BOSTON UNIVERSITY

SPACE PHYSICS SEMINAR

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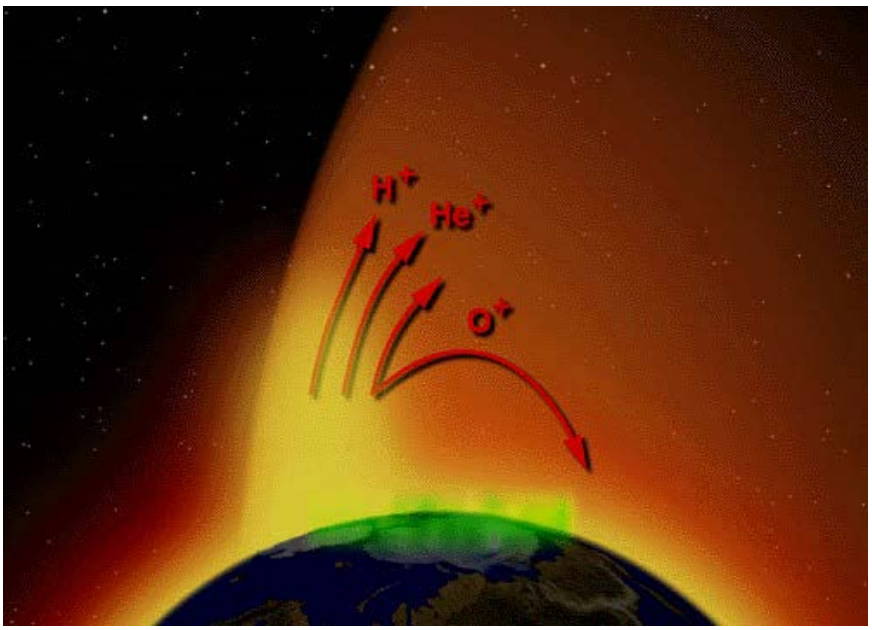

"Cold ion outflow from the polar ionosphere"

Thursday, September 27, 2012
Refreshments at 3:30pm in CAS 500
Talk begins at 4:00pm in CAS 502

Abstract:

The Earth's atmosphere constantly loses matter to the surrounding space environment through different outflow processes. One of the most pronounced loss processes, amounting to several thousand tons per year, takes place in the form of ion outflow from the polar ionospheres. The importance of ion outflow as a supplier of plasma to the terrestrial magnetosphere has been recognized for decades, and there are suggestions that the ionosphere alone is a sufficient source to account for the observed magnetospheric plasma population. Due to spacecraft charging effects, it has been difficult to measure the very low energy part of the ion population. Recent advances in instrumentation and methodology, combined with more comprehensive measurements and auxiliary data have provided far better opportunities to access the role of the cold ions. In this seminar, we focus on escape of cold ions, and discuss how the outflow varies with solar activity and geomagnetic conditions, and how the source region and final fate of the outflowing ions depend on these conditions.