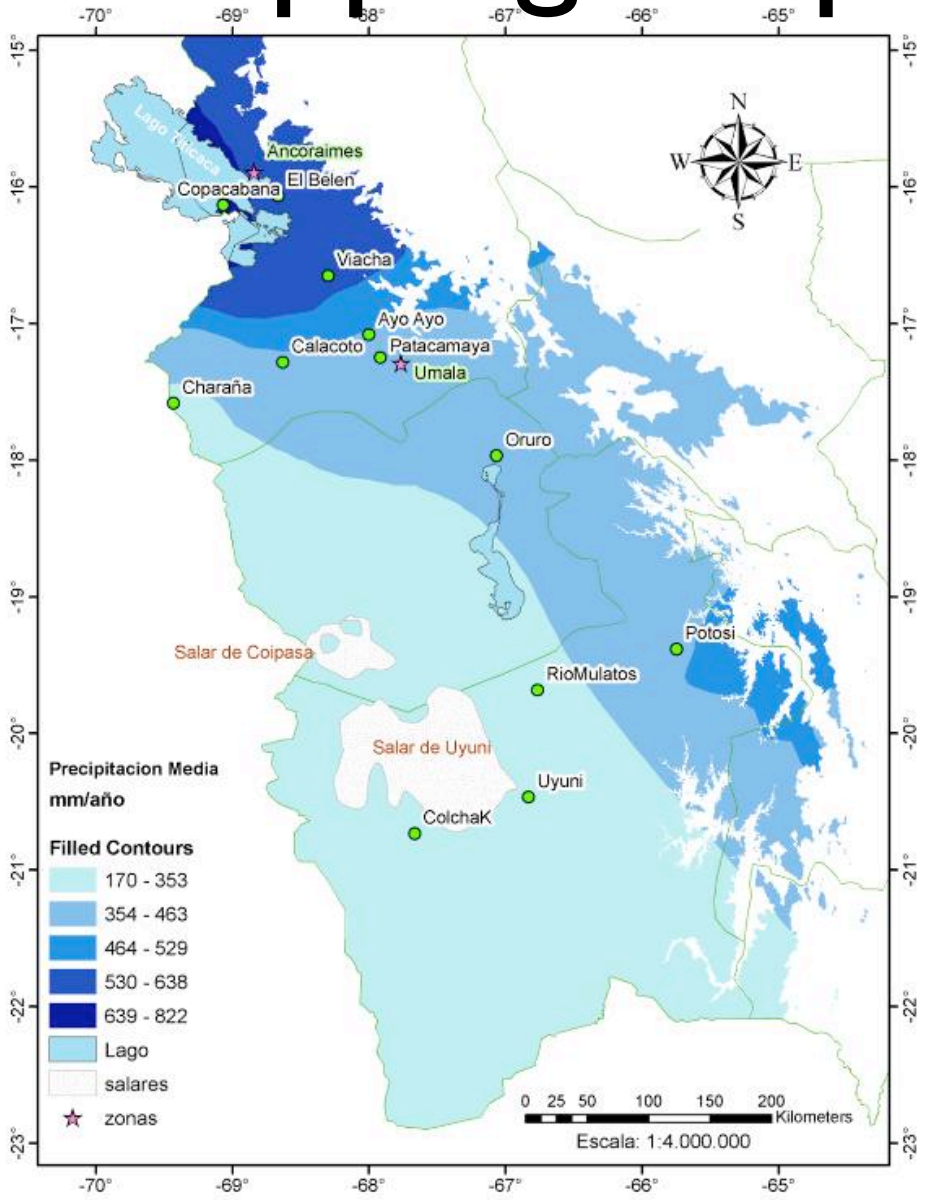
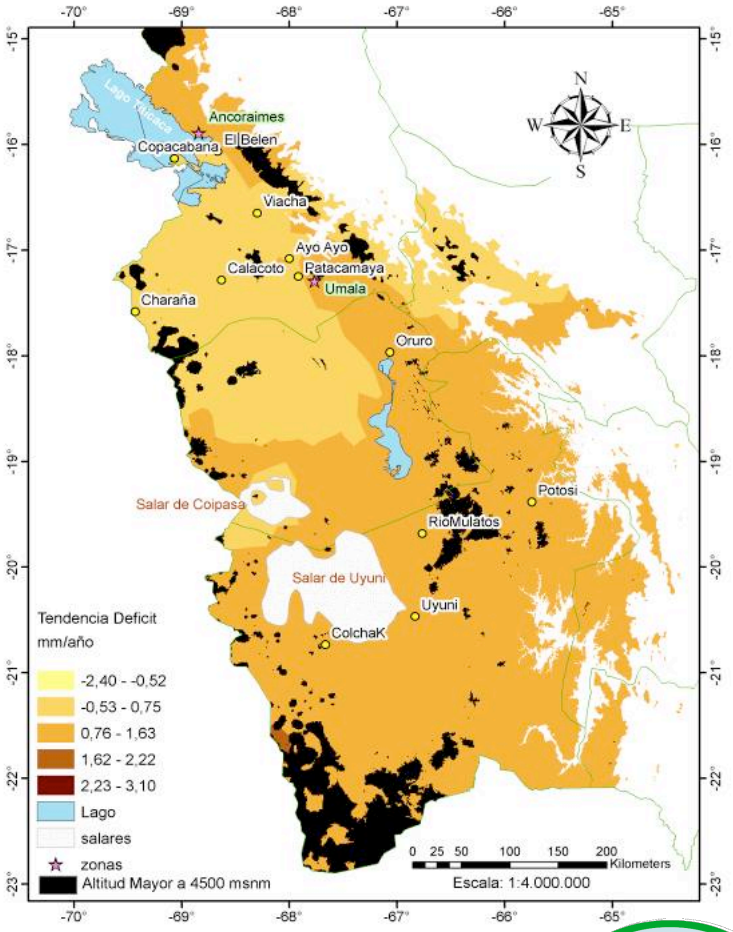
Mapping Altiplano Climate





