1
00:00:00,010 --> 00:00:08,980
[Sound effect]

2
00:00:09,000 --> 00:00:11,880
[Music]

3
00:00:11,900 --> 00:00:17,230
My name is Lynn Carter. I'm a research space scientist, and I work with the Planetary Geodynamics group her

4
00:00:17,250 --> 00:00:22,230
I study the