

REMOTE SENSING OF THE IONOSPHERE BY SPACE-BASED GNSS OBSERVATIONS

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The Global Positioning System (GPS) ionospheric radio occultation (IRO) technique onboard Low Earth Orbiting (LEO) satellites such as CHAMP (CHALLENGING Minisatellite Payload) is a powerful, yet relatively inexpensive tool for profiling the electron density in the ionosphere from top to bottom. Information on the reconstructed electron density distribution might be used not only to validate already existing models but also to create a good data basis for developing new models of other key ionospheric parameters such as the critical frequency (f_oF2), the F2-layer peak height (h_mF2) and the plasma scale height (H_p). This presentation shows the IRO technique capabilities for developing plasma density reconstruction methods and data assimilation procedures, and also for monitoring the ionosphere on a global scale. Such operational monitoring can be used to study ionosphere composition, dynamics, disturbances, and to deduce valuable data products.