



Surface Mass Loading effects in Geometry, Gravity, and Rotation

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The time varying spatial redistribution of surface masses (atmospheric pressure, oceanic mass, continental water storage (ice, soil moisture, and groundwater variations) loads and deforms the earth, changes the terrestrial gravity observations and the Earth's potential field as observed from space (gravity), and influences the rotation of the Earth. The precision and spatial sampling of geodetic observations provides an opportunity to invert for the loads themselves at ever increasing degrees. These inversions are providing insight into the global change processes that drive that mass distributions themselves. In this presentation, I review how gravity field, rotation and deformation observations can be used to invert for the surface mass loads.