

MAPS!

Facts about Maps

- ALL are *distorted!*
- They are transferred using *projection*
- They are two dimensional
- **Cartography** = the science of map making
- **Spatial Organization** - the location and patterns of people, places, and events that connect us to our landscapes (physical and human)

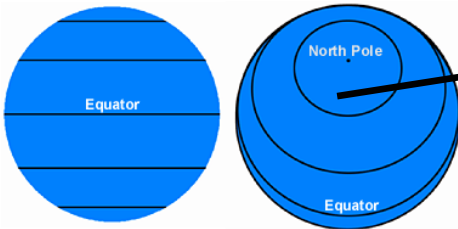
Categories of Maps

- Reference: Boundaries, roads, mountains...etc.
- Thematic: features or patterns
- Flow-line maps – good for determining movement or migration patterns

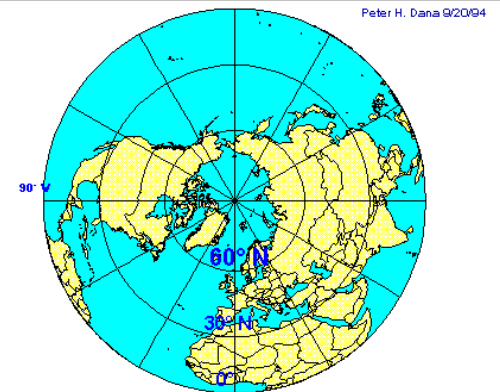
Basic Map Projections

- 4 basic types of map projections:

- Cylindrical

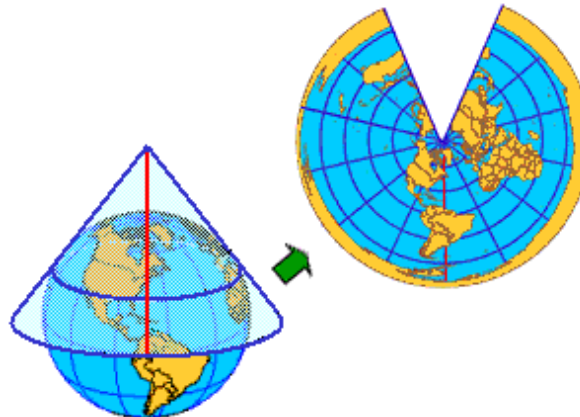


- Azimuthal (also called planar)



Lambert Azimuthal Equal Area

- Conic

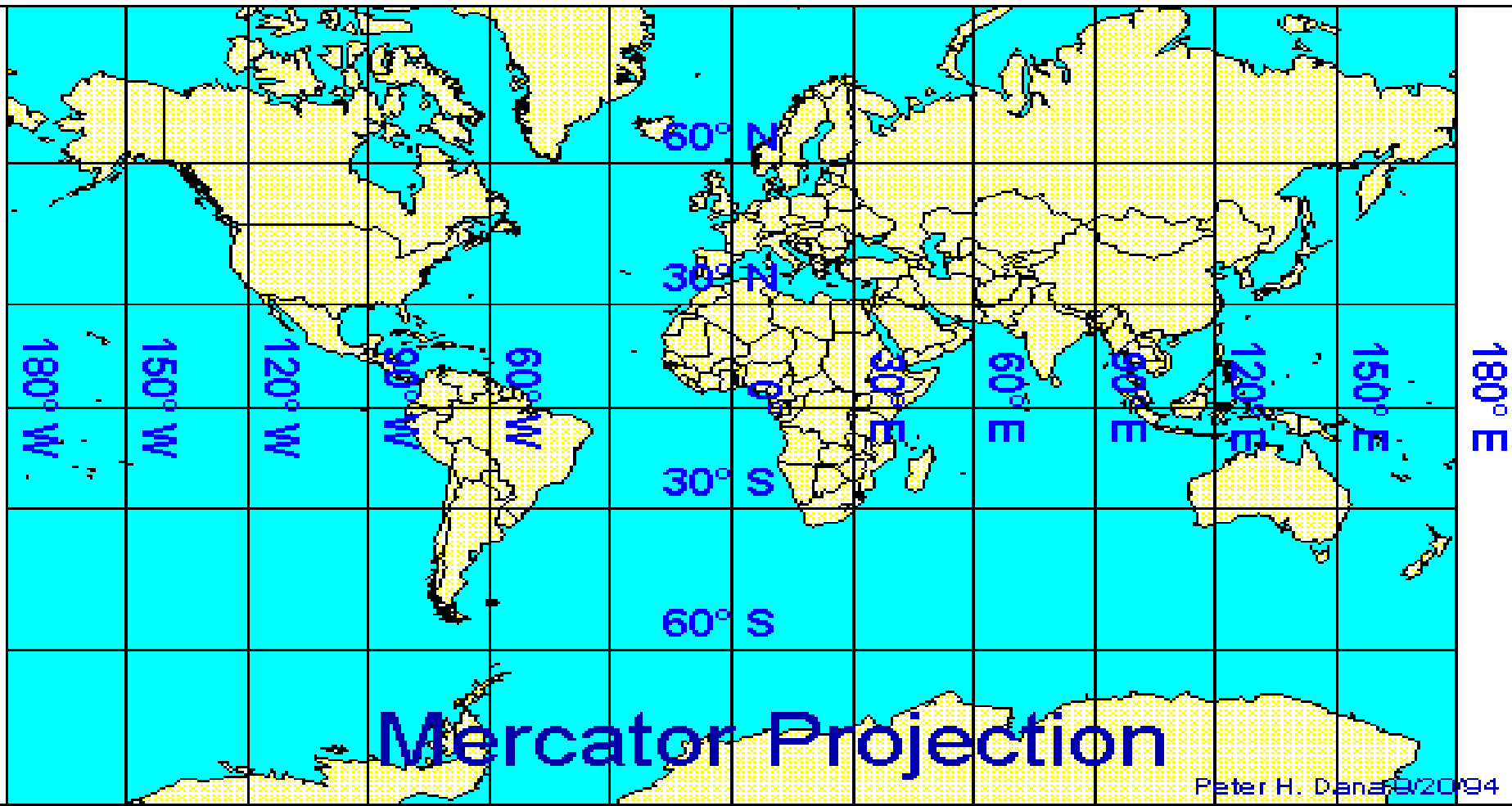


Cylindrical Projection: DISTORTION!

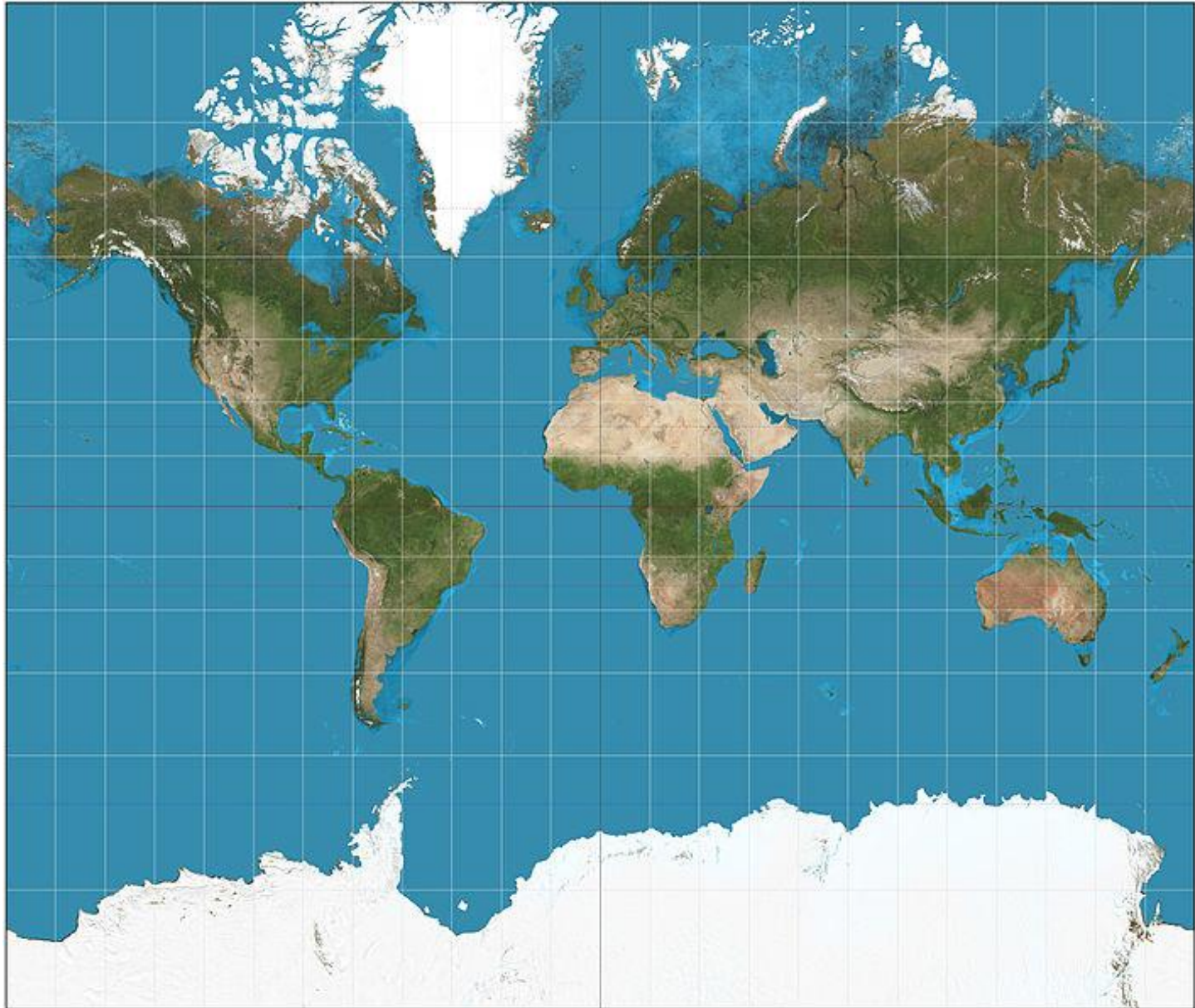


Mercator Projection

- Mercator Projection Map = Distortion as you get farther away from the equator!