^ Precipitation - Evaporation

< Annual Precipitation

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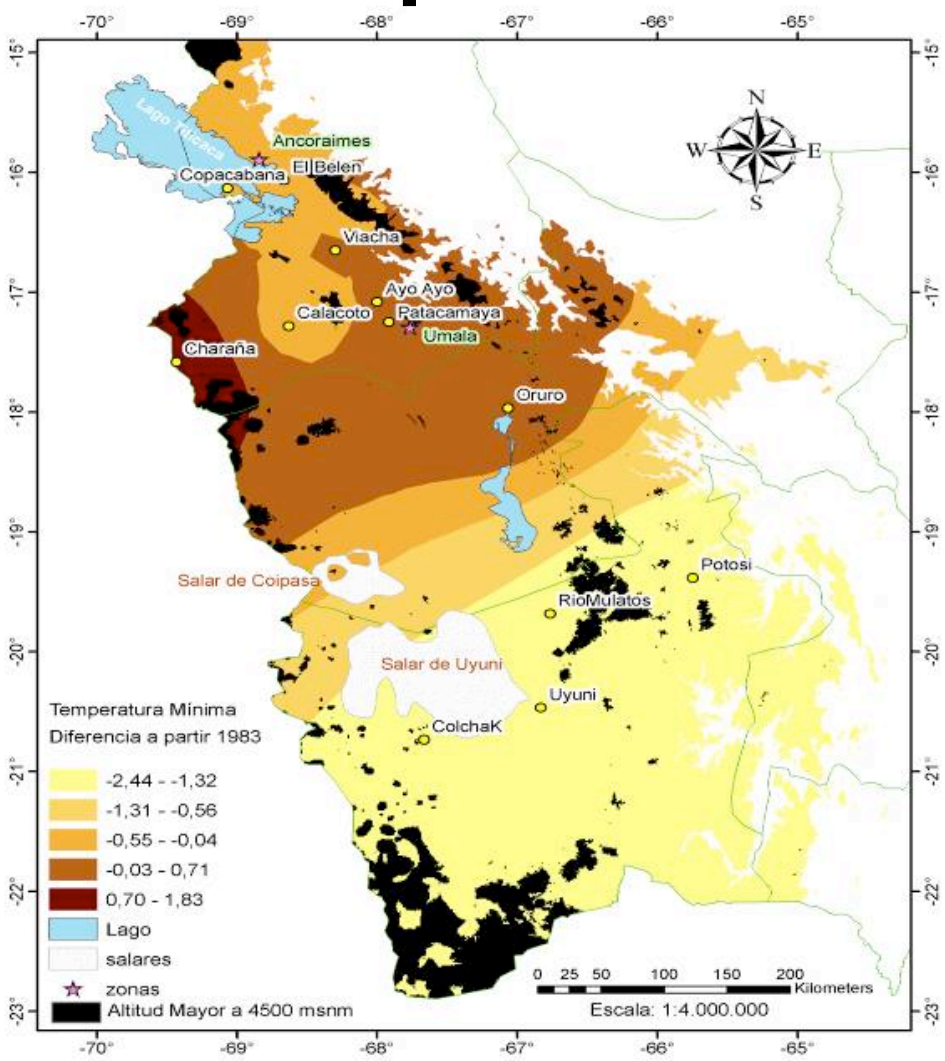
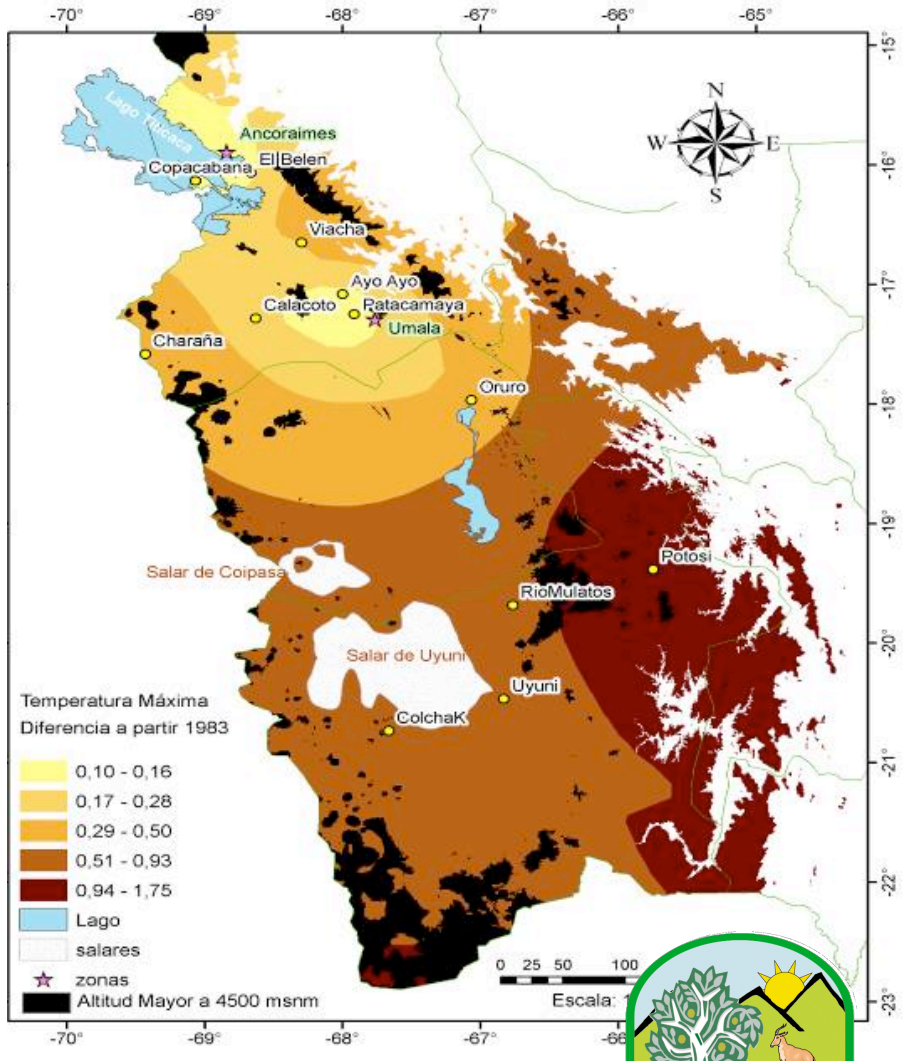
Altiplano Climate Trends





