Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

PEM35-P01 Room:503 Time:May 2 16:15-17:30

Development of magnetic field tracking module for analyzing a decaying sunspot

KATO, Shota[1*] ; IMADA, Shinsuke[1] ; MACHIDA, Shinobu[1]

[1]Solar-Terrestrial Environment Laboratory, Nagoya University

In order to analyze the structures of magnetic fields using the data from Solar Optical Telescope (SOT) on board the Hinode satellite, we have developed the automatic tracking module, which detects the magnetic region and tracks the time variation of each region.

The module, based on three thresholds, intensity, size, and distance, has main three functions: (1) detect the magnetic fields based on the intensity threshold, (2) remove the micro region by the size threshold, (3) based on move distance by time variation, detect the same regions and track them.

We made simple sample data for test and checked on the accuracy of our tracking module.

We applied the module to sunspot and analyzed the time variation of decaying sunspot which is one of the sources of magnetic element in the solar surface.

We have use the magnetograph data which was observed by Hinode/SOT from 29 Dec 2009 to 2 Jan 2010. We also discuss the north-south/east-west asymmetry of the decaying process in the active region.

Keywords: sunspot, development of module, auto detection, auto tracking