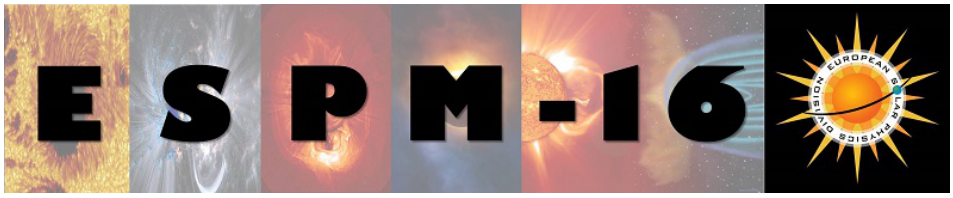

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Comparison of the parameters of coronal mass ejections and type II radio bursts in cycles 23 and 24

Wednesday, 8 September 2021 09:00 (13 minutes)

Coronal mass ejections (CMEs) are one of the main factors determining space weather. The results of the study of CMEs, type II radio bursts (RBIIs) and CMEs associated with RBIIs (RBII CMEs) observed from 1995 to 2017 are presented.
DH RBIIs are believed to be generated by magnetohydrodynamic shock waves. CMEs are considered to be the main phenomenon of solar activity, which are the sources of these shock waves. The study showed that CMEs associated with RBIIs constitute a separate CME population. CMEs and RBII CMEs behave differently in cycles 23 and 24. While the total number of CMEs increased in cycle 24 compared to cycle 23, the number of RBII CMEs decreased. In cycle 24, not only the number of CMEs increased, but also their parameters and the nature of cycle variations changed. Different types of CMEs behave differently during cycles 23 and 24.
The results indicate that the cycle variations in the number of both CMEs and RBII CMEs, and their parameters do not correspond to the well-known evolution of active regions. The dependence of the rate and parameters of the RBII CMEs and RBIIs on the magnetic field strength and plasma parameters in the solar atmosphere has been revealed. The decrease in both the polar and nonpolar magnetic fields of the Sun observed in cycle 24 led to changes in the coronal and interplanetary plasma, which influenced both the CME parameters and the nature of their propagation, and the conditions for the generation of RBIIs.

Student poster?

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