

## Wind Speed Archive

Abstract 2106 - Aeolian (wind) activity has been documented on Earth, Mars, Venus, Titan and has been suggested to occur on some icy bodies. To better understand the movement of sediment on these bodies, it is critical to understand the threshold wind speed (the minimum wind speed required to lift a sand grain). Since Bagnold's seminal research, data obtained in wind tunnels have been used to derive models of threshold speed. In the 1970's, the Planetary Aeolian Laboratory (PAL) was established. This facility consists of wind tunnels designed to mimic specific atmospheric conditions such as density or kinematic viscosity. In the last 40 years, PAL has released a wealth of information about threshold wind speed. This information has been dispersed to the aeolian community through a variety of journal publications, conference presentations, and technical memoranda. The threshold data published in these older papers are becoming increasingly inaccessible due to their analog nature, while data in recent publications may not be widely released due to the lack of a distribution platform. At the same time, newer planetary wind tunnels are generating new data. Such wind tunnel data are critical for understanding the onset of aeolian processes and calibrating threshold models. The purpose of this research is to increase the amount and quality of aeolian threshold wind speed data available to the community. We will do this by creating a publicly available archive of threshold speed data, hosted by the NASA Planetary Data System (PDS) Atmospheres Node. With contributions from the community, the aim of the archive is to preserve all past, current, and future data from threshold experiments. The goal of this visual art is to show how data in the PDS archive is organized and to encourage others to use the new threshold wind speed archive that is being established. I want this video to serve as a commercial for the archive. All the drawings in this video are drawn by myself (Emily Nield) in Photoshop. I created the video using a combination of Photoshop and Wondershare Filmora. There is a photo of the Bagnold Sand Dunes on Mars taken by Curiosity's MastCam (<https://www.jpl.nasa.gov/spaceimages/details.php?id=PIA20755>). The music in the background is royalty free and is provided by AShamaluev ([soundcloud.com/ashamaluevmusic](https://soundcloud.com/ashamaluevmusic)). The video of sand grains blowing in the Titan Wind Tunnel were captured by me, as part of my research.