

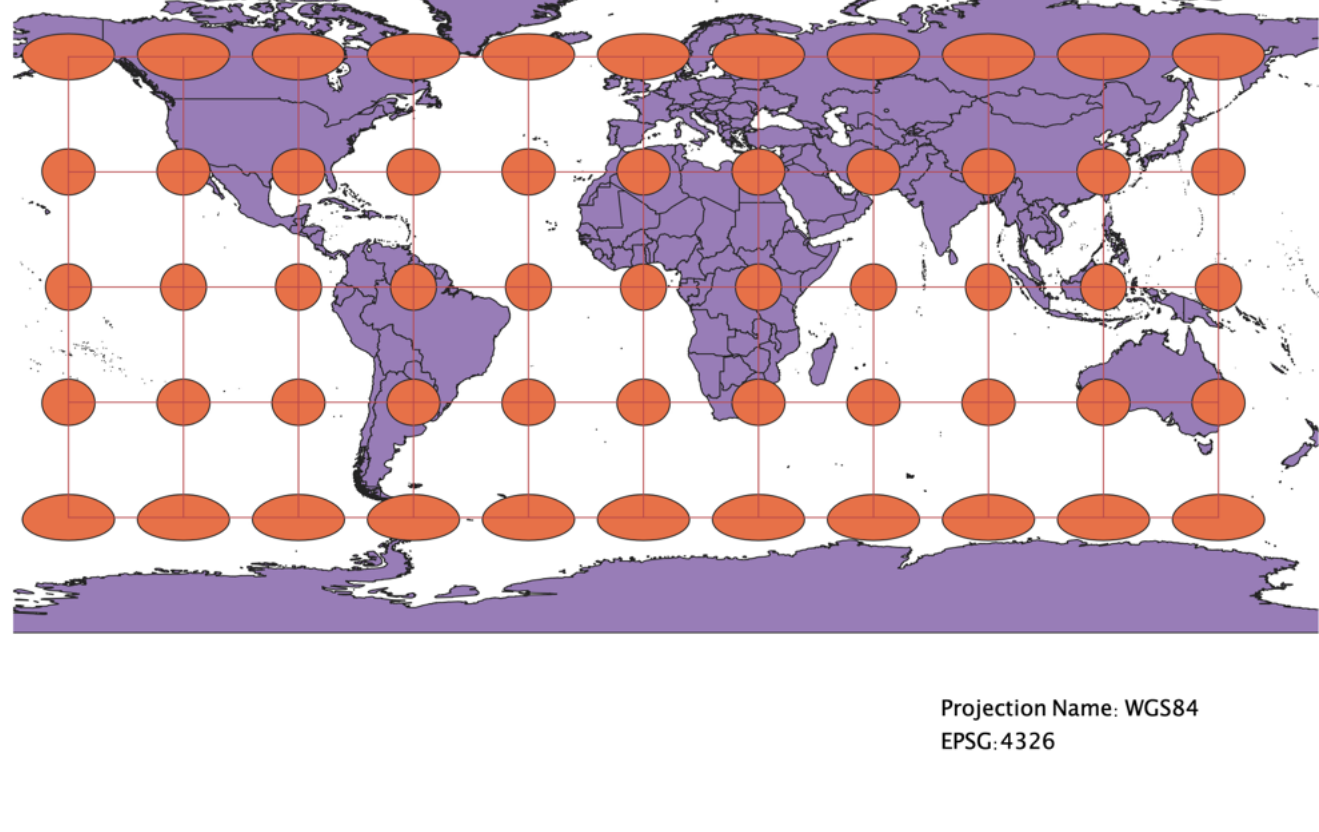
Displaying Different Projections - Cam Maddox

How I displayed the map in different projections using QGIS

The first thing I did was download the worldprojections dataset. After that, I made sure that I had the indicatrix plugin installed and uploaded the data set into QGIS. From there, all I had to do was look up the EPSG number for each of the required projections and apply the indicatrix plugin. After that, I took each map and composed them into a PNG file, making sure to add the projection name and EPSG number in the bottom right. I then saved all of the png's into the "maps" file, which I used in visual code studio to display on this webpage. All in all, this was a super neat project!