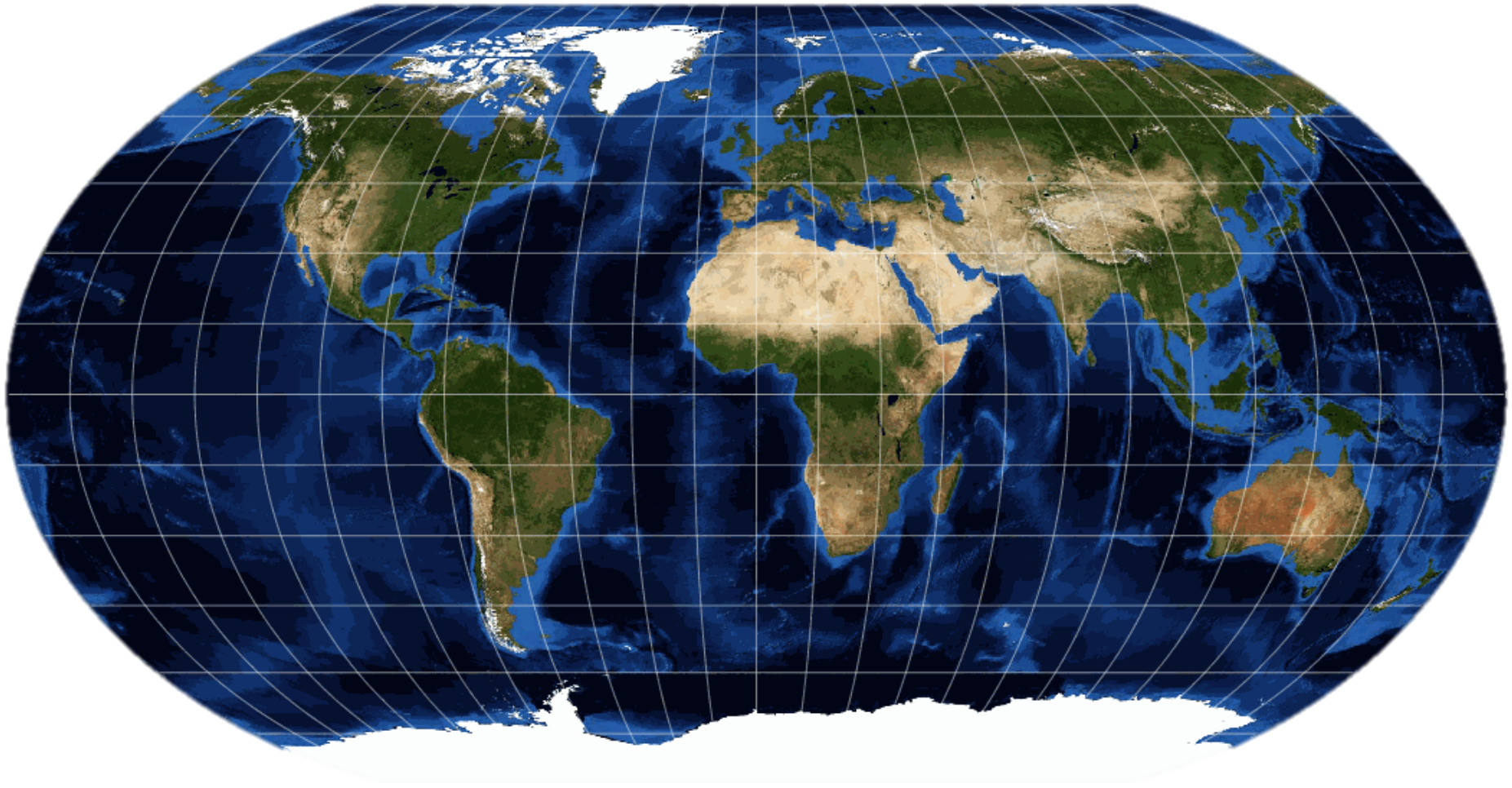
Mercator



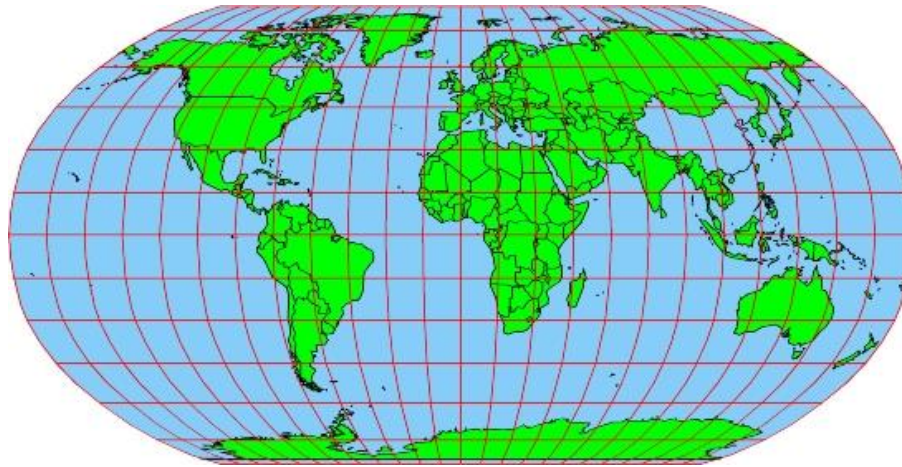
Why use Mercator?

- Serves its purpose to allow plotting of straight lines (think sea navigators)
 - Only needed straight line for directions
- Many wall maps are still using this projection
- **DOES NOT SHOW CURVE OF THE EARTH!**
 - Spatial Distortion

Robinson Projection

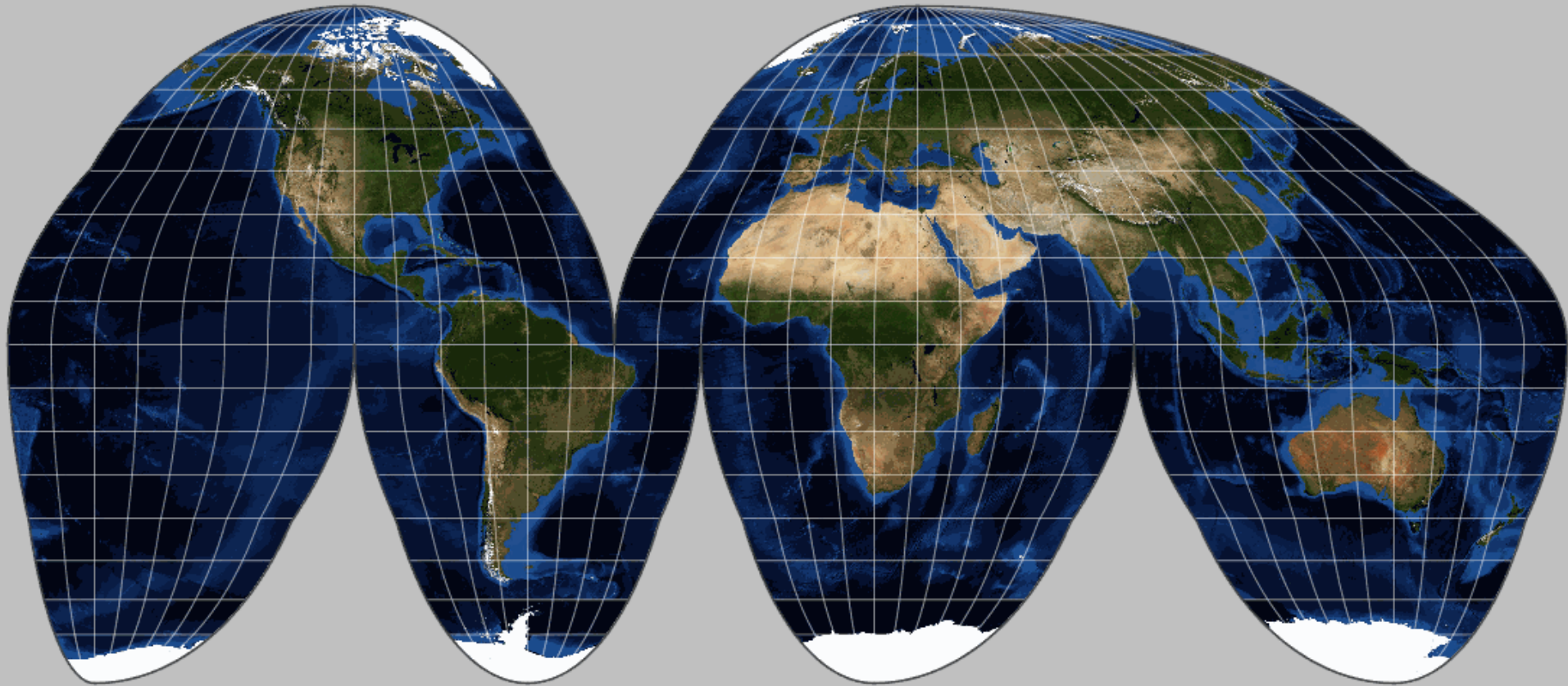


Robinson Projection



- EVERYTHING is a little distorted (shape, size, distance, direction) – but minimizes errors
- Provides better balance of size and shape at higher latitudes

Goode-Homolosine Projection



Goode's Projection/Interrupted

- Preserves shapes of continents

Planar Projection

- Useful for less distortion at the POLES!

