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Module 3-

-More important to know how far things are from each other

- Representation- the active process of observing the world and symbolizing observations to make a meaning

- Abstracting observations of the work, results in a model

-The cartographic mapping is the process of symbolizing geographic representation

- need to communicate information efficiently

-Cartography- “The art, science and technology of making maps together with their study as scientific documents and works of art.

Types of Maps

Mental map- map from memory, individual owns internal map of their own world, the main feature, discontinuous and fragmentary are the main aspects of this type of map, issue with the map is that individuals have a different perspective, one of the properties is that the exaggeration of the places and features ( a deformed reality), could be surveys like made by fisherman

Historical map- we can’t assume the historical maps respect cartographic norms

Reference (general reference)- the only purpose of the map is to focus on a location, political maps, outline maps, atlas maps, road maps

Topographic map- terrain elevation above or below a reference line, or depth/bathymetry related to general-reference maps, xyz

Thematic map- emphasize the spatial pattern of one of more geographic attributes, related to statistical maps, they show specific topics and their geographic relationships and distributions

* Choropleth map, areas where the area are colored different ways, area is colored to display a certain statistic
* Proportional map (graduated symbols map)-
  + Graduated symbols map uses relative values, usually ranges of categories, grouping into classes
  + Proportional uses exact values, usually the raw data
* Dot density- dots are the same size
* Isopleth map- looking at lines that are of equal colors
* Cartogram-s not used much in habitat mapping, purposely change the shape to communicate importance and relative importance
* Satellite image map (spatiomap)- Overlapping polygons on vector and raster data with text boxes, and information, satellite data is the base layer

**Data Types and Forms**

Discrete- presumed to occur at distinct locations (with pace between locations) building road and trees

Continuous- occur through a geographic region of interest, temperature, humidity, and elevation

Qualitative- represents a quality, a description, an airport, type of building

* + Nominal- No particular order between the values, for example that the buildings, road names, and houses are not really different than each other, another example is that habitat types such as woodland, shrubland, etc
  + Ordinal- there is an implied value of natural order, such as soil quality (poor, average, good), you cannot make any calculations, or say that the regional airport is twice as much as local airports

Quantitative- represents a quantity, something measurable, like the money value of a building and how many floors it has

* + Interval- Has a relative origin for the scales, defined starting point like 0
    - i.e temperature in F and C
  + Ratio- you can do actual calculations, like I have 10$ and you have 20$ so you have as 2x as much money as me

Network map

Cartographic scales- the user makes the decision on what goes and doesn’t go in the map, provides an indication of the amount of reduction that has taken place on a map, i.e average ratio between the distance measured on a map and the real distance on the earth

For the scales the smaller the size of the area of the map the larger the size of the map, small extent is a large map, and the large extent is a small map

Cartographic scale

map/ real world, make sure they are in the same units, that will show how many 0s there are

and display as 1: xx,xxxx

**General Notes about maps**

* Maps do not integrally convey all of the geographic information
* Things and events must be simplified in order to be represented
* All maps lie

Positioning features

* Relative, using a common landmark, like McC B is to the left of McC D
* Absolute , the exact long and lat

geoid- best approximation od the Earth’s shape

Ellipsoid/spheroid- simplification of a geoid as a model based on an ellipse

datum0 based on an ellipsoid, incorporated local variations in elevation

Cartesian, the origin is at the point (0,0) we calculate the distance with the distance of the point in the reference to the X axis, similar to the Y and Z axis

Polar – an angle away from two planes

Greenwich is prime meridian

Map Projections- are complex mathematical equations applied systematically to convert features of a curved surface, orange peel flattened without tearing

All possible solutions induction deformations regarding:

- length

-angle

-surface

-shape

-distortion

Checkout website- metrocosm.com/Mercator

Tissot’s- circles that show distortions that can be in a work map projection, such as in Mercator it will look bigger in near the poles

The scale factor describes the distortions as a results of a projection

It is the relation of the scale found at a particular location on a map compared to the stated scale of the map

SF(k)= distance on the projection/distance on the sphere

* Albers projections have no distortion in a small area

semiotics- study of signs, helps understand the meaning of symbols and how symbols take on meaning, both individually and through relationships with other symbols

Frameworks for symbols and maps- like FL using the same font and colors

Conventions- unstated rules and assumptions that are almost universally applied, conventions are developed over time and sometimes “accepted” by international organizations

Grid north- established by the reference systems and projection

magnetic north- direction to the north magnetic pole (the direction that the compass needs point toward)

True north-

For Datums ED is best for Europe