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First Results from the Swarm Electric Field Instruments

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The Swarm Electric Field Instruments (EFIs) provide measurements of plasma density, ion flow velocity, and ion and electron temperature at a rate of 2 per second. Ion velocity and magnetic field measurements will be combined during Level-1b processing to produce vector electric field estimates, also at a rate of 2 per second. Ion flow and temperature are determined from 2-D ion distribution functions recorded by two CCD-based particle detectors known as Thermal Ion Imagers. Electron temperature and density measurements are generated by two Langmuir probes. Within three weeks following launch on Nov 22, full power was applied to all sensors; since then instruments on all three spacecraft have been operating nominally. This talk will highlight the capabilities of the EFIs, and will provide an overview of observations made throughout the commissioning and early science operations phases.

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