

## A New CME Model under Current Sheet Magnetic Coordinates

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Using 80 CME-ICME events during 1997.1~2002.9, based on the eruptive sources of CMEs and solar magnetic observation at the photosphere, a current sheet magnetic coordinate is established in order to study the propagation of CME and its geoeffectivenes. In context of this coordinate, the effect of the eruptive source and the form of heliospheric current sheet at the eruptive time of CME on the geomagnetic intensity caused by CME and the CME's arrival time at the Earth is investigated in detail. Our preliminary conclusions are: 1. The interplanetary disturbance caused by CMEs will tend to be collimated and deflected towards the heliospheric current sheet (HCS) while propagating to the earth. The HCS will hinder the trans-propagation of the disturbance and cause the same side and different-side effects connected with the HCS, i.e., the changes caused by the solar activity in the earth's space environment are frequently larger at the same side than those at the different side of HCS. That is, when our earth is located near the HCS, adverse space weather events occur most probably: 2. The source of CME and its nearby form of HCS will also affect its arrival time at the earth. According to these conclusions, in this context of CMC coordinate we arrive at new prediction method for estimating the geomagnetic intensity (Dst index) and arrival time. The application of the empirical formula for 80 CME-ICME events shows that the relative error of Dst is less than 30% for 56% events with  $Dst_{min} \leq -100nT$ , while the averaged absolute error of arrival time is lower than 10 hours for all events.