

Direct comparison of MSTIDs observed at different latitudes

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It is commonly believed that Medium-Scale Traveling Ionospheric Disturbances (MSTID) are generated in the auroral region and then propagate radially toward the mid-latitudes. However, one to one relationship between the MSTIDs observed at the auroral and mid-latitudes has not been confirmed by substantial measurements.

In order to clarify whether or not sources of the MSTIDs observed at the auroral and mid-latitudes are common, we directly compared periods of the MSTIDs observed almost simultaneously at two different latitudes. SuperDARN radars in Alaska were employed for detecting MSTIDs at the auroral latitudes, and HF Doppler sounding system operated by UEC was used at the mid-latitudes. We have detected 17 events of equatorward propagating MSTIDs observed simultaneously in Alaska and Japan. Then, it was found that dominant period of the MSTIDs observed at auroral and mid-latitude are very similar, suggesting the long-distance trip of the MSTIDs from the auroral to mid-latitudes.