

(X,Y) Mapping

Overview

1. Mapping (X,Y) Coordinate Data

$$DD = \text{deg} + \frac{\text{min}}{60} + \frac{\text{sec}}{60^2}$$

where, DD = decimal degrees

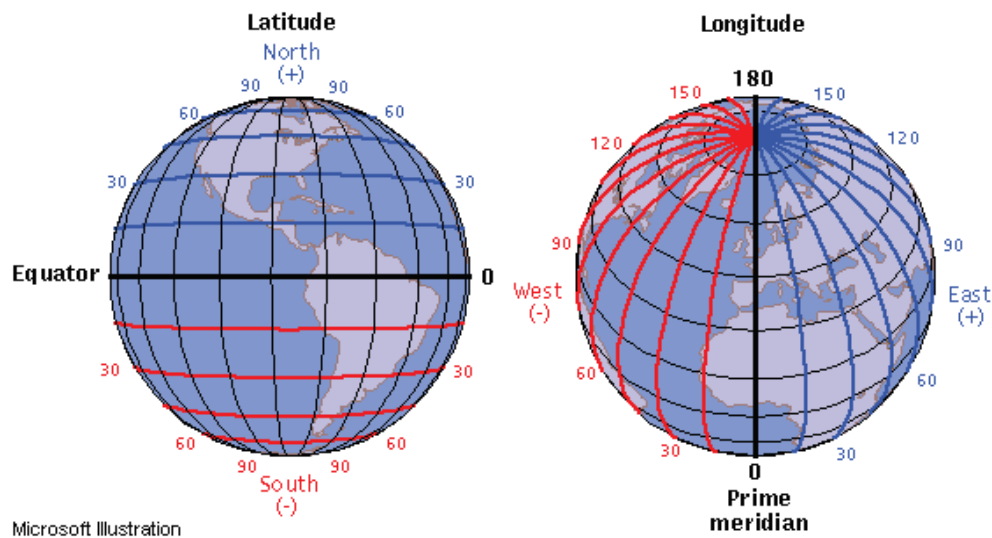
$$\text{deg} = 79$$

$$\text{min} = 22$$

$$\text{sec} = 34$$

$$\begin{aligned} DD &= 79 + \frac{22}{60} + \frac{34}{60^2} \\ &= 79 + 0.36667 + 0.0094444 \\ &= 79.376111DD \end{aligned}$$

http://outreach.cast.uark.edu/east/toolkit-cast/geospatial_technologies/esri_arcgis/av_geocode_coord.html



1) Mapping (X,Y) Coordinate Data

You have a series of geographic coordinates, for example from a GPS receiver:

- Locations where you measured snow depth and pH.
- Locations where you sampled water along the Westfield River.
- Locations of homicides.
- Locations of trash can on-campus.

1. First, collect the geographic coordinates using a GPS receiver or Google Earth.
2. Enter the latitude and longitude coordinates into MS Excel.

Use Latitude and Longitude as the column headings.

Latitude and longitude have to be in decimal degrees.

Latitude is positive north of the equator and negative south of the equator.

Longitude is positive east of the prime meridian.

Longitude is negative west of the prime meridian.

You need to know the datum/coordinate system/projection of your latitude and longitude:

In general, GPS data should be using in WGS84.

Google Earth uses the WGS84.

Degrees, Minutes, Seconds and Decimal Degrees Latitude/Longitude Converter:

<http://transition.fcc.gov/mb/audio/bickel/DDMMSS-decimal.html>

3. Save your MS Excel file as a MS Excel 97-2003 Workbook.
4. Start ArcMap and add a global base layer from ArcGIS Online.
5. File – Add Data – Add XY Data...Browse to your MS Excel workbook and add the worksheet.
6. Define X Field as longitude and Y Field as latitude.
7. Click Edit...and find...
Geographic Coordinate System
World
WGS 1984.prj
Click Apply and OK
8. Click OK again and your points are added to your map. Zoom around and see!
9. Export your data as a feature class or shapefile and add to your map – done!
10. Add attribute field as needed and enter attribute data!

➔ Meaningful GIS Mapping and GIS Analysis!