

## **-Borne Barometers for Aero-seismometry with Planetary Science Applications**

JPL and its partners are in the process of developing new technology for the detection of infrasonic waves generated by seismic activity from a balloon in order to achieve the aim of performing geophysical experiments from an atmospheric platform. This technique is being developed for application on planetary bodies with significant atmospheres, such as Titan and Venus. In particular, the remote sensing of quakes on Venus avoids the technological challenge of landing and surviving in harsh conditions on its surface for long periods of time. In this presentation, we will examine the potential of balloon-borne infrasound sensors to act as seismometers from the air, and their ability to detect and characterize seismic events on the surface. We will present a detailed analysis of data gathered in a first-of-its-kind experiment in Pahrump, Nevada in June 2017, where artificial seismic signals were generated using a seismic hammer and infrasonic signatures were recorded using balloon-based barometers. Our results demonstrate the ability of our infrasound sensors to not just detect, but also geolocate and examine the spectral content of ground motion produced by the hammer. We continue to develop this innovative technique to study the subsurface of planets without needing to land on them.

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