

Magnetic Helicity and Eruptions in Solar Active Regions

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The solar magnetic fields and the relationship with solar eruptions (such as, solar flares and coronal mass ejections) have been presented based on observations at the Huairou Solar Observing Station of National Astronomical Observatories of China and also the relevant data from SOHO, TRACE and Yohkoh Satellites etc. The following problems will be discussed: 1. The configuration of magnetic field and the relationship with electric current and magnetic (current) helicity in solar atmosphere inferred from the observational data. 2. 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. 3. A new full disk vector magnetograph at Huairou Solar Observing Station has been presented.