

# Space Physics Seminar

Thursday, November 17, 2016



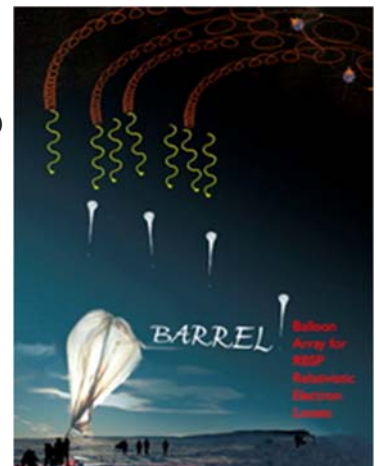
## Rolling the BARREL the wrong way: Using Radiation Belt missions to study Solar Phenomena

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BARREL (Balloon Array for Radiation belt Relativistic Electron Losses) is an array of balloons launched by Dartmouth to study the Earth's Radiation Belts. Intended to look at atmospheric losses of precipitating electrons, BARREL flew an array of balloons in Antarctica during the winter of 2014. But Radiation Belt electrons aren't the only source of high energy particles that BARREL could potentially observe. Floating at higher latitudes it is possible for BARREL to observe Solar Energetic Particles as they penetrate into the Earth's magnetosphere. The signature of these particles would be different than those of the Radiation Belts, and would be 'noise' to those looking for Radiation Belt Losses. In order to investigate Radiation Belt Losses BARREL measures high energy X-rays emitted from the precipitating particles as they enter the atmosphere.

But these precipitating particles aren't the only source of hard X-rays. The Sun, in the form of Solar Flares, does as well. Although predominantly characterized by their soft X-rays as observed by the GOES spacecraft, Solar Flares emit hard X-rays as energized particles plummet into the chromosphere. In this talk I will update you on some of our efforts to use the unintentional solar noise in BARRELs data, both from Solar Energetic Particles and Flares, to investigate solar dynamics and motivate undergraduates students to do Space Physics Research.



4:00pm in CAS 502. Refreshments served at 3:45pm in CAS 500.

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No Seminar  
Thanksgiving Recess