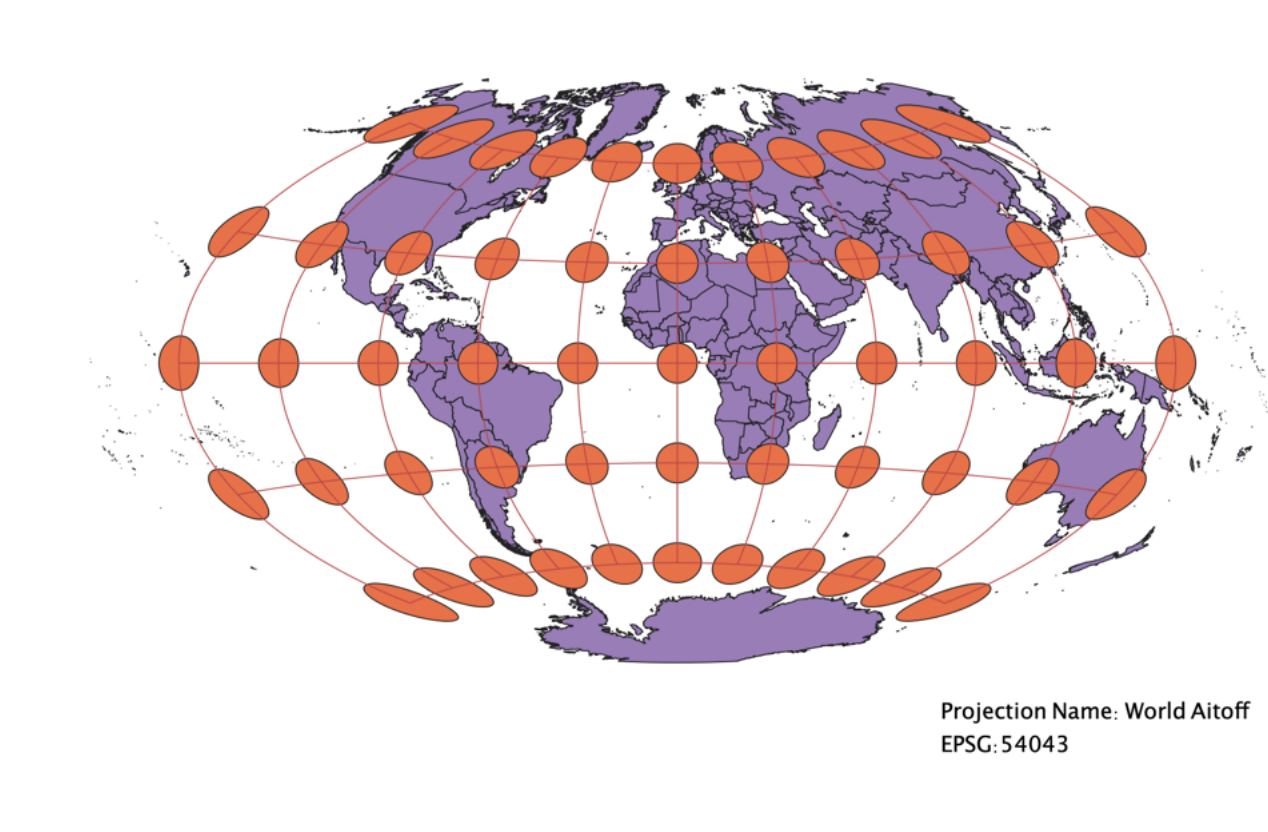
WGS84 Projection

This projection keeps shape relatively consistent, but land near the poles is distorted and stretched. Greenland, for example, is not actually as big as shown in the map.



