

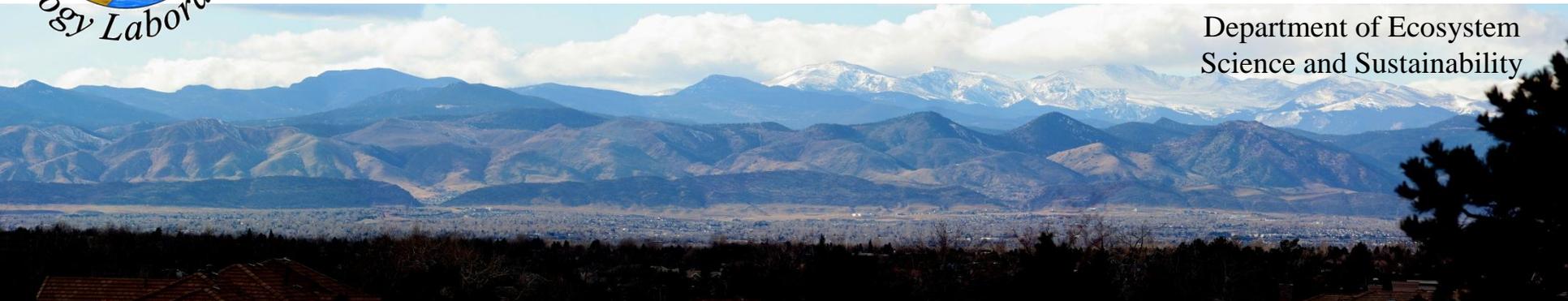
Environmental Literacy, Long Term Monitoring, and Extreme Events



Colorado State University

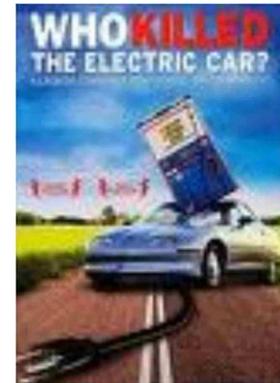
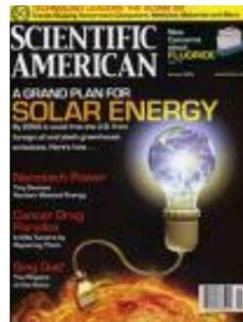


Department of Ecosystem
Science and Sustainability



Environmental Science Literacy

The capacity to understand and participate in evidence-based decision-making about socio-ecological systems.



