

Triple-Dipole Model: From Solar Physics to STE Physics

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The triple-dipole model explained well the complex relations among the neutral line at the source surface, distribution of coronal holes (CH), CME sources, bright coronal streamers, bright EUV regions, and others. These phenomena are the origin of various interplanetary and terrestrial phenomena. Therefore, the triple-dipole model can be extended to explain various wider phenomena in relation not only to Solar, but also to Terrestrial Environmental Physics (STEP), and also to Space Weather. The author proposes to put a focus of the Space Weather observation and analysis on the years from 2003 to 2005, because the simplest and distinct triple-dipole condition should appear stably in this period.

The triple-dipole model was originally proposed to explain various solar phenomena. The model explained well the complex relations among the neutral line at the source surface, distribution of coronal holes (CH), CME sources, bright coronal streamers, bright EUV regions, and others.

The neutral line, in other words, the heliomagnetic equator is conveyed by the solar wind and forms the heliomagnetospheric equatorial plane, or the interplanetary magnetic sector boundary. The equatorial plane further defines the gross-structure of the solar wind in the heliosphere. The CME gives rise to sporadic SC-type geomagnetic storm in sunspot active years, while CH gives rise to recurrent non-SC-type geomagnetic storms during 1-3 years before sunspot minimum. The EUV region is possible to affect, through the ozone layer, on the meteorological condition of the earth.

Therefore, the triple-dipole model on solar physics phenomena can be extended to explain various wider phenomena in relation not only to Solar, but also to Terrestrial Environmental Physics (STEP), and also to Space Weather.

The author proposes to put a focus of the Space Weather observation and analysis on the years from 2003 to 2005. It is because the simplest and distinct triple-dipole condition is expected to appear stably during this period.