



## **Comparison of tidal wind shear observed by meteor radar and sporadic E occurrence rates based on GPS radio occultation observations**

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We analyze diurnal, semidiurnal, terdiurnal, and quarterdiurnal tidal amplitudes, phases, and related wind shear in the mesosphere/lower thermosphere, which has been observed by a meteor radar at Collm (51.3°N, 13.0°E). We present the climatology of wind shear, and analyze interannual variability and trends from 2007 – 2016. The wind shear phases are compared with those of sporadic E (Es) occurrence rate phases, which were derived from GPS radio occultation signal-to-noise ratio (SNR) profiles measured by the COSMIC/FORMOSAT-3 satellites. Es are produced by wind shear which, in the presence of a horizontal component of the Earth magnetic field, leads to ion convergence in the region where the wind shear is negative. Consequently, we find good correspondence between radar derived wind shear and Es phases for the semidiurnal, terdiurnal and quarterdiurnal tidal components. Diurnal tidal wind shear does not agree with Es occurrence rate phases.