Canadian Association of Physicists | Association canadienne des physiciens et physiciennes

Contribution ID: **1883** Type: **Poster (Non-Student) / affiche (non-étudiant)**

POS-18 - An e-POP multi-instrument study of a stable double-arc

Wednesday 31 May 2017 18:06 (2 minutes)

We report the findings of a case study in which in the Enhanced Polar Outflow Probe (e-POP) passed over a stable double-arc system in the pre-midnight sector. The arcs'near infrared emissions were identified using e-POP's Fast Auroral Imager (FAI). We have assimilated measurements from e-POP's highly-resolved contemporaneous dataset in order to provide new and compelling insight into the microphysics of dynamic magnetosphere-ionosphere coupling processes. As e-POP crossed the arc, its magnetic footprint remained within the FAI's field-of-view, allowing for the interconnection of the optical, plasma, and electromagnetic properties of the arc to be studied in detail. e-POP's MaGnetic Field instrument (MGF) measured magnetic field perturbations indicative of structures of field-aligned currents collocated with the optical signature of the arc. The Radio Receiver Instrument (RRI) data exhibits a highly structured VLF spectrum and shows that a prominent VLF hiss structure was generated by the arc. Measurements from e-POP's Imaging and Rapid-Scanning Mass Spectrometer (IRM) show that, in the vicinity of the arc, the ionosphere was dominated by vertically upward plasma flows, and that the flows did not show any significant structuring at the location of the arc. However, approximately 75 km poleward of the arc in a region that was devoid of optical emissions, an ion-energization event was detected by both the IRM and Suprathermal Electron Imager (SEI). The energization is supported Ultra Low Frequency (ULF) radio wave activity as detected by the Radio Receiver Instrument (RRI).

Authors: Dr PERRY, Gareth (University of Calgary); Dr JAMES, Gordon (University of Calgary); HOWARTH, Andrew (University of Calgary); Dr MILES, David (University of Alberta); Mr SHEN, Yangyang (University of Calgary); Dr COGGER, Leroy (University of Calgary); Dr KNUDSEN, David (University of Calgary); Dr YAU, Andrew (University of Calgary)

Presenter: Dr JAMES, Gordon (University of Calgary)

Session Classification: DASP Poster Session | Session d'affiches DPAE (3)

Track Classification: Atmospheric and Space Physics / Physique atmosphérique et de l'espace (DASP-DPAE)