

Seminar über Microwave Physics and Atmospheric Physics

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Titel: Ionospheric irregularities observed with spatial fluctuation of TEC

Spatial fluctuation of total electron content (TEC), SFTI, is proposed to identify and analyze ionospheric irregularities with the Global Navigation Satellite System (GNSS). SFTI is the spatial dispersion of vertical TEC (VTEC) within a specific area at a given time. The size of the specific area for SFTI calculation can be chosen as $0.8^\circ \times 0.8^\circ$ in longitude and latitude, which corresponds to approximately 77 km \times 95 km at 35°N at 400 km height for the dense GNSS Earth Observation Network (GEONET) of Japan. An SFTI map is generated by sliding window to show the spatial variation of the ionospheric irregularities in two dimensions. It can be used to obtain the size, shape, orientation and intensity distribution of the irregularity structures. Case studies are carried out for three strong irregularity events on 12 February 2000, 20 March 2001 and 10 November 2004. The irregularities are found to be anisotropic branching structures, which elongate in north-south direction when first seen at lower latitudes. The structures can move and deviate from their previous orientations, and eventually drift perpendicular to their orientations. Such analyses with SFTI and GEONET observation successfully provide a new perspective of irregularity morphology and evolution.

A brief introduction of National Astronomical Observatories of Chinese Academy of Sciences will be introduced at the beginning

Zeit: Freitag, 23.08.2019, 10:15 Uhr

Ort: **Hörsaal A97**, Gebäude Exakte Wissenschaften, Sidlerstrasse 5, Bern, Schweiz