

Interplanetary conditions for CIR-induced and ICME-induced magnetic storms.

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We present a brief review on comparison of conditions in the interplanetary space during geomagnetic storms which are usually generated by 2 large-scale interplanetary phenomena - interplanetary coronal mass ejection (ICME) and corotating interaction region (CIR). ICMEs (or magnetic clouds) are sources of stronger magnetic storms. We take into account that 2 parts of ICME may be geoeffective - compressed region between shock and leading edge of ICME (Sheath) and the body of ICME. We use superposed epoch method with storm onset time as zero time for analysis of 628 magnetic storms. Stronger storms are usually generated by the sheathes. Behavior of plasma and magnetic field parameters in CIR and Sheath is close to one in ordinary solar wind while in ICME it may significantly differ. For example, in ICME the magnitudes and variations of proton temperature, total ion density, minor ion abundance, beta-parameters and others differ from ones in CIR and Sheath. These facts may be used for modeling CME formation and dynamics as well as for forecasting the Space Weather conditions near the Earth. Paper is supported in part by Physical Department of Russian Academy of Sciences, Program N 16, Presidium of Russian Academy of Sciences, Program N 16, and RFBR, grant 04-02-16131-a.