

昭和基地で受信したDMSP衛星OLS画像データに基づくメソスケールオーロラの動態

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Meso-scale auroral dynamics revealed from DMSP/Operational Linescan System(OLS) data received at Syowa station, Antarctica

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The DMSP/OLS auroral images with a spatial resolution of 2.75km have been acquired since 1997 at Syowa Station (69.0S, 39.6E), Antarctica. In spite of the poor time resolution(15-20 min/frame), multiple N-S auroral streamers with narrow longitudinal scale size are identified clearly around the nightside auroral oval during disturbed magnetospheric conditions. Omega-bands and/or torch are also identified as large-scale wavy structures occasionally appeared on the poleward boundary of the diffuse auroral region in the midnight/morning sectors. It is proposed that the formation of omega-bands/torch structures are caused by several models; the Kelvin-Helmholts instability at the interface between CPS and LLBL or the interchange instability in the region1/region2 FAC system, and so on. Its verification, however, has not yet been made due to the lack of the observation evidences. We present here characteristic features of torch structures and auroral streamers based on high-resolution auroral images from DMSP/OLS, all-sky camera and TV images recorded at Syowa Station. Torch structures are found strongly enhanced during the period of a magnetic storm, and the activations in cases spatially correspond to multiple N-S auroral streamers moving equatorward from high latitudes.