Week 11: Maps & Vega

Spring 2017

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Broadcasting

go.ischool.illinois.edu/meet2

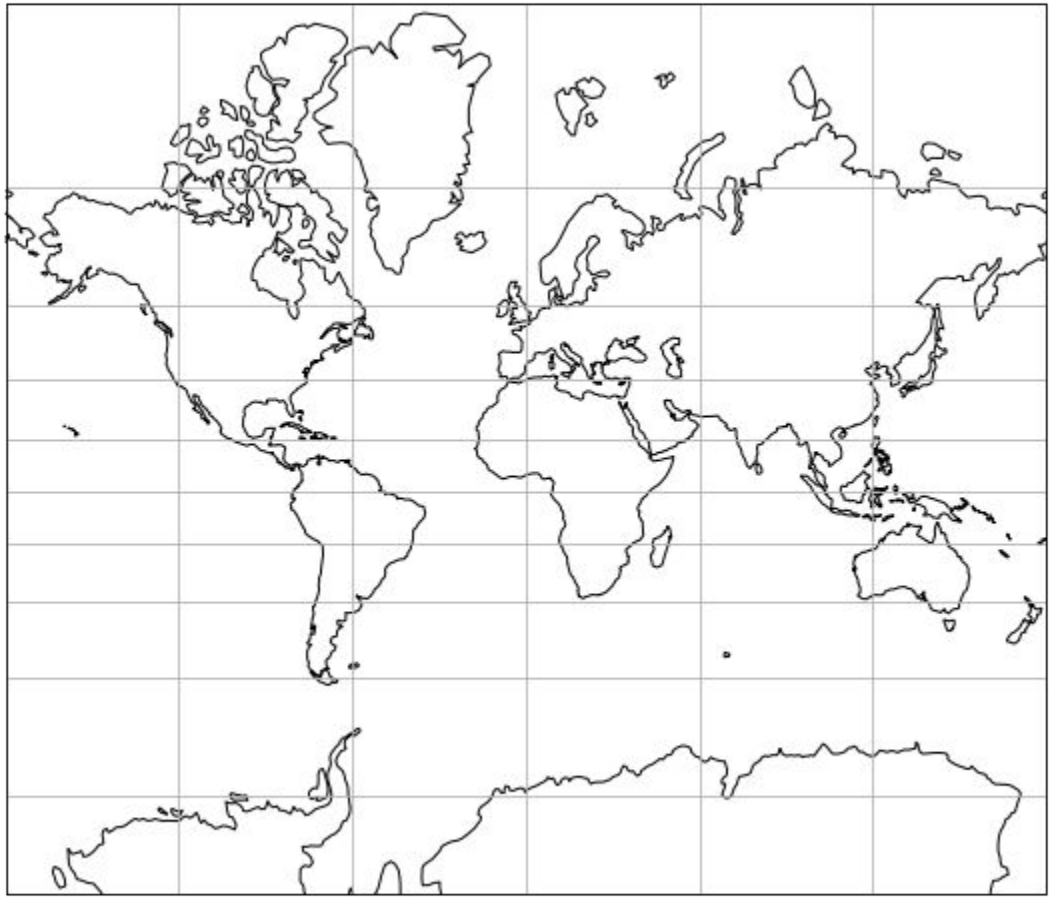
