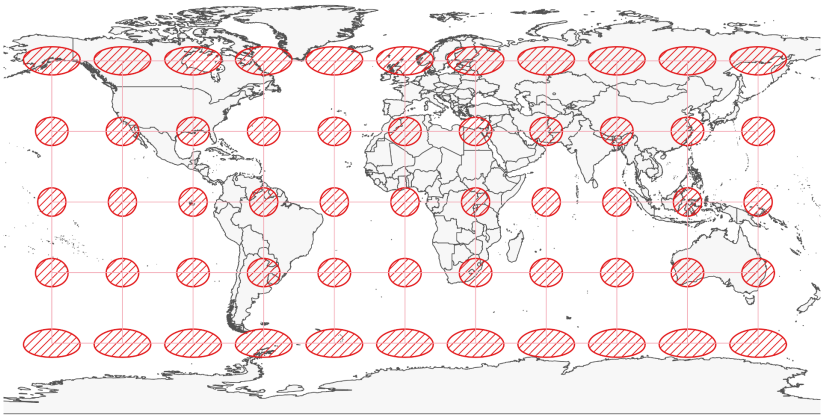
HW 3: Displaying maps in different projections

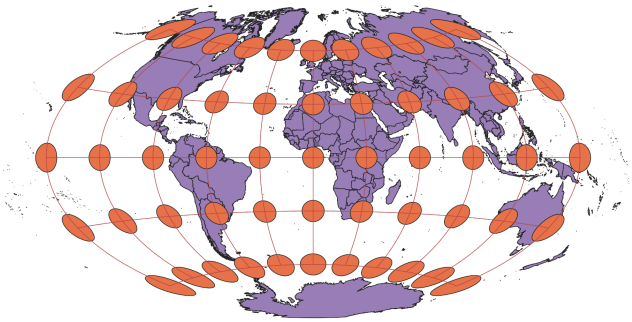
I displayed the map in different projections using QGIS by using the indicatrix plugin to display circles over the map, and by changing the projection in the bottom right corner of QGIS using different coordinate reference systems. The indicatrix plugin allowed me to see how different projections get distorted because I could see how the size and shape of the circles were changing across the map.

WGS84 Projection:
This projection is very commonly used in world maps, and it is a cylindrical projection. This projection distorts area and shape, which you can see as the Tissot's circles get larger and more ellipse in nature. It preserves direction.



WGS84
EPSG: 4326

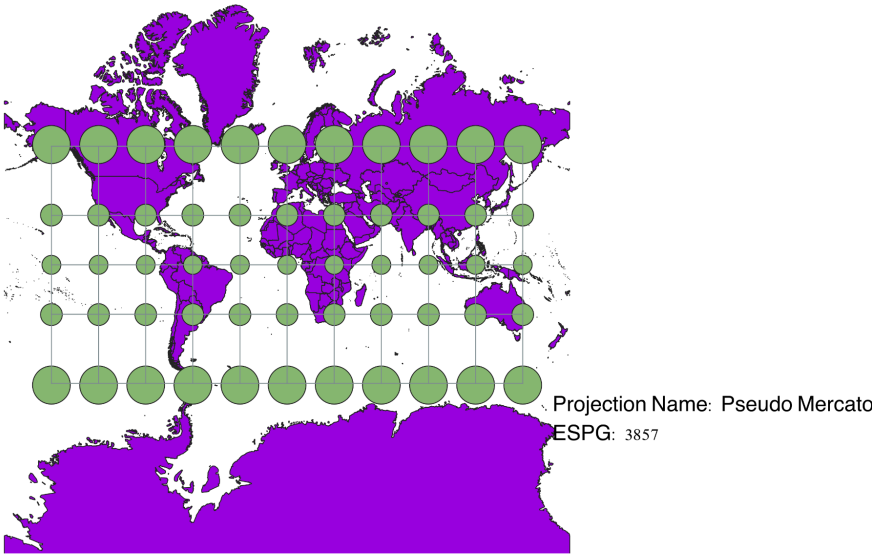
Aitoff Projection
This projection distorts many different factors on a map. Shape, area, distance, and direction are all distorted on this map. It is an azimuthal projection.



Projection Name: World Aitoff
EPSG: 54043

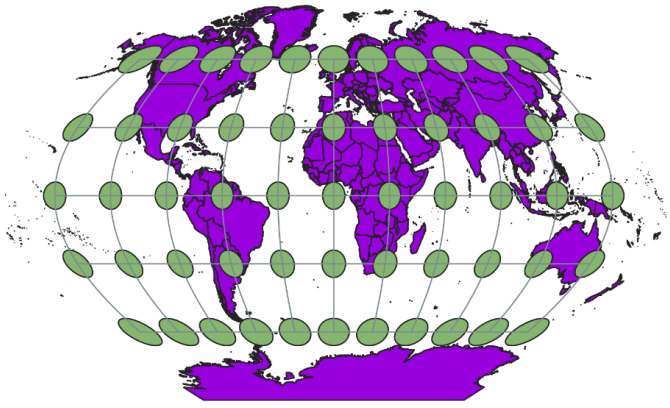
Pseudo Mercator

This map is a very common cylindrical projection. It distorts the area, as you can see the circles get larger over some areas of the map. This is why greenland is abnormally large in this map because it looks like it is the size of Africa. This projection preserves shape and direction, which is why it is a popular choice for maps.



