

**Van Allen Probe Observations of Electric Fields and Their Role in the Dynamics of the Inner Magnetosphere of the Earth and Energetic Particle Acceleration**

Wygant, John R. (1), [wygant001@umn.edu](mailto:wygant001@umn.edu); L. Dai (1); S. Thaller (1); A. Breneman (1); C. A. Cattell (1); J. Bonnell (2); F. S. Mozer (2); O. Agapitov (2); D. Malaspina (3); D. Baker (3); X. Li (3); S. Cardiff (3); M. K. Hudson (4); J. Foster (5); P. Erickson (5); E. Donovan (6); J. Fennel (7); A. Y. Ukhorskiy; and M. Gkioulodiu (8).

(1) University of Minnesota, Minneapolis, MN, USA

(2) University of California, Berkeley, CA, USA

(3) LASP, University of Colorado, Boulder, CO, USA

(4) Dartmouth College, Dartmouth, NH, USA

(5) Massachusetts Institute of Technology, MA, USA

(6) University of Calgary, Canada

(7) The Aerospace Corporation, El Segundo, CA, USA

(8) Johns Hopkins University, Applied Physics Lab, Laurel, MD, USA

The Electric Fields and Waves Instrument on the two Van Allen Probe Spacecraft provide measurements in the inner magnetosphere of the Earth of the large scale convection electric field, electric fields associated with explosive energy release in the tail, large scale waves driven by both internal free energy sources and solar wind conditions, and interplanetary shock impacts. The role of these electric fields in the dynamics of the inner magnetosphere and in the acceleration of energetic particles measured by the complement of energetic particle instruments on Van Allen Probes will be discussed.