Department of Ecosystem
Science and Sustainability



Colorado State University

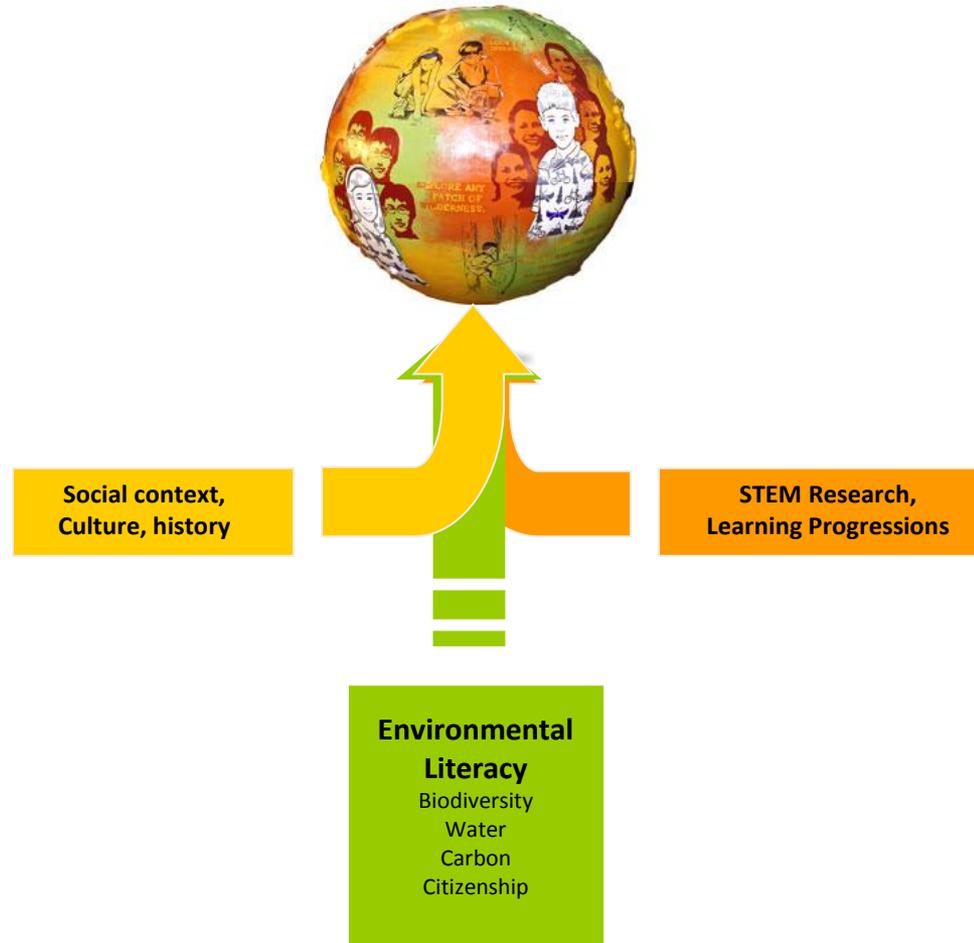
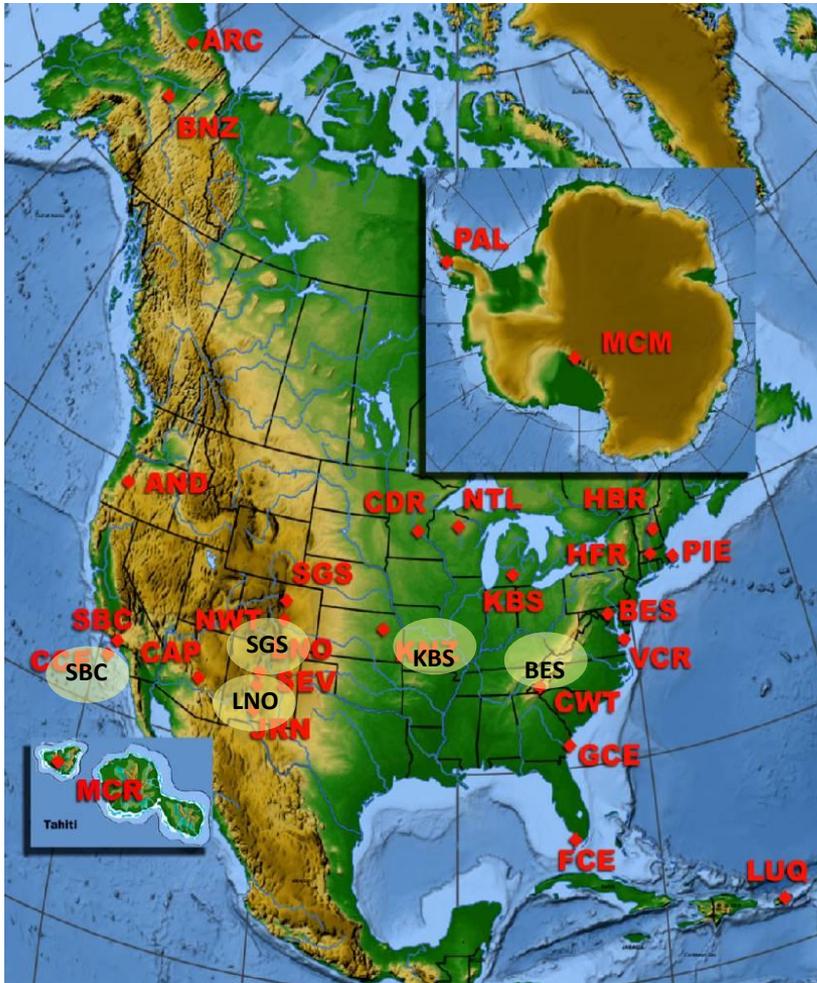


Distance and Awareness



“OMG I didn't know that the white stuff on the mountains in the summer was snow”

Targeted Partnership: Culturally relevant ecology, learning progressions and environmental literacy



