**A partial list of internet resources for**

**incorporating earth science data in the classroom**

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**General Earth Sciences**

**Cutting Edge Program**

The Cutting Edge Program web site (through Science Education Resource Center – SERC) has assembled a number of useful websites and teaching exercises on their “Data Simulations and Models” web site. This includes a listing of data-rich websites under the “Data Sheets” heading, as well as specific classroom, lab and field activities.

<http://serc.carleton.edu/NAGTWorkshops/data_models/index.html>

**The Geosciences Network (GEON)**

GEON is an open collaborative project that is developing cyber infrastructure for integration of 3 and 4 dimensional earth science (topography, geophysics, and geology) data.

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

**Resources for Earth Science and Geography Instruction (REGSI)**

REGSI has animations and other resources for introductory earth science courses. At this site you can also join the Earth Science Sites of the Week listserv, and get a weekly email with ideas and suggestions.

<http://webs.cmich.edu/resgi/>

**Thematic Real-time Environmental Distributed Data Services (THREDDS)**

THREDDS provides data services, tools, and cyberinfrastructure leadership that advance Earth system science, enhance educational opportunities, and broaden participation. Includes several case studies.

<http://www.unidata.ucar.edu/projects/THREDDS/>

**Earth Imagery & Global Databases**

**NASA Earth Observatory**

NASA EO is a great source of real time satellite remote sensing imagery and data that illustrate a wide variety of Earth processes, hazards, environmental conditions, etc.

<http://earthobservatory.nasa.gov>

**NASA Eyes on the Earth 3D**

This fantastic web site provides a detailed look at each of NASA’s Earth Observation satellite missions. Using interactive 3-D visualizations, the viewer can observe real-time satellite orbits, examine a wide range of imagery and data, and even study the equipment and remote sensing technology aboard each of the satellites. Requires downloading a user-friendly application. A great instructional video on the web site explains all of its features.

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

**NASA Goddard Space Flight Center - Global Change Master Directory**

This site lists datasets by topic, including: agriculture, atmosphere, biological classification, biosphere, climate indicators, cryosphere, human dimensions, land surface, paleoclimate, solid earth, spectral/engineering, sun-earth interactions, and terrestrial hydrosphere. There are several datasets available under each heading.

<http://gcmd.nasa.gov/Aboutus/sitemap.html>

**USGS Earth Explorer**

A web portal for a variety of global mapping and remote sensing data.

<http://edcsns17.cr.usgs.gov/EarthExplorer/>

**Global Land Cover Facility**

This site offers remotely sensed satellite data and products to assess land cover change for local to global systems.

<http://glcf.umiacs.umd.edu/index.shtml>

**GeoMapApp**

The GeoMapApp web site is part of the Marine Geoscience Data System (MGDS) at the Lamont-Doherty Earth Observatory at Columbia University. This powerful data visualization tool provides access to a wide array of geo-referenced Earth Science data linked to Global Multi-Resolution Topography (GMRT) based on high resolution multibeam bathymetry for the oceans and Shuttle Radar Topography Mission (SRTM) elevations over land.

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

**Open Topography**

This site is a portal to high-resolution LIDAR topography data and visualization tools.

<http://www.opentopography.org/index.php>

**National Center for Airborne Laser Mapping (NCALM)**

The NCALM LIDAR Data Distribution Center web site provides public access to high-resolution airborne laser swath mapping data (ALSM) acquired by NCALM for NSF sponsored research projects. You can visualize the location of the available projects and download data files using a Google Earth interface.

<http://calm.geo.berkeley.edu/ncalm/ddc.html>

**Plate Tectonics, Earthquakes, & Volcanoes**

**EarthScope**

EarthScope includes all of the seismic and GPS data from the EarthScope network, plus a section on “Education and Outreach” including a link to “Data for Educators”.

<http://www.earthscope.org/home>

**UNAVCO**

The UNAVCO web site contains a wide range of real time geodetic data and imagery from many projects around the globe. The “Science Highlights” link includes wonderful compilations of data from active projects and recent newsworthy events such as earthquakes and volcanic eruptions. The site also features an education and outreach component that includes data products and interactive teaching activities.

<http://www.unavco.org/unavco.html>

**Relative Plate Motion Calculator**

A simple site for calculating relative plate motions for any site on the globe.

<http://ofgs.ori.u-tokyo.ac.jp/~intridge/public_html_hidden/pmc/nuvel1.html>

**PALEOMAP project**

Paleogeographic and paleoclimatic maps for the Phanerozoic made by Chris Scotese.

<http://www.scotese.com/>

**GPlates**

This site allows you to create customized paleogeographic maps. It uses open-source software and requires some basic knowledge of GIS.

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

**NSF MARGINS Data Portal**

This site provides access to research data collected through the National Science Foundation MARGINS Program.

<http://www.marine-geo.org/portals/margins/>

**USGS Earthquake Hazards Program**

This site provides real-time earthquake data for the entire globe, including earthquake location, depth, magnitude, ground shaking intensities, focal mechanism, and other parameters. The site also has compilations of historical earthquake data, simulations, and other useful information.

<http://earthquake.usgs.gov/>

**Jet Propulsion Laboratory (JPL) QuakeSim**

A data portal for earthquake hazards simulations in Southern California.