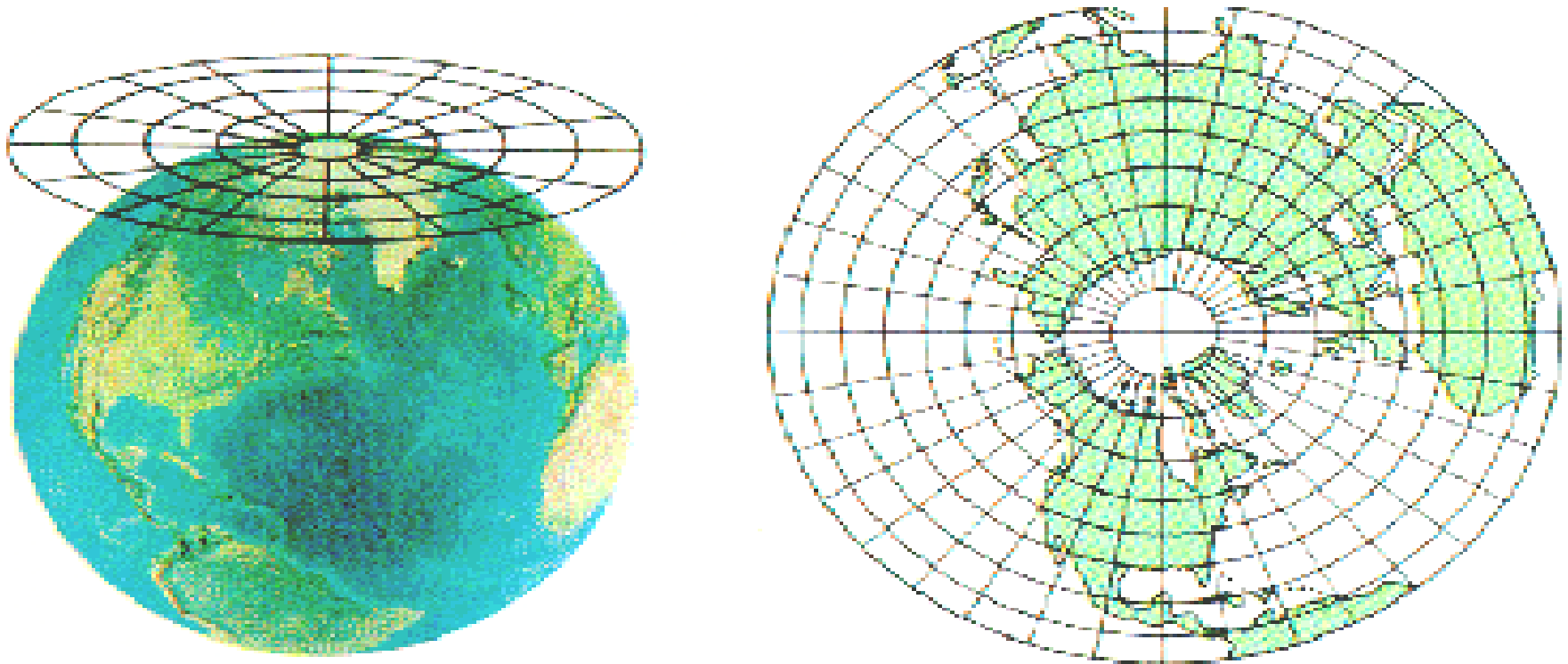
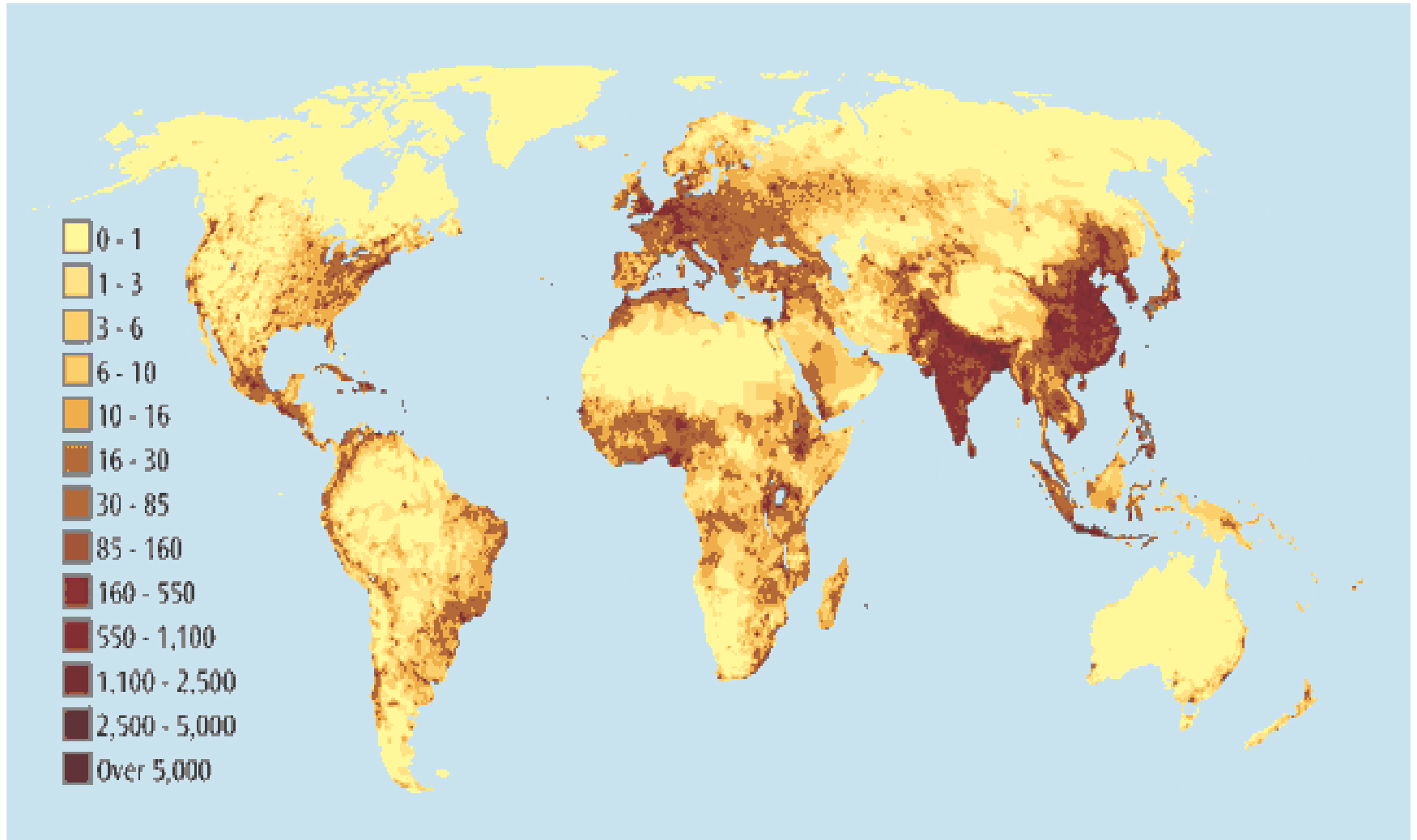


Figure 6. Lambert Equal-Area Projection (right), which assumes the projection of the globe onto a plane surface.

Other maps to know...

- Dot maps
 - One dot = a particular phenomenon
- Thematic maps
 - Reflects a theme about a geographic area
- Choropleth maps
 - Areas are shaded or patterned in proportion to data shown
- Cartograms
 - Size of place/land changes to fit theme
- Isoline
 - Uses lines of equal value

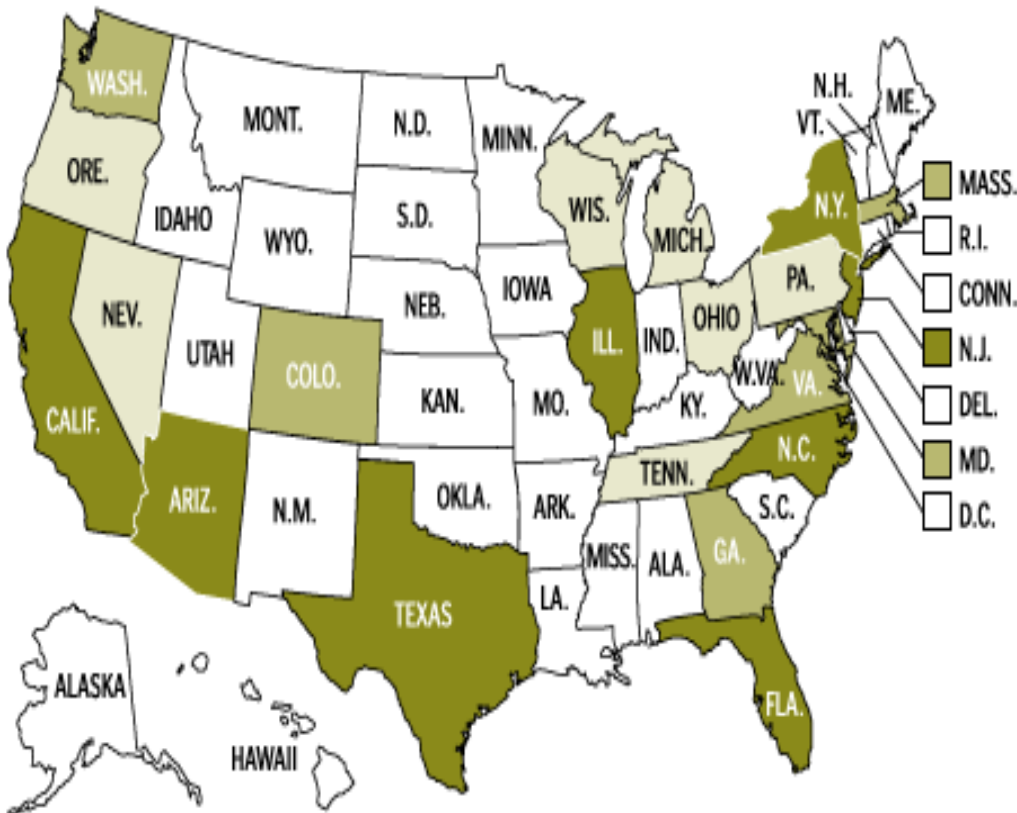
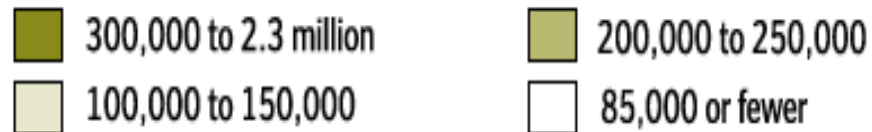
Dot Map