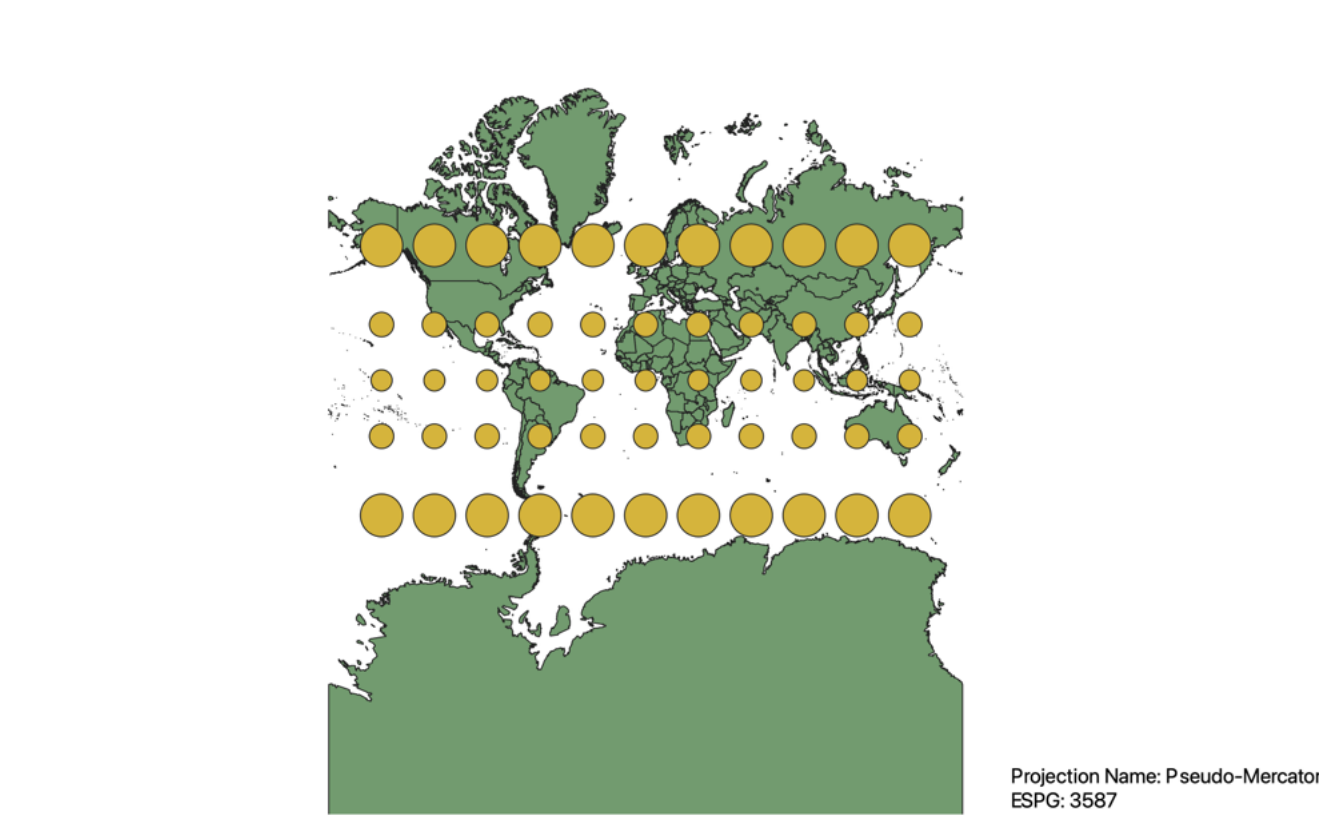
Aitoff Projection

This projection keeps shape relatively consistent, but is is very similar to the WGS84 projection in which land near the poles is distorted and stretched. It is different, though because there is also greater distortion of size towards the edges on the globe than the middle of the globe. With this being said, there appears to be both vertical and horizontal distortion towards the edges of the map.



