

Climate Change Lab

In this lab you will be looking at real data changing aspects of climate change. You will be looking at changes in surface and ocean temperatures, sea level and what the causes are.

1. Go to <https://www.ncdc.noaa.gov> which is the National Climatic Data Center run by the National Oceanographic and Atmospheric Administration. Click on Climate Information, then the Climate change and variability link. Click on the picture to the right. Draw or list what factors indicate temperature change and explain how these factors make sense?
2. Exit out of the picture and click on Statistical Weather and Climate Information link. Click on the Temperature, Precipitation, and Drought Time Series link. Plot the Average Temperature for the globe from 1880-today. Look at the graph and what does it show? On the data table below the graph click on the Rank column twice the highest rank is the hottest year (138 is the hottest and 1 is the coldest). How many of the hottest years on record have happened in the last 20 years? How does that support global warming?
3. Click on the U.S tab at the top underneath Time Series and look at the Average Temperature for the Contiguous United States from 1901-today. What trend do you see (2012 is January of 2012)? Click on the rank twice. What do you notice about the 20 hottest years?
4. Click on the Snow and Ice link up top on the left and click on Sea Ice and Snow Cover Extent Link. What does this graph tell you (Explain everything you can)? How can this effect global temperatures?
5. Scroll to the top of the page and type in sea level and click on Climate Change: Global Sea Level. (Look at the Highlights on the right, paragraphs and graph below to answer the questions) In 2016 sea level has risen how much since 1993 averages? How much higher is the likelihood of flooding along U.S. coastlines? How much will sea levels rise by 2100 according to scientists and what is the cause? Why does sea level matter? Looking at the graph and the paragraph above it explain the sea level rise from ice melt vs. thermal expansion.
6. Type in the browser box at the top after your url <http://www.ncdc.noaa.gov/global-warming> and click on temperature change on the left tab. Explain the relationship of CO2 levels and temperature change over the last 800,000 years.
7. Go to <https://climate.gov> and scroll down to the Global Climate Dashboard. Using the dashboard click on and compare the graphs to answer the following questions:

As global temperature increases what happens to sea ice and sea level?

As CO2 levels increase what happens to ocean heat, sea level, and sea ice?

What happens to temperature as heat trapping gases increase?

Click on the Climate Projections tab at the top of the dashboard. What would the temperature increase by 2100 with high growth, moderate growth and low growth of greenhouse gas emissions?