^ Min Temperature Difference since 1983 ^ Max Temperature

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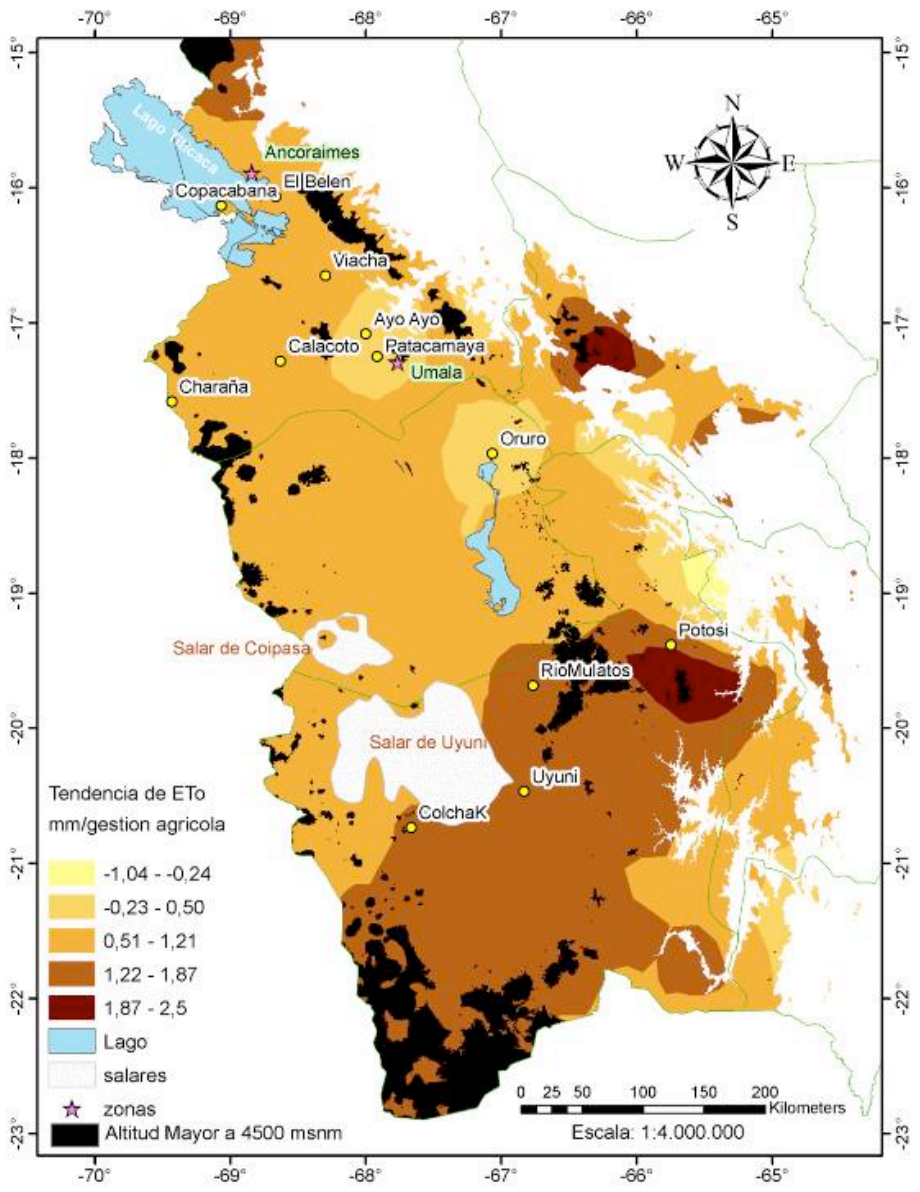
Evapotranspiration Trend



