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Jupiter's polar auroral bright spots as seen by Juno-UVS

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The instruments on board the NASA Juno mission provides scientists with a wealth of unprecedented details about Jupiter. In particular, the Ultraviolet Spectrograph (UVS) is dedicated to the study of Jupiter's aurora in the 60-200 nm wavelength range. The images taken by Juno-UVS reveals for the first time a complete view of Jupiter's aurora, including the nightside part hidden from the Earth-orbiting Hubble Space Telescope (HST). This work aims to study Jupiter's polar aurora using images obtained from the UVS instruments. Here we present the systematic analysis of one of the most spectacular features of Jupiter's polar-most aurora, called the bright spot. The emitted power of the bright spots ranges from a few to a hundred GWs. Within a Juno perijove, the spots reappear at almost the same positions in system III. The time interval between two consecutive brightenings is a few tens of minutes, comparable to Jupiter's X-ray pulsation. The comparison of the time interval with X-ray observation is under the investigation. Comparing the difference perijove sequences, the system III positions of bright spots in the northern hemisphere are concentrated in a region around 175 degrees of system III longitude and 65 degrees of latitude. On the other hand, the positions of bright spot aurora the southern hemisphere are scattered all around the pole. Previous studies suggested that the bright spot could correspond to noon facing magnetospheric cusp. However and surprisingly, we have discovered that the bright spots could map to any magnetic local time, putting this interpretation into question.