Geospatial data in brief

- Projections
- Coordinate systems
- Plotting with cartopy

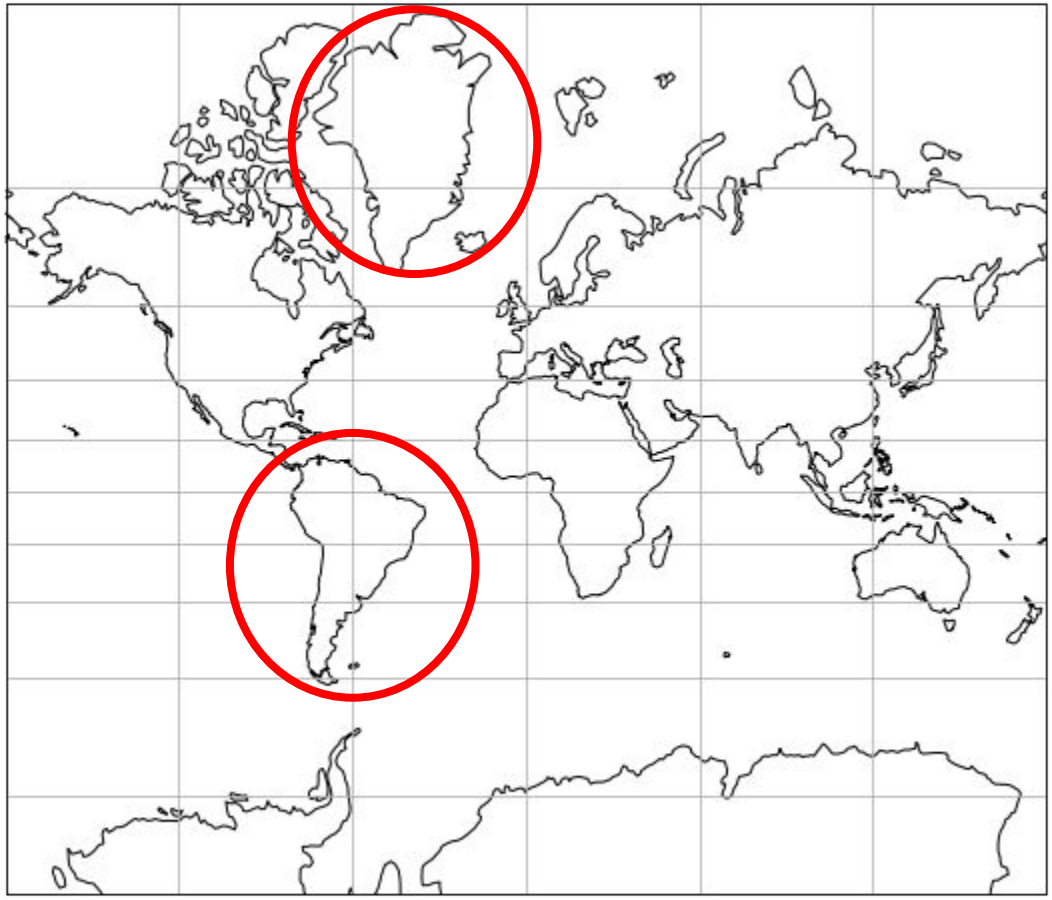
Projections

- Conformal
- Equal area
