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No Due Date

15 points

2 Replies

Reflection / Technical Difficulties

In this discussion forum, you have two options. **Select Prompt #1 or Prompt #2**, or feel free to address both. **(10 points) If you have taken GIS 130 or if you are taking it now, feel free to include discussion of that class in your post. You may have classmates here who can help you with technical difficulties in that class.**

1. **Reflect on the class so far and discuss what you have learned.** Try to force yourself to be as technical and specific as possible. The more time you spend trying to recall what we've learned, and diving back into the material to answer questions when you're not sure about something, the more worthwhile this assignment will be.
2. **Share one of your technical difficulties with us.** Is your technology up to the challenge? Are you stumped about what went wrong? Are you out of ideas? Sound off here! Maybe someone will have helpful suggestions. Posting a **numbered list** of the steps you've taken or embedding **screenshots** is strongly recommended.

One reply is required. I recommend taking a look at some of the technical difficulties posts to see if you can suggest any solutions. If you can't help with at least one, then move on to the reflection posts and comment on one or more of your classmates' posts. **(5 points)**

Reply

SR

Sandra Ruiz (https://sbccd.instructure.com/courses/55385/users/148814)

Mar 9 7:49pm

When we talk about geospatial data, we are talking about data of a location relative to the Earth. Geospatial data is collected, mapped, and analyzed using geospatial technologies such as remote sensing, geographic information systems, GPS, and internet mapping technologies. Depending on the capacity of the geospatial technologies, the scale, accuracy, and precision always vary which leads to certain levels of errors and uncertainties.

Scale is useful in many ways to map data. The scale of a map is the size of things that appear on a map or air photo, relative to the sizes of those things on the ground. Small scales in maps show things at a farther distance with less details whereas a large scale map contains more details and accuracy. The scale can be useful as a ruler-measurements in the form coordinates such as the geographic coordinate system that defines positions on the Earth's roughly-spherical surface. The two scales present in this coordinate system are called longitude (east to west, ranging from 180 degrees East to 180 West) and latitude (north-south scale from 90 degree North to 90 degree South, and merge at the poles).

Because the Earth does not have a perfectly round form, geodesists define the shape as a geoid, and surveyors used a simpler surrogate called ellipsoids, which are not perfect but good approximations. Every position on the surface of the Earth is in relation to at least one other position. A horizontal datum is a geometric relationship between a coordinate system grid and the Earth's surface. A vertical datum is the relationship that determines elevations in relation to a surface such as mean sea level. Examples of horizontal datum include the North American Datum of 1927 (NAD27) and the North American Datum of 1983 (NAD83) which are both based on coordinate system grids with ellipsoids.

It is important for GIS professionals to understand what and when to use the different types of map projections and their levels of distortions from transforming the spherical grid to a flat grid. The types of distortions include: equivalence, conformality, equidistance, azimuthality, and compromise.

Uncertainty is inherent in geospatial data. The three sources of error and measurement are human, environmental, and instrument errors. Higher resolution will result in higher precision and vice versa. Accuracy is independent from resolution and precision. The US Geological Survey's National Map of Accuracy Standards dictates the levels of uncertainty tolerated. They also maintain a National Spatial Reference System (NSRS) which helps surveyors with mathematical calculations to expand other positions relative to the control points by using open and closed traverses (like triangulation and trilateration), and differential leveling. The GPS utilizes trilateration to calculate coordinates at or near the Earth's surface!

CA

Carlos Avila (https://sbccd.instructure.com/courses/55385/users/76639)

Mar 5 7:29pm

Although extensive and complicated, the make-up of maps, images used for geographical references, and all the math and measurements it takes to draw coordinates are important and the steppingstones for GIS. With the use of our GPS on our phones we can access the coordinates for any given point across the globe in seconds but that was not the case a few decades ago. Further back in years the coordinate system had to take into consideration the shape of the world to accurately define longitude and latitude. Learning about land surveyors and how the measuring of angles and the use of control points allows them to make decisions about future infrastructure was eye opening. That is a job that uses what we have read daily. Scale is important when using maps. In certain occasions a picture taken from an aerial view will not show accurate measurements because of deformation caused by relief displacement. Meaning that objects at higher elevation will seem closer on scale. Now we have technology to rectify all these perceptions but even so, someone had to at one point in time figure out how to correct errors caused by depth perception.