

Global Flows and Reservoirs

Tracking Carbon (Grades 6-12)

Overview

Participants observe a global CO₂ simulation video and discuss how carbon dioxide levels in the atmosphere change throughout a day, among seasons, throughout the year, and over many years.

Learning Outcomes

Students will be able to:

- Orient to and interpret a data visualization of global CO₂ changes.
- Use evidence from the visualization to explain seasonal CO₂ changes.
- Use evidence from several data sources to explain the difference between annual and long-term changes in atmospheric CO₂.

Data Resources

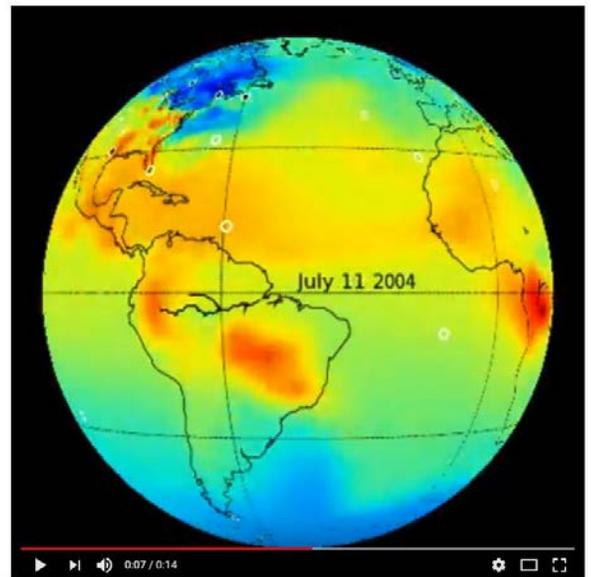
- This activity has students orient to, interpret, and synthesize data from NOAA's online Global Science Investigator/Carbon Tracker 2004.
- This activity has students interpret archived water quality data collected as part of the National Estuarine Research Reserve (NERR) System Wide monitoring Program (SWMP).
- This activity has students interpret atmospheric carbon dioxide data collected at NOAA's Mauna Loa Observatory.

NGSS Connections

- **Disciplinary Core Ideas:** MS.LS2.A: Interdependent Relationships in Ecosystems, MS.ESS2.A: Earth's Materials and Systems, HS.LS2.B: Cycles of Matter and Energy Transfer in Ecosystems, HS.ESS2.D: Weather and Climate
- **Science and Engineering Practice:** Interpret and Analyze Data, Constructing Explanations and Designing Solutions
- **Crosscutting Concepts:** Cause and Effect, Scale, Proportion, and Quantity

Climate/Ocean Literacy Connections

- 3.E: The ocean dominates Earth's carbon cycle. Half of the primary productivity on Earth takes place in the sunlit layers of the ocean. The ocean absorbs roughly half of all carbon dioxide and methane that are added to the atmosphere.



NOAA's CarbonTracker

