

[CS09] Study of the interplanetary magnetic cloud model near the Earth

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In this work we have performed a study of the magnetic clouds (MCs) events observed by the WIND spacecraft near the Earth. We have obtained the information of MCs such as their orientation, magnetic magnitude at center axis, radius, and helicity sign by assuming a cylindrically symmetric constant-alpha force-free model. The orientation of MC was calculated by two different methods (minimum variance and non-linear least squares fit). We present the results of two methods by comparing the computed parameters.

[CS10] Measurement of Magnetic Twist of EUV Coronal Loops

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The construction of plasma into a coronal loop without dispersion may be explained if the magnetic field of the loops is twisted. On the basis of this idea, Chae & Moon (2005) developed a method of determining magnetic twist of coronal loops by analyzing coronal images and photospheric magnetograms together. I attempt to determine the number distribution of magnetic twist of coronal loops, I have selected 36 conspicuous loops which are bright enough and well separated from other adjacent loops on TRACE EUV images. I have constructed and examined coronal magnetic fields of selected active regions with consideration of the projection effect, and we could identify 15 coronal loops that were well-fit by linear force-free field. I have applied our method to well-fit coronal loops and found that these loops have twist values from 0.2π to 1.69π .