A Magneto-Inductive Magnetometer System for Boom-less Satellites, Global Magnetometer Networks and Backyard Citizen-Science Space Weather Monitors

Mark B. Moldwin
Arthur F. Thurnau Professor of Climate and Space Sciences and Engineering
University of Michigan, United States of America

Abstract:
We are developing and testing a COTS magneto-inductive magnetometer and noise cancellation algorithms for boom-less satellites as well as for ground-based networks, and backyard space weather citizen-science sensor suites. Our effort is focused on developing and testing a firmware modified PNI RM3100 magnetometer for space environment conditions for radiation and thermal environments from LEO to the surface of Europa. We are also combining the magnetometer with a COTS dual-frequency GPS receiver for research and citizen science space weather observations. Our goal is to have magnetometers everywhere to make high-quality geomagnetic and space weather measurements.

This seminar describes the new technology and highlights the innovative hardware and software solution that enables global sensor nets and constellation missions.