< Evapotranspiration trend

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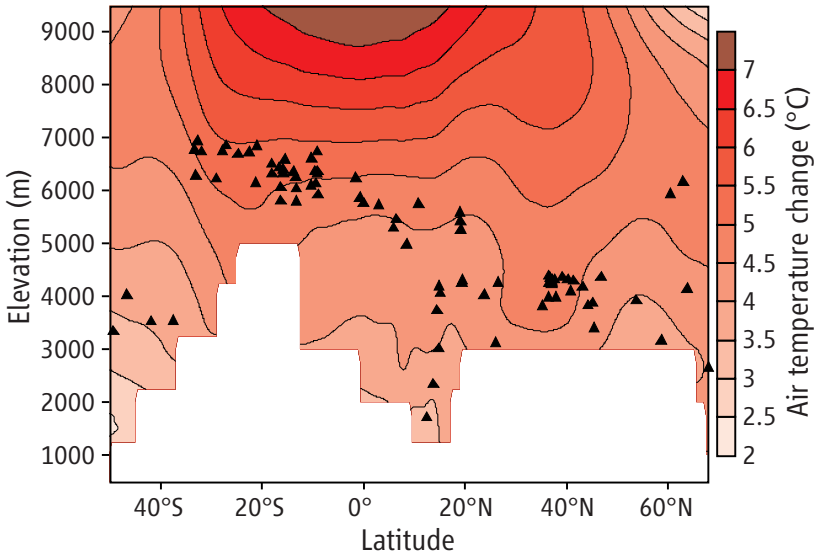
Links to Global Climate



Global warming in the American Cordillera. Projected changes in mean annual free-air temperatures between (1990 to 1999) and (2090 to 2099) along a transect from Alaska (68°N) to southern Chile (50°S), following the axis of the American Cordillera mountain chain. Results are the mean of eight different general circulation models used in the 4th assessment of the Intergovernmental Panel on Climate Change (IPCC) (*15*), using CO_2 levels from scenario A2 in (*16*). Black triangles denote the highest mountains at each latitude; areas blocked in white have no data (surface or below in the models). Data from (*15*).

^ Bradley et al., Science, 2006

A. Seth, M. Garcia and J. Thibeault

- Climate Variability - present day
- Climate Model Evaluation - present day
- Climate Change - mean and variability

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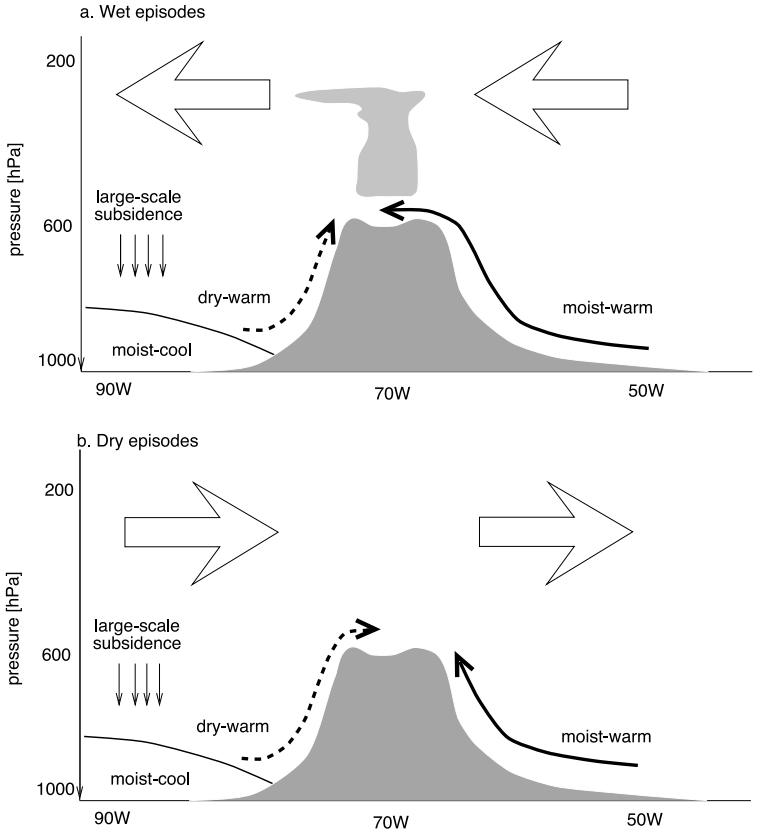
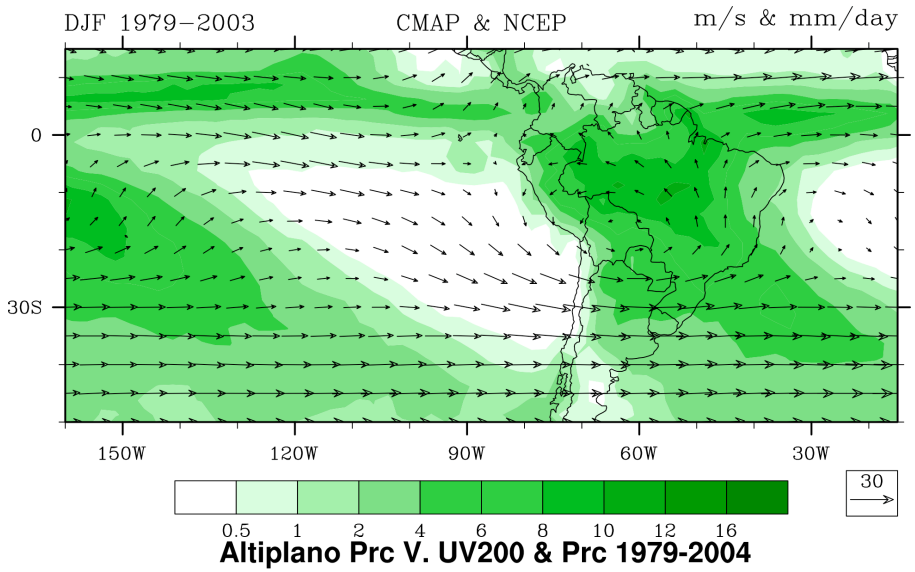
Altiplano Climate

