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Drift dispersion of LOFAR scintillation measurements.

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The LOFAR network radio telescope can give information to determine the morphology and dynamics of the ionospheric plasma giving rise to scintillation. The wide distribution of LOFAR stations across several countries enables the dynamics of large-scale phenomenon, such as Travelling Atmospheric Disturbances, to be studied, while small-scale dynamics can be viewed using the dense core of stations at LOFAR's centre.
We observed a difference in functional behavior of time lag of the maximum of temporal cross-correlation function between quiet and disturbed ionospheric conditions for amplitude scintillation LOFAR measurements though for very small database. Basic interpretation of the time lag gradient is to attribute that to frozen-in drift of ionospheric electron content irregularities. Using larger set of data representative for variety of geomagnetic conditions we try to verify the finding and explain observed phenomenon. We use different geophysical scenarios, radio propagation models and we analyse the data both in time-frequency as well as in position-wavevector representations to test our hypotheses.