



The role of Solar Radio Science in the Space Weather Research

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In this presentation I will show the space weather relevant diagnostics which can be provided by the solar radio observations. I will mostly focus on the role of solar radio science in providing information on the solar eruptive phenomena (flares and coronal mass ejections, CMEs) at the Sun and in the inner heliosphere. CMEs 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 type II radio bursts, signatures of the shock waves, are of particular interest because radio observations cover a broad frequency domain that enables tracking of the shocks all the way from the low corona to the Earth. I will present how radio observations (both ground based and space-borne) can be used in the operational space weather forecasting with emphasis on the recent results in the radio triangulation studies of type II emission that bring the new insight on the causal relationship of CMEs and associated solar radio emission. I will also present first high-resolution LOFAR observations of the shock wave signatures that show type II emission in a completely new light and therefore bring new challenges to the shock wave physics.