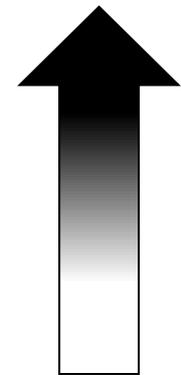
Learning Progressions

Learning progressions are **descriptions** of increasingly sophisticated ways of thinking about a subject

Knowledge, practice, discourse

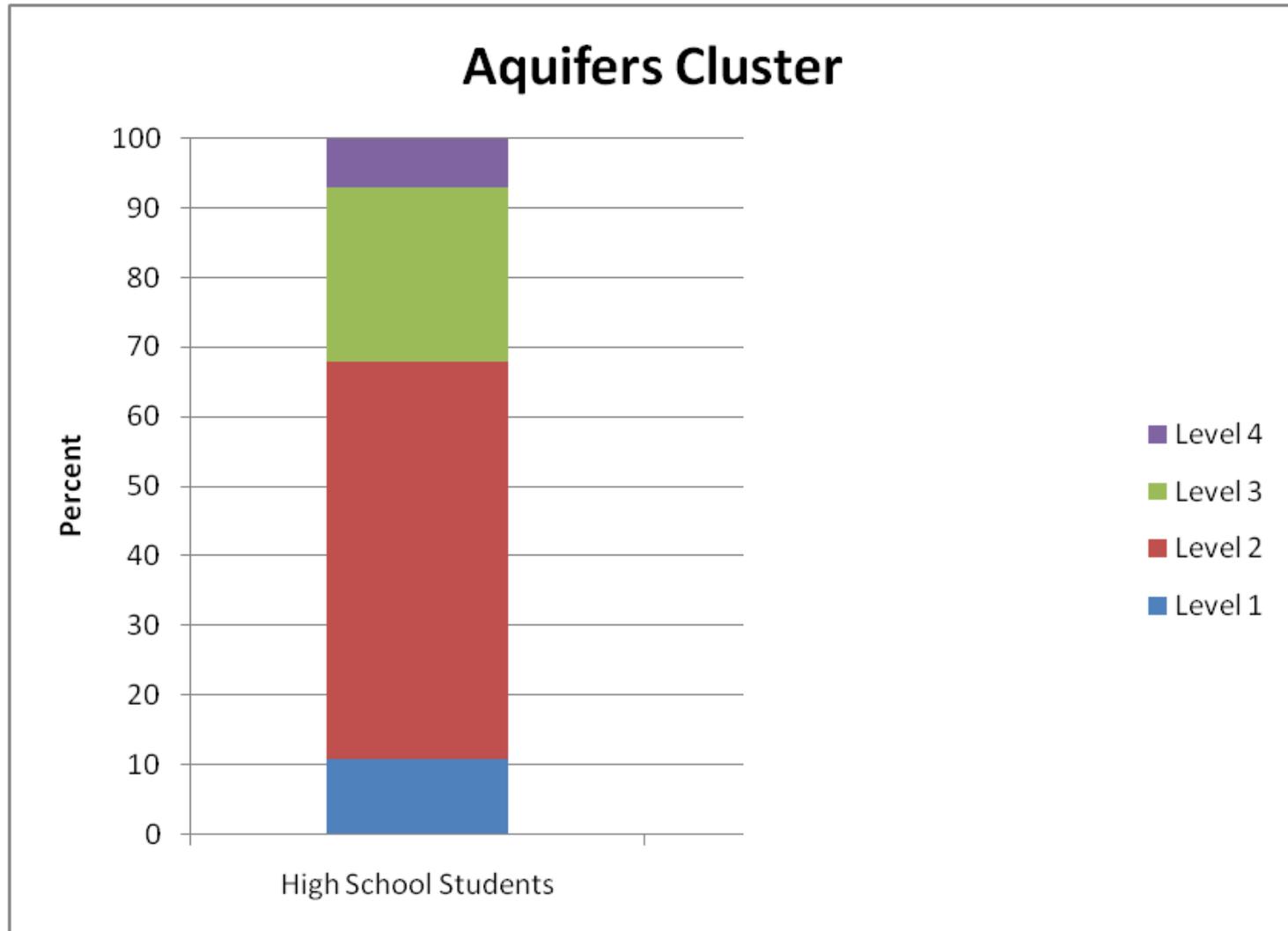
Level of achievement	Type of account (explanations & predictions)	Elements of accounts	
		Structure & systems	Scientific principles
Level 4: Model-based accounts	Scientific, model-based accounts of how and why events happen	Multiple, detailed connected systems	Driving forces & constraining factors
Level 3: School science accounts	Primarily descriptions of what happens	Connected systems, including visible and some hidden components	Puts events in order, names processes, uses “school rules”
Levels 1 & 2: Force-dynamic accounts	Force-dynamic perspectives of events	Visible, familiar components of systems	Force-dynamic reasoning

