



Solar Radio Observations and Space Weather

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Coronal mass ejections and associated shock waves are the most important drivers of disturbed geomagnetic conditions. Therefore, tracking of CMEs and the CME-driven shock waves, and predicting their arrival at the Earth, became one of the frequently addressed topics of the space weather research.

Studies of radio emission associated with CME-driven shock waves, so-called type II radio bursts, are of particular interest because radio observations cover a broad frequency domain which enables tracking of the shocks all the way from the low corona to the Earth. Consequently, the shock arrival estimate using the coronal radio emission can be updated once the shock signatures are observed in the interplanetary space.

In this presentation I will discuss on how radio observations (both ground based and space based) can be used in the space weather forecasting with focus on the recent results in the radio triangulation studies of type II emission which are bringing the new insight in the causal relationship of the CMEs and associated solar radio emission. I will also present high resolution LOFAR observations of the shock wave signatures which show type II emission in a completely new light and therefore bring new challenges to the shock wave physics.