- Compromise
- Equidistant
- Gnomonic

Conformal: Mercator

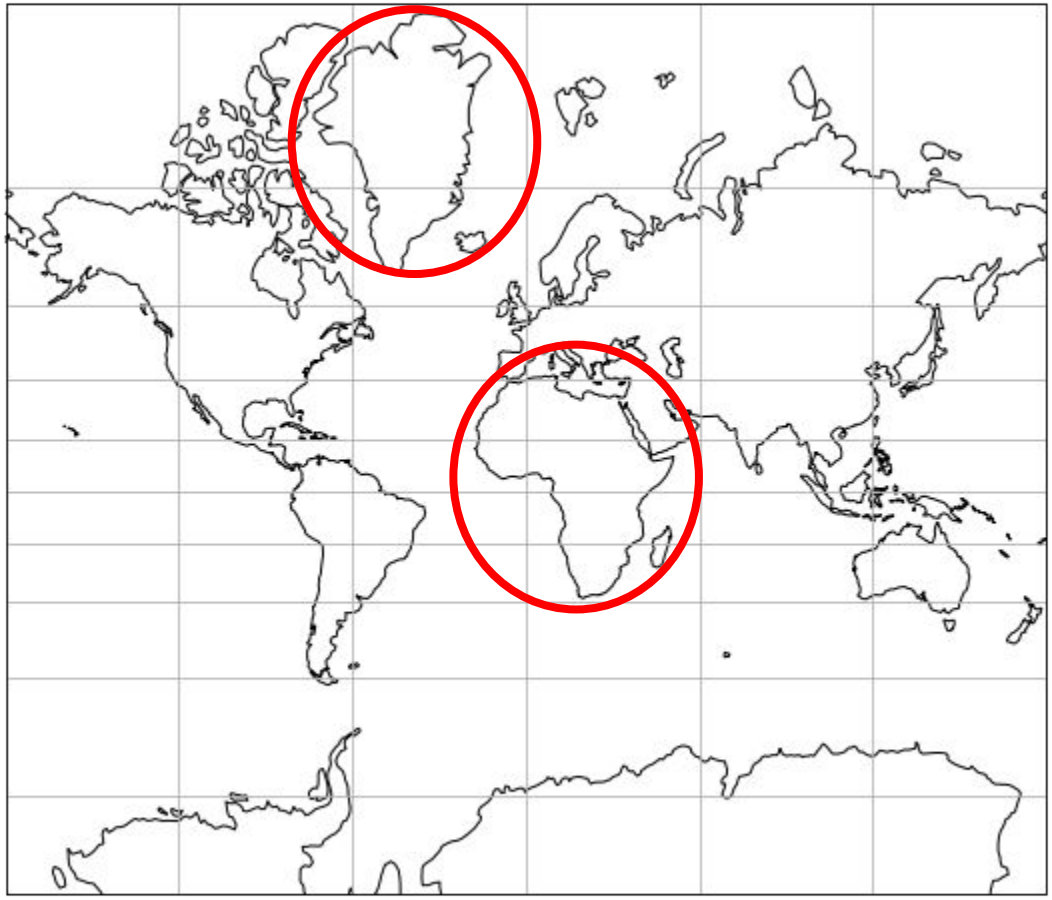


Conformal: Mercator



Distortion gets worse closer to the poles

