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POS-16 - Along-track ion flow estimates from Swarm Langmuir probes

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We examine the conditions under which along-track ion flows and the average ion mass can be obtained by combining electric current measurements of the European Space Agency's Swarm Electric Field Instrument (EFI) Langmuir probes. Each EFI is equipped with two spherical probes and a planar probe. Using the orbit-motion limited approximation, we combine the expressions for the electric currents to the spherical and planar probes to determine self consistently the effective ion mass and component of ion bulk velocity parallel to the satellite velocity vector ('along-track'). We compare results with observations from the EFI thermal ion imagers and ground-based radars.

Authors: BURCHILL, Johnathan (University of Calgary); Prof. KNUDSEN, David (University of Calgary); Dr BUCHERT, Stephan (Swedish Institute of Space Physics); Mr ZUNTI, Mackenzie (University of Calgary)

Presenter: BURCHILL, Johnathan (University of Calgary)

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