

MEET A LUNAR GEOLOGIST — Dr. Jeff Taylor, University of Hawaii

What do you do? I try to figure out how things work on planetary bodies. I examine data from various instruments, instruments on spacecraft or instruments in the laboratory, to solve scientific problems. I also spend time helping future scientists — students — explore their research questions.

How did you get interested in this field? Well, I always liked science and math. I did well in school and I went to college to be a journalist. I wanted to be a newspaper reporter. But in the summer of my first year, I got a job working with engineers planning roads. The survey crew marked the road position, but then the engineers had to plan the actual “up and down” of the road, and what the road would be made of, and how to prepare the ground. I had to figure out where dirt had to be added and where it had to be removed. It involved numbers and details, and I felt I was doing something useful with people who liked what they were doing.

Because of that job, I decided to become an engineer and began to study physics to prepare for engineering. In my senior year I took a course in geophysics from a great teacher! The entire course was about figuring out what Earth was made of using instrument measurements and other kinds of data. When I started graduate school, the space program was underway, and my interests took me to trying to figure out what other planets were made of and how they have changed with time.

What is the most interesting question about the Moon that scientists are trying to solve? What was our early solar system like as the planets and our Moon were forming? There has been a big change in the way we are looking at planet formation because of the giant impact theory for forming our Moon. Before, we thought that the planets just grew as more stuff slammed into them. But now we are thinking that it was a messy solar system with stuff of all different sizes that was smashing into each other, sometimes clumping together and sometimes ripping each other apart, and sometimes even missing altogether. All this colliding and mixing is making us rethink why the planets have the compositions they do, and where they are, and how they have changed.

Do you want to go to the Moon? Yes! The Moon is a scientific treasure. It records the early history of Earth and our solar system that has been erased from planets like Earth and Mars by erosion and tectonic activity. More importantly, I think we should go back to the Moon because it is hard to do and we learn a lot by doing hard things. We get different perspectives on new problems and learn new ways to solve them that will benefit everyone. It's the trying that really matters.

If someone wants to become a scientist, what should they do? The most important thing is to be open to new ideas and to keep your imagination humming. Examine your world and ask how it works. Learn everything you can about math and science, and learn how to speak and write well. But science is important even if you don't become a scientist. The solutions to many of the issues challenging humans come down to science — from global climate change to battling disease to deflecting incoming asteroids. To make good decisions it is important to know how science works. You need to understand why scientists think Earth is warming and what that means to our future, and that scientific debate is part of the process of building understanding.

