THE SPECTRUM AND POLARIZATION
OF NOISE STORMS

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Abstract: Drawing on the single-frequency records of the Tremsdorf Solar Radio Observatory, the spectrum and polarization of the continuum component of noise storms was analysed. This investigation was carried out to understand the physical nature of the instabilities which lead to the emission of a noise storm, better. Moreover, an attempt was made to use the theory of mode coupling, developed by Mollwo, to explain the spectral features of the noise storms. The analysis led to the following conclusions:

1. The energy of a disturbance, causing a noise storm, is a function of its height of origin in the corona. On an average, the energy increases with decreasing height of origin.

2. The upper frequency limit of the noise storms may be explained by the theory of mode coupling, but there are difficulties in explaining the behaviour of the noise storms at frequencies < 70 MHz, using only the theory of mode coupling.

3. Strong magnetic fields, extending high into the corona, are especially present during the late phase of the solar activity cycle.