

Websites for Climate Change Science

BACKGROUND CONTENT AND RESOURCES

The Discovery of Global Warming

<http://www.aip.org/history/climate/index.htm>

This Website created by Spencer Weart supplements his much shorter book, which tells the history of climate change research as a single story. On this Website you will find a more complete history in dozens of essays on separate topics, occasionally updated.

US Global Change Research Program

<http://www.globalchange.gov/whats-new/282-climate-literacy-framework>

Hosts the Climate Literacy Framework and links to teacher tools such as global change photos.

NASA's Global Climate Change Website

<http://climate.nasa.gov/warmingworld/>

A new site with articles and videos aimed to better educate the public on global climate change.

AGI Videos: Why Earth Science? and Nine Big Ideas

<http://www.youtube.com/agieducation>

These are great, short videos with state of the art graphics that depict remote earth processes. The focus on the important big ideas that students should take away from any earth science unit or course.

NASA's Earth Observation Website

<http://neo.sci.gsfc.nasa.gov/>

Create a global map with some type of climatic variable. If you want you can slap it only a globe using Google Earth.

Global Climate Change – Research Explorer by the Exploratorium

<http://www.exploratorium.edu/climate/index.html>

Well-presented content

International Panel on Climate Change

<http://www.ipcc.ch/>

Their formal documents and memo's related to recent media reports.

Global Warming Background Knowledge at Marian Koshland Museum

<http://www.koshland-science-museum.org/exhibitgcc/greenhouse01.jsp>

Graphic and map rich explanation of climate change science. Easy to navigate, well organized resource.

Ecological Impact of Climate Change

<http://dels-old.nas.edu/climatechange/ecological-impacts.shtml>

This site from the National Academy Press posts full PPT and images from their publication of the same name.

Order 25 free copies or view online.

Lessons from the Keeling Curve

http://scrippsco2.ucsd.edu/program_history/keeling_curve_lessons.html

A well written essay on the significance of Charles Keeling's research at Mauna Loa Observatory measuring atmospheric carbon dioxide.

Scripps Institute – Datasets

- Raw Mauna Loa data (up to date)
http://scrippsco2.ucsd.edu/data/in_situ_co2/monthly_mlo.csv
- Raw South Pole data (up to date)
http://scrippsco2.ucsd.edu/data/flask_co2_and_isotopic/daily_co2/fldav_spo.csv

Coral Reef Watch:

http://coralreefwatch.noaa.gov/satellite/education/reef_remote_sensing.html

Resources and activities concerning coral reefs.

JOIDES Resolution

<http://joidesresolution.org>

Resources on deep ocean drilling and climate studies. See the multimedia tab for short informative movies.

Miller and Lavine:

<http://www.millerandlavine.com/talks/index.html>

The two biology authors post interesting and well-designed power points on topics such as climate change, evolution and stem cell research.

CURRICULUM RESOURCES

Modules and Units from the ICCARS Project

<http://www.resa.net/curriculum/curriculum/science/professionaldevelopment/climatechange/modules-and-units/>

Wayne RESA has led a multiyear project centered on researching climate using remote sensing. This is a collection of instructional modules and units designed and/or collected by participants.

Lawrence Hall's Global Systems Science

<http://www.globalsystemsscience.org/studentbooks/cc>

Lawrence Hall published this course which included a book on climate change. It is really a book for students that includes a lot of text, graphics and simple investigations. It's all up online now and provide the structure of a unit on climate change.

BRIDGE Ocean/Marine Lessons

http://www2.vims.edu/bridge/DATA.cfm?Bridge_Location=archive0909.html

A good resource for lessons related to marine sciences. This link is a strong data-centered example on the effect of heat capacity on regional weather and temperature, through thermal buffering by the oceans.

GLOBE: Earth System Poster and Activities

<http://www.globe.gov/teaching-and-learning/materials/earth-system-science-posters>

The first link is to GLOBES earth system poster, and the second is a series of analytical and collaborative activities using the poster or cut out sections of global maps. The activities are very well described and supportive. Excellent for promoting the earth systems concepts.

My NASA DATA- see Lesson Plans

<http://mynasadata.larc.nasa.gov/>

It's easy to find lesson plans using this website. There are several ways to search. After clicking lesson plans, use the "Search Environmental Science Topic."

Earth Exploration Toolbook:

<http://serc.carleton.edu/eet/index.html>

This site hosts 30 or more step by step earth science lessons that use various forms of online data, interactive data-viewers and/or analytical software. All high quality activities that will provide science teachers with show case investigations that promote real world science and information literacy.

Teaching Physical Concepts in Oceanography

http://tos.org/hands-on/teaching_phys.html

Great hands-on activities completely described and detailed for in-class uses. This page links to a PDF file that can be printed or saved as well as videos of demonstrations.

Earth System Science Education Alliance

<http://essea.strategies.org/>

Look at pull down on ESS Modules, browse these for scores of "Investigations."

NASA's Interactive Satellite Overview

<http://climate.nasa.gov/Eyes/>

Earth Science Literacy

<http://www.earthscienceliteracy.org/>

The Earth Science Literacy Initiative has gathered and codified the underlying understandings of Earth sciences into a succinct document. It establishes the "Big Ideas" and supporting concepts that all Americans should know about Earth sciences.

Activities from Deep Earth Academy

<http://www.oceanleadership.org/education/deep-earth-academy/educators/classroom-activities/>

Great list of activities related to ocean science. Mohawk Man is included – working with microscopic forams for climate history.

NASA's Exploring the Environment:

<http://www.cotf.edu/ete/>

Thoroughly developed problem based learning modules on Earth system science that integrate free image processing software. Classroom of the Future is an umbrella project with other space and Earth related products.

Carbon Mitigation Initiative (Princeton University)

<http://cmi.princeton.edu/wedges/>

The Wedge Game. This is the heart of the Carbon Mitigation Initiative's (CMI) Stabilization Wedges concept, a simple framework for understanding both the carbon emissions cuts needed to avoid dramatic climate change and the tools already available to do so.

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NEED Curriculum

<http://www.need.org/Curriculum-Guides-Subject>

NEED is a US Department of Energy Project that has been going on for some 30 years. This site lists an extensive set of curriculum and school based projects in the area of Energy. Many, like the great energy debate are highly interactive and engaging for students.

Facing the Future

www.facingthefuture.org

Sustainability and Global Issues Curriculum

Teaching with Great Lakes Data

<http://greatlakeslessons.com/>

All free interactive lessons using data related to weather, climate and limnology of the great lakes. Register for password to get a the lessons.

Very Amazing Animated History of CO 2 Variations

<http://www.youtube.com/watch?v=H2mZyCblxS4>

Climate Literacy and Energy Awareness Network (Lessons, Data, more)

<http://www.cleanet.org/>

Free online Global and Regional Climate Change Course

<http://www.life.illinois.edu/ew/>

Workshop in Ecosystems and Energy

<http://cimss.ssec.wisc.edu/climatechange/nav/lessonplans/>

Interactive online tools for exploring carbon and climate

<http://carbonconnections.bsccs.org/interactives/>