What's really warming up the Earth?

Original Dataset:

The original dataset has 20 columns and over 400 rows with data that gives the hemisphere wise change in temperature as compared to the 1951-1980 average temperature for the years 1880-2020 per month.

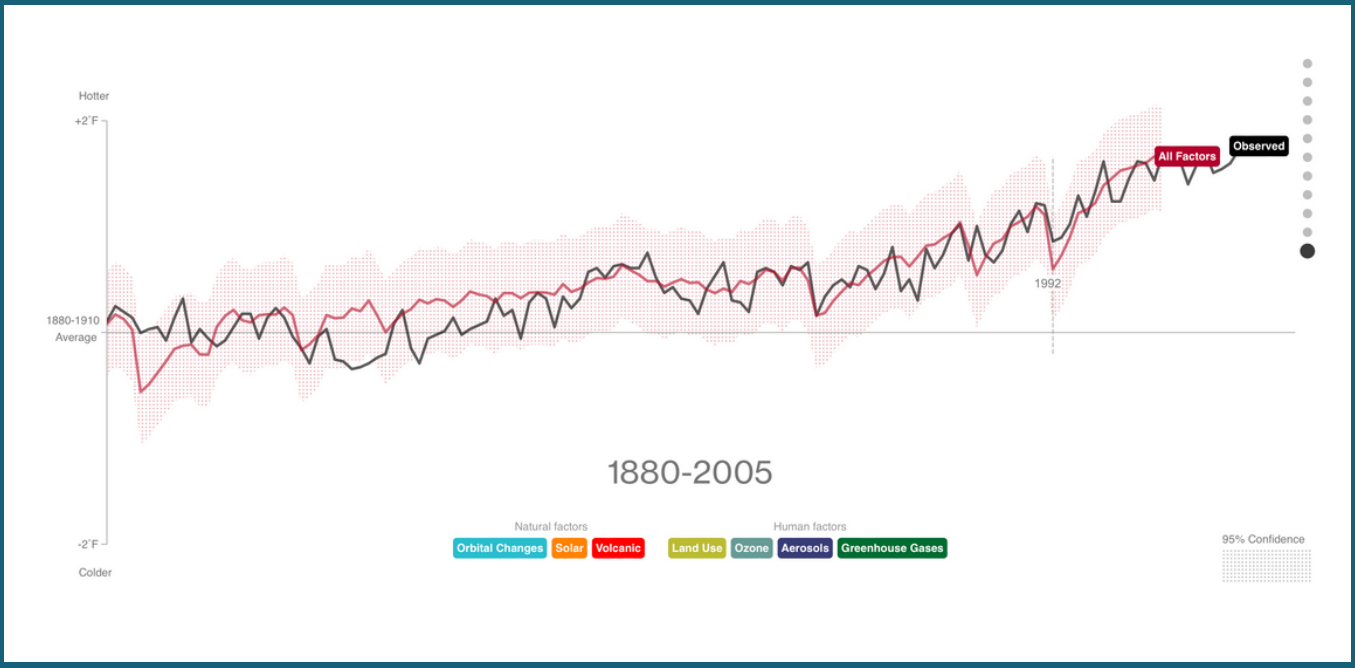
Source: NASA Goddard Institute for Space Studies

Watch Me Viz:

Andy really liked the original visualization. As seen in the screenshot of the visualization, we have the ability to select and see for ourselves, which factor is causing the Earth the heat up. Eventually we know that the most significantly contributing factor is Green House gases.

Bloomberg created a simple line chart showing how the Global temperatures rose over time and added the line charts for the different factors (like orbital changes, solar, volcanoes, landuse, ozone, aerosols and green house gases) that led to the Earth heating up on top of that.

Limitations:
The dataset provided does not have the data for the different factors that contribute to the heating up of the Earth. So we need to work with just the values for Global, Northern and Southern Hemispheres.



Making the visualization:

