

Taking a walk through NOAA's Global Monitoring Division in Boulder, Colorado



NOAA's Earth System Research Laboratory is a government organization that conducts atmospheric monitoring and research. We need to take care of our environment because there can be a lot of negative consequences if we don't. Now, it is time to discover what the Global Monitoring Division's (GMD's) different groups are, and how they are monitoring and helping the environment!

Slides 4-5

GMD takes measurements in many places for their research ...

GMD collects data from air monitoring sites all over the world: there are 4 Atmospheric Baseline Observatories that play an especially big role in their research. Write one fact next to the name of each site and then match the picture to the site...



a. American Samoa



b. South Pole



c. Barrow, Alaska



d. Mauna Loa, Hawaii



Let the tour begin!

Slides 6-11

Stop 1: Ozone and Water Vapor Group

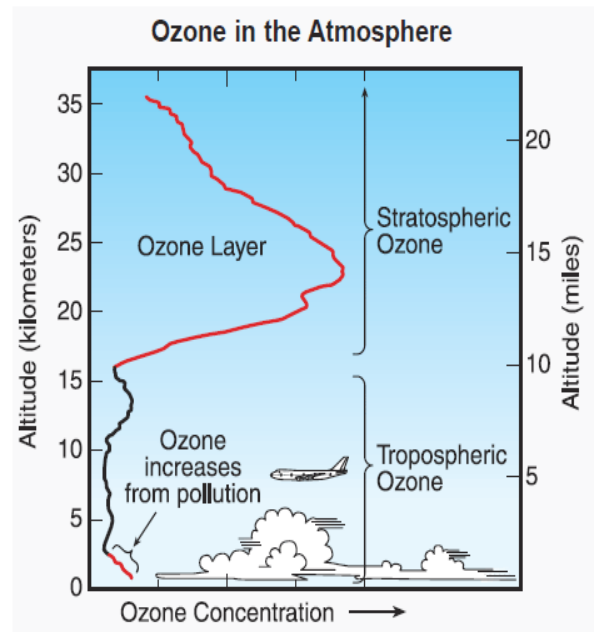
What method/instrument does the Ozone and Water Vapor Group use to collect measurements?

Label three important features of the picture below.



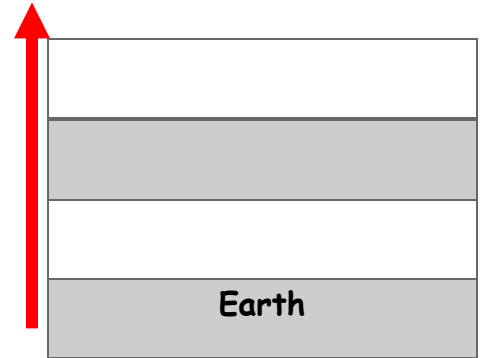
Why are low amounts of stratospheric ozone bad for people and the environment?

Why is too much ground level ozone bad?



The weather balloon can rise up to 100,000 feet in the atmosphere before popping.
What do you think causes the balloon to pop?

Layers of the atmosphere: Write down the correct name of each layer in the boxes.



Slides 12-16 **Stop 2: Aerosols Group**

What are aerosols?

List three examples of aerosols.

True or False: There is an equal amount of aerosols in all areas of the atmosphere.

Explain why you think there is or isn't an equal amount of aerosol distribution.

Slides 17-26 **Stop 3: Carbon Cycle and Greenhouse Gas Group**

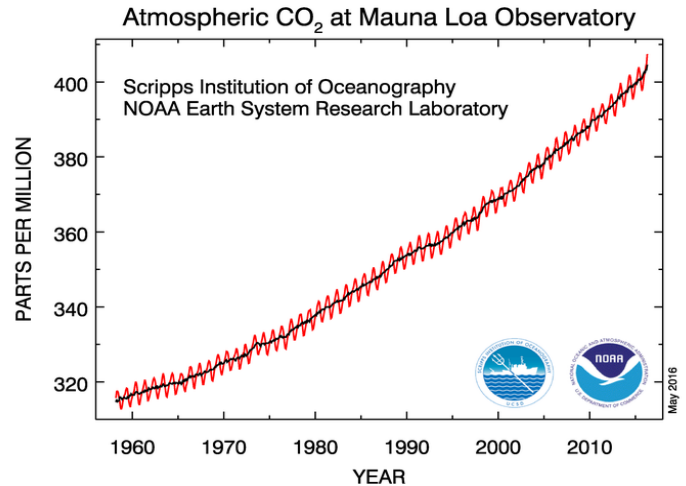
What form of carbon is most often found in the atmosphere?



Is the concentration of carbon dioxide in the atmosphere increasing each year? If yes, why?

What causes the data in this figure to go up and down each season?

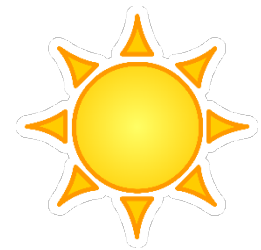
List three reasons why you think monitoring carbon dioxide is especially important.



What do you think some of the challenges are when it comes to reducing carbon dioxide emissions globally?

Slides 27-30 **Stop 4: Halocarbons and Other Trace Species Group (HATS)**

What does the HATS group do?



Based on the graphs on the powerpoint, list two examples of gases that are increasing and two that are decreasing.



What is the overall trend of ozone depleting gases in the atmosphere and why is this trend a good thing?

Slides 31-35 **Stop 5: Global Radiation Group**

What does the uneven distribution of solar radiation affect?

List four factors that affect uneven distribution of energy from the sun.

Based on the numbers seen in the image on slide 39, what absorbs more solar radiation, the atmosphere or the surface of the Earth?

What is the overall trend in the graph on slide 40? (increasing or decreasing) Why?

All of these groups in the Global Monitoring Division of NOAA seem really interesting! Which group would you want to work with?

