BOSTON UNIVERSITY

SPACE PHYSICS SEMINAR

Michael Nicolls

SRI

Assessing Dynamical Properties of the Atmosphere, Ionosphere, and Magnetosphere using Ground-Based Incoherent Scatter Radar

725 Commonwealth Ave.
Thursday, March 28, 2013
Refreshments at 3:30pm in CAS 500
Talk begins at 4:00pm in CAS 502

Abstract:
The weak radiowave scattering from electrons in the ionosphere is referred to as incoherent scatter (IS). The power spectrum of the scattered signal is related to the intrinsic density fluctuations of the medium through one of the most well-developed theories in plasma physics. IS measurements are particularly sensitive to ion motions in the upper atmosphere, allowing for studies of coupling to both the neutral and electron gases. In particular, observations with the new Advanced Modular Incoherent Scatter Radar (AMISR) systems deployed at Poker Flat, Alaska and Resolute Bay, Nunavut are revealing dynamical properties of the ionosphere. I will discuss some of these areas, which include turbulence generation in the collision-dominated D-region, gravity wave dissipation and forcing throughout the lower thermosphere, and energy dissipation, heating, and plasma convection input associated with solar wind-magnetosphere-ionosphere coupling.