



Thermospheric Density and Wind Determination from Satellite Dynamics

By Eelco Doornbos

Springer. Hardcover. Condition: New. 183 pages. Dimensions: 9.2in. x 6.1in. x 0.7in. The Earth's atmosphere is often portrayed as a thin and finite blanket covering our planet, separate from the emptiness of outer space. In reality, the transition is gradual and a tiny fraction of the atmosphere gases is still present at the altitude of low orbiting satellites. The very high velocities of these satellites ensure that their orbital motion can still be considerably affected by air density and wind. This influence can be measured using accelerometers and satellite tracking techniques. The opening chapters of this thesis provide an excellent introduction to the various disciplines that are involved in the interpretation of these observations: orbital mechanics, satellite aerodynamics and upper atmospheric physics. A subsequent chapter, at the heart of this work, covers advances in the algorithms used for processing satellite accelerometry and Two-Line Element (TLE) orbit data. The closing chapters provide an elaborate analysis of the resulting density and wind products, which are generating many opportunities for further research, to improve the modelling and understanding of the thermosphere system and its interactions with the lower atmosphere, the ionosphere-magnetosphere system and the Sun. This item ships from multiple locations. Your book may...



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