

Fall 2009
CEIE 410/510

Geographic Information Systems for Engineers

Homework 2

Due before the class starts on September 21, 2009

Geographic Coordinate System.

1. *(Good for 10 points)* Recall the discussion on longitudes and latitudes. The international dateline is 12 hours away from the GMT zone (The Prime Meridian). The Eastern Standard Time zone (EST) is 5 hours behind GMT, CST, MST and PST are 6, 7, and 8 hours behind, respectively. With this information on hand,
 - a) Compute the longitude based on which EST, CST, MST and PST were established.
 - b) Find out the major US cities along each of the longitudes that establish these four time zones. (You can use a traditional world map to lookup for this information. A better alternative would be to use GIS).

2. *(Good for 15 points)* Recall the discussion on longitudes and latitudes. Compute the time it would take for a jumbo jet traveling at a speed of 550 mph to travel between Tokyo and Los Angeles by crossing the International Date Line (IDL). Compute the time if the pilot decided not to cross the IDL but travel in the opposite direction instead. For simplicity, assume that there are no other forces are at work here and the aircraft travels along the great circle in the atmosphere. Also, assume that the aircraft has enough fuel to complete the trip without stopping for refueling. (Lat/Longs of Tokyo: +139.809204, +35.683060; Lat/Longs of Los Angeles: -118.244003, +34.022221).

ArcGIS Exercises

As outlined in other pages.