

Study of lunar dust may lead to better flood forecasts on Earth

April 15 2013, by Ken Kaye

Forecasters may one day be able to provide better flood warnings, thanks to the Apollo astronauts who landed on the moon more than four decades ago.

Actually, it's thanks to John Lane, a [Kennedy Space Center](#) physicist who set out to preserve historic [lunar landing](#) sites, but stumbled upon a way to improve forecasts for heavy downpours.

"It wasn't my main goal by any means," he said. "But measuring [lunar dust](#) is really no different than measuring rain."

Lane initially decided to use a [laser sensor](#) to measure the amount of dust a rocket ship kicked up as it landed on the lunar surface. The idea was to allow NASA to calculate how far away a rocket would need to remain from an Apollo touchdown area to prevent damage. Apollo sites are considered valuable lunar landmarks.

In the process, he discovered that a laser beam, which has the ability to detect [tiny particles](#), could easily determine the size of raindrops. With that information, forecasters can better predict rainfall rates over an hour or several hours. If the rates are high, the chances of flooding also are likely to be high.

Although he has no meteorological training, Lane said he was able to see the connection to weather forecasting. Now he thinks data from the lasers could be used to make computerized [weather models](#) more

accurate.

"The weather service is focused on public safety, and this advance might help," he said.

Robert Molleda, meteorologist for the [National Weather Service](#) in Miami, said such technology would be welcomed, considering current weather radar has a hard time estimating the size of raindrops.

"If you can accurately determine the size of a raindrop, you can find the relationship between the amount of rain and rainfall rates," he said.

Lane's presented his idea to an American Meteorological Society conference in January. He said he hopes NASA will continue refining the laser technology at a University of Central Florida laboratory and then make it available to the weather service, which could attach the lasers to weather station rain gauges around the country.

Implementing it wouldn't be expensive because the lasers are similar to those used on hunting rifles and cost less than \$100, he said.

Between 1968 and 1972, Apollo missions successfully put men on the moon six times. Since then, several unmanned missions have reached the [lunar surface](#) - the last one being the Gravity Recovery and Interior Laboratory mission on Dec. 17.

The next landing may come as part of the Google Lunar X-Prize competition, where \$30 million in prizes are being offered to the first privately funded team to put a robot on the moon and have it send back video and images.

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