

Spaceborne GPS at JPL

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Abstract

The enormously rich observing geometry provided by the Global Positioning System makes possible a variety of strategies for computing precise LEO orbits. These range from purely geometrical to highly dynamical and include a continuum of possibilities in between. Precise orbit estimation with GPS further allows the possibility of improving models of Earth's gravity field by observing subtle variations in a satellite's orbit. GPS tracking from space also permits sensing Earth's atmosphere by means of the radio occultation technique long used on interplanetary missions. This talk will describe the basic techniques and give examples of their use on recent missions, including CHAMP, SAC-C, and TOPEX/Poseidon.