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Auroral bright spot in Jupiter's active region in corresponding to solar wind dynamic

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Jupiter's polar emission, whose brightness behavior appears to be unstable. This work focuses on the bright spot in active region which is a section of Jupiter's polar emission. Images of the aurora were taken by Advanced Camera for Surveys (ACS) on board the Hubble Space Telescope (HST). Previously, two bright spots, which were found on May 13th 2007, were suggested to be fix on location described by system III longitude. The bright spot's origin in equatorial plane was proposed to be at distance ˜80-90 Jovian radii and probably associated with the solar wind properties. This study analyzes additional data on May 2007 to study long-term variation of brightness and location of bright spot. The newly modified magnetosphere-ionosphere mapping based on VIP4 and VIPAL model are used to locate the origin of bright spot in magnetosphere. Furthermore, the Michigan Solar Wind Model or MsWim are also used to study the variation of solar wind dynamic pressure during the time of bright spots observation. We purpose that the bright spots appear nearly the same location which corresponds to the origin in magnetosphere and the solar wind dynamic pressure should probably affect to the bright spots variation.

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