

North-south asymmetry of vortex evolution in conjugate aurora

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The influence of the ionosphere on the aurora can be evaluated by examining the asymmetry of conjugate aurora at various time-space scales. We conducted a high-speed imaging observation of aurora at Tjornes/Iceland and Syowa/Antarctica for the time interval from 2 September 2016 to 7 September 2016 when high aurora activity continued for several days, which was driven by high-speed solar wind from a large coronal hole. It is found that an overall conjugacy is not good as we originally expected, even considering the modeled conjugate points. For example, vortex evolution from small scale (so called folds, a few ten km) to large scale (spirals, a few hundred km) occurred over whole field of view at Syowa, while such vortex structures themselves are hard to recognize at Tjornes at the same time. In this talk we discuss the conjugate morphology in more detail. Further we present the current situation and future development of the high-speed conjugate imaging observations.

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