



## **Calculation of ionospheric plasma density irregularities parameters by using EISCAT measurements for strong scintillation modelling**

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Ionospheric plasma density irregularities may cause rapid fluctuations in the intensity and phase of radio waves propagating through. Usually, scintillation events are modelled in the diffractive scattering approach which is valid for weak scattering conditions. Some mathematical tricks help then in reproducing high levels of scintillation, lacking of full physical meaning. Strong scintillation events are better modelled in the refractive scattering approach, which includes weak scattering conditions. A few parameters (e.g., spatial correlation length and drift velocity) are of key importance in understanding which approach may be correct.

Last year, two EISCAT measurement campaigns have been set up in the framework of the Trans-National Access programme, in order to infer and calculate all those parameters useful for numerical modelling of scintillation events. The radar measurement results are compared with transionospheric radio signals at VHF, UHF, and L band in order to understand the feasibility and appropriateness of the two approaches.