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Comparison of role of CIR, Sheath and ICME in generation of magnetic storms

Y.I. Yermolaev, N.S. Nikolaeva, I.G. Lodkina, and M.Y. Yermolaev

Space Research Institute (IKI), Russian Academy of Science, Moscow, Russian Federation (yermol@iki.rssi.ru, +7 495 333 12 48)

On the basis of the OMNI data of interplanetary measurements for the period of 1976-2000 we investigate relative role of various types of solar wind streams in generation of magnetic storms. Main interplanetary drivers of magnetic storms are corotating interaction regions (CIR), interplanetary CME (ICME) including magnetic clouds (MC) and Ejecta and compression regions Sheath before both types of ICME. For various types of solar wind we study following relative characteristics: occurrence rate; mass, momentum, energy and magnetic fluxes; probability of generation of magnetic storm (geoeffectiveness); efficiency of process of this generation (ratio of Dst-index as "output" to integrated electric field as "input") and solar cycle variations of these parameters. Obtained results show that despite magnetic clouds have lower occurrence rate and lower efficiency than CIR and Sheath they play an essential role in generation of magnetic storms due to higher geoeffectiveness of storm generation (i.e higher probability to contain large and long-term southward IMF Bz component). Efficiency for all drivers slightly depends on solar cycle phase while geoeffectiveness (probability) for all drivers is smaller during solar minimum than during other phases of solar cycle.