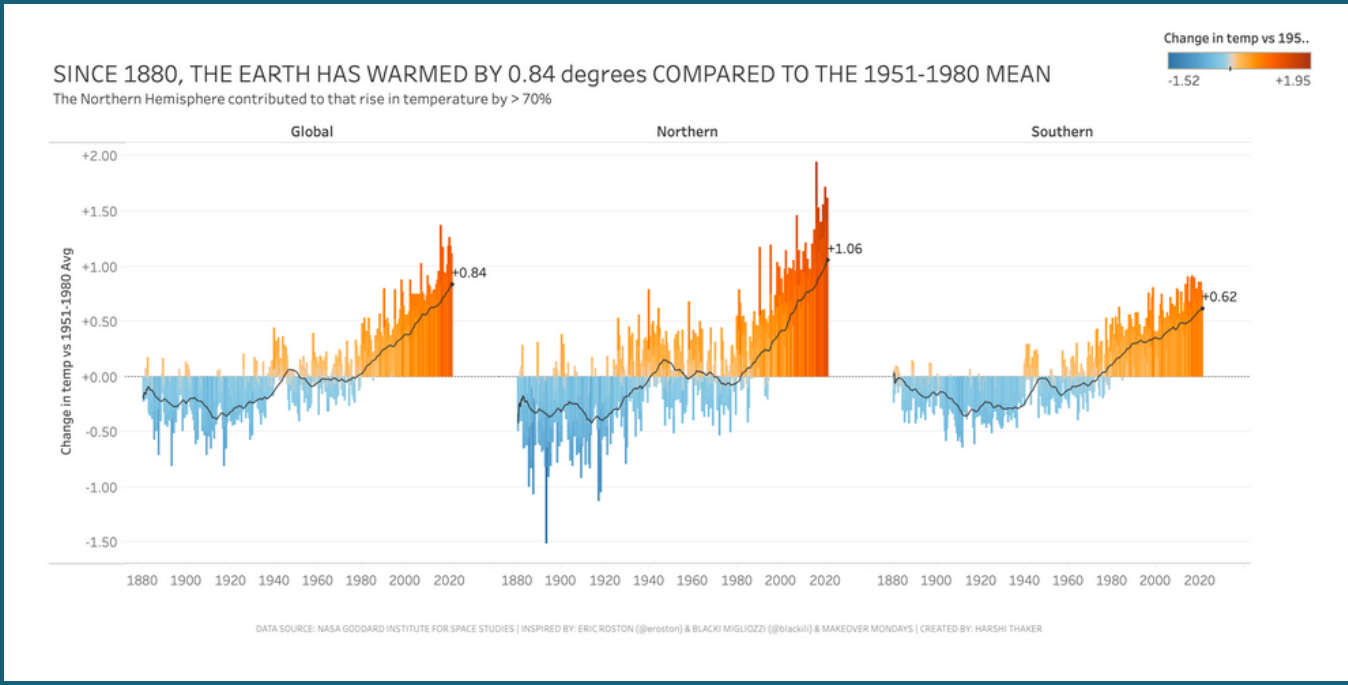
- **Data prep:**
  - Since the months were column headers, we first pivot the columns to ensure that we have the month values for each year in rows for better usage.
  - Moreover, there was data that was grouped my months, which was not adding any value to the dataset therefore decided to hide that.
- **Trying out different formats:**
  - One thing that I learned from the various different visualizations that Andy made, was that it is valuable to have a list of things that you can do with certain kinds of datasets. A cheatsheet of sorts. That gives you a pre-prepared list of things that you can do to get you started with the dataset.
  - One thing that was different here than the original dataset was highlighting different hemispheres to see how that plays a role.
  - Another theme that emerged after a visualization was created was always asking if it conveys enough information or insights. If not, delete it.

Viz Review:

For all the visualizations they reviewed, I have grouped the feedback into the following categories:

1. Information Presentation:
   - Here they critiqued the visualizations based on whether it conveyed information in a well structured format. There were some cases where the floating elements of the visualization were covering the text in full screen format. Some visualizations had added the change in temperature variable in colour and size. The colour did convey some information however, size was difficult to make out since the difference was not significant.
2. Shape:
   - Quite a few visualizations had the element of making it beautiful looking and in that process it became different to read them. For example, there were a couple of radial charts that on first look, really looked beautiful. However, on taking a closer look, they were extremely tough to read.
3. Colour:
   - Use colours that go well together. Don't use jarring colours. Also, in this case particularly, since the values represented temperature, you should make it a note to not represent anything else in the pair of warm and cool colours. For example, there was the visualization where the northern and southern hemispheres were represented in blue and red. That was confusing since it took a minute to realise that the different lines were not representing hotter and cooler values but the hemispheres despite there being a legend.
4. Text:
   - Make sure to include a heading that is explanative of what your visualization is showing. Add a subtitle to it to convey further information. It is a good way to give context. Add a caption to give credits to your inspiration. Make sure the text style is consistent throughout.

My Visualization



For my visualization, I wanted to incorporate all the feedback that was given in Viz Review and all the learnings from Watch Me Viz. I will be grouping my modifications and learnings based on the aforementioned four categories.

1. Information Presentation:
    - I cleaned the data like showed in Watch Me Viz. A new concept I learned was using the moving average on the visualization, which was something I felt added more context to what the bars represent and how they change over time, along with giving a max value at the end.
2. Shape:
    - I decided to separate the visualizations according to hemispheres. It shows how the Northern Hemisphere contributed more to the world heating up than the Southern Hemisphere. Moreover, I found it valuable to use a bar chart with extremely thin bars. Overall, it conveys how things only got worse with time with the steep increase in temperature along the base line.
3. Colour:
    - As discussed earlier, I decided to add the change in temperature values to colour and assign the classic blue to orange gradient to it. Even without reading the legend, any viewer can understand it is the change in temperature that is being referred to.
4. Text:
    - I added three things - a title, a subtitle and a caption. The title gives the overall context on what the visualization shows and the subtitle gives further supporting information about the rate at which the northern hemisphere heated as compared to the southern. Moreover, the caption gives credits to everyone who inspired this visualization. I also changed the tick marks on the axis to make it more intuitive from the initial three random years mentioned on the X-axis.