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# LOW-LATITUDE RED AURORA OBSERVED IN JAPAN DURING THE ST. PATRICK'S DAY 2015 EVENT

***K Shiokawa[1]* and Y. Otsuka[1]***

**[1]Solar-Terrestrial Environment Laboratory, Nagoya University, Nagoya 464-8601, Japan*
*Email: shiokawa@stelab.nagoya-u.ac.jp*

We report an event of low-latitude red aurora observed in the northern part of Japan associated with the St.Pattick's day storm in 2015. A large geomagnetic storm took place on March 17-18, 2015 with the minimum Dst index of ~-223nT. The low latitude red aurora was observed in the northern sky of Rikubetsu, Japan (43.5N, 143.8E, dipole magnetic latitude = 35N), at 15-19UT (00-04LT) on March 17, 2015 with a maximum intensity of ~0.5 kR at a wavelength of 630.0nm. The red aurora was observed both by a meridican-scanning filter-tilting photometer and an all-sky monochromatic cooled-CCD camera. Green line emission at a wavelength of 557.7 nm was not observed during this event. The aurora appeared during the recovery phase of the geomagnetic storm; the Dst index started to increase at 00 UT on March 17. These features suggest that the observed red aurora is a Stable Auroral Red (SAR) arc which is caused by interaction of high-energy ring-current particles with cold electrons in the plasmasphere. An airglow temperature photometer at Rikubetsu also observed a weak enhancement of 427.8-nm emission at the zenith at 00-0LT with a maximum intensity of 12 R. This suggest precipitation of energetic neutral atoms to low latitudes during the recovery phase of the storm.