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# Modeling and analysis of LOFAR scintillation data

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Scintillation of beacon satellite signals or distant cosmic radio emissions can provide interesting information on the cosmic medium itself, its internal spatial structure and basic evolution characteristics. LOFAR network gives consistent scintillation data with good coverage both in time and space and for the frequency range that goes down close to the local plasma frequency (LBA) being thus sensible to ionospheric plasma irregularities. LOFAR Scintillation measurements in the LBA range exhibit very interesting morphologies. Based on scintillation simulations using the phase screen method, including multiple scattering and refraction, we try to untangle the information contained in the full range (time, space, frequency) of LOFAR data and verify a number of hypotheses about the local structure of the ionosphere and its evolution.