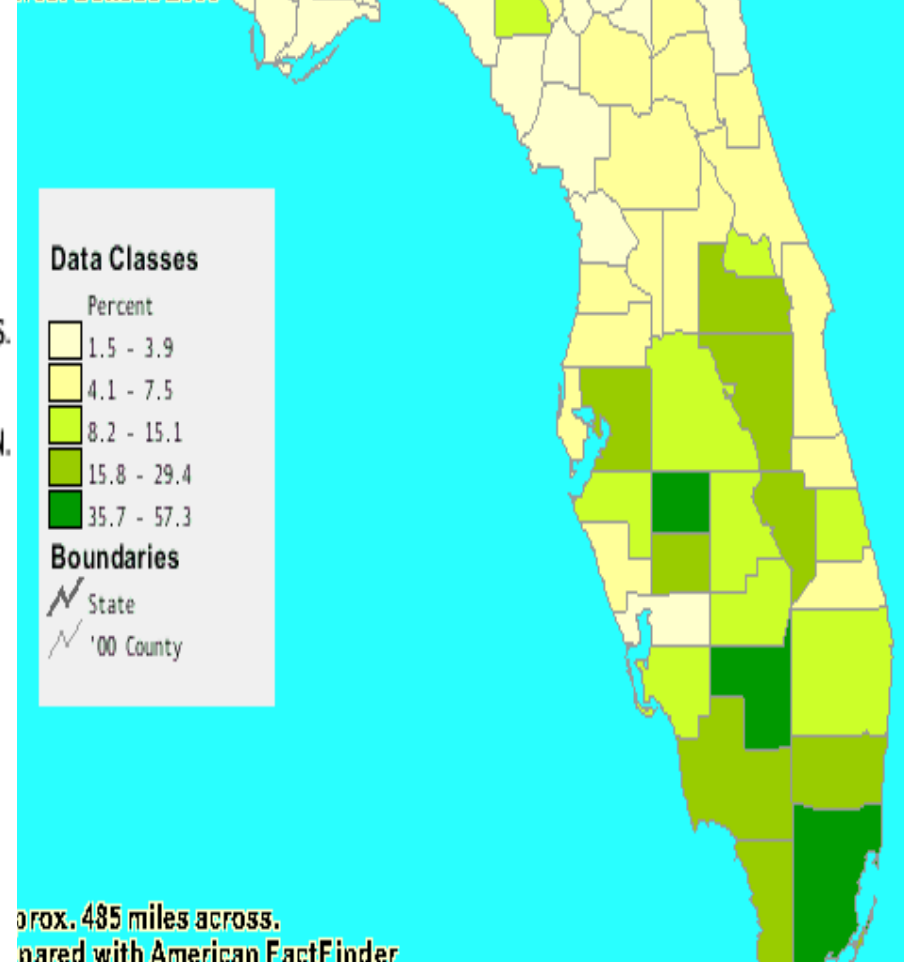
Choropleth maps!

Usually 4-5 categories

Estimated number of illegal immigrants in each state

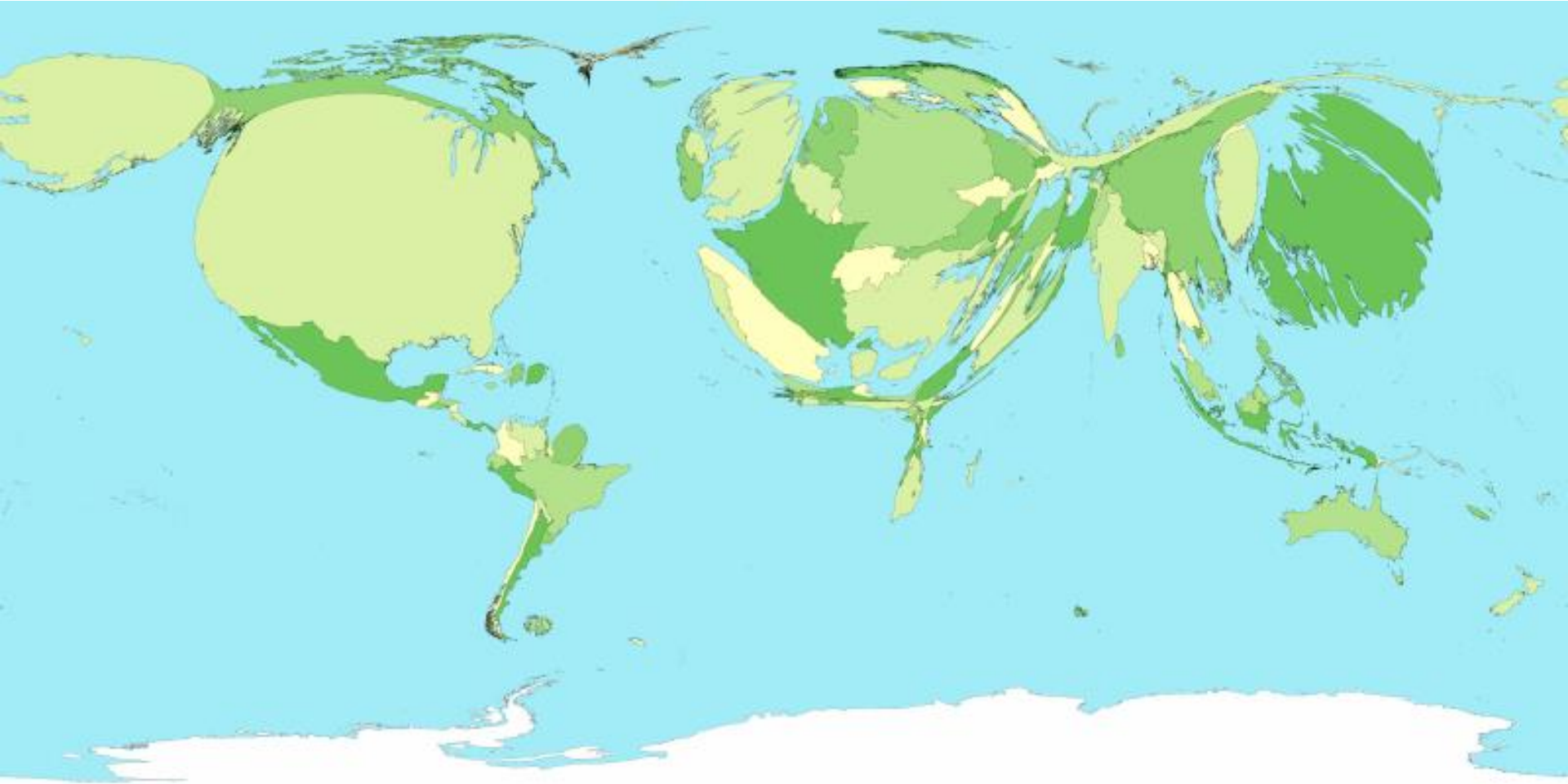


Percent of Persons Who Are Hispanic or Latino (of any race), Florida by County
 Source: Census 2000

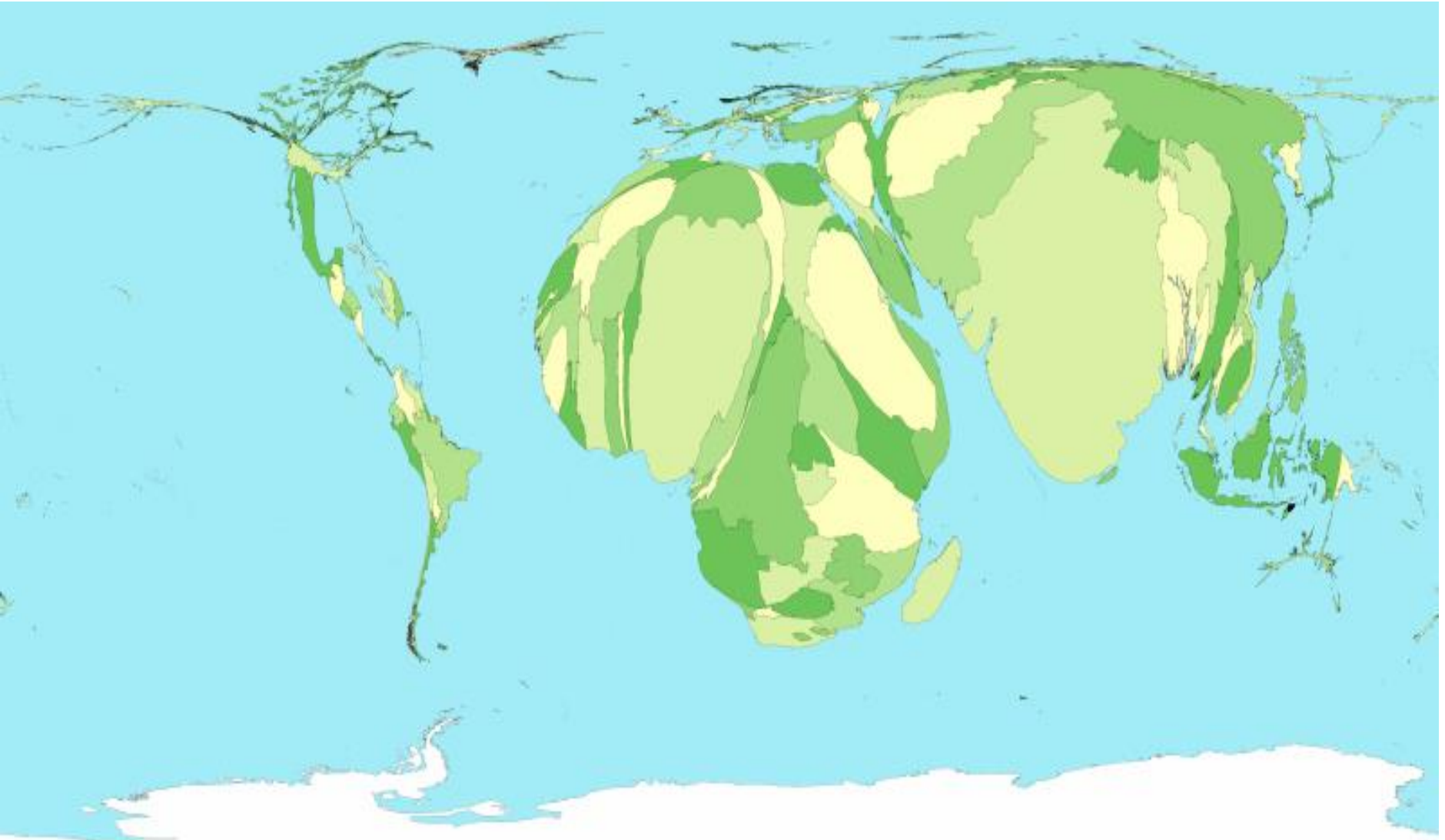


cartograms – chart and assign data by size.
Examples: populations, mortality rates, GDP

