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Interplanetary Ram Pressure Increases/Decreases and Dayside Auroral Variations

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Solar wind ram pressure increases and decreases are shown to be a triggering of dayside auroral intensifications and dimming, respectively. The auroral intensifications last for ~ 10-15 min propagate towards nightside along both the dawn and dusk flanks. In this study, we analyze interplanetary pressure pulse events and dayside auroral events in 1997-1999 using WIND interplanetary magnetic field and solar wind plasma data and POLAR UVI data. The relationship between the intensity of interplanetary pressure pulses and the intensity and symmetry of dayside auroras will be shown statistically. The micro-mechanism(s) of the particle acceleration and the auroral propagation will be discussed.