Conformal: Mercator

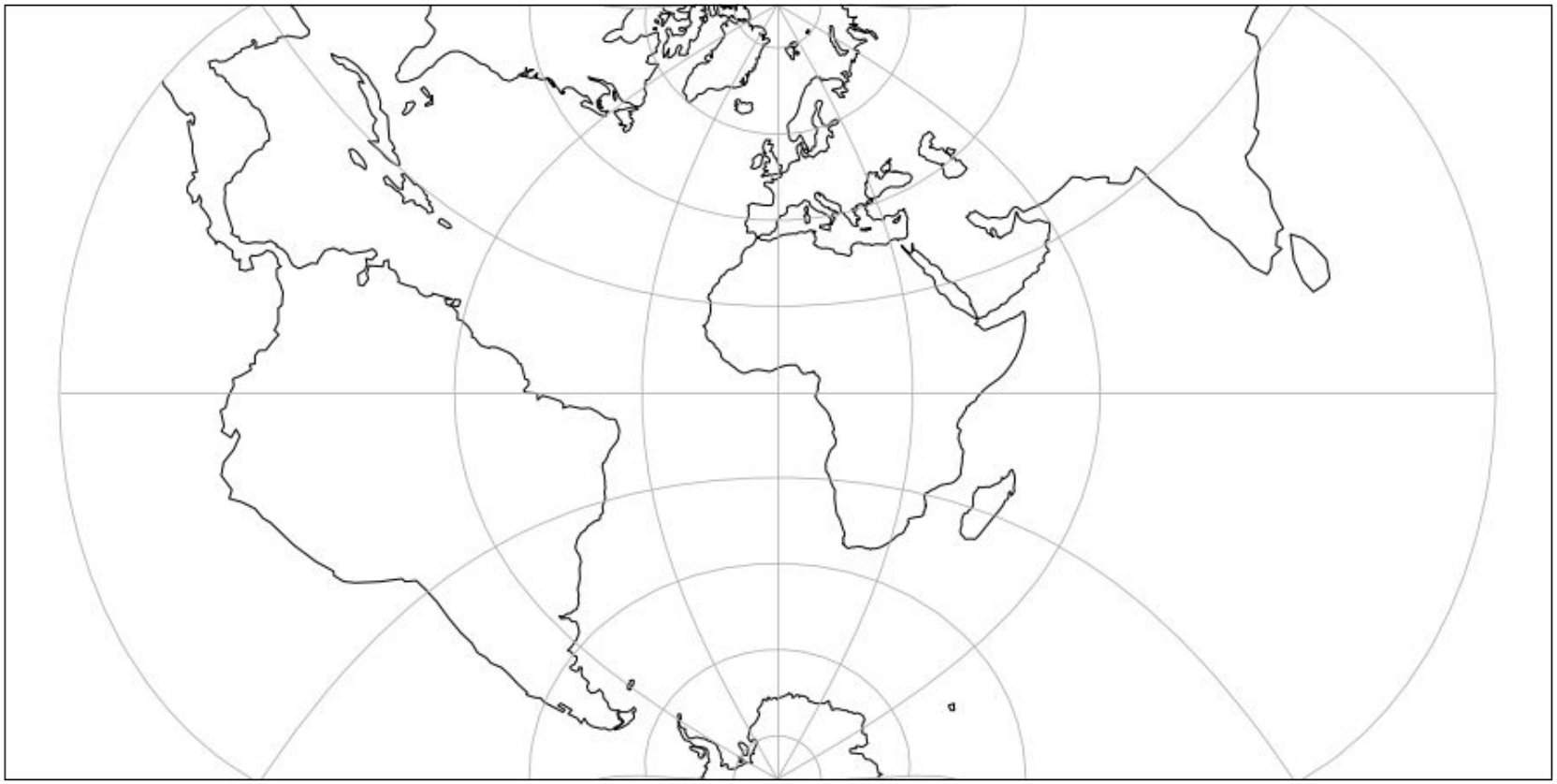


Distortion gets worse closer to the poles

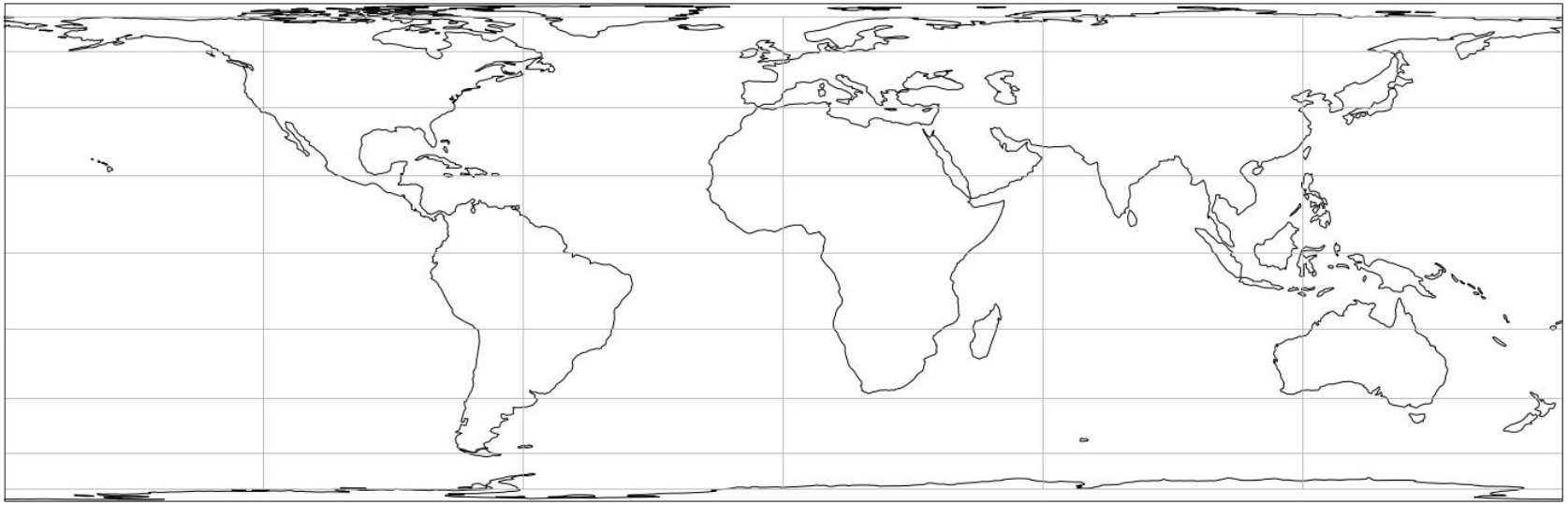
Conformal: Mercator

