

Supporting Resources for *Understanding Climate Change Through Use of Proxy Data*

Resources:

The resources below may also be found at [Resources for Understanding Climate Change Through the Use of Proxy Data](#). This website will be updated over the next year. [Supporting Resources for Understanding Climate Change Through Use of Proxy Data](#)

Current and Past CO₂ Levels

<https://www.co2.earth/daily-co2> provides daily and historic CO₂ data from the Mauna Loa Observatory in Hawaii

Climate Change Graphs

CP2-Temp graph. Wikipedia Commons. 6 December 2005.

<https://commons.wikimedia.org/wiki/File:CO2-Temp.png>

Atmospheric Concentrations. *CO₂ Concentrations*. Accessed 4 August 2022.

<https://ourworldindata.org/atmospheric-concentrations> Viewers may use a slider on this graph to expand data from 1800 and on. Data is regularly updated.

Climate Change - Atmospheric Carbon Dioxide. Climate.gov. Accessed 1 August 2022.

<https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide>

Tree Ring Lessons

Department of Ecosystem Science and Management. The Pennsylvania State University. *It's All in the Rings*. Accessed 1 August 2022

<https://ecosystems.psu.edu/outreach/youth/sftrc/lesson-plans/forestry/6-8/rings>

Diatoms

Riesselman, Christina. The Exploratorium. 26 November 2007.

<https://www.exploratorium.edu/video/christina-riesselman-explains-her-work-andrill>

Here is a video that describes how diatoms are found in Antarctica.

Mitchison, Freya. International Ocean Discovery Program. 15 August 2016.

<https://joidesresolution.org/so-what-exactly-is-a-diatom-paleontologist/>

Background information on diatoms and scientists who research them.

Johnson-Groh, Mara. *Digging for Diatoms*. JOIDES Resolution. 11 September 2021
<https://joidesresolution.org/digging-for-diatoms/>

Lesson: *Interpreting Sediment Cores Found in Antarctica*. Earth Exploration Toolkit, Science Education Resource Center, Carleton University. 13 April 2021
https://serc.carleton.edu/eet/cores/part_1.html

Core Sampling

Cupcake Geology: Interpreting Core Samples:
https://serc.carleton.edu/ANGLE/educational_materials/activities/205659.html

Making a Core Sample: <https://www.sciencelearn.org.nz/resources/675-making-a-core-sample>

Playing with Mud: <https://www.polartrec.com/resources/lesson/playing-mud-sediment-deposition-tidewater-glaciers>

Analyzing Sediment Cores: <https://serc.carleton.edu/earthlabs/climatedetectives/lab6.html>

Building a Device to Collect a Core Sample from a Potato “Asteroid”:
<https://ca.pbslearningmedia.org/resource/mss13.sci.engin.design.core/down-to-the-core-challenge/>

Using sediment core samples to study past climate in Antarctica.
https://serc.carleton.edu/eet/cores/teaching_notes.html

Paleoclimate Reconstruction Lab (Part of a unit on climate change. The Environmental Literacy and Inquiry Working Group at Lehigh University, 2022. <https://eli.lehigh.edu/climate-change/instructional-sequence/day-13>

Ice Cores

Background information on ice cores: <https://icecores.org/about-ice-cores>

Webinar for teachers with information on ice core science: <https://polareducator.org/master-class/looking-back-to-the-future/>

Using Real Data from Ice Cores and Salt Cores to Interpret Paleoclimate:
<https://serc.carleton.edu/NAGTWorkshops/sedimentary/activities/13695.html>

Reconstructing Past Environments: Teacher resources and online student activities.

<https://ca.pbslearningmedia.org/resource/nvpl-sci-polarlab-lessonplan/nova-polar-lab-lesson-plan/>

Polar detectives: Using Ice Core Data to Decode Past Climate Mysteries

<https://www.polar trec.com/resources/lesson/polar-detectives-using-ice-core-data-to-decode-past-climate-mysteries>

Connecting with Scientists in the Field

The [JOIDES Resolution](#) research vessel travels the globe, collecting seafloor core samples.

Education is an important part of the JOIDES mission. Projects regularly include live feeds from the ship, opportunities for students to connect directly with scientists, and opportunities for teachers to take part of a research project onboard the JOIDES.

[PolarTREC](#) partners teachers with researchers to complete field work in a polar region.

Supported by the National Science Foundation, PolarTREC focuses on polar science education.

Students and teachers may follow teacher-scientist field expeditions, connect live to researchers in the field, and find a wealth of lessons and resources online. Teachers may apply to participate in a PolarTREC project.