

Observational Study of Solar Magnetic Active Phenomena

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The magnetic field plays a key role of solar activities in the solar atmosphere and also the space weather. In this paper, the solar magnetic fields and the relationship with solar activities (such as, solar flares and coronal mass ejections) have been presented based on observations of the Huairou Vector Magnetograph at National Astronomical Observatories of China and also the relevant data from SOHO, TRACE and Yohkoh Satellites etc.

The following problems will discussed:

- [1] The diagnostics of vector magnetic fields in the solar atmosphere and the corresponding researches in China.
- [2] The configuration of magnetic field and the relationship with electric current and magnetic (current) helicity in solar atmosphere inferred from the observational data.
- [3] The possible processes on the storage, development and relax of non-potential magnetic energy in solar active regions and the relationship with solar eruptive phenomenon, such as flares and coronal mass ejections.