

## Dry Ice Moves on Mars

*(Music)*

We were looking at these strange features on Mars. They're what we call, "linear gullies," because they're long troughs. They can extend up to two kilometers, which is just over a mile and they're really strange because they go down and then they end abruptly in a pit.

A lot of features on the Earth that are similar do end in a debris apron because stuff has been moved from the top to the bottom. But these don't have the apron. They just have a pit at the end. And so we were wondering how they could form.

Frozen carbon dioxide accumulates on the surface and we think that some of this accumulation will compress down and actually form ice slabs and ice blocks.

We bought some frozen carbon dioxide dry ice blocks and we took it out to a dune slope, and we put it down and we saw what happened.

Most dune slopes will be at 33 degrees and that's a nice steep slope. And so we did it with a water ice block and the sand got wet and it didn't move. And we did it with a wooden block and, you know, it moved three inches and then it stopped.

The dry ice block, we expected it to see a bit more activity, but we didn't expect it to just move and move and move and move and keep moving all the way to the bottom. But even on the other side of the dune, which is more like six degrees -- it's very shallow -- we put the block on and we pushed it and it would just slide right down and the only reason it stopped was because it hit the bushes at the bottom.

Dry ice, as it heats up, turns into gas that pushes against the sand as it comes out. After a few hours, it's scooped out a nice little area. And so you have a feature that looks like what we see on Mars. They will move down that dune slope and carve out a shallow trough.

When the block of ice is on the sand surface, that sand is just a little bit warmer. And so it causes a cushion of air to form. And that lifts that block just a little bit so when it moves forward, it's like its lubricated and it can just slide very easily.

And when it got to the bottom, instead of just sitting there, it would disappear as the area heated up and then that could possibly leave a pit.

I'm looking forward to the day when astronauts can engage in a whole new area of extreme sports. They could snowboard down these carbon dioxide covered dunes on a cushion of carbon dioxide. They would just shoot right down those slopes. It would be amazing.