

## Shiloh Carroll (AZ)

### LAB BIOLOGY-9th Grade Freshman Class

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### Major Topics of Study:

1. **Scientific Process\***-climate change is referenced as part of the process of doing science and they look at good data vs. sketchy data.
2. Levels of Organization
3. **Inorganic Chemistry\***-We go through the biogeochemical cycles and we discuss where carbon dioxide and other green house gases come from.
4. Cells
5. Bioenergetics
6. Organic Chemistry
7. **Web of life\***-Web of life examines all the food webs and chains that are being affected by changes to our Earth's climate.
8. **Ecology\***-Ecology has the largest component of climate change, we talk a lot about what the changes to Earth could mean for various biomes, and how human impacts have changed our landscapes and flora and fauna.
9. **Environmental Issues facing Arizona\***-This is where we tackle Arizona specific issues, like water conservation, loss of native species, long term drought, succession of plant species farther north to cooler climates, etc...
10. **Population Growth\***-This is where we start talking about how human activity certainly seems correlated to climate change we talk a lot about biotic factors affecting the abiotic world.
11. **Evolution\***- We look at how a changing environment shapes and molds the process of Natural Selection.

### RESOURCES: Global Climate Change

1. EPA <http://www.epa.gov/climatechange/>
2. IPCC [http://www.ipcc.ch/publications\\_and\\_data/ar4/wg2/en/contents.html](http://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html)
3. NY Times [www.nytimes.com](http://www.nytimes.com) (Key words Southwest, Climate Change)
4. Arizona Climate Change Initiative <http://www.azclimatechange.gov/>
5. US Global Change Research Program <http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/regional-climate-change-impacts/southwest>
6. Southwest Climate Change <http://www.southwestclimatechange.org/>
7. Science Daily <http://www.sciencedaily.com/> (Key words Southwest, Climate Change)
8. Union of Concerned Scientists [http://www.ucsusa.org/global\\_warming/science\\_and\\_impacts/science/](http://www.ucsusa.org/global_warming/science_and_impacts/science/) (Great site for teachers! Good resources for discussions)

9. Global Systems Science <http://www.globalsystemsscience.org/uptodate/cc> (Site from University of California at Berkeley)

Check out these Video Resources:

<http://bcove.me/b8lbb2zf>- USA Today article- Temps push animal, plant species to higher elevations

<http://www.cbsnews.com/video/watch/?id=5291115n> -The Age of Megafires (Good resource for teaching about Arizona's recent Wallow Fire)

The New York Times

**Green**

A Blog About Energy and the Environment

FEBRUARY 25, 2011, 2:56 PM

## Does the Southwest Face a Mega-Drought?

By [JOHN COLLINS RUDOLF](#)

Rising global temperatures resulting from emissions of human origin could tip the southwestern United States into a period of prolonged extreme drought seen before only in distant geological history, a new [study suggests](#).

Valles Caldera National Preserve The Valles Caldera.

Researchers dug deep into the region's climate history by studying a 270-foot core of lake sediment taken from the Valles Caldera, a volcanic depression in northern New Mexico. Data extracted from the core revealed "mega-droughts" in the region lasting as long as a thousand years.

For parallels to the planet's current climate, the researchers focused on interglacial periods, when ice ages caused by small irregularities in the Earth's orbit around the sun gave way to periods of warmth and glacial retreat. The current epoch, the Holocene, is the most recent interglacial period.

If the current epoch followed past trends, the Southwest would eventually enter a cooler, wetter phase, the researchers found. But that was without considering changes in the global climate that are expected to arise from steadily rising concentrations of carbon dioxide and other greenhouse gases.

This added warmth could tip the Southwest into an era of continued severe drought potentially lasting a millennium or more, said Peter Fawcett, a climate scientist at the University of New Mexico in Albuquerque who led the study.

"We won't know for sure if it happens again until we get there," Dr. Fawcett told [Nature News](#). "But we are certainly increasing the possibility of crossing a critical threshold to severe and lasting drought conditions."

"The scary thing is that we seem to be very close to this point again," he added.

The study appears in this week's edition of the scientific journal Nature.

## **Climate Change Web Sites:**

EPA <http://www.epa.gov/climatechange/>

IPCC [http://www.ipcc.ch/publications\\_and\\_data/ar4/wg2/en/contents.html](http://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html)

NY Times [www.nytimes.com](http://www.nytimes.com) (Key words Southwest, Climate Change)

Arizona Climate Change Initiative <http://www.azclimatechange.gov/>

US Global Change Research Program <http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/regional-climate-change-impacts/southwest>

Southwest Climate Change <http://www.southwestclimatechange.org/>

Science Daily <http://www.sciencedaily.com/> (Key words Southwest, Climate Change)