Infinite at the poles

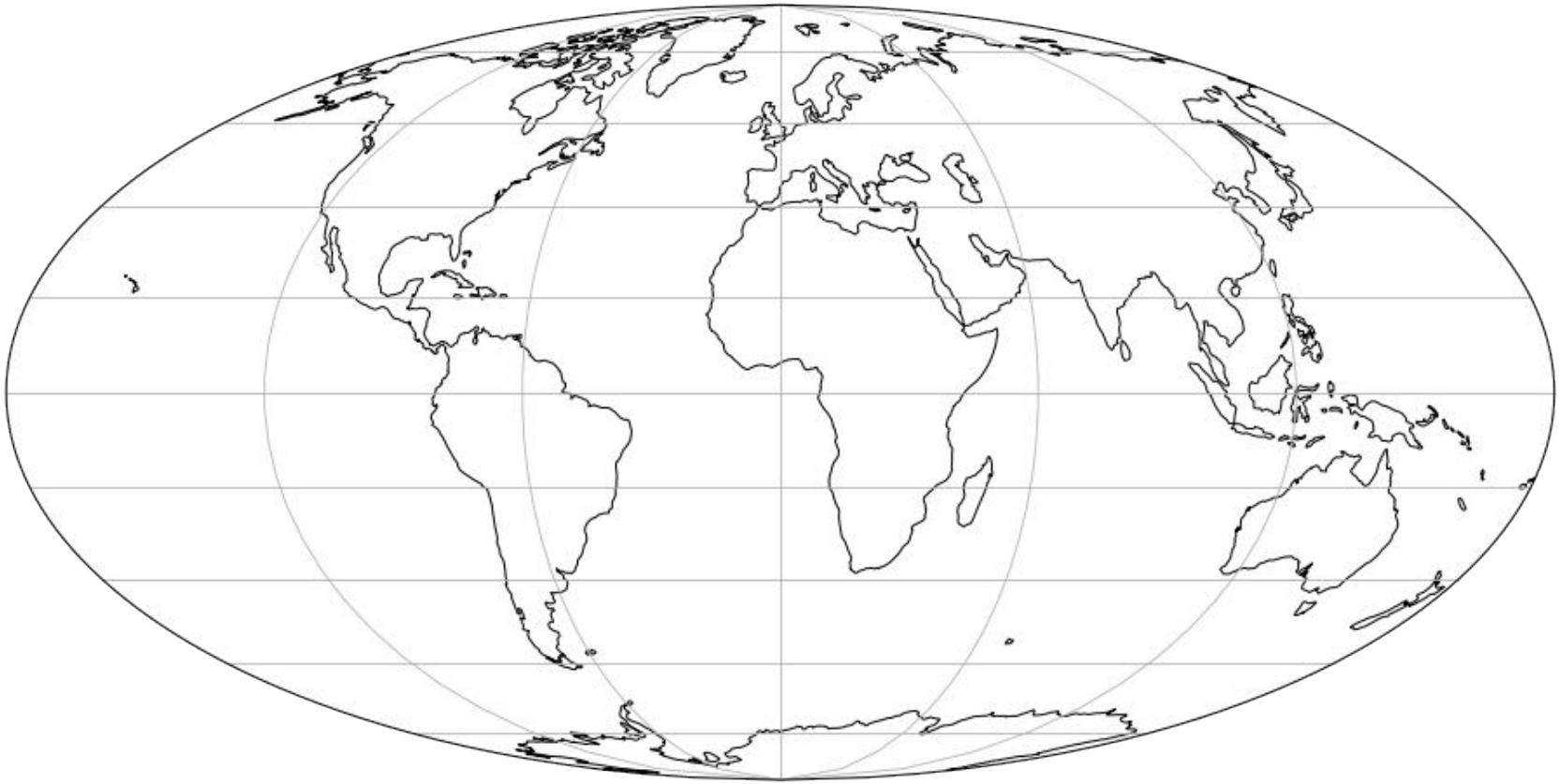
Conformal: Transverse Mercator



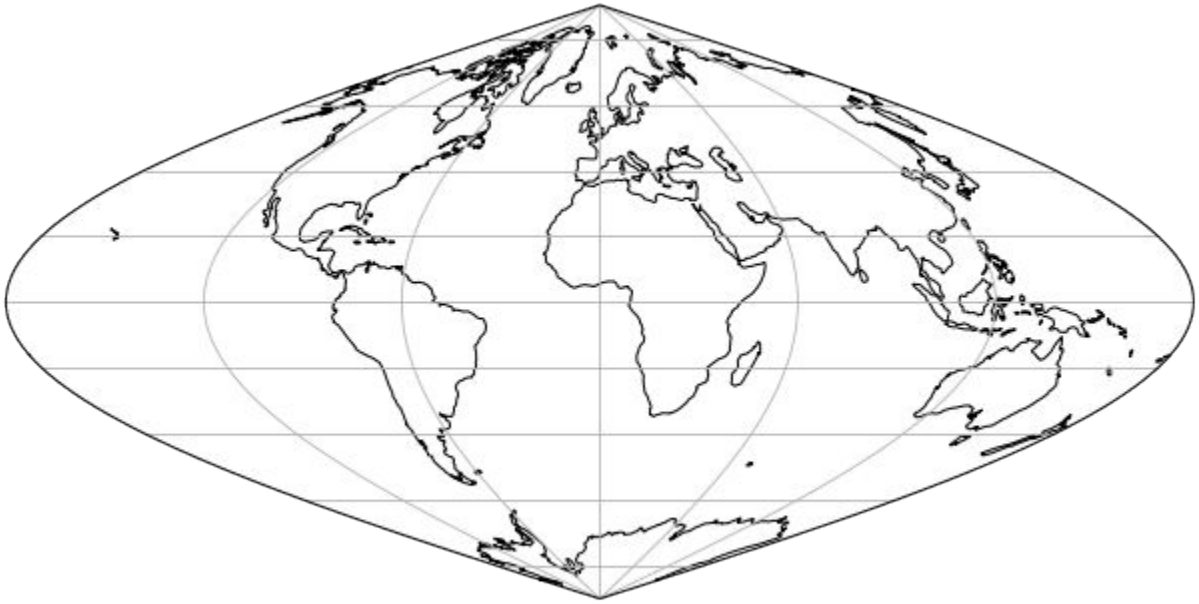
Equal Area: Lambert Cylindrical