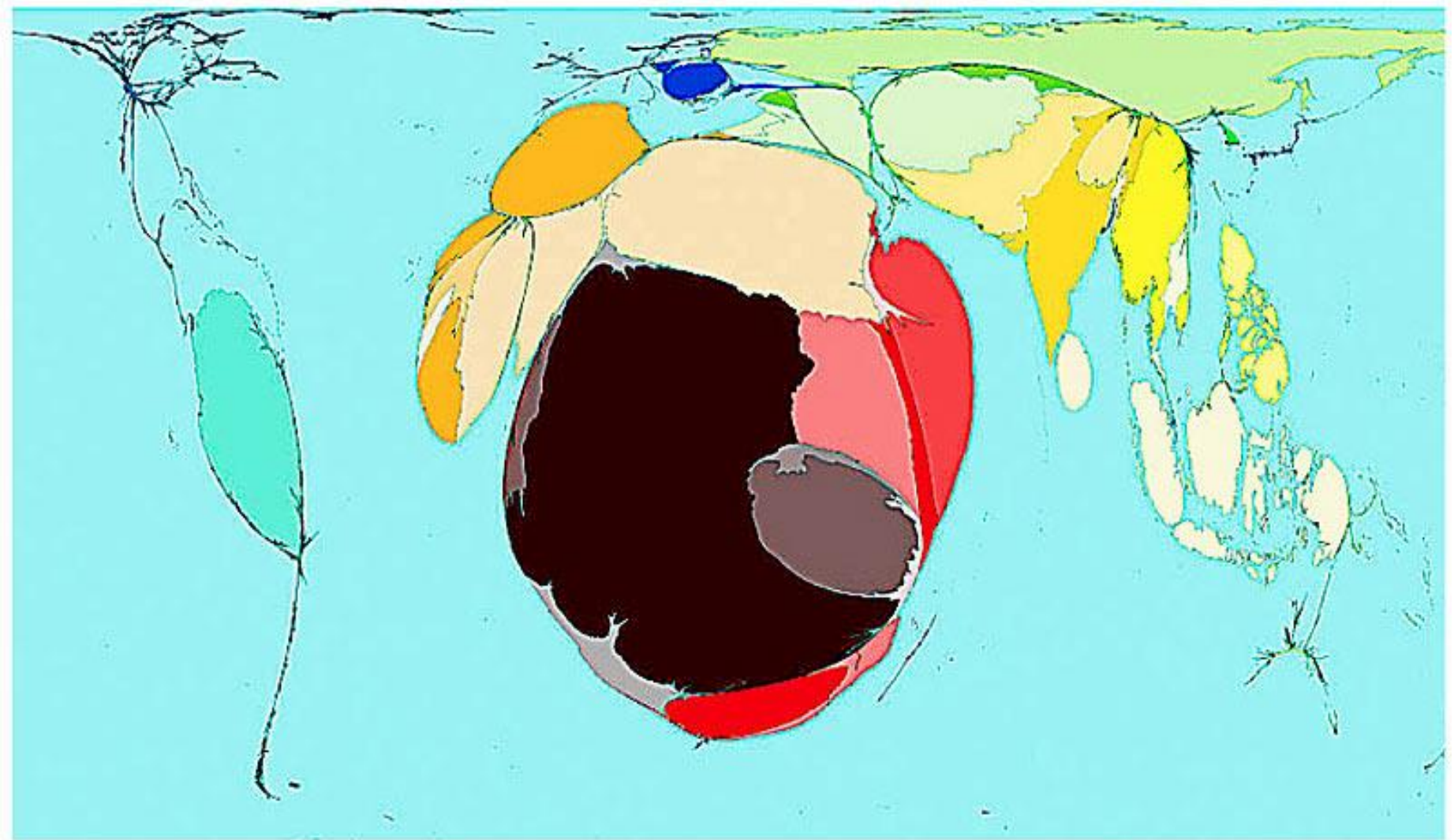
GDP



Child Mortality Rates

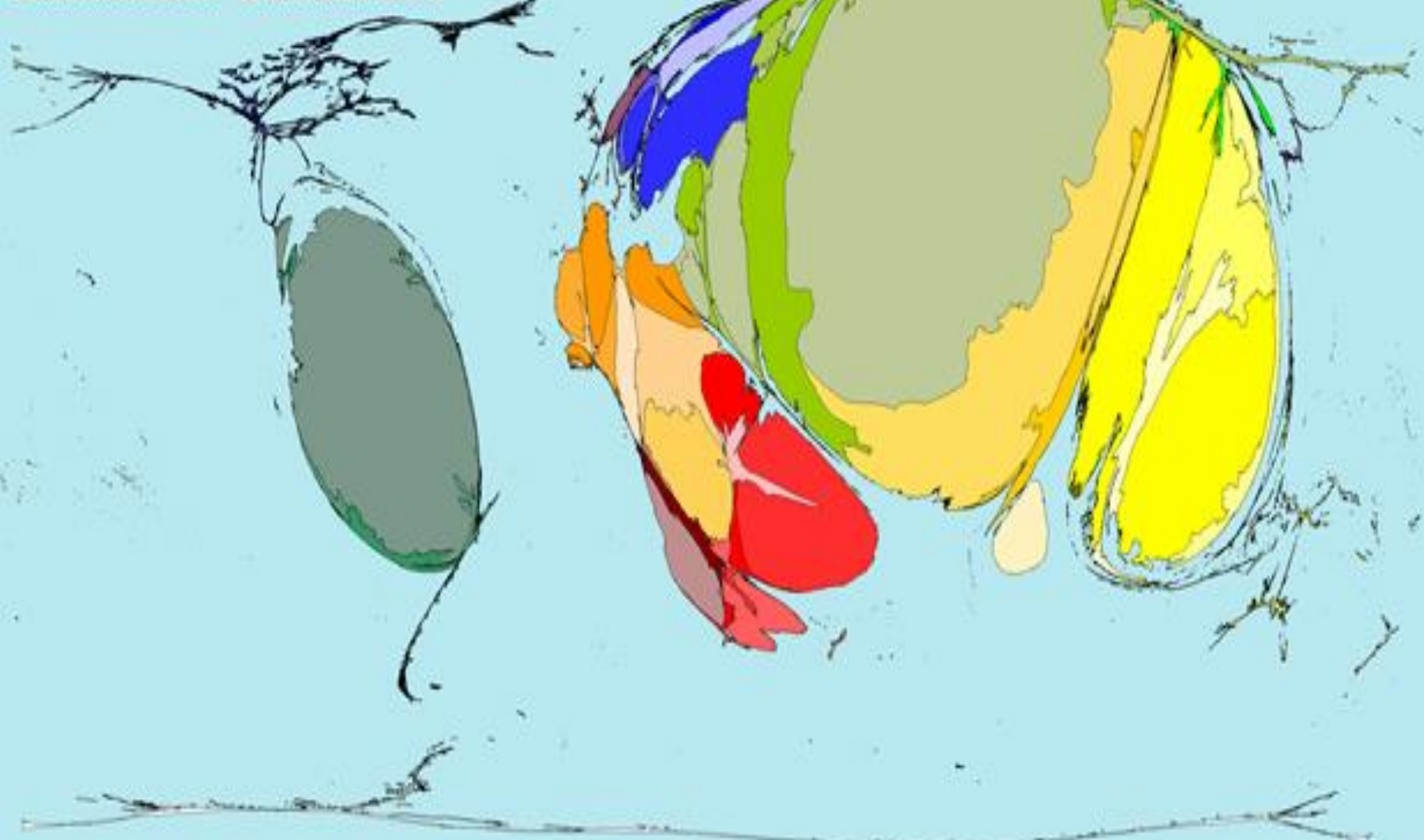


Wars and Death Rates



A deadly inheritance

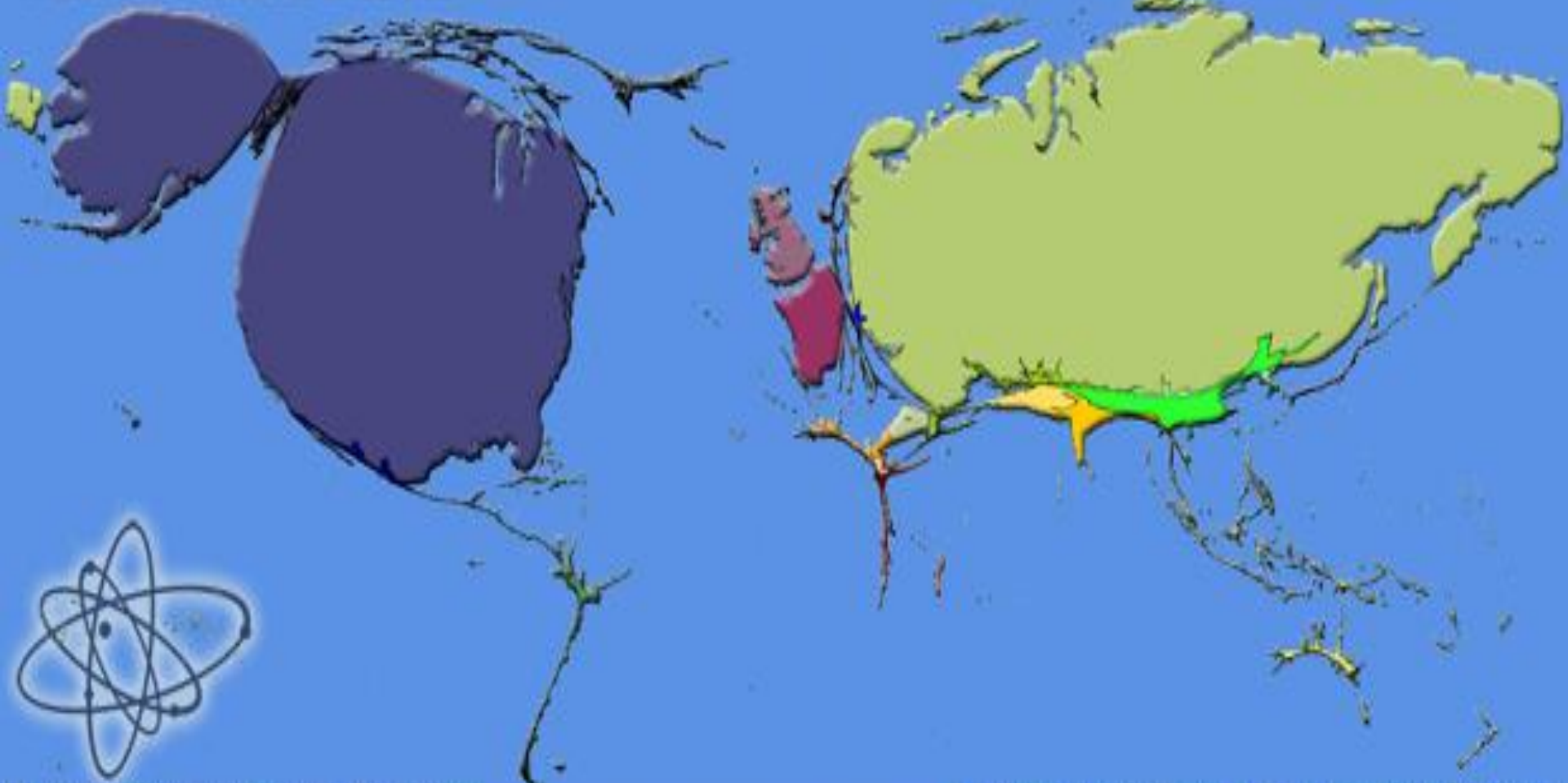
Landmine Casualties



Map showing the countries of the world resized according to
Mine, Explosive Remnants of War (ERW) and Cluster Submunition Casualties in 2010
Data Source: ICBL-CMC 2011

