Solar EUV Brightenings and Magnetic Reconnection Process

Xingming Bao

National Astronomical Observatories of China, China

Magnetic reconnections are considered as the main physical process which happen in many solar dynamical eruptions such as flares, prominences eruption. EUV brightenings may possibly one of the manifestations of magnetic reconnections in corona. In this paper, EIT brightenings in different scales were examined by using multiband data from spaceborne observations of SOHO TRACE and HINODE and from ground based Hα observations. The temperatures in and outside the EIT bright points were calculated from the HINODE data to explore how the magnetic reconnection was related to coronal heating. The EIT brightenings are divided into three types according their locations in: (1) active regions (with sunspots), (2) plage regions (without sunspot), (3) quiet regions. The first type of EUV brightenings are often accompanied by flares with magnetic strength larger than 1000 Gauss. The third type of EUV brightenings are usually correspondent to weak magnetic field with intensity less than 100 Gauss. The physical properties of EUV brightenings such as lifetime, magnetic strength and configuration were studied. Their dynamical evolutions and relations to their magnetic structures and possible magnetic reconnection process were discussed.