Scientific Reasoning

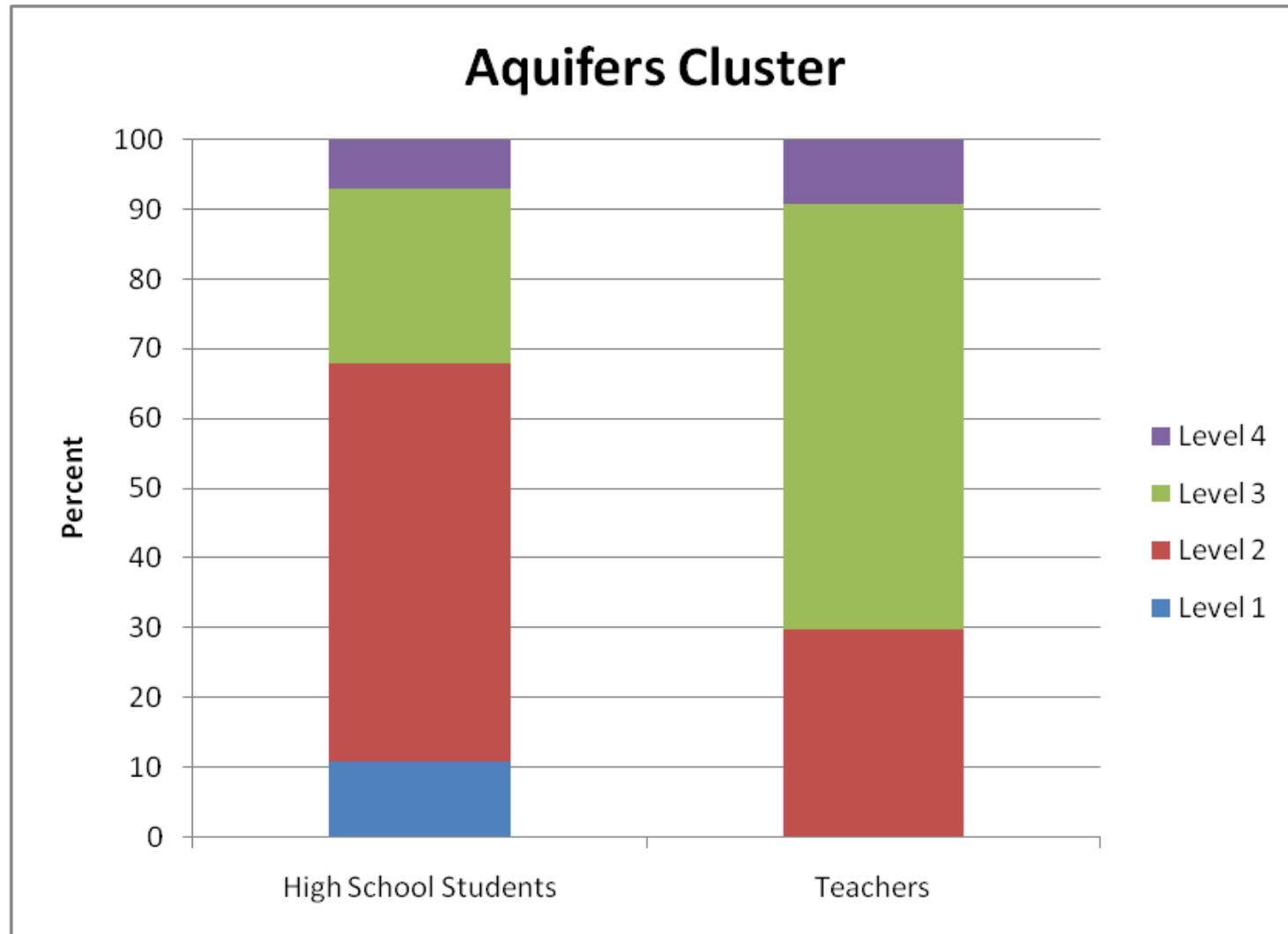


Informal Ideas

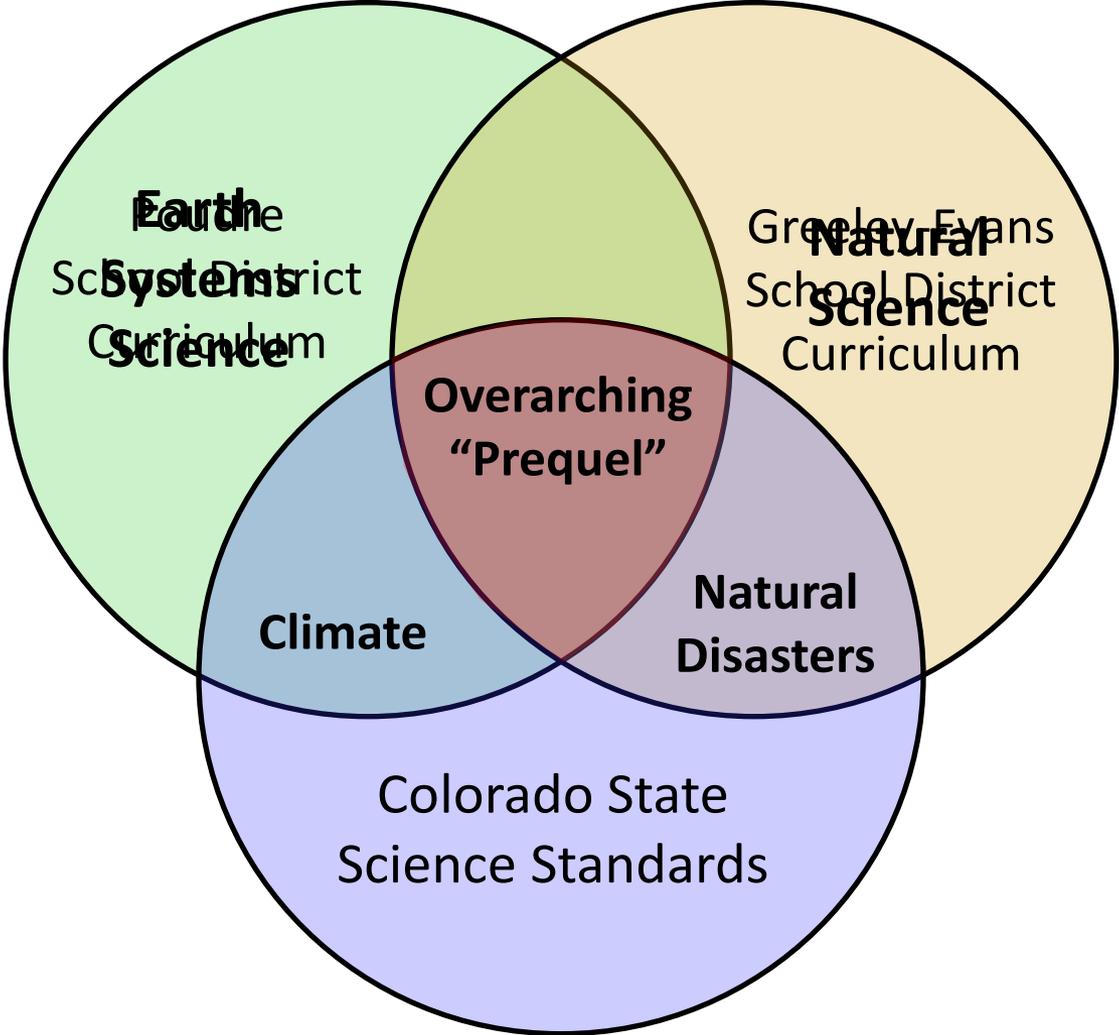
Aquifers Cluster Results



Aquifers Cluster Results



Individual and Common Needs among Districts

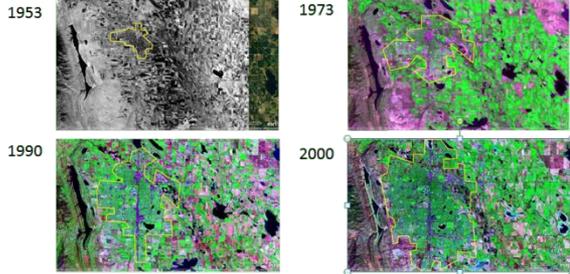


'Prequel' Unit

Introduction to remote sensing
and electromagnetic energy

Earth's Energy Budget

Land cover, albedo, and the
urban heat effect



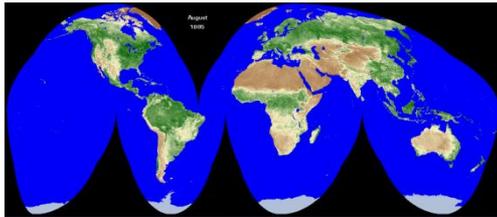
Oceans, Ice, and Climate Change

Sea level rise and sea ice
in the context of climate change



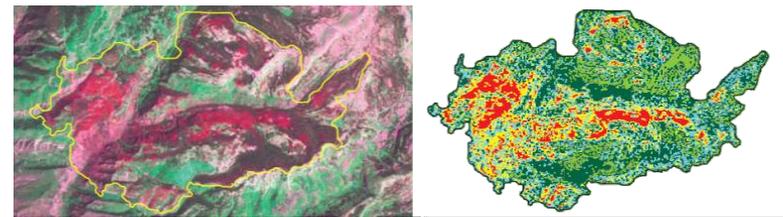
The Earth's Four Spheres

Climate change and the biosphere,
hydrosphere, atmosphere, and geosphere



Fire ecology

Understanding fire patterns
using remotely sensed images



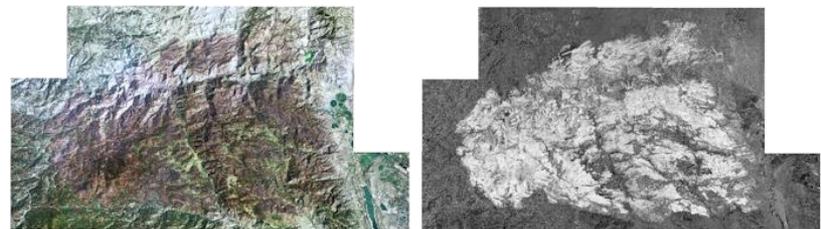
Climate Change, Past and Present

Climate history, previous warming,
and current patterns



High Park Fire

Helping students understand
the third largest Colorado fire



NC-GCCE

Northern Colorado - Global Climate Change Education