<http://quakesim.jpl.nasa.gov/index.html>

**Climate, Weather, & Atmospheric Science**

**NCAR Unidata portal**

A comprehensive site for researchers and educators to access climate datasets.

[**http://www.unidata.ucar.edu/data/**](http://www.unidata.ucar.edu/data/)

**NOAA Operational Significant Event Imagery**

This site has current and historical NOAA satellite imagery featuring a wide variety of Earth processes, hazards, and events with a particular focus on weather and climate data.

<http://www.osei.noaa.gov/>

**NOAA Watch All Hazards Monitor**

The NOAA Watch All Hazards Monitor website posts a variety of real-time geologic hazards data, imagery, and illustrations for the United States.

<http://www.noaawatch.gov/>

**The Weather Underground**

A nice web site for real time interactive weather data with excellent maps and visualizations, including their trademark “WunderMap”.

<http://www.wunderground.com/>

**AccuWeather Hurricane Center**

A great web site for up to date satellite imagery and information on tropical storms and cyclones in the Atlantic, Pacific, and Indian Ocean basins.

<http://hurricane.accuweather.com/hurricane/index.asp>

**NOAA Online Climate Data Directory**

This site provides access to most US climate station data and some world climate station data.

<http://www.ncdc.noaa.gov/oa/climate/climatedata.html>

**NASA Global Climate Change**

The NASA Global Climate Change web site is an excellent public outreach and education resource for climate related information, real time data, and imagery.

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

**NOAA Live Access to Climate Data**

This site allows the user to generate map view and cross section plots of ocean temperature, salinity, oxygen, apparent oxygen utilization, chlorophyll, nitrate, phosphate, and silicate.

<http://ferret.wrc.noaa.gov/nvods>

**Linked Environments for Atmospheric Discovery (LEAD)**

LEAD makes meteorological data, forecast models, and analysis and visualization tools available to anyone who wants to interactively explore the weather as it evolves.

[https://portal.leadproject.org/](https://portal.leadproject.org/gridspace/gridsphere)

**The National Atmospheric Deposition Program (NADP)**

NADP has precipitation quantity and chemistry data for sites across the United States.

<http://nadp.sws.uiuc.edu/>

**Ocean Science**

**NOAA Oceanographic In-situ Data Access**

NOAA provides profiles and time series data from ocean conductivity, density and temperature (CDT) casts including data on seawater temperature, salinity, oxygen, and density.

<http://www.epic.noaa.gov/epic/ewb/>

**Hydrology & Soil Science**

**USGS Water Resources Division**

This site includes a wide variety of hydrologic data, imagery, and information for the United States, including real-time gauging station data and plots, historical flood data, groundwater data, etc.

<http://water.usgs.gov/>

**USGS National Water Quality Assessment Program (NAQWA)**

NAQWA has both surface and groundwater chemistry data for a series of watersheds within the United States. Additional information on land use, stream biota, etc. is also provided.

<http://water.usgs.gov/nawqa/>

**CUASHI Hydrologic Information Systems (HIS**)

<http://his.uashi.org/>

**National Critical Zone Observatory (CZO) Portal**

Critical Zone Observatories are natural laboratories for investigating the processes that occur at and near the Earth's surface and that are affected by fresh water. These interconnected processes impact everything from the production of soil to the evolution of biosystems. This web site provides access from a growing network of CZO sites.

<http://criticalzone.org/>

**USDA Web Soil Survey**

Access soil maps for anywhere in the United States. The user interface is very easy to use.

[websoilsurvey.nrcs.usda.gov/](file:///C%3A%5CLocal%20Settings%5CTemporary%20Internet%20Files%5CContent.Outlook%5C61EB0R7I%5Cwebsoilsurvey.nrcs.usda.gov)

**NRCS Soil Data Mart**

Access physical and chemical data for most soils in the United States.

<http://soildatamart.nrcs.usda.gov/>

**Environmental Science**

**Environmental Protection Agency (EPA)**

The EPA has a Science Inventory of all their activities and products. They also have a listing of environmental data and tools to use to teach science through inquiry.

<http://cfpub.epa.gov/si/>

<http://www.epa.gov/epahome/data.html#envtools>

**Long Term Ecological Research (LTER) Sites**

LTER sites have great biology, soils, hydrology, and weather data sets, both within the US and on a global scale. Within the U.S. alone, there are 26 LTER sites with datasets. The international LTER website has datasets from more than 30 countries.

<http://www.lternet.edu/>

<http://www.ilternet.edu/member-networks>

**Geochemistry & Mineralogy**

**American Mineralogist Crystal Structure Database**

This site is an interface to a crystal structure database that includes every structure published in the American Mineralogist, The Canadian Mineralogist, European Journal of Mineralogy and Physics and Chemistry of Minerals, as well as selected datasets from other journals. The database is maintained under the care of the Mineralogical Society of America and the Mineralogical Association of Canada, and financed by the National Science Foundation.

<http://rruff.geo.arizona.edu/AMS/amcsd.php>

**Paleontology**

**Paleobiology Database**

This site organizes over a million fossil occurrences in space, time, and taxonomic placement. This database has been mined by many for peer-reviewed publications.

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

**The Paleontology Portal**

This site provides links to many paleontological resources from around the web.

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