



Where is the Ozone Layer? Colorado Data



Name _____ Class _____

The **ozone layer** is a part of the stratosphere where 90% of ozone in the atmosphere is located. But where exactly is the ozone layer? You are going to find out by using data from an ozonesonde, attached to a weather balloon and released into the atmosphere at the South Pole.



Ozonesonde release in Boulder, Colorado

For this activity you will be using ozonesonde data from July 23, 2024. For updated information, you can go to <https://gml.noaa.gov/dv/data/> and choose “ozone”, “balloon”, “vertical profile” and “BLD” for Boulder, CO.

Overview of the Data

The datasets are arranged in rows and columns. You see labels in the very top row:

Alt (km)

km = kilometers

ppmv

ppmv = parts per million by volume

This measures the amount of ozone molecules for every million molecules of any kind.

Make Your Chart

- 1) Make a color key for charting your data. You can choose your color scheme. One suggestion is to have darker colors for higher ppmv. **In the key on your chart color each box a different color.**
- 2) The first two layers of the atmosphere are the **troposphere** and the **stratosphere**. In the troposphere air cools with increasing height. In the stratosphere air warms with increasing height, largely because of the ozone layer. The boundary between these layers varies around the world. Above the poles, the stratosphere starts around 9 km. **Label the troposphere and stratosphere on your chart.**
- 3) **Color the amount of ozone in your chart using the color scheme in your key.**
- 4) Where is the ozone layer? Can you calculate the height in feet? There are 3,280.84 feet in each kilometer.

**** Teacher Key ****

Note: Students can use any color scale of their choosing.

Ozone July 23, 2024



Station : Boulder, CO (BLD)
Station Height : 1743 meters
Launch Date : 23 July 2024
Launch Time : 18:56:53 GMT

Alt (km)	ppmv
3.000	0.089
4.000	0.080
5.000	0.068
6.000	0.070
7.000	0.066
8.000	0.077
9.000	0.074
10.000	0.074
11.000	0.112
12.000	0.124
13.000	0.148
14.000	0.155
15.000	0.187
16.000	0.356
17.000	0.397
18.000	0.487
19.000	0.973
20.000	1.506
21.000	2.149
22.000	2.772
23.000	3.516
24.000	4.299
25.000	5.179
26.000	6.141
27.000	6.971
28.000	7.424
29.000	7.895
29.700	8.307

