



# Science on a Sphere GMD Activity

## Teacher Guide

### Materials:

- Desktops or laptops for the students (2-4 students per computer)
- Access to the NOAA GMD PowerPoint
- SOS Explorer Lite program
- Student packet "Taking a walk through NOAA's Global Monitoring Division in Boulder, Colorado"
- For system requirements visit this website: <https://sos.noaa.gov/sos-explorer/download-sos-explorer-lite/>

### Time:

50-90 minutes depending on the teacher's preference for the student's pace

\*This duration is if the program was set up and downloaded on the computers prior to the start of class.

### About the activity:

This activity was designed to introduce students to data NOAA's Global Monitoring Division collects and uses for research. The Science on a Sphere Explorer Lite program allows students to explore different global data sets including carbon dioxide, ozone, and aerosols. This activity combines the informational PowerPoint with the interactive SOS program to give students a better understanding of the material. Upon finishing this activity students will be able to identify ozone, aerosols, and carbon, as well as identify trends in carbon dioxide and explain how carbon dioxide is affecting our planet.

### Instructions:

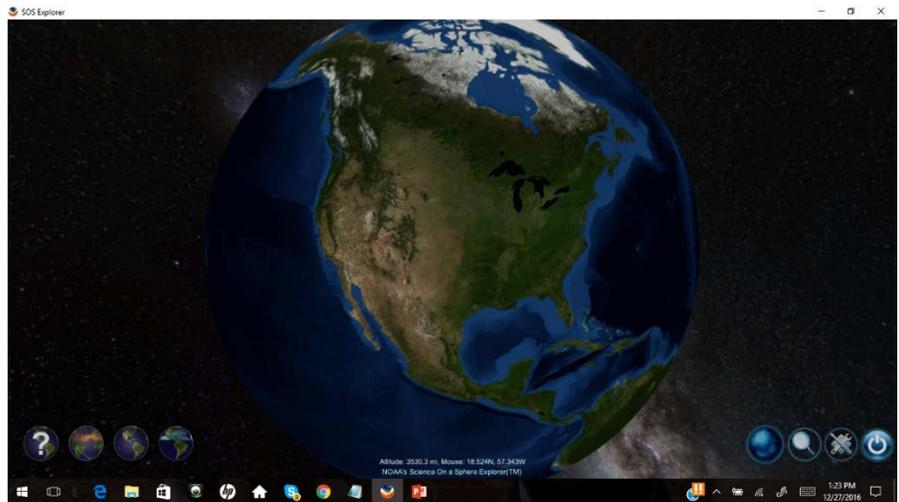
Day before the activity:

1. Gather all of the laptops (or desktops) that you/ your students will be using. You must download the Science on a Sphere Lite program on each one. This process can take some time so it is recommended that this is done at least one day before the activity. To download, click the following link and follow the instructions provided on their website. [http://sos.noaa.gov/SOS\\_Explorer/getting\\_started.html](http://sos.noaa.gov/SOS_Explorer/getting_started.html)



2. Familiarize yourself with the program. This is what your screen should look like once you open up the program.

There is a brief overview of how the program works. To see this overview, click on the circle with the question mark at the bottom left-hand corner of the screen. This quick tour should explain how to access the data sets that the students will use and also what tools are available to use on the data sets.



3. To access/ become familiar with the PowerPoint that the students will be using go to this website:

**[https://www.esrl.noaa.gov/gmd/education/info\\_activities/pdfs/GMD\\_SOSx\\_Student\\_Activity.pptx](https://www.esrl.noaa.gov/gmd/education/info_activities/pdfs/GMD_SOSx_Student_Activity.pptx)**

The PDF version is also available:

**[https://www.esrl.noaa.gov/gmd/education/info\\_activities/pdfs/GMD\\_SOSx\\_Student\\_Activity.pdf](https://www.esrl.noaa.gov/gmd/education/info_activities/pdfs/GMD_SOSx_Student_Activity.pdf)**

4. Print out the packets for students to work on while going through the PowerPoint. They can be accessed here:

**[https://www.esrl.noaa.gov/gmd/education/info\\_activities/pdfs/GMD\\_Classroom\\_Tour\\_Worksheet.pdf](https://www.esrl.noaa.gov/gmd/education/info_activities/pdfs/GMD_Classroom_Tour_Worksheet.pdf)**

On the day of the activity:

5. Depending on the number of laptops you have, split students into groups of 2-4. Working in pairs or small groups will promote discussion of the questions and possible answers. If resources allow, each group may have two laptops: one for the SOSx Lite program and one open for the PowerPoint. However, if this is not an option, the students can do a split screen with the PowerPoint on one side and the SOSx Lite program on the other.
6. The PowerPoint guides students through the activity, giving them instructions on what data sets they should be looking at in SOSx Lite and what they should do once they find the data sets.

\*Note: This activity can also be done on one central computer/ screen (i.e., smartboard or projector) if the teacher would prefer or if the school's resources do not allow for many laptops. Packets may be distributed for students to work on while the teacher goes through the PowerPoint/ SOS Lite Program on the main screen.