AirQuality2018

Link:

https://docs.google.com/spreadsheets/d/1MUr8EnF4KQwYY_wM6OdwTl2pE-bjY4xs/edit#gid=723684384

https://coepht.colorado.gov/air-quality-data

Summary:

This spreadsheet is a collection of the air quality in Colorado from 1999 to 2018. It is divided up by county, though not every county is represented. Aside from just the spreadsheet, the website also has an interactive map as well as some visuals for some of the variables in the data. Interestingly, there is only data from the front range and the western part of Colorado, as there are no counties from the East, Southeast, or Mountains represented in the data.

Keywords:

Air Quality, Ozone, Air quality, Colorado Counties, Environmental Data, Air Pollution, O3, Air Quality Index (AQI), Emissions Data, Air Quality Monitoring, Environmental Research, Public Health, Climate Change

What other purposes could this dataset be used for? (Good or bad)

Honestly there is not too much an air pollution data set can be used for other than tracking air pollution. I suppose someone could use it to see how industrialized a certain county in Colorado is, as there would likely be more air pollution there, but beyond that I fail to see any other commercial or personal use.

Who is represented, described, or categorized in this dataset?

The main people represented in this dataset are the citizens of each Colorado county categorized only by their county. The statement “data are people” strongly applies to my data as the whole point of the data set is to track how many people are affected by air pollution. The consequences of this categorization is that we cannot track how air pollution is affecting any one group of people, and if one group of people is getting affected disproportionately compared to other groups of the population.

What or who is left out of this dataset? What might be the consequences (good or bad) for them?

Due to the restrictions placed by the researchers, certain counties did not have enough data to make an accurate calculation. Interestingly, there is only data from the front range and the western part of Colorado, as there are no counties from the East, Southeast, or Mountains represented in the data. The consequences of this is that we do not know how much air pollution is affecting their population. Pueblo is an industrial area with a pretty high population so getting information for that county seems like it would be really important for a data set such as this. The consequences of this is that the data set most likely is underrepresenting people in Colorado and how the air quality is doing in their county, making it seem like air pollution is having less of an effect than it actually is.

Creator(s) of dataset:

This data was collected by Colorado Environmental and Public Health Tracking. This team is made of Kevin Berg, MA, Margaret Horton, MPH, Mallory O’Brien, Paul Romer Present, PhD, Kristy Richardson, Phd, and Megan Snow, MS, CHES.

Rights and permissions:

Public Domain, made for the express purpose of helping the public

Source:

https://coepht.colorado.gov/

Date of creation:

Unclear, but the metadata suggests that it was originally created on or after 2016.(link)

Date of last update:

The wording of the website makes it very unclear when these calculations took place, as it seems this was meant to be an ongoing project that would be updated every year, yet the most recent data is from 2018. We know that this information must have been calculated in 2019 at the earliest due to the data present, but beyond that, it is unclear.

Methodology:

Where did the information come from, geographically?

This information came from different Colorado Counties, specifically Adams, Arapahoe, Archuleta, Boulder, Clear Creek, Denver, Douglas, El Paso, Garfield, Gunnison, Jackson, Jefferson, La Plata, Larimer, Mesa, Moffrat, Montezuma, Park, Pitkin, Rio Blanco, and Weld County

How did they collect this information?

The data was collected from ambient air monitors around Colorado and output “from a SAS program which calculates the air indicators as developed by CDC's Environmental Public Health Tracking (EPHT) Air Team and approved by the Content Working Group (CWG) steering committee.”

To use their own words, this data was calculated with “EPA’s DataMart was used to access datasets and supplemental data for all monitoring sites across the United States. These calculations only include data from monitors that meet the minimum data completeness criteria set by the EPA. The ozone measure is of the 8-hour average of hourly measurements taken. A day is considered to be above the standard for ozone if the maximum 8-hour average exceeds the NAAQS.

Calculating person-days is done by multiplying the number of days that are monitored above in a county by its population.

The PM 2.5 measure is measured in two ways:

Annual average, averaged over 3 years.(An annual average for an area is considered to be above the standard if the average is 12 µg/L.)
24-hour standard.