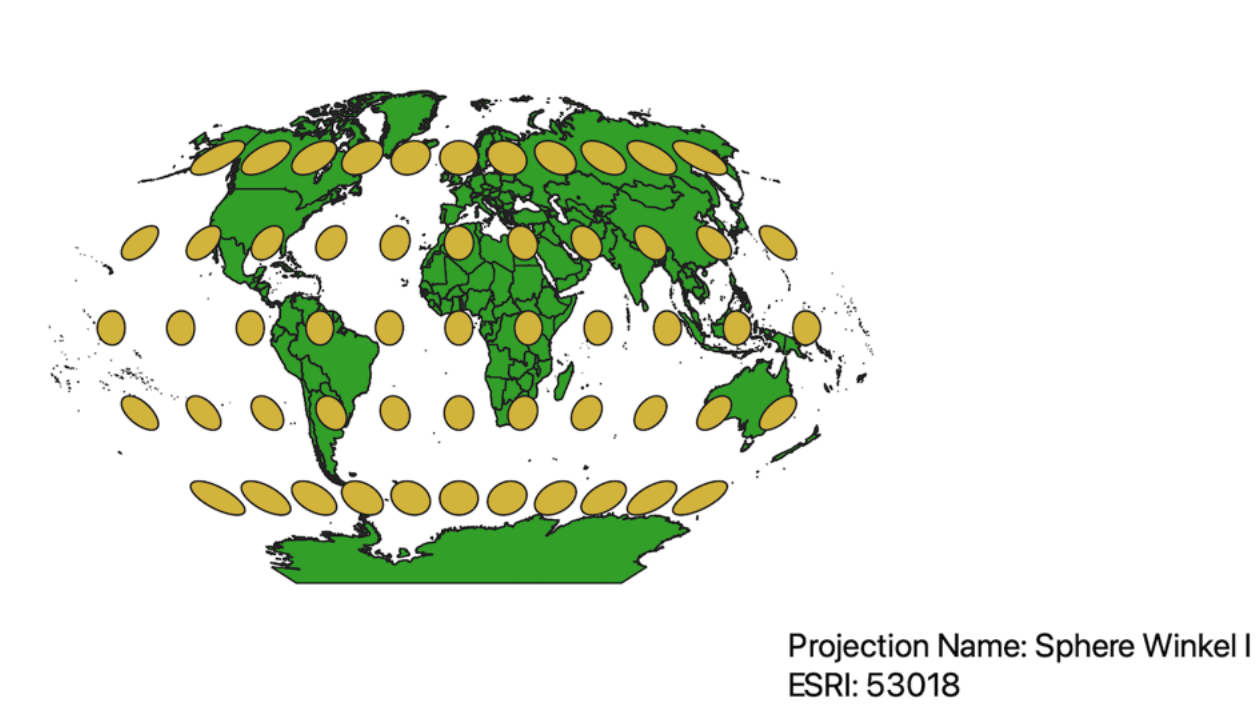
Pseudo-Mercator

This projection keeps shape very consistent but shows an extreme amount of size innacurracy towards the poles. This projection suggests that Greenland and Africa are nearly the same size, clearly highlighting issues with disortion towards the poles. This distortion at the poles is greater than the distortion from the WGS84 projections.



