MAGNETIC RECONNECTION IN SOLAR ATMOSPHERE OBSERVED BY HINODE

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The Hinode spacecraft was launched on 2006 September 22 UT. It is a Japanese mission collaborating with US and UK with three instruments on board; the Solar Optical Telescope (SOT), the X-Ray Telescope (XRT) and EUV Imaging Spectrometer (EIS). Hinode reveals the three-dimensional structure and dynamics in the various activities of the Sun. One of the most interesting topics in solar physics is magnetic reconnection, because magnetic reconnection is one of the rapidest processes of energy conversion from stored magnetic energy to thermal energy and kinetic energy or non-thermal particle energy. In this talk, we present Hinode observation related to magnetic reconnection. One of the most interesting/astonishing Hinode's findings is that the magnetic reconnection can be taken place everywhere in solar atmosphere. We can clearly see the observational evidence of magnetic reconnection in not only solar corona but also chromosphere. SOT can observe the photospheric/chromospheric dynamics, and XRT/EIS can observe coronal dynamics. With those three telescopes, we can discuss magnetic reconnections from photosphere to upper corona. Generally the physical conditions of plasma are quite different between solar corona and chromosphere (for example, temperature, density, and so on). Thus, we can compare the magnetic reconnection in different physical condition and discuss the fundamental characteristics of magnetic reconnection with Hinode. We will discuss the major difference of the magnetic reconnection in the solar corona and photosphere/chromosphere in this talk.

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