Map created by Benjamin D. Hennig
University of Sheffield
www.viewsoftheworld.net

World Nuclear Forces



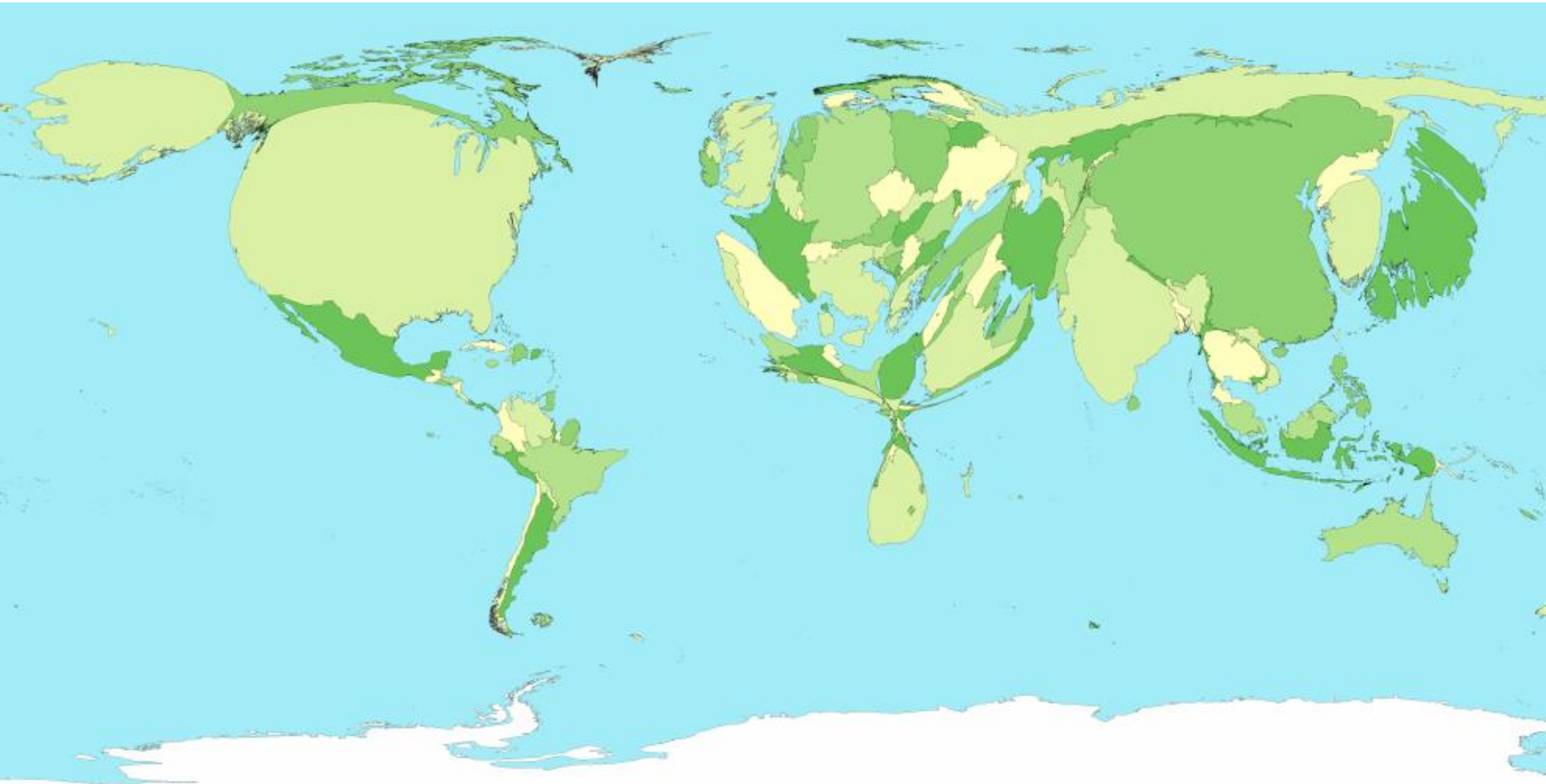
Data Source: Federation of American Scientists 2011

Map resized according to the estimated number of nuclear weapons in possession by a country

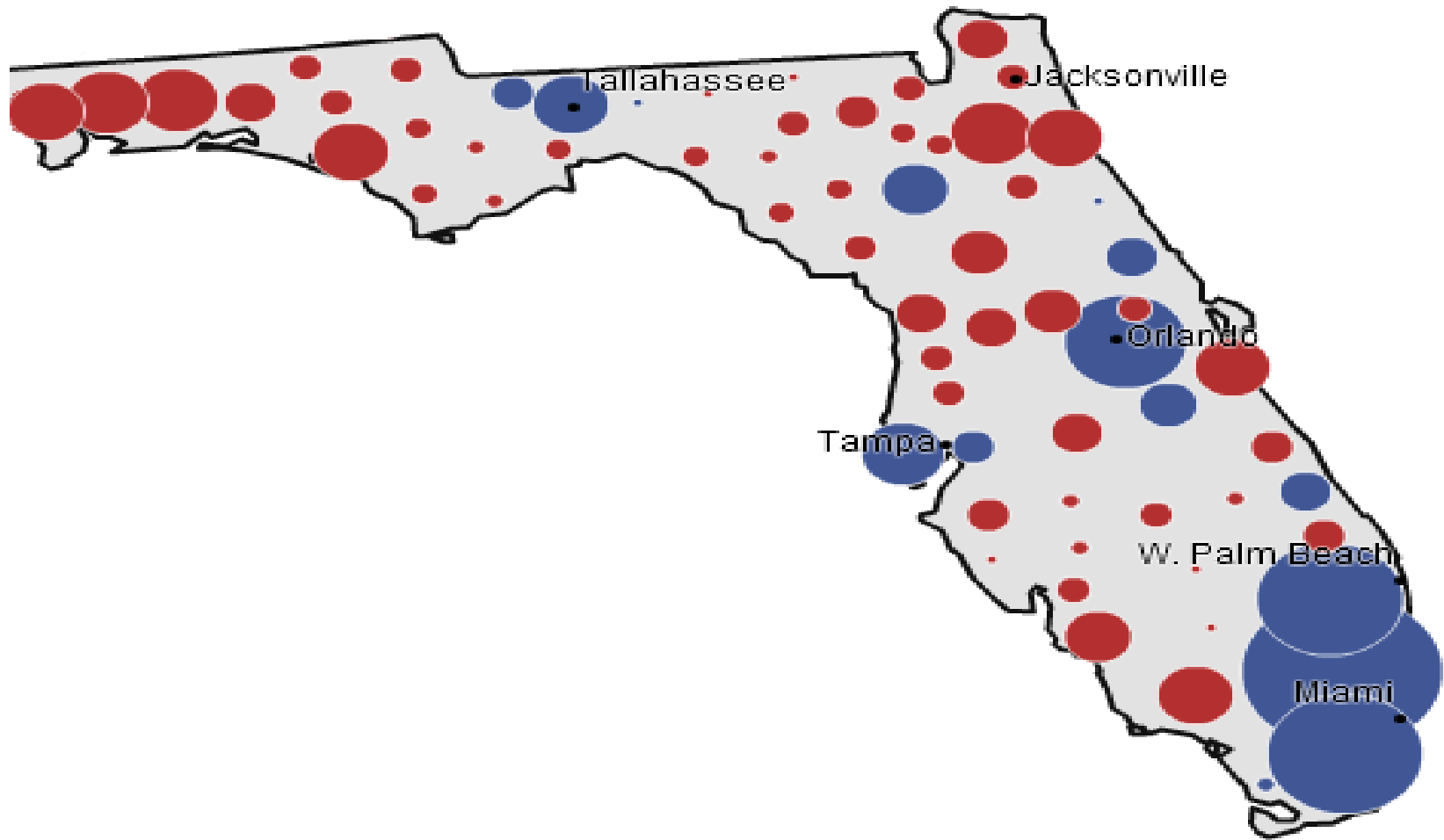
Map created by Benjamin D. Hennig, University of Sheffield

