



Scintillation of GNSS signals at equatorial latitudes during the maximum of solar cycle 24

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A particular threat to global navigation satellite systems (GNSS) are small scale ionospheric disturbances, which can lead to fluctuations in phase and amplitude of the received satellite signal. In extreme cases such fluctuations, called scintillations, can lead to a loss of lock between satellite and receiver, causing problems or even prevent exact positioning. The GNSS signals are affected differently, since the signals are transmitted by different carrier frequencies and are constructed in different ways. Here we will show results for the sensitivity of several GNSS systems (GPS, GLONASS, GALILEO) and used signal frequencies in respect to small scale ionospheric irregularities. A first correlation measurement of scintillations indices from the recently established small-scale network of high-rate (50Hz) GNSS receiver at Bahir Dar will be presented. Next to the investigation of diurnal and seasonal variations of the scintillation abundance, we have derived drift velocities of ionospheric plasma irregularities in East-West direction for the first time. The data of the network have also been used to generate local scintillation maps. We will give an outlook to future investigations and discuss beneficial network extensions.