Speaker: Dr. Rezy Pradipta
Boston College ISR
2:00PM November 18, 2014

Title: GPS Observation of Continent-size Traveling TEC Pulsations at the Start of Geomagnetic Storms

Abstract:
I am going to talk about our recent experimental observation of continent-size (or "supersize") traveling plasma disturbances using GPS measurements of total electron content (TEC) over the American sector. These plasma disturbances occurred at the beginning of geomagnetic storms, immediately after the shock arrived, and prior to the appearance of large-scale traveling ionospheric disturbances (LSTIDs) from the auroral region. Specifically, these supersize TEC perturbations were observed when the interplanetary magnetic field Bz was oscillating between northward and southward directions. The half-wavelength of these wavelike disturbances cover almost the entire east-west span of North America, and they were found to propagate zonally westward with a propagation speed of 2-3 km/s. We interpret these supersize TEC pulsations (SS-TECP) as ion drift waves in the magnetosphere/plasmasphere that propagate azimuthally inside the GPS orbit. I will also brief about the automated daily TEC processing system that we have up and running here at the Boston College ISR.