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Characteristics of afternoon aurora observed with an all-sky imager at the South Pole and their relation to KH instability

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All-sky auroral image data obtained by a multispectral all-sky imager installed at the South Pole (MLAT=74.2, MLT=UT-3.5h) by National Institute of Polar Research have been analyzed to investigate auroral phenomena related to the coupling between solar wind and magnetosphere at the flank side of magnetopause. In an analysis of image data, starting at 1997 winter season, we found an event which is characterized by vortex auroral structures in the afternoon MLT sector (MLT 15h-16h). It is suggested that the vortex structures are related with Kelvin-Helmholtz (KH) instability occurred around the flank side of magnetopause, because simultaneous particle data of FAST satellite indicate that the vortex structures appeared at a location close to the poleward boundary of closed field line, and they appeared after several hours duration of northward IMF condition. We will discuss the relationship between the vortex auroral structures and KH instability using other additional data.