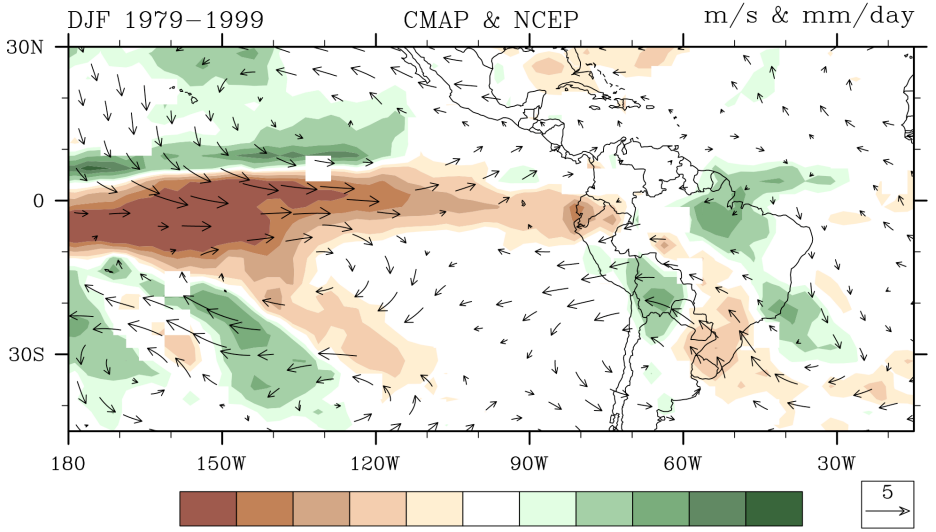
Variability, Mean



^ Garreaud et al., PalClim, 2003
Seth et al., in preparation >

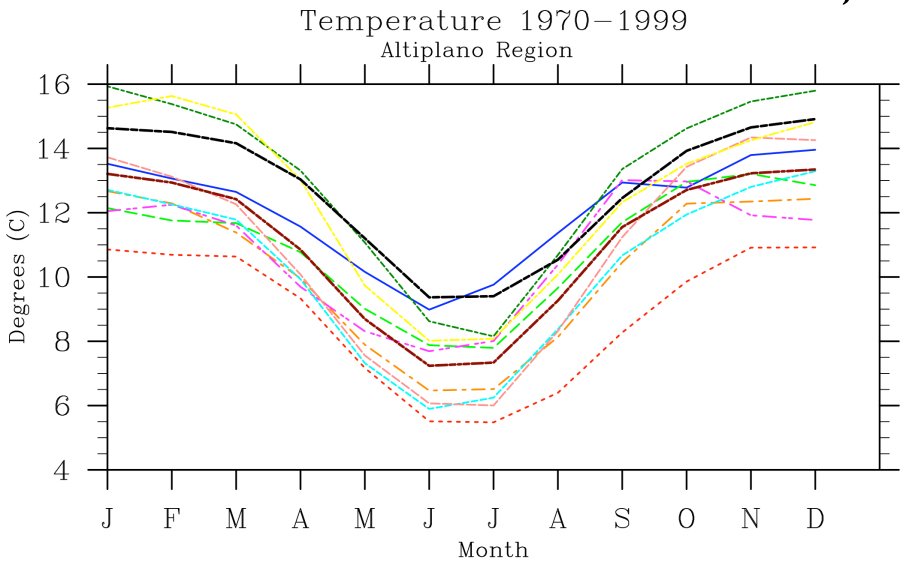


