NO#:224

The Space Weather Broadcast from the Van Allen Probes: A Resource for the Community

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Long-term observations from both operational and scientific spacecraft have shown quite conclusively that high-energy radiation belt particles can cause significant problems for Earth-orbiting satellites. A very common cause of operational anomalies is the phenomenon of deep-dielectric charging due to highly energetic electrons. However, moderate-energy electrons and very energetic ions (protons) can also cause disruptions, respectively, due to surface charging and single-event upsets. The NASA Van Allen Probes were designed to study the Earth's radiation environment and, ultimately, to provide improved physical understanding and modeling capability for the radiation belt regions. Outside of regular ground contacts, the VAP probes broadcast a limited sub-set of payload data in the form of a "Space Weather Broadcast". This data is received in real-time by a network of ground stations and then transmitted to JHU/APL for processing. We present the near real-time particle and field space weather data produced by the mission and provided to the community through the VAP Science Gateway.