Flight Demonstration Results of Solstar's Bidirectional Commercial Internet Service for Payloaders and Payload Specialists

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Abstract
Solstar Space Company is a space communications company working to build a Space Wide Web. Solstar is supporting NASA's policy to shift much of its communications requirements to the commercial sector. In 2018 Solstar successfully demonstrated its two-way, commercial internet connection and WiFi hotspot twice, on board Blue Origin's New Shephard crew capsule. The flights were provided by NASA's Flight Opportunities Program (FOP). Solstar posted the first commercial Tweet from space using our Schmitt Space Communicator. Because of this historic feat, the Schmitt SC has been accepted into the Smithsonian's National Air & Space Museum collection.

This paper describes the results of the flights, and how it is revolutionizing the way payloaders interact with their payload during spaceflight. Solstar's payload access services are described for the payload user community and scientific and commercial applications enabled by Solstar's services will be discussed. Solstar's technology connects payloaders on the ground with their payloads in space via laptop or smartphone through our Charlie application. WiFi enabled payloads in space connect to the internet using the Solstar hotspot. In-Flight, payload specialists can use the Solstar hotspot or phone line to communicate with others in space or on Earth. Medical researchers are showing great interest in the voice capability.

Solstar® is developing a line of space-qualified satellite data relays to provide provides communications and internet services for people and machines located in sub-orbital and orbital space. Using existing commercial satellites, Solstar's modems and services enable earth-based customers secure 24/7 direct access to experiments, cubesats, machines, and colleagues located in space via their smart phones, or any other internet connected device. Solstar communications services can also serve as a critical back up communications link for NASA, international, and commercial spacecraft.

Figure 1: Solstar Team with New Shephard crew capsule post flight (photo credit: Blue Origin)

Figure 2: First commercial Tweet from Space