My NASA Data - Mini Lesson/Activity

Systems and System Models: Observing Carbon Dioxide in the Atmosphere

Grade Band

- 6-8
- 9-12

Time

- 15 minutes

Overview

This mini lesson provides a video on an ultra-high-resolution NASA computer model of how carbon dioxide in the atmosphere travels around the globe. Students will review the video and answer the following questions.

Student Directions

The video A Year in the Life of CO2 displays a high-resolution NASA computer model called GOES 5. This model has given scientists a new look at how carbon dioxide travels in the atmosphere. Plumes of carbon dioxide swirl and shift as winds disperse the greenhouse gas away from its sources. This video also illustrates the different levels of carbon dioxide in the northern and southern hemispheres of Earth. This includes distinct swings in global carbon dioxide concentrations as the growth cycle of plants and trees changes with the seasons.

Review the video and answer the questions that follow.

Video: NASA | A Year in the Life of Earth's CO2

A Year in the Life of Earth's CO2 | https://www.youtube.com/watch?v=x1SgmFa0r04 | Source: NASA Goddard

Steps:

1. Check with your instructor on how to submit your answers.
2. Describe the phenomenon you observe in the video.
3. Identify the patterns you see in this model.
4. What are the limits of this model?
5. What evidence of Earth System interaction (among Atmosphere, Hydrosphere, Biosphere, Cryosphere, Geosphere) do you see?

Source:

1. GMS: A Year In The Life Of Earth's CO2. (2014, November 17). NASA Scientific Visualization Studio. Retrieved August 10, 2022, from https://svs.gsfc.nasa.gov/cgi-bin/details.cgi?aid=11719

Teacher Note

Teachers, these mini lessons/student activities are perfect "warm up" tasks that can be used as a hook, bell ringer, exit slip, etc. They take less than a class period to complete. Learn more on the "My NASA Data What are Mini Lessons?" page.

Teachers who are interested in receiving the answer key, please complete the Teacher Key Request and Verification Form. We verify that requestors are teachers prior to sending access to the answer keys as we've had many students try to pass as teachers to gain access.

NGSS Three Dimensional Learning

NGSS Disciplinary Core Ideas

- ESS3D: Global Climate Change

Crosscutting Concepts

- Systems and System Models

Science and Engineering Practices

- Developing and Using Models