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***Spatial Scale and Energy Characterization of Electron Microbursts***

The FIREBIRD mission involves two small satellites called cubeSats which detect energetic electrons that are ejected into the atmosphere from the layer of energized particles, held by the earth's magnetic field, known as the Van Allen radiation belt. (FIREBIRD is an acronym for Focused Investigations of Relativistic Electron Burst Intensity, Range, and Dynamics). Electrons are ejected from the sun during periods of high activity, and can be trapped in the earth's magnetic field, but regions of electrons precipitating into the atmosphere, called electron microbursts, have been theorized to be originating in these trapped regions. The FIREBIRD mission aims to gather data about the electrons energies and locations of precipitation to understand the cause of this phenomena. Characterization of the regional size and energies of electron precipitation, in conjunction with data from missions investigating potential causes, can provide insight into how these electron microbursts are produced. This phenomenon directly concerns any space science application, and many more scientific fields, because electron microburst can be hazardous to spacecraft and electrical systems on earth. Working on a complex interdisciplinary project such as FIREBIRD requires a lot of collaboration between team members. This presentation will be designed to educate all members of the team on the physics involved in making a detection, and to explain possible causes of electron microbursts.