www.viewsoftheworld.net

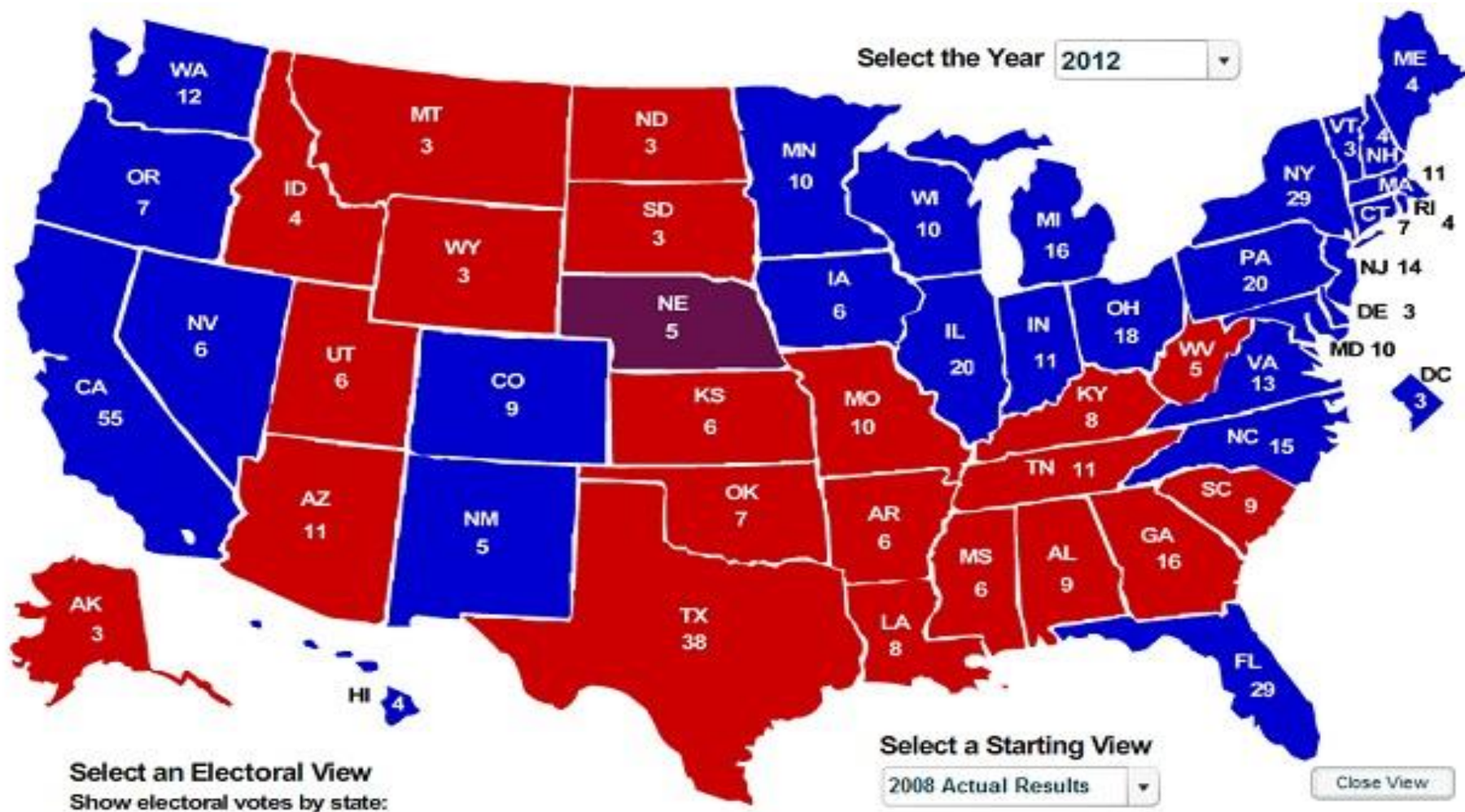
Greenhouse Gas Emissions



Proportional Symbol Map

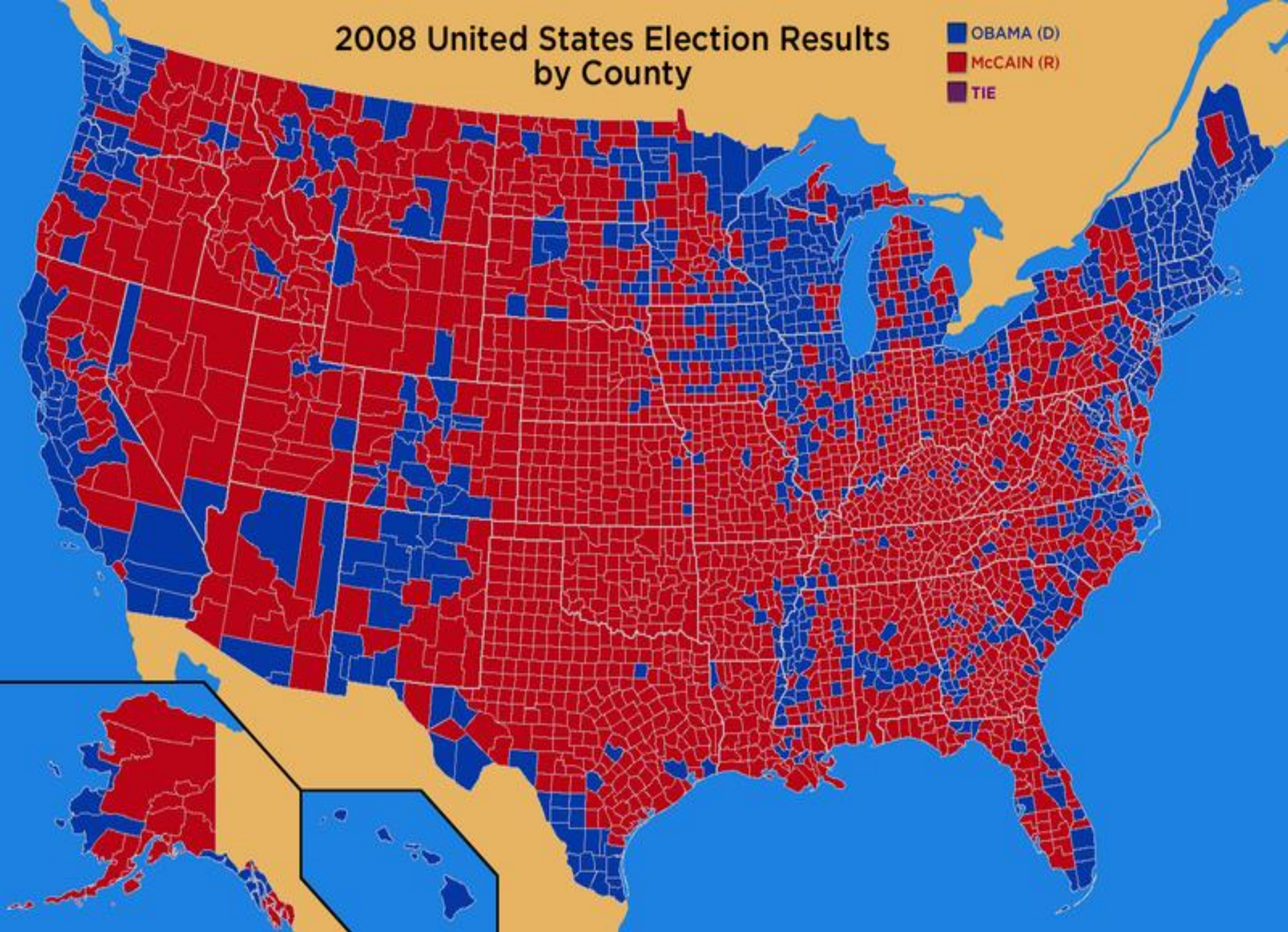


Electoral College Map



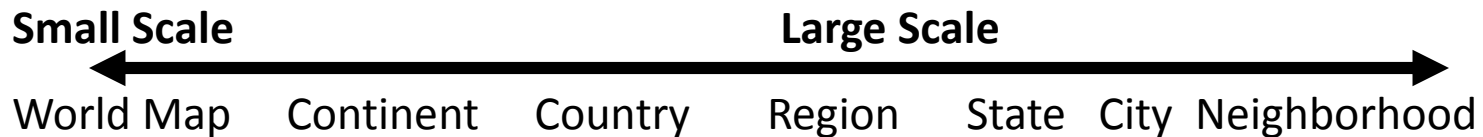
2008 United States Election Results by County

- OBAMA (D)
- McCAIN (R)
- TIE



Map Basics

- Scale- the relationship between the length of an object on a map to its length on the landscape
- Small Scale shows a large area – 1:250,000 (World Map)
- Large Scale shows a small area in detail – 1:1000 (City Map)



Large or Small

Scale?

Large or Small

Scale?



