Variation characteristics of Jupiter's hectometric radiation during the Jupiter observation campaign in Jan. 2014

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In Jan. 2014 around Jupiter's opposition to the earth, an intensive remote observations for Jupiter had been held by using the HISAKI(SPRINT-A) satellite and the other many optical and radio wave instruments. This observation campaign gave an important opportunity for the investigation of drivers of Jupiter's magnetospheric activities. We have analyzed Jupiter's hectometric radiations (HOM) observed by the WIND spacecraft for the period. HOM is known to be a counterpart of the auroral kilometric radiation (AKR) of the earth and one of indicators which reflect Jupiter's global magnetospheric activities (Louarn et al., JGR, 1998; 2014 etc.), and is implied to have some correlation with solar wind variations (Nakagawa et al., ASR, 2000 etc.). The campaign was held around the maximum of the current solar cycle and many intensive solar bursts were included in the observed WIND/WAVES data, however the analysis indicates temporal variations of HOM activities and some characteristic correlative variations between radio intensity, auroral luminosity and Iogenic plasma UV emission intensity. The major results are summarized as follows; 1) Radio activity enhanced around the middle of Jan., 2014. 2)The most luminous aurora period corresponds to the most intense HOM period, however, HOM enhanced period did not always correspond to auroral luminous period, 3)HOM enhanced period corresponds to decreasing phase of torus luminosity and the period with almost no distinctive solar wind variation. These results imply that Jupiter's global magnetic activities might not be mainly controlled by variations of both solar wind and Iogenic plasma near the Io orbit, but some other internal processes trigger and drive them. It would be needed for revealing the processes to investigate further coordinated and simultaneous observations of magnetospheric events globally by remote sensing and direct monitor. The forthcoming direct exploration for Jupiter's magnetosphere by JUNO with the global Jovian plasma watch by HISAKI will give an important opportunity for this study.

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