

Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

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PEM028-P04

Room:Convention Hall

Time:May 27 10:30-13:00

Comparison between Inactive BGD spots NOAA9957 and Active BGD spots NOAA10652 by using MDI dopplergram

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The delta type sunspot groups are known to produce very strong flares and to have high flare productivity. In particular, beta-gamma-delta type spots are the strongest type of all.

In solar cycle 23, there are 200 beta-gamma-delta type regions, and 141 regions of them (70.5 %) undergo stronger flares than M1.0. This means the other 59 regions did not show high flare activities. We attention these two groups as control groups.

Active Region NOAA9957 was observed on solar disc from 2002 May 16 to May 28. During observation time NOAA9957 was classified into beta-gamma-delta type region for 10 days, but this region did not show marked flare activity.

Using SOHO-MDI dopplergram data, we detect continuous marked down flow motions at neutral line in this region. For example, a down flow indicates 1500-1700m/s maximum value for several hours. The 300m/s contour includes both magnetic polarities and penumbral area decay and the prominent down flow carry on simultaneously. We are assuming this phenomenon as submergence of the magnetic flux. We also check up the structure of the magnetic field lines with vector magnetogram of Huairou Solar Observing Station.

In addition, we report the result for comparison between high flare activity beta-gamma-delta region NOAA10652 and low flare activity beta-gamma-delta region NOAA9957 for line of sight velocity with SOHO-MDI dopplergram.

Keywords: sun, active region, dopplergram, magnetic flux, down flow motions, submergence