Equal Area: Mollweide

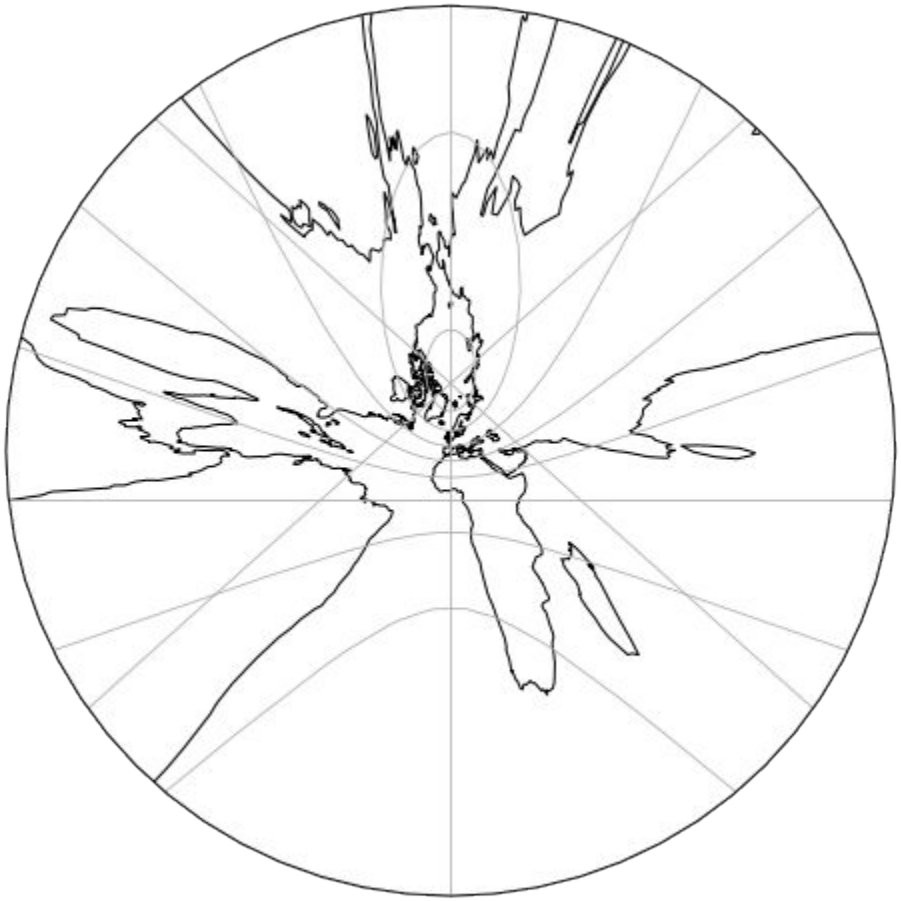


Equidistant: Sinusoidal

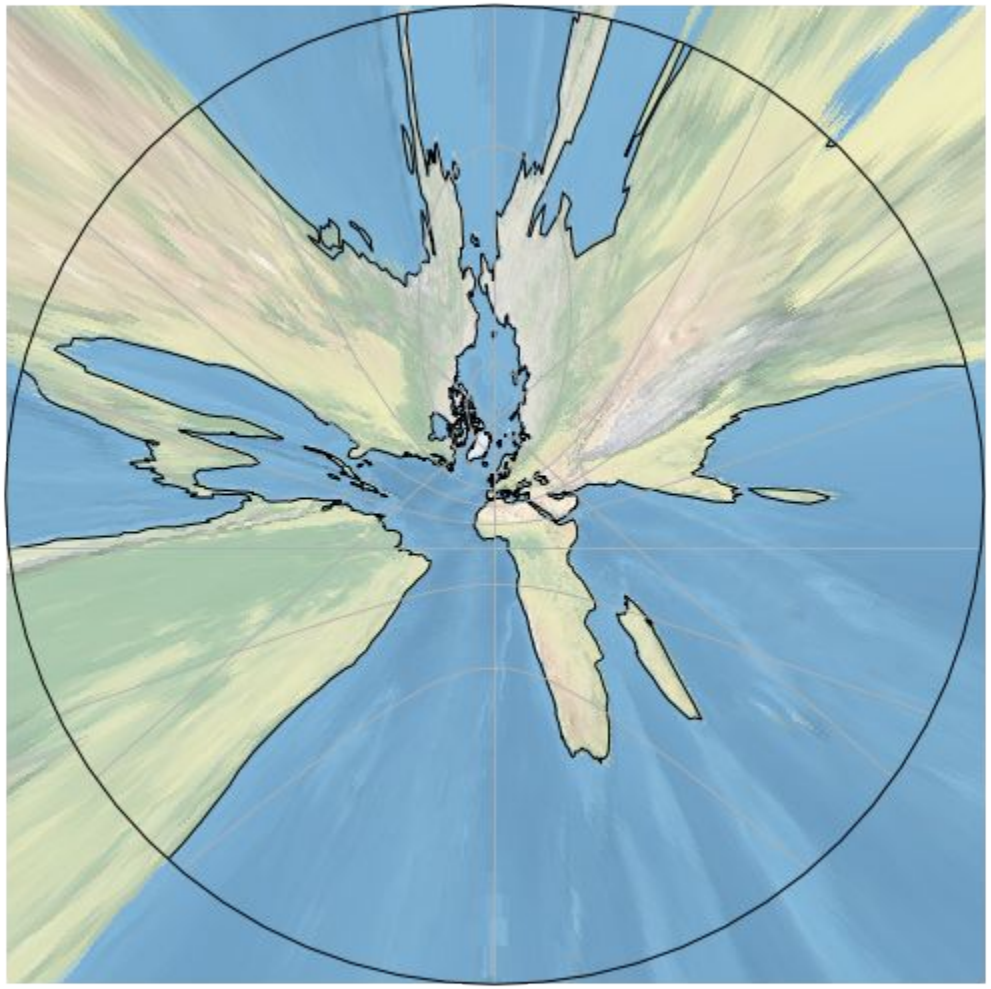


(Also equal-area)