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[Overview](#)
[Climate change](#)
[Teacher modules](#)
[Photo gallery](#)
[Participants](#)

Contact Us

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NC-GCCE

In a project supported by the NASA Global Climate Change Education Project, a group of research scientists at the Natural Resource Ecology Laboratory at Colorado State University have been working with teachers and students at the Poudre and Greeley-Evans School Districts in Northern Colorado. We have created classroom modules that use NASA data sets that teachers may use to instruct students about climate change. We take a cross-scale approach, using local demonstrations of climate change effects to put in context regional and even global changes. While these modules have a local component, the content can easily be used by teachers from across the globe.

We have the following goals:

- Improve the science content knowledge and preparedness of middle and high school teachers
- Increase the science content knowledge of middle and high school students
- Increase the awareness, opportunities, and participation of middle and high school teachers in content-based professional development activities
- Broadly disseminate our model to districts across the country

Our objectives, activities, and evaluation metrics will connect NASA datasets with state science and geography content standards, the science curricula, and teacher and students needs within our partner districts through the development of modules that will be used in middle and high school science courses.



Sep 2000



Sep 2006



DigitalGlobe / Google Earth

MODIS images with statewide greenness standardized across years, showing declines due to killed trees, which appear red in the high resolution image.

Affiliations



Colorado
State
University



POUDRE
SCHOOL
DISTRICT



Greeley-Evans
WELLS COUNTY SCHOOL DISTRICT #



Support



NASA Global Climate
Change Education Project

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