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Auroral dripping and its possible magnetospheric source

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We have recently discovered a new auroral structure called "auroral dripping" with ground-based and magnetospheric conjugated observations. They are frequent drippings from higher latitudes toward the equator, with a duration of 10-20 minutes. Magnetospheric observations show increases in particle flux and magnetic field simultaneously. With the keograms and ewograms, we find that the auroral drippings are different from other periodic structures in the motion and the temporal periodicity. To investigate the possible magnetospheric source of this structure, we simulate the entire process with the Rice Convection Model coupled with an MHD code (RCM-MHD). After long-lasting low-entropy plasma is supplied from the tailward boundary, frequent drippings and the accompanying oscillations in the near-Earth plasma sheet are reproduced. Our preliminary results suggest that the continuous plasma injection is considered to be possible magnetospheric source of the auroral dripping.