Gnomonic



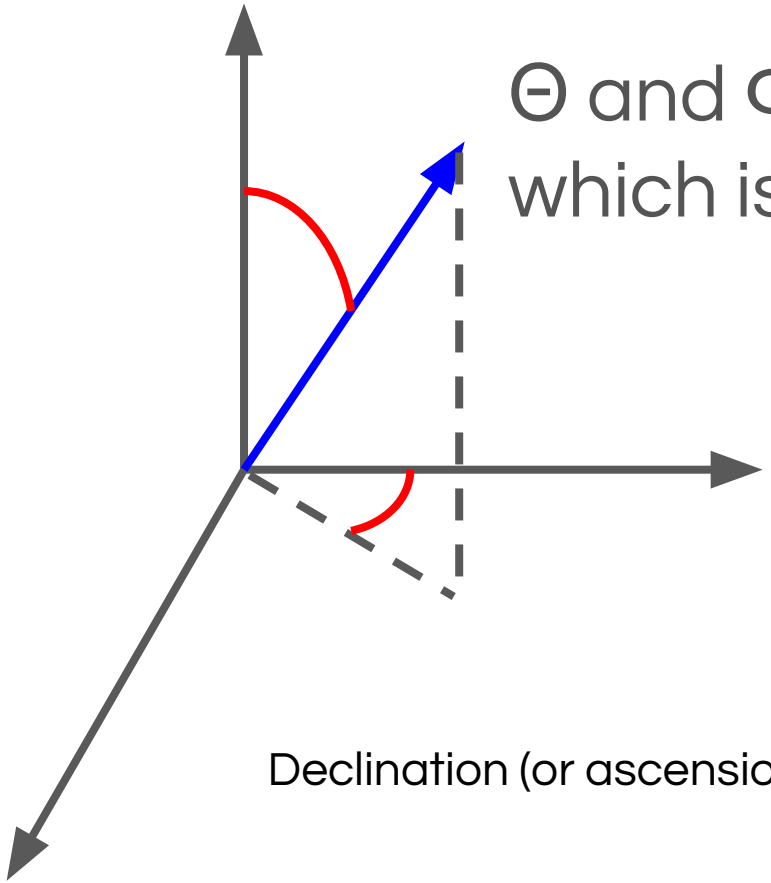
Gnomonic



Coordinate Systems

- Spherical coordinates
- Latitude / longitude
- Degrees / minutes / seconds

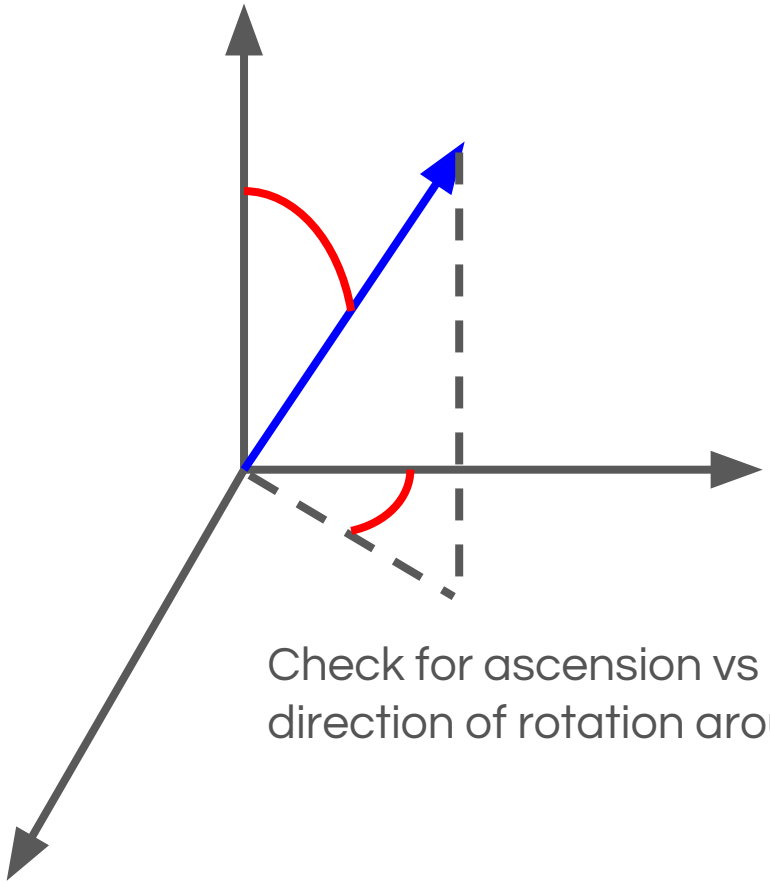
Coordinate Systems: Spherical



Θ and Φ, but which is which is prone to error!

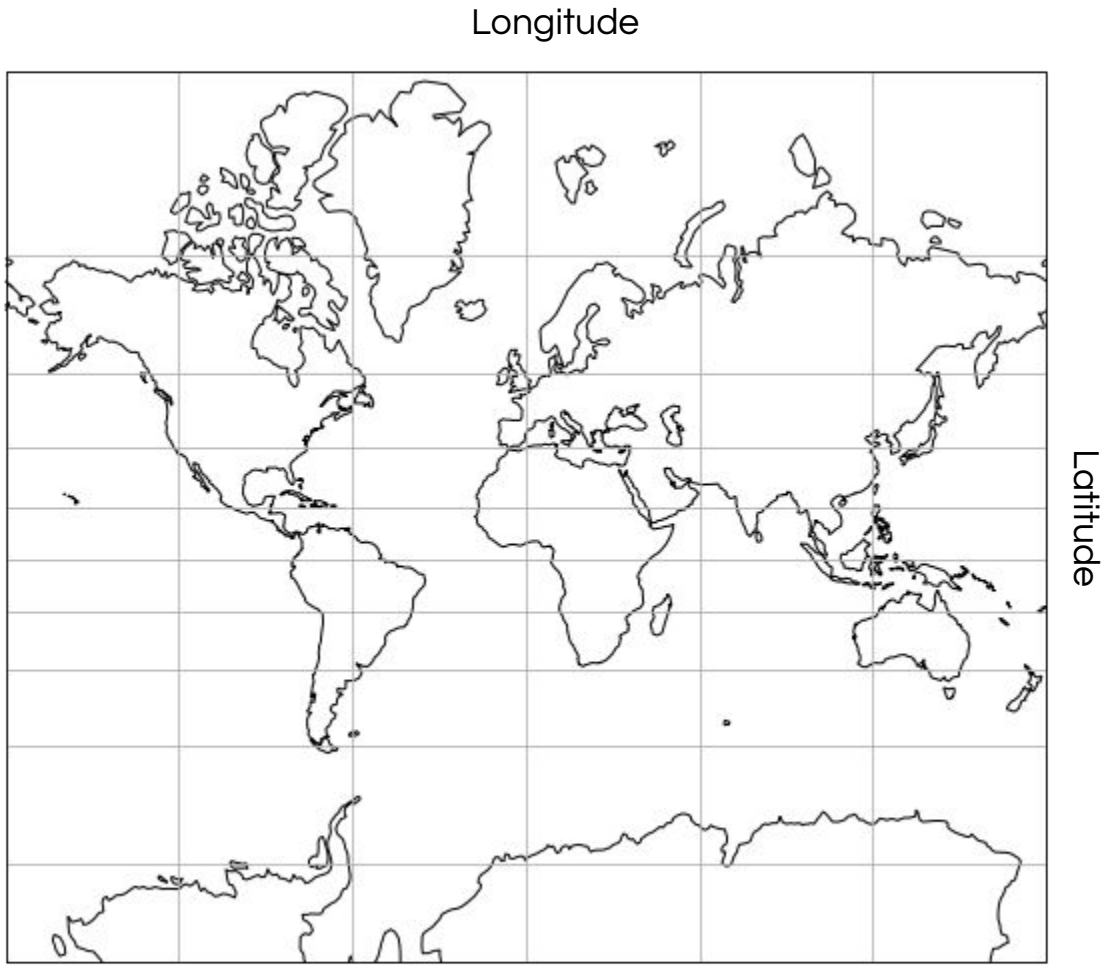
Declination (or ascension) and azimuthal

