

A Multi-Satellite/-Instrument case study of the source of the cold dense plasma sheet

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The source of the cold dense plasma sheet (CDPS) is of great interest, in particular, whether it is transferred to the magnetosphere via poleward-of-cusp, lobe reconnection or via mechanisms at the flank magnetopause. This paper presents a case study on the formation of the CDPS utilizing a wide variety of spacecraft observations, including Double Star (TC-1 and TC-2), Polar, LANL GEO and IMAGE, in addition to ground-based observation by SuperDARN on the 5th December 2004. During the event, the multi-spacecraft/-instrument observations provide evidence of wave like activity on the dawnside flank magnetosphere, simultaneous reconnection in both hemispheres along with persistent boundary layer, with a bi-directional electron pitch angle, existing at both the dayside and flank magnetosphere. We present these observations in the context of the formation of the CDPS and discuss the dominant source mechanism in this case.