Native Waters on Arid Lands

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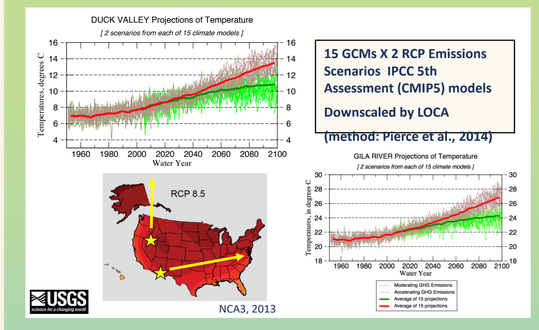
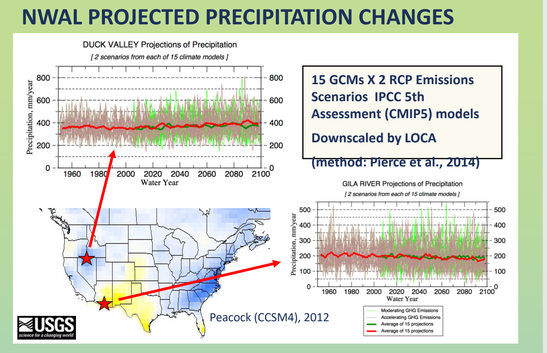
Native Waters on Arid Lands (NWAL) partners researchers and extension experts with tribal farmers, ranchers, students and community members in the American West to evaluate the impacts of climate stress (warming temperatures and changes in precipitation) on water for traditional and production agriculture on reservation lands. Native wisdom and western science contribute to understanding climate impacts and assessing resilience. Through research capacity building activities with the Tribal Colleges & Universities, the project is transferring knowledge and resources to enhance community adaptation. NWAL's team combines expertise from 1862 and 1994 Land-Grant Institutions, Federally Recognized Tribal Extension Program (FRTEP) and research universities.

Climate Scenarios

NWAL PROJECTED TEMPERATURE CHANGES

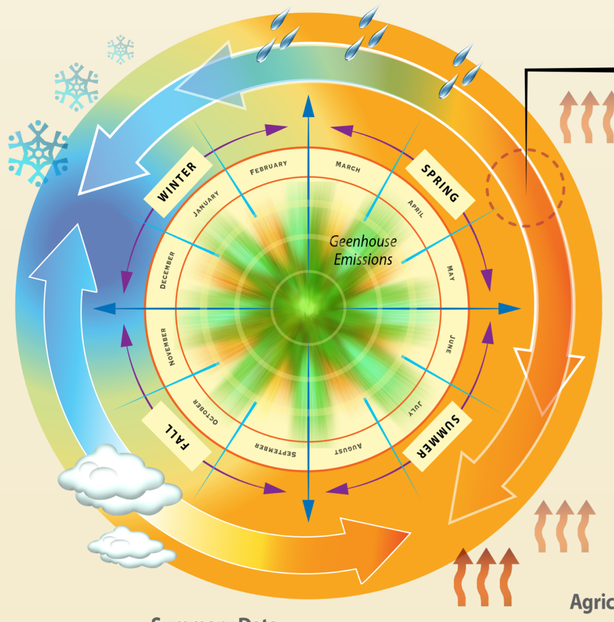


NWAL PROJECTED PRECIPITATION CHANGES

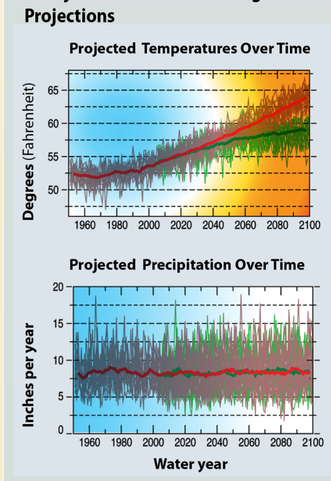


Research by Christine Albano, Michael Dettinger and Maureen McCarthy.

Reading **Changing Seasons** with Accelerated Green House Emissions



Navajo Nation Climate-Change Projections



Summary Data

Dry: *Warmer temps, longer, hotter and drier summers*
Wet: *Shorter winters with more intense, warmer storms resulting in less snow and more rain.*

Agricultural Impact

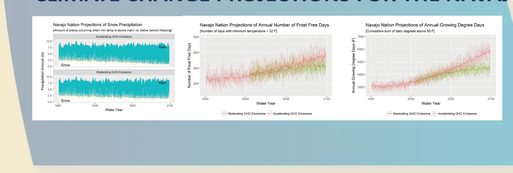
Warmer temperatures bring longer growing seasons*, with less available water in dry periods. Hotter days, and more of them, resulting in yield reduction. Fewer frost days, less soil moisture, limiting grazing days.*

Water for Agriculture Analysis

WATER FOR AGRICULTURE

Researchers, tribal students and community members share knowledge about climate stress, water accessibility, and adaptation challenges. (Led by Staci Emm, Trent Teegerstrom, Michael Dettinger, Meghan Collins and Benita Litson)

CLIMATE CHANGE PROJECTIONS FOR THE NAVAJO NATION



Native Wisdom

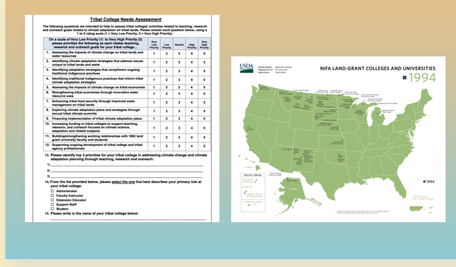
Drought resistant Pueblo corn studies conducted with the Hopi Tribe by Kyle Bocinsky, George Huey.

Biologically enhanced farming inspired by the Buffalo Dance (pilot projects by Scott Goode, Anna Eichner, Beverly Ramsey and Virgil Dupuis).

Adaptation & Resilience

Tribal Water Resilience Innovations: Balancing trade-offs for on-reservation water uses and off-reservation leasing with economic models for food sovereignty, water trading, and tribal economic resilience. Developing interactive water learning exercises for tribal communities to compare economic development pathways.
(Research by Bonnie Colby)

Featured Product



Assessing Tribal College priorities for climate adaptation on reservation lands. Relevant knowledge, community relationships and younger generation engagement makes TCUs excellent resource. (Research by Helen Fillmore, Loretta Singletary and John Phillips)

Featured Impact

Faculty Research Partnerships: STEM Research partnerships between TCUs and Research Centers demonstrates a pipeline approach for TCU research capacity building. Pilot Faculty/Student Research Experience with DRI and Aaniiih Nakoda College (Brian Grebliunas, Joel Doney and Richard Jasoni).

www.nativewaters-aridlands.com
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PARTNERS

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United States Department of Agriculture National Institute of Food and Agriculture

USDA/NIFA Grant: 2015-69007-23190