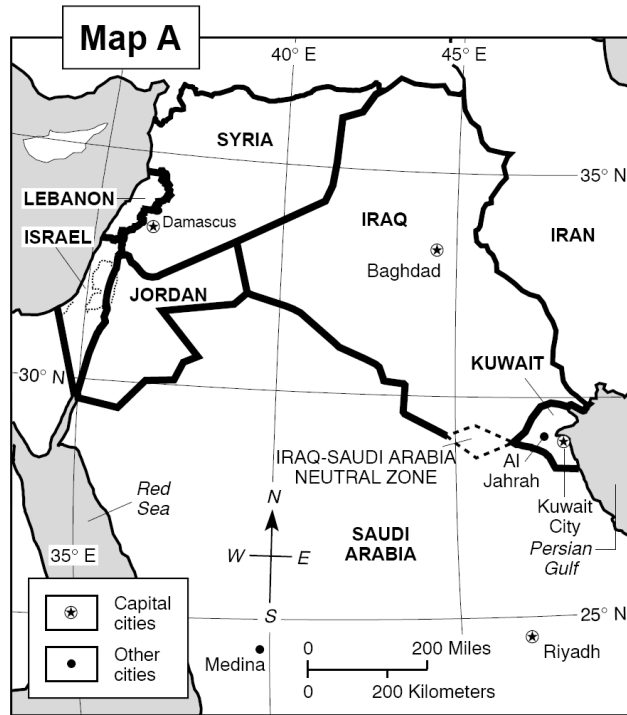


Large-scale

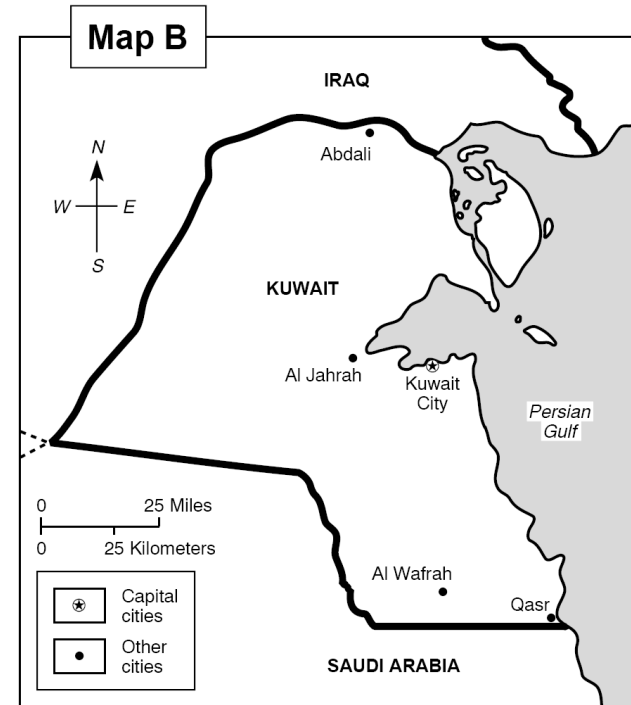


Comparing maps of different scale

Large vs. Small Scale Maps



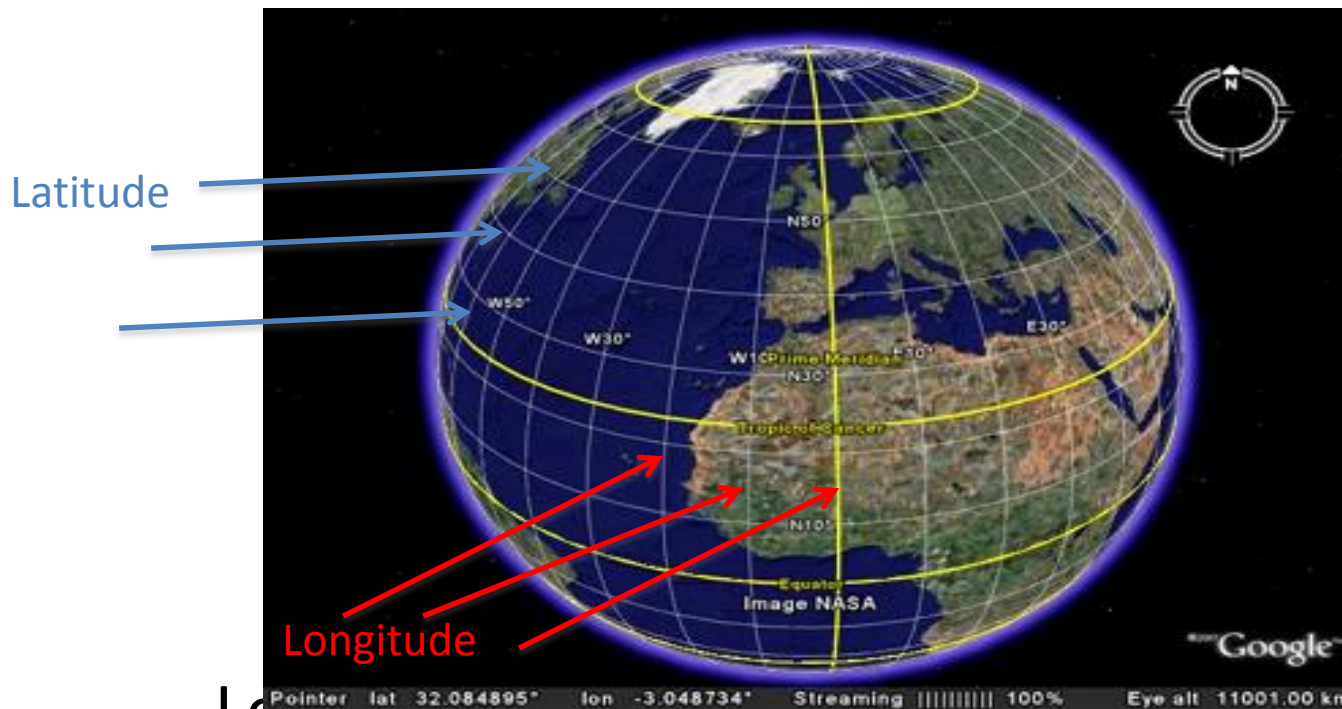
Small-Scale Map



Large-Scale Map

Latitude and Longitude

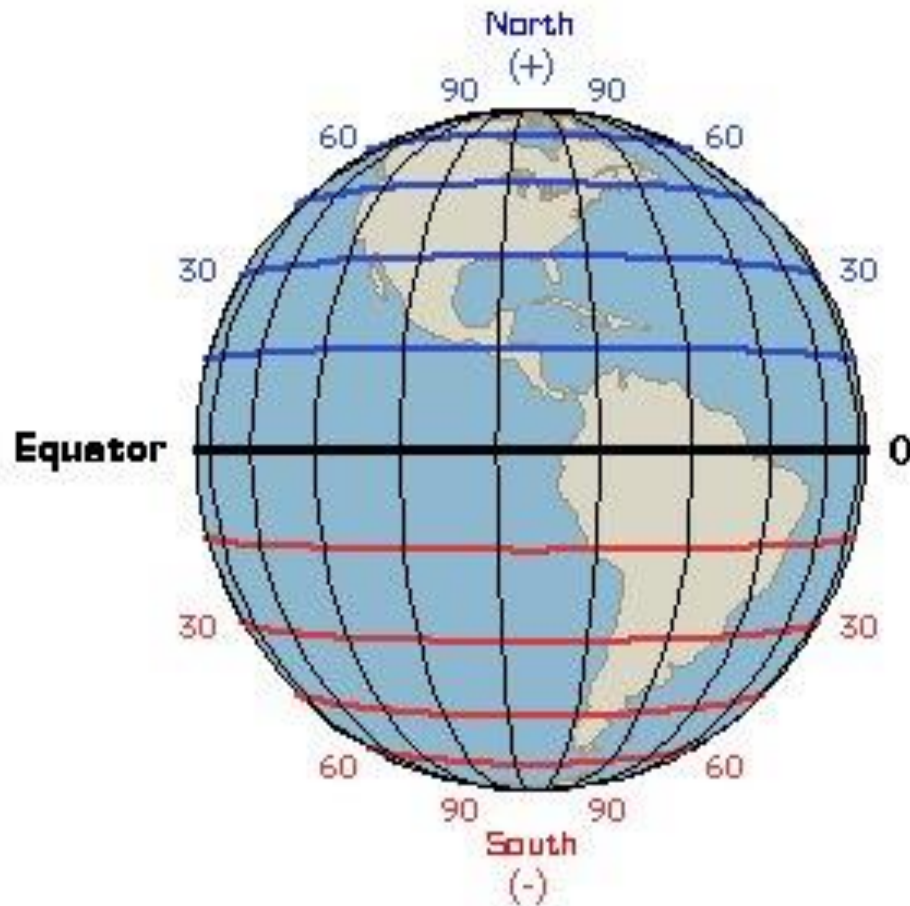
- Latitude – Lines that run East and West, but measure North to South
 - (around the globe like a ladder)



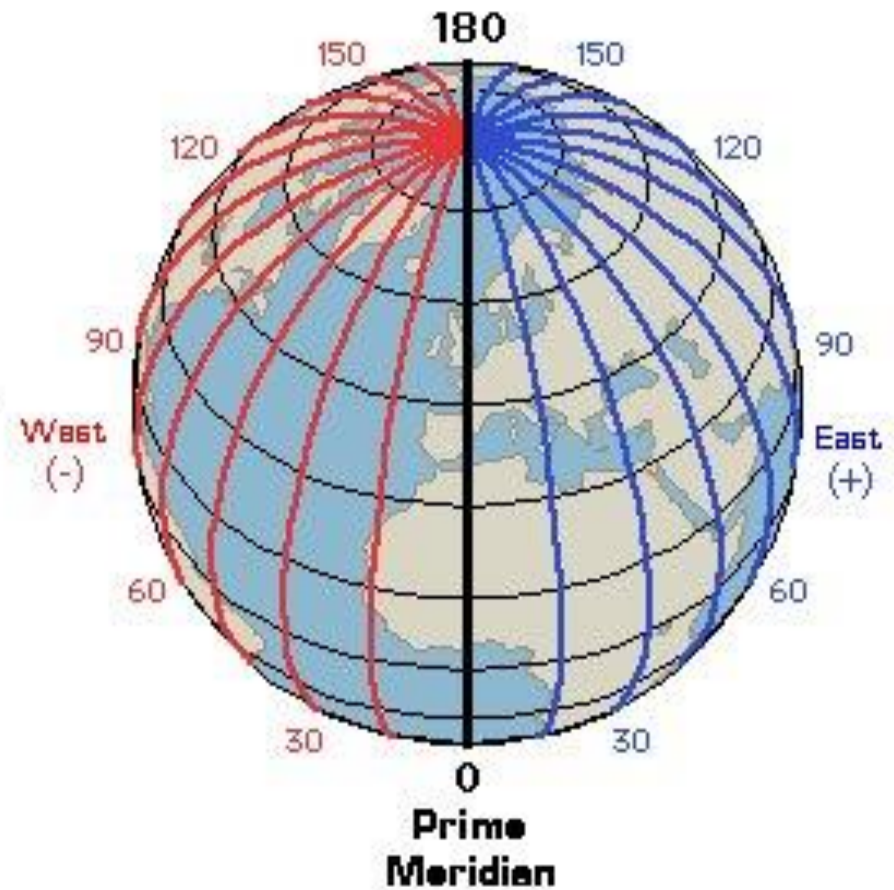
- Longitude. Lines that run North and South, but measure East and West (LONG)

Equator and Prime Meridian

Latitude



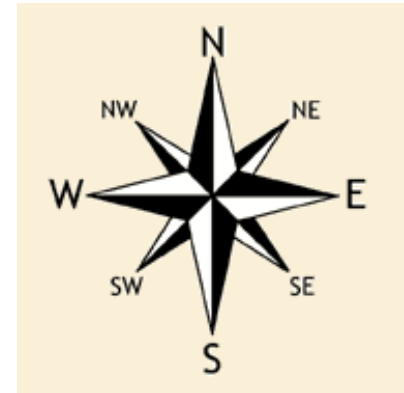
Longitude



Other Important Aspects of Maps

- Cardinal Directions – North, South, East, West

- Compass Rose – Shows directions on a map



- Key/legend – Explains the use of symbols on a map



A Little More Stuff

- Remote Sensing- Acquisition of data about the earth's surface using satellites and other long range methods
- Global Information System (GIS)-Computer system that stores, organizes, and displays geographic data
- Global Positioning System (GPS)- Using a series of satellites to determine location on the earths surface

Mental Maps

- An individual's internal, geographic understanding of a place.
- Formed when people perceive information about their surroundings and then process that information into a mental image that reflects both the physical environment and that individual's social, cultural, and psychological framework.
- May include hazards – items/places a person avoids during their daily routine.