

Abstract: Modern space geodesy developed in large part to measure tectonic motions, and it has been spectacularly successful in doing so. Today we routinely measure plate motions, plate boundary deformation, and displacements due to events like earthquakes with millimeter or millimeter per year precision. In addition to these tectonic motions, Earth is continuously deforming under the influence of surface loads, mainly water in its various forms. Alaska features remarkably large signals from tectonics, volcanic deformation and surface loading, all of which contribute to the observed surface motions. In this talk I will introduce these various sources of deformation and summarize what has been learned by studying plate boundary deformation, glacial isostatic adjustment, and seasonally varying surface loads.