



## **Estimation of ionospheric sporadic E intensities from GPS radio occultation measurements**

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The GPS radio occultation (RO) technique is employed to study ionospheric sporadic E (Es) layers on a global scale. Our data set is based on FORMOSAT-3/COSMIC radio occultations of the years 2006-2013 and comprises about 2,200 globally distributed RO measurements per day. GPS RO signals are sensitive to strong vertical electron density gradients that are found in the presence of Es layers. These gradients cause strong fluctuations in the Signal-to-Noise Ratio (SNR) of the 50 Hz GPS L1 occultation signal, which are attributed to sporadic E events.

In previous studies the GPS RO data set was used to obtain a global picture of sporadic E occurrence and its spatial and temporal variability. We could demonstrate that Es formation is influenced by several geophysical parameters such as tidal winds in the upper atmosphere, the presence of metallic ions and the Earth's magnetic field.

Recently, we extended the existing numerical algorithm for sporadic E detection in order to receive information on the intensity of the Es layers. We present initial results, which are validated with coinciding ionosonde measurements. We also introduce initial global maps of Es intensities based on GPS RO data in dependence on location, altitude, local time and season and we will show the large variability of Es layer intensity in time and space.