HW#3:

**Problem 1: Describe the main characteristics of point-geodetic observations versus imaging techniques in terms of spatial and temporal resolution and coverage.**

The main characteristics of point-geodetic observations are the tracking of single stations as it progress along a linear path. It is assumed the progression of a single GPS station will move on a linear path and point-geodetic observations follow the path the single GPS station moves and models if it moved in the assumed linear path. If the GPS station did not move in the expected path modeling is done to determine why the GPS station moved in a non-linear path.

Imaging techniques track several stations from a location in space; the imaging uses multiple stations to track the movement of things like glaciers, or the change in density of icecaps to determine the load they are placing on the geoid.

**Problem 2: What is the "station motion model" and how does it enter into the analysis of point-geodetic techniques?**

Station motion modeling is the process of filtering the movement of a single GPS station with respect to interference signals. When a stations movement is initially modeled it will form a pattern in the form of a sin or cosine function. What the station modeling does is remove the sin/cosine signal patterns to track the GPS station on a linear trend. By removing the noise the GPS’s actual movement is tracked not the movement of the interference signals. This enters into point-geodetic techniques because station motion modeling is done on single stations to establish the linear trend as is needed in point geodetic observations.

**Problem 3: Which space-geodetic techniques provide the origin of the reference frame with respect to the center of mass and which provide the scale? Why?**

The TRS is a Cartesian Triorthogonal System for the Earth that is geocentric; that is it determines the center of mass for the whole Earth, including the oceans and the atmosphere. The TRS originated in 1984 by the BIH, and it uses a no-net-rotation condition with regards to horizontal tectonic motions over the whole earth to determine the center of the mass of the Earth.