Coordinate Systems: Spherical



Check for ascension vs declination and direction of rotation around azimuth.

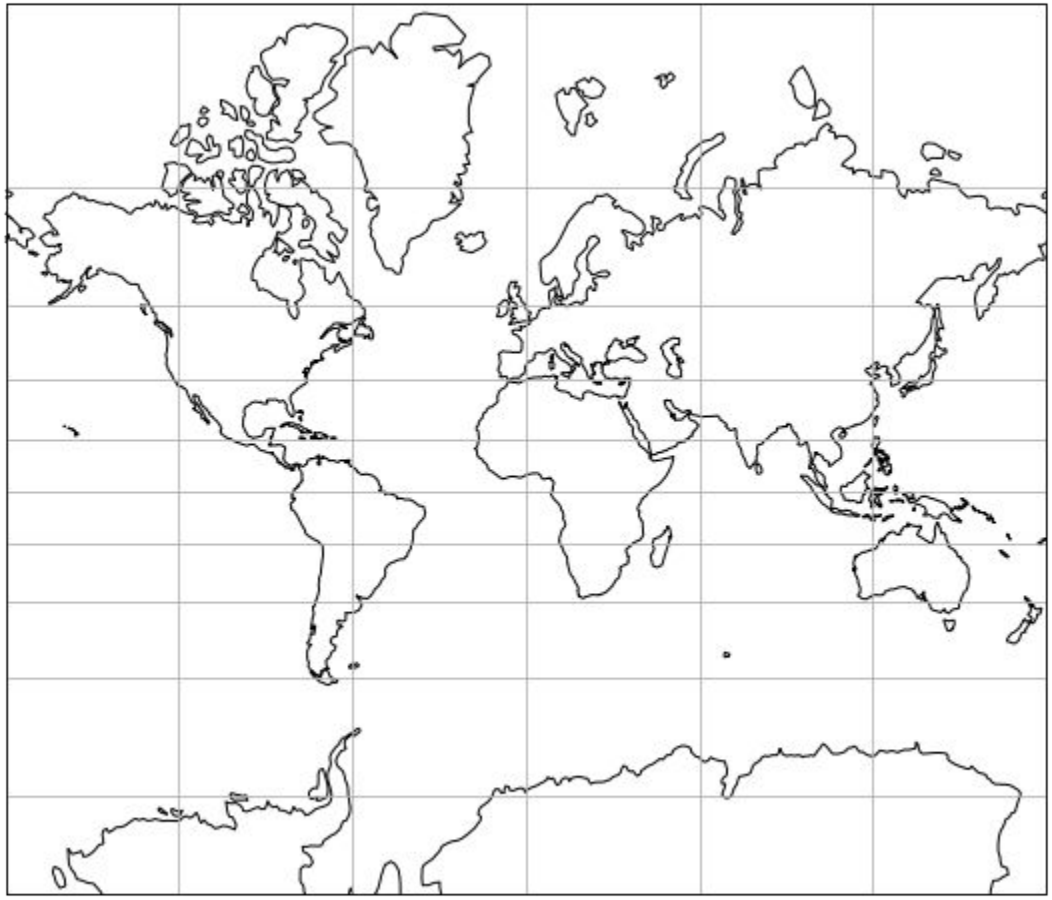
Coordinate Systems: Latitude and Longitude



Things to watch for:

- Zero point
- Range
- N/S, E/W

Coordinate Systems: Degrees, minutes, seconds



- 24 hours in a day
- 60 minutes in an hour
- 60 seconds in a minute

Vega(-lite)

- Javascript
- High-level language
- jsfiddle.net
- vega.github.io

Vega(-lite)

- Grammar for describing visualizations