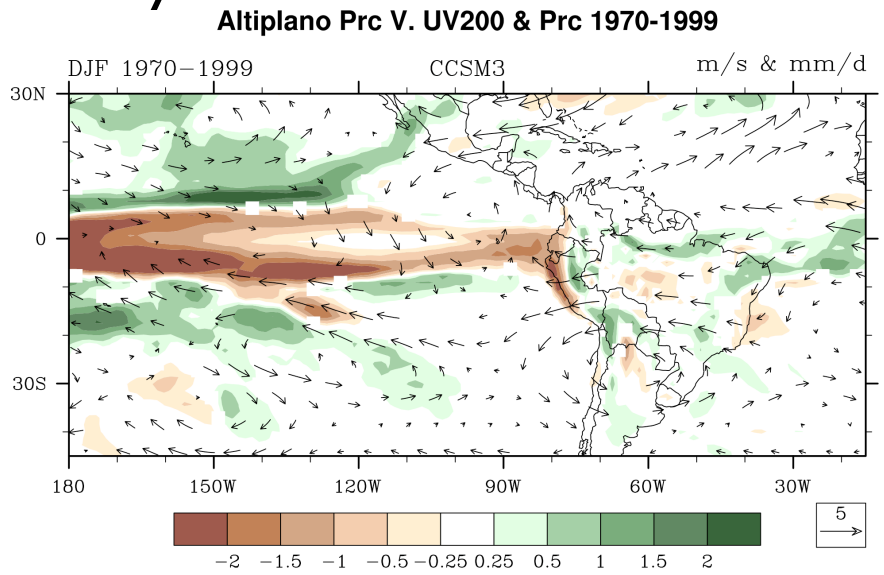
Altiplano Prc V. UV200 & Prc 1979-2004

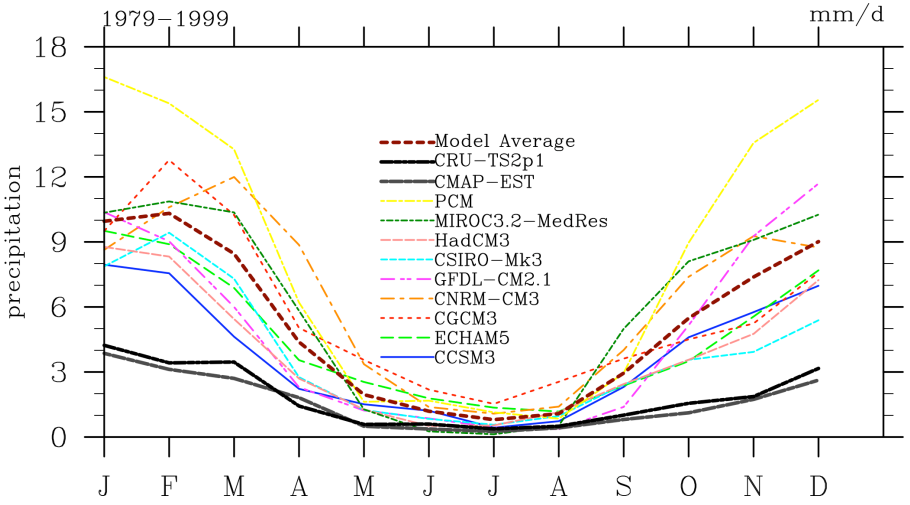


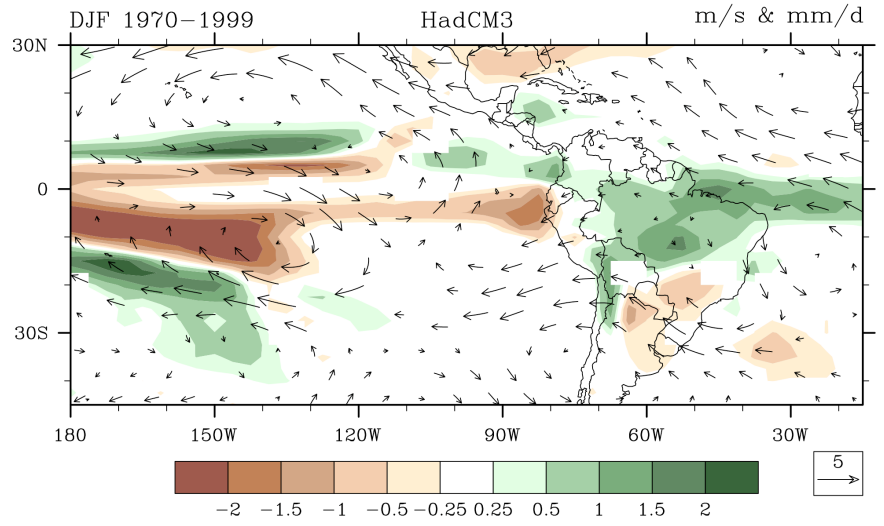
Climate Models: 20th Century

