Reading Color Data Maps

Scientists create color data maps to represent the compilation and composition of data. This enables scientists to use color data maps to look at variations in a data source across geographic space in a manner that is familiar to the reader (we are accustomed to looking at maps).

However, reading a color representation of data is not an easy skill. Below we highlight the different components of color data maps and how to teach students about the importance of looking at the scale bar on each color data map.

Aspects of Color Data Maps:

- Date – The date or date range that each data map represents should always be included in the title.
- Land – Areas on land are indicated in white.
- Data values/colors on map – The data values from the ocean are indicated in the various colors according to the data scale included on the right side of the color data map.
- Geographic Location – The geographic area of the map is defined using lines of latitude (shown along the vertical, or y-axis, of the color data map) and lines of longitude (shown along the horizontal, or x-axis, of the color data map).
- Scale bar – Colors on the map indicate the range of data values for the data source being mapped. Red colors represent the highest values and purple colors represent the lowest values.

Understanding Scale Bars on Color Data Maps:

Have you ever noticed that the amount of ice cream you get on your cone varies depending on where you buy the ice cream? Why is that? (Note – Let the students talk through why this might be.)

In fact, each business decides the amount of ice cream to include in a small based upon their own economic decisions, so the exact amount of ice cream varies depending on where you are. Similarly, when scientists create color maps of data the scale (or amount of data in each category) varies depending on the question of the experiment and the range of the data. What does this mean for us as readers of these maps? (Note – Let the students talk through this before reiterating that they need to read the scale bar.)

We have to ALWAYS look at the scale bar to see what the colors actually mean in each map.