



**Gary M. Erickson**

B.S. Physics - Florida Atlantic University, Boca Raton, Florida, 1976

M.S. Physics - Florida Atlantic University, Boca Raton, Florida, 1978

Ph. D. Space Physics - Rice University, Houston, Texas, 1985

#### **Selected Publications**

Erickson, G. M., and R. A. Wolf, Is Steady Convection Possible in the Earth's Magnetotail?, *Geophysical Research Letters*, 7, 897, 1980.

Erickson, G. M., R. W. Spiro, and R. A. Wolf, The Physics of the Harang Discontinuity, *Journal of Geophysical Research*, 96, 1633, 1991.

Erickson, G. M., A Quasi-Static Magnetospheric Convection Model in Two Dimensions, *Journal of Geophysical Research*, 97, 6505, 1992.

Gary Erickson received his B.S. (1976) and M.S. (1978) degrees in physics from Florida Atlantic University, and his Ph.D. (1985) in space physics from Rice University. After a post-doctoral appointment at Rice University (1985–1986), he was an NRC Resident Research Associate at Goddard Space Flight Center (1986–1987), a Geophysics Scholar at the Air Force Geophysical Laboratory (1987–1989), and Senior Scientist at Massachusetts Technological Laboratory (1989–1990). He came to Boston University as a Research Associate (1990–1991), taught a graduate course in magnetospheric physics, and became a member of the Research Faculty in the Department of Space Physics and Astronomy and Center for Space Physics (1991–2003). He held Visiting Faculty appointments at the Air Force Research Laboratory under the Air Force Summer Faculty Research Program (1997, 2001, 2002). He is now a Visiting Associate Professor of Physics at Prairie View A&M University (PVAMU).

Research has included both theoretical and data-analysis projects. Theoretical projects include convection in Earth's plasma sheet, the physics of the Harang discontinuity, the generation of magnetic-field-aligned currents, magnetospheric structure, and magnetopause reconnection and turbulence. The problem of the magnetospheric substorm has been a particular research focus since he elucidated the "pressure-balance inconsistency" as a graduate student. For his Ph.D. project, he developed the first computer code to model force-balanced, adiabatic, magnetospheric convection, which established the structure of the substorm growth phase. Data-analysis projects include use of data from the CRRES and Geotail satellites to describe magnetospheric substorms. The CRRES project resulted in the discovery and description of a near-Earth mechanism for the onset of magnetospheric substorms.

From 1994 until his move to PVAMU, he was a member of the science team involved in the development of the Integrated Space Weather Prediction Model (ISM) by Mission Research Corporation. The ISM code seamlessly solves for the dynamics and chemistry of Earth's ionosphere and magnetosphere from ionospheric altitudes (80 km) to 40 Earth radii sunward, 300 Earth radii anti-sunward of Earth, and 60 Earth radii in cross-section. Development of the ISM code is sponsored by the Defense Threat Reduction Agency, while its scientific applications are funded by NASA and NSF. Use of ISM by the science team has led to revolutionary new ideas about magnetospheric structure and dynamics that have been validated by ground and satellite observations. For the past few years, Dr. Erickson has been collaborating closely with Dr. Saganti both performing research and mentoring students at PVAMU related to specification and modeling of the space radiation environment.

As author or co-author, Dr. Erickson has published 47 articles in magnetospheric physics, given over 100 presentations at scientific meetings and over 20 seminars at universities and government laboratories. As a principal investigator he has overseen \$1.5M in research grants since 1991. His strengths are in his creativity, problem-solving and collaborative skills, and his ability to develop or grasp concepts within the larger picture.

#### Other Papers:

Erickson, G. M., N. C. Maynard, W. J. Burke, G. R. Wilson, and M. A. Heinemann, Electromagnetics of Substorm Onsets in the Near-Geosynchronous Plasma Sheet, *Journal of Geophysical Research*, 105, 25,265, 2000.