Winkel Tripel

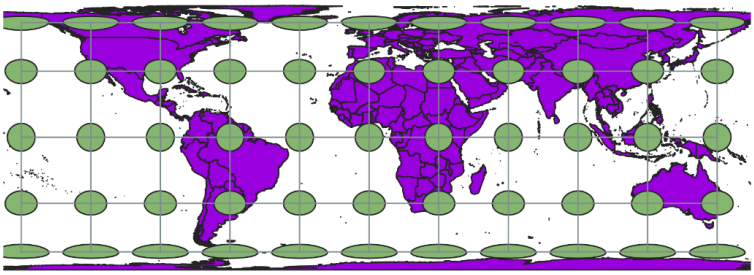
This projection distorts area, shape, distance, and direction. This is an azimuthal projection.



Projection Name: Winkel
ESRI: 53018

World Cylindrical Equal Area

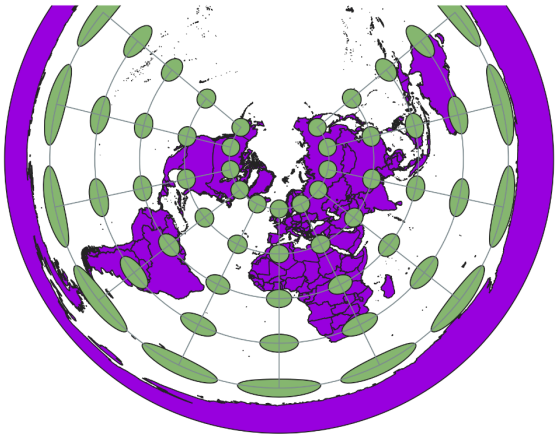
This projection is a cylindrical projection. It aims to minimize distortion of area and shape near the equator, however area and shape are severely distorted near the poles of the map in this projection. It preserves direction.



Projection Name: World Cylindrical Equal area projection
ESRI: 54034

World Equidistant Conic

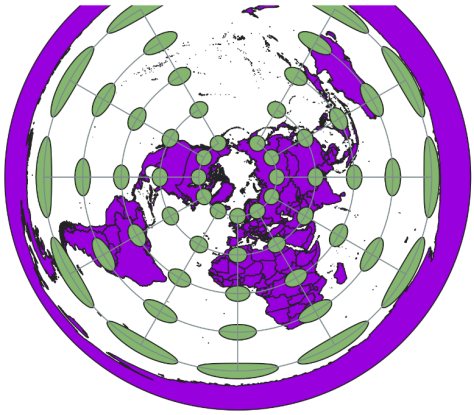
This map is a conical projection, and it severely distorts shape, area, and distance near the poles. Distance and shape is preserved along and near the equator.



Projection Name: World Equidistant Conic
ESRI: 54027

North Pole Azimuthal Equidistant

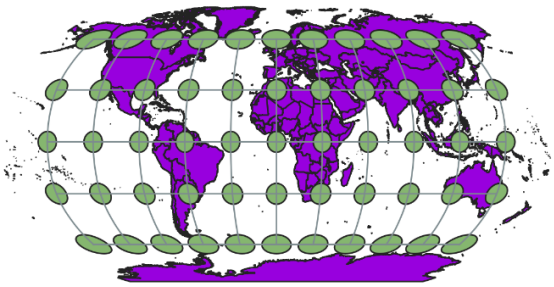
This is an azimuthal projection. It distorts shape, area, and distance significantly at the poles. Near the equator there is less distortion, but it gets much more prevalent at the poles.



Projection Name: North Pole Azithmul Equidistant
ESRI: 102016

World Robinson

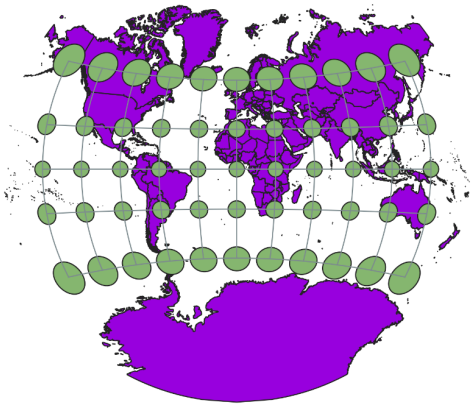
This projection distorts shape, area, distance, and direction. However, it does a good job of limiting distortion to the poles. This is a cylindrical projection, and is good for viewing the world as a whole with relative accuracy of area and shape.



Projection Name: World Robinson
ESRI: 53030

World Van der Grinten

This projection displays the world in a circle. It displays the entire earth including the poles. It distorts area, shape, direction, and distance.



Projection Name: World Van Der Grinten
ESRI: 54029

Data for this project was downloaded from Natural Earth.