

Recent Science Highlights of the Van Allen Probes Mission

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The morning of 30 August 2012 saw an Atlas 5 rocket launch NASA's second Living With a Star spacecraft mission, the twin Radiation Belt Storm Probes, into an elliptic orbit cutting through Earth's radiation belts. Renamed the Van Allen Probes soon after launch, the Probes are designed to determine how the highly variable populations of high-energy charged particles within the radiation belts, dangerous to astronauts and satellites, are created, respond to solar variations, and evolve in space environments. The Van Allen Probes mission extends beyond the practical considerations of the hazard's of Earth's space environment. Twentieth century observations of space and astrophysical systems throughout the solar system and out into the observable universe have shown that the processes that generate intense particle radiation within magnetized environments such as Earth's are universal. During its mission the Van Allen Probes verified and quantified previously suggested energization processes, discovered new energization mechanisms, revealed the critical importance of dynamic plasma injections into the innermost magnetosphere, and used uniquely capable instruments to reveal inner radiation belt features that were all but invisible to previous sensors. This paper gives a brief overview of the mission, presents some recent science highlights, and discusses plans for the extended mission.

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