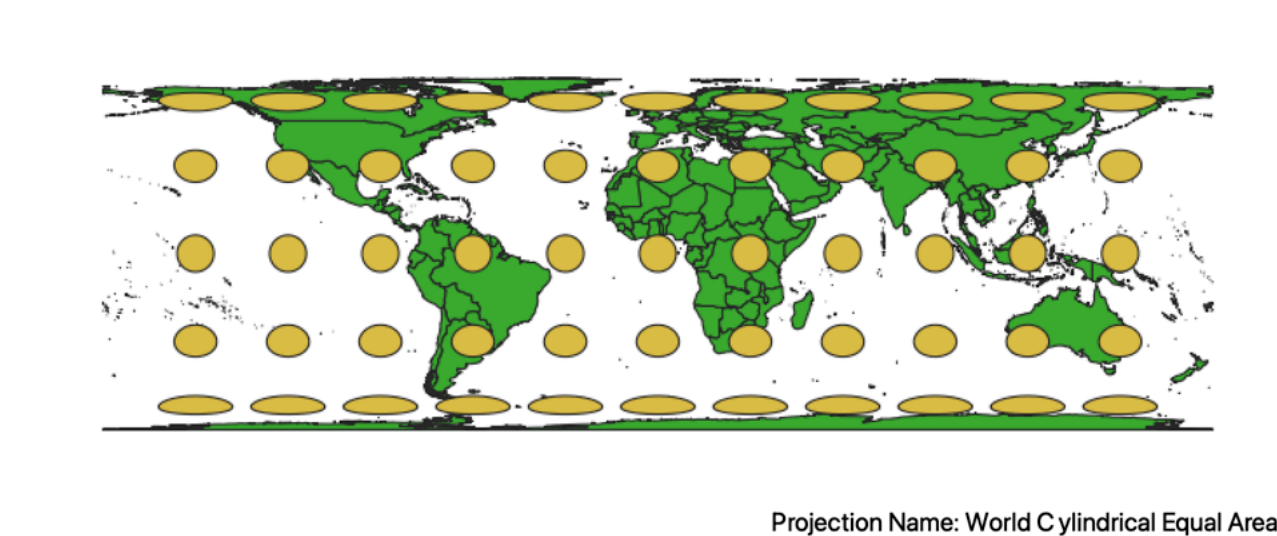
Sphere Winkel 1

The sphere winkel 1 is very similar to the aitoff projection except that size appears to be more consistent. There is still an increase in size disortion near the poles, but the disortion rate stays the same across the map (unlike the aitoff projection where size distortion increased as we moved from the middle to the right/left of the map). This projection is similar to the aitoff projection, though, regards to the fact that both of them have increased vertical stretching as they move away from the equator and towards the poles.