Mean, Variability



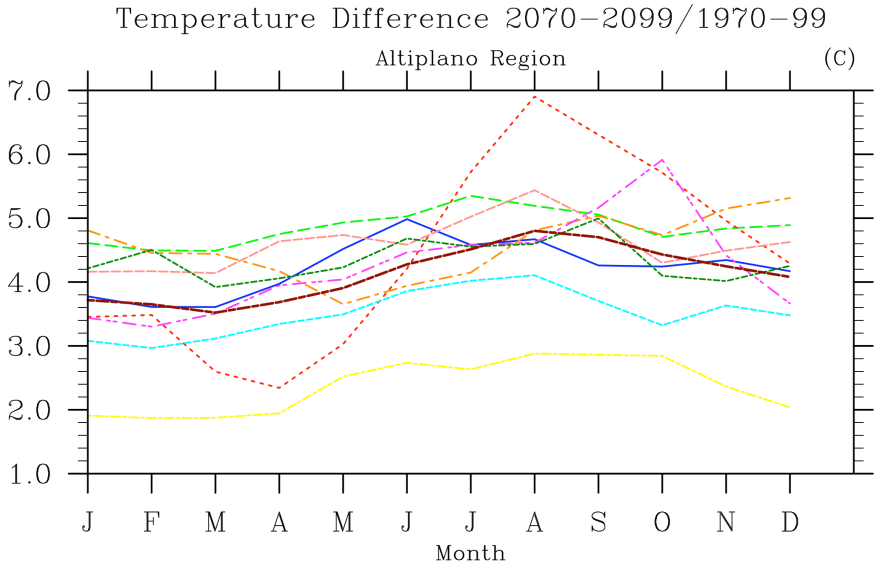


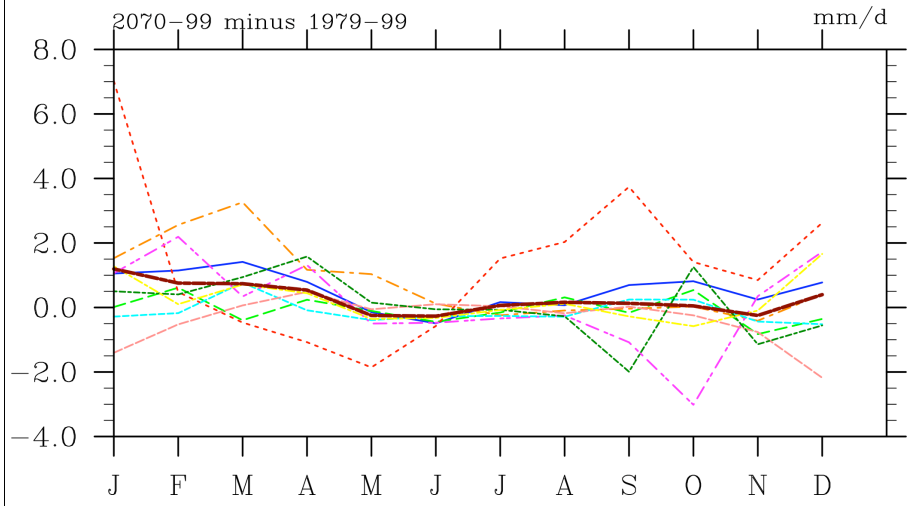


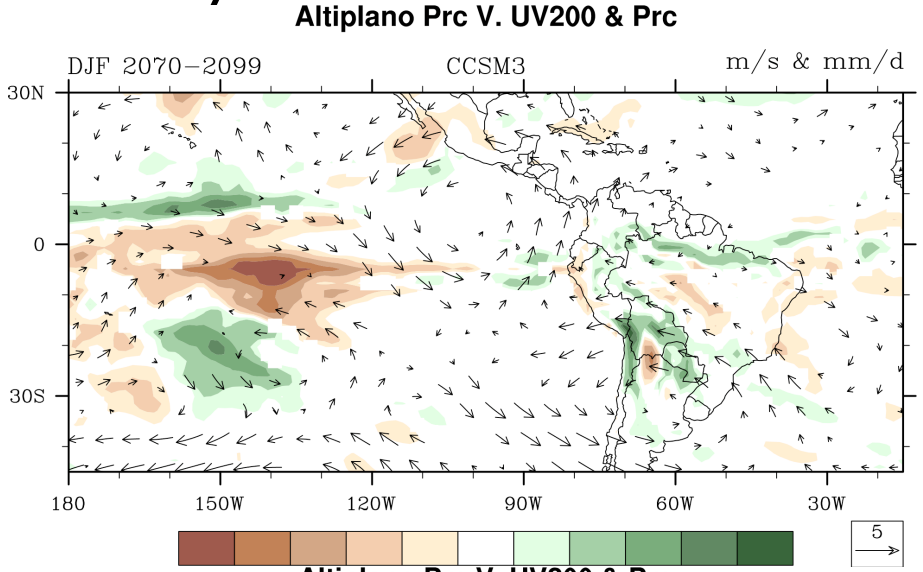


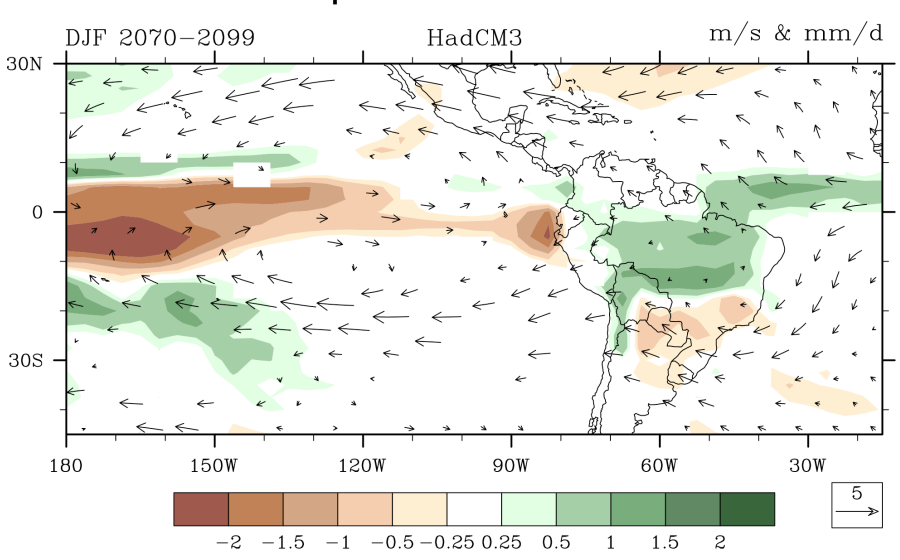
