

MULTI-SCALE ANALYSIS OF RAW SCINTILLATION DATA: TOWARDS REMOTE SENSING OF IONOSPHERIC TURBULENCE

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Radio scintillation on the amplitude and phase of the GNSS signals taking place due to ionospheric irregularity have been found to appear often as non-Gaussian fluctuations the statistics of which do depend on the time scale at which the signal is analysed.

Being radio scintillation produced by ionospheric turbulence, it is not unexpected that the signal fluctuations may have some statistical, scale-dependent, characteristic that is reminiscent of how diffraction index fluctuations are like in the ionosphere.

In this communication, we present the results of analyzing how the probability distribution of the fluctuations of a GPS signal affected by ionospheric scintillation at different time scales: with the help of scintillation climatological studies, we further observe how this scale dependence of statistical momenta vary according to geophysical conditions. We are in particular interested in how the scale-dependent statistics of scintillation appear in North-South conjugate events.