

# Rocket exhaust blowing lunar soil and mitigation by construction of lunar landing pads

Dr. Phill Metzger

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When spacecraft **land on the Moon** the rocket exhaust accelerates dust, sand, and rocks to high velocity. This can be damaging to nearby lunar surface assets. The physics to quantify these phenomenon are not well understood, yet. This talk will provide an **overview of the research into this field**. Secondly this talk will discuss **methods to mitigate the blast effects by building landing pads** on the surface of the Moon. Several methods have been proposed, including microwave sintering of the lunar soil, baking pavers from lunar soil and assembling them with robots, bringing polymer from earth to “glue” the soil together, and collecting gravel from the lunar surface to create a “gravel pad”. This talk will **compare the different construction methods** for economic viability.

**Philip Metzger** is a planetary scientist at the University of Central Florida working on technologies for space mining, construction, and resource processing. He was previously at NASA’s Kennedy Space Center where he co-founded the KSC Swamp Works, a technology innovation hub for planetary surface technologies. While at NASA he led the Agency’s work in rocket blast effects for human-class missions to the Moon and Mars. He received the astronaut’s Silver Snoopy award in 2010 and was selected as the Kennedy Space Center’s NASA Scientist/Engineer of the Year for 2011. He was awarded the NASA Silver Achievement Medal in 2014 for technology development. The American Society of Civil Engineers (ASCE) Aerospace Division selected him for the Outstanding Technical Contribution Award in 2016, and he became a NASA Innovative Advanced Concepts (NIAC) Fellow in 2019.