Climate Models: 21st Century

Mean, Variability

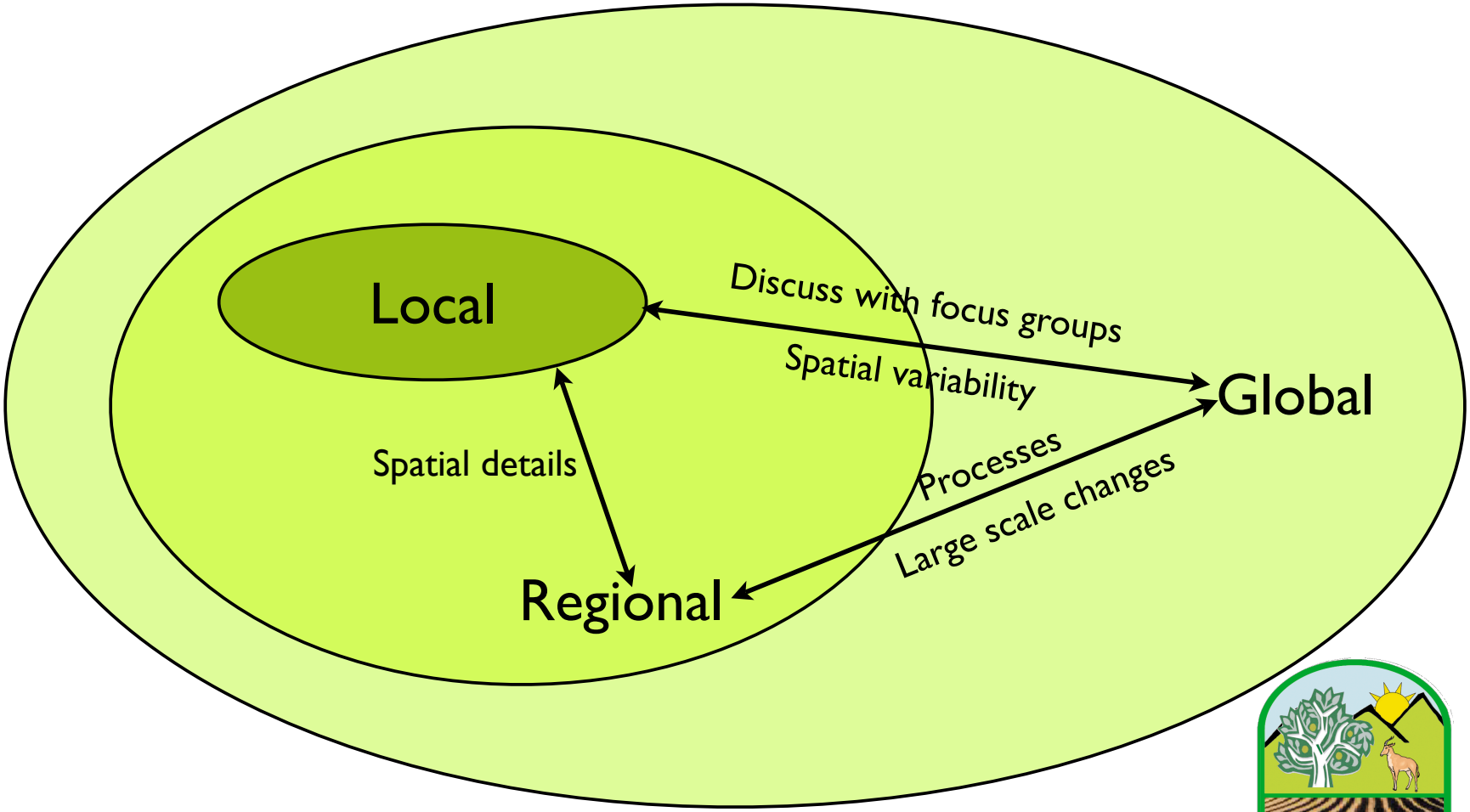








Integration across scales



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