This standard is taken at the 98th percentile for a 3-year average. Then, it is applied to the percent of days and person-days measure.

The annual standard is applied to the annual concentration and percent of population measures."

Data processing:

The data was tested to make sure it was at least 75% complete, and only then was an estimate made for a county

Why did they collect it? What were their motivations / goals?

This data was collected "To provide communities in Colorado with relevant, accurate and accessible web-based data on environmental health hazards and related health effects.(https://coepht.colorado.gov/about-us)".

Their motivation is that they are a committee that is overseen by the governor meant explicitly for gathering and expressing data related to public health in Colorado.

File format(s):

XLSX

List of variables:

State: Always Colorado, but a Column in the spreadsheet nonetheless

County: The Colorado County that the data is describing

County_fips: The Federal Information Processing Series code for the county, which acts as an ID for each US county

Year: The year in which the data was collected

Pollutant: The pollutant the row is measuring, which happens to be Ozone

Days_Over_Standard: The number of days in the year a particular county was over the standard ozone level.

Person_Days_Over_Standard: The number of days over the standard ozone level multiplied by the population of the county, to reflect how many people were impacted.

Ethnography

Smoke vs. Smog

Recently, there has been an ongoing debate over what is affecting the air quality in Colorado more, smoke or smog. The seemingly recent increase in wildfires over the past couple of years have left Colorado with many smoky days, and many concerned citizens over how the smoke affects the air quality. However, National Center for Atmospheric Research scientist Frank Flocke stresses that while wildfire smoke adds to the ozone, the biggest source of ozone is still local, coming from traffic, oil, and gas operations.(https://www.cpr.org/2021/08/25/front-range-air-quality-ozone-wildfire-smoke/) However, just the fact that the air quality is bad enough that people are debating its source means that air quality is surely on the decline in Colorado.

https://coloradosun.com/2021/07/29/colorado-air-pollution-faq/
https://www.cpr.org/2021/07/30/colorado-ozone-pollution-health-problems/

National Parks

A common way to escape bad air quality for many Coloradans is to escape the cities and head to the mountains. Yet it is being reported that this may no longer be a viable option, as national and state parks are becoming increasingly polluted. This definitely shows that air quality is getting worse in Colorado as the easiest workaround for dealing with Ozone is no longer working.

https://www.denverpost.com/2021/08/16/colorado-air-quality-national-parks-haze-ozone/
https://www.npca.org/advocacy/91-air-pollution-in-colorado-our-lives-and-parks-at-risk

Smells from Denver

As human beings, the most natural way for us to judge the quality of air is smell. So it stands to reason that as the air quality in Colorado declines, people would be able to notice some foul odors. Sources like the Purina Dog plant and the Suncor Energy Oil refinery have long been polluting the air of Northern Denver and Commerce City. However it has gotten to a point where citizens are complaining, and Denver has decided to deploy “electronic noses” to try and solve the problems of the bad air.

https://denverite.com/2020/01/01/what-smells-where-in-denver/
https://www.denverpost.com/2021/04/13/denver-odor-smells-pollution/

Mishandlings Within the Regulation of Air Quality

Finally, it is worth noting that the top Colorado air quality pollution regulator was recently forced to resign after an investigation found that worked with a mining company before, and potentially had a conflict of interest with the company. This was only revealed after several whistleblowers made an effort to bring this information to light. While it does not seem like this was an act of active corruption, it reflects how lightly air quality is being taken that someone can work for years with a potential conflict of interest, and not be found out.

https://www.cpr.org/2021/10/12/colorado-top-air-quality-pollution-regulator-garry-kaufman-reassigned-investigation-conflicts-interest/
https://coloradosun.com/2021/10/13/colorado-air-pollution-chief-garry-kaufman-reassigned/

Future Interviews

Some “thick data” I would like to collect in the future of this study would be interviews of people from different locations all over Colorado. I’d assume people living in industrial North Denver would have a very different experience than people living in the less populated parts of Eastern Colorado. Ideally, I would like to break down the State into different regions such as the mountains, the front range, the east, and southern Colorado, and get different stories from people on what they have noticed with the atmosphere, whether it be smell, visibility of the mountains, or even health impacts.