

EGU21-2400

<https://doi.org/10.5194/egusphere-egu21-2400>

EGU General Assembly 2021

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## Tidal Signature Detection in Midlatitude Sporadic E Occurrence Rate, Using FORMOSAT-3/COSMIC Radio Occultation Data

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Sporadic E (Es) is a transient phenomenon where thin layers of enhanced electron density appear in the ionospheric E region (90-120 km altitude). Es can influence radio propagation, and its global characteristics have been of great interest to radio communications and navigations. Atmospheric diurnal and semidiurnal tides cause horizontal wind shears at E-region heights by giving rise to ions and electrons' vertical motions. These shears will lead to the formation of Es layers. This research aims to study the role of atmospheric solar and lunar tides in Mid-latitude Es occurrence. For this purpose, radio occultation data from FORMASAT-3/COSMIC mission of 11 years (2007 to 2017), which provide complete global coverage, have been used. The results show both lunar and solar tidal signatures in Es occurrence. These tidal signatures are longitudinally dependent, which can result from non-migrating tides or modulation of migrating tidal signatures by zonally varying geomagnetic field.