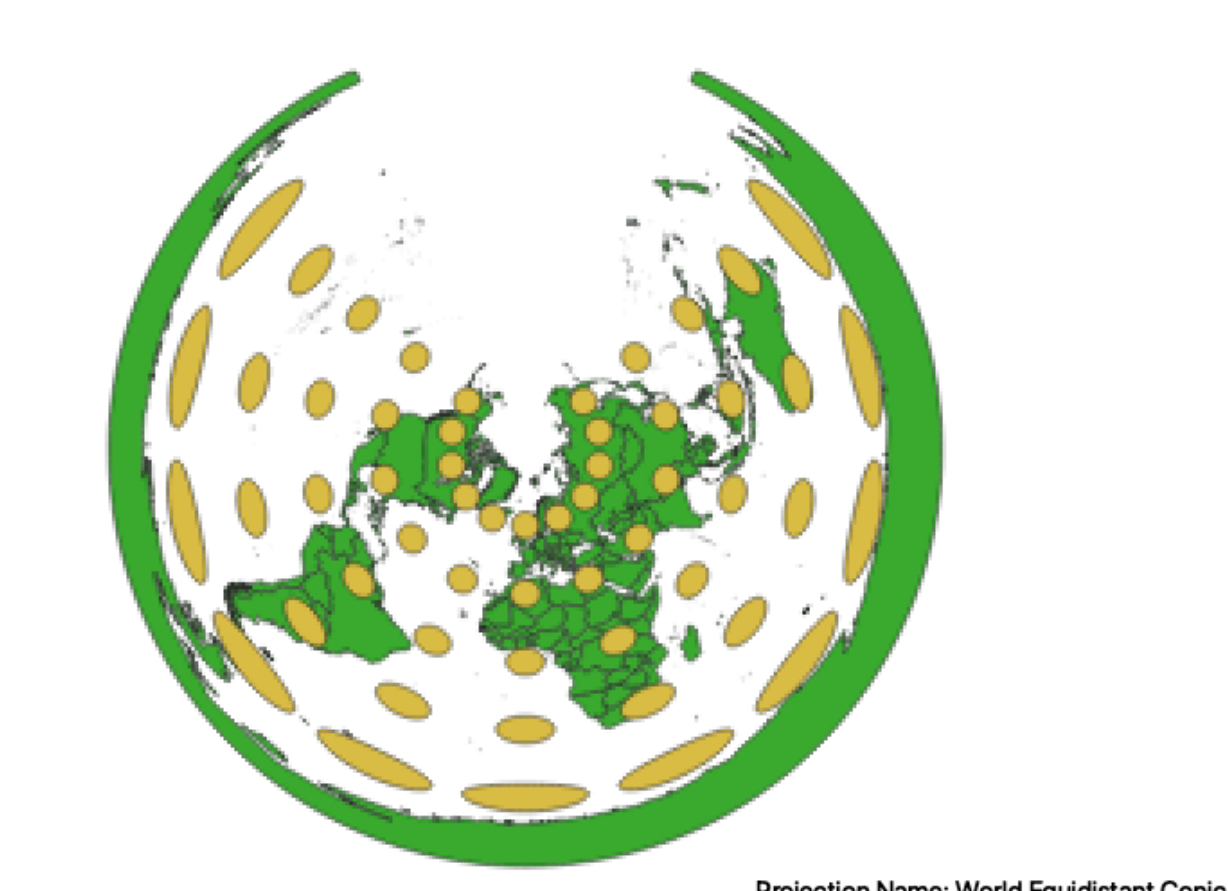
World Cylindrical Equal Area

The world aitoff is extremely distorted near the poles, where size and shape are inaccurate. The circles become extremely stretched out, which can be easily seen by looking at Russia. Russia appears longer horizontally and shorter vertically, confirming the size disortion mentioned before.



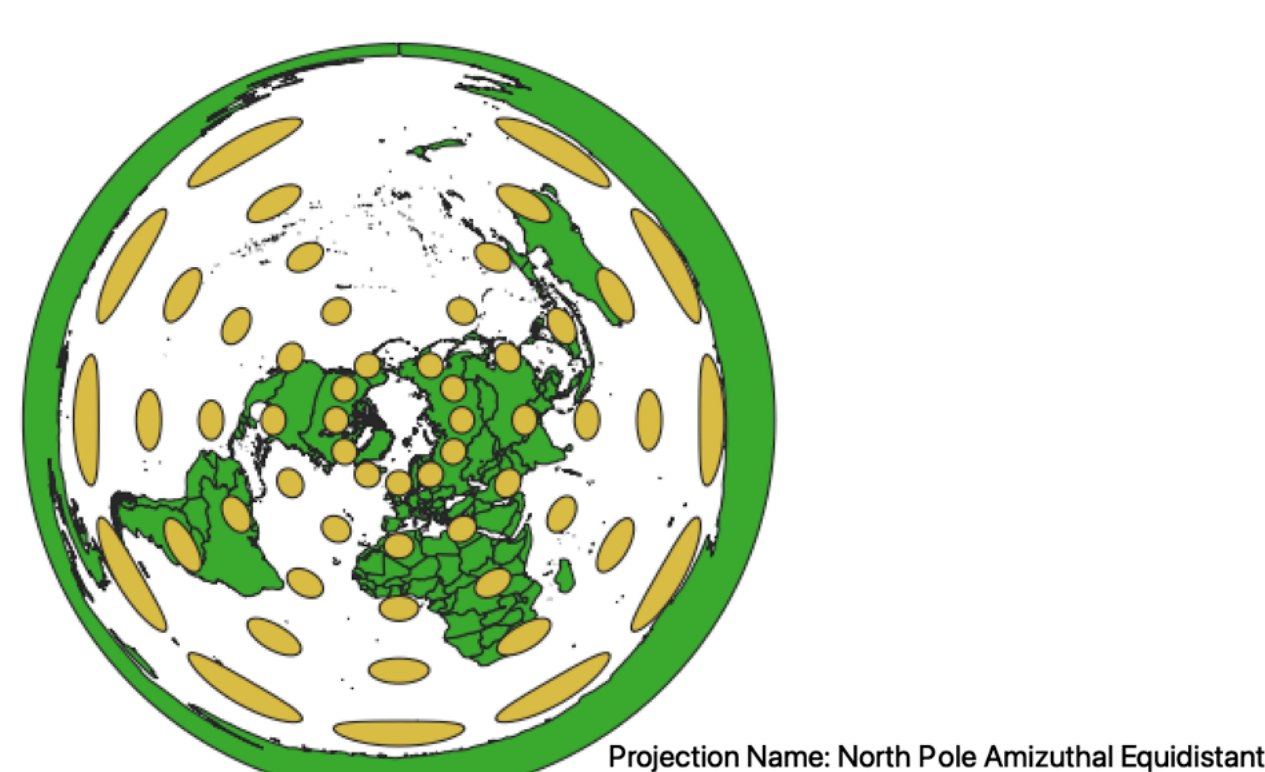
World Equidistant Conic

This projection shows a lot of size and shape distortion at the south pole of the globe. Shape towards the north pole is consitent, but the size is wrong. Greenland is not actually this size, whereas Antarctica is not actually this shape nor size.



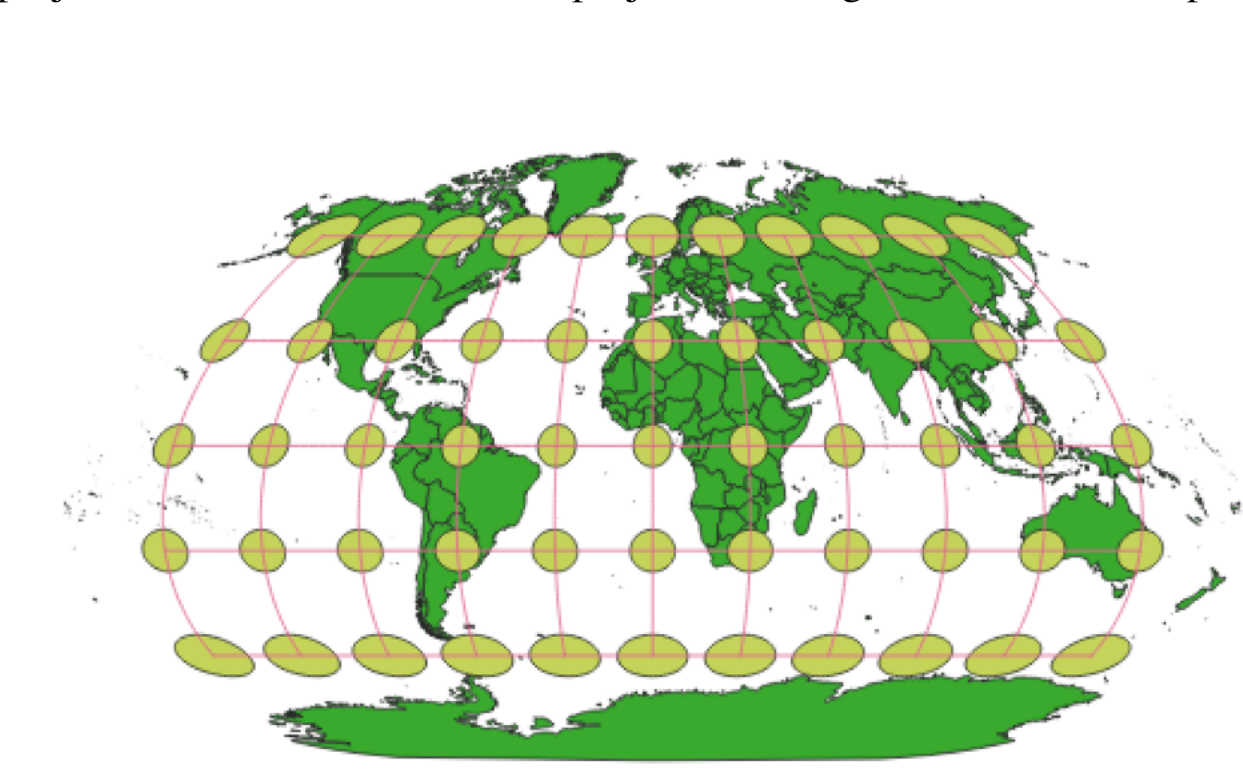
North Pole Amizuthal Equidistant

This projection is very similar to the world equidistant conic projection, where the size towards the north pole is small and gets gradually larger as it heads to the south pole. Additionally, as it heads towards the south pole, shape is stretched out. For this reason the results are pretty similar to the previous projection where Greenland is not actually this size, whereas Antarctica is not actually this shape nor size.



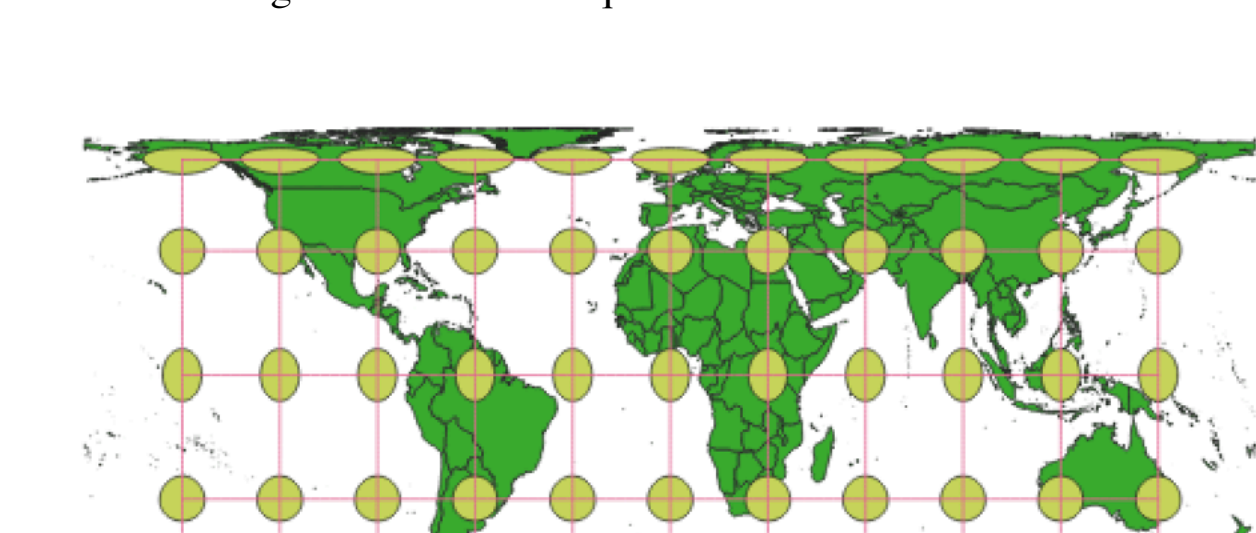
Sphere Loximuthal

Of the projections shown so far, the sphere loximuthal projection appers to exhibit minimal signs of disortion. Shape remains constant from the north to south pole, but there is an inaccurate size proportion as the map reaches the poles. For this reason it is very similar to the Sphere Winkel 1 projection. It is not like the aitoff projection, though, because size/shape is not disorted as we move from east/west on the map.



NSIDC EASE Grid Global

This projection is very similar to the world cylindrical equal area projection. There is a large amount of distortion at the north and south pole, which is visualized by the circles at the poles being shortened and stretched. This projection is particularly interesting, though, because there is also vertical stretching of size near the equator.



Data used for this project

[Download Natrual Earth 1:10m Cultural Vector](#)