Stable Auroral Red Arcs Observed in Japan After the Interval of Solar Wind Almost Disappeared

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The interval of May 10-11, 1999 is known as the solar wind almost disappeared event. For May 12-13, on the other hand, the solar wind density enhanced to more than 10 /cc and a weak magnetic storm occurred. Although this storm was weak with a minimum Dst index (provisional) of -57 nT (15 UT of May 13), we observed a stable auroral red (SAR) arc at the Rikubetsu observatory (magnetic latitude = 36.8N), Japan for 12-17 UT (21-02 LT) on May 13. The maximum arc intensity at a wavelength of 630 nm reaches up to 700 R in the northern sky of Rikubetsu. In the presentation, we discuss the cause of the observed SAR arc in such a weak storm in relation with the disappearance of the solar wind before the storm.

The interval of May 10-11, 1999 is known as the solar wind almost disappeared event and a special session was held on this event in the last AGU Fall Meeting. For May 12-13, on the other hand, the solar wind density enhanced to more than 10 /cc and a weak magnetic storm occurred. Although this storm was weak with a minimum Dst index (provisional) of -57 nT (15 UT of May 13), we observed a stable auroral red (SAR) arc at the Rikubetsu observatory (magnetic latitude = 36.8N), Japan for 12-17 UT (21-02 LT) on May 13. The maximum arc intensity at a wavelength of 630 nm reaches up to 700 R in the northern sky of Rikubetsu. A weak emission (about 5 R) at 427.8 nm was also observed. In the presentation, we discuss the cause of the observed SAR arc in such a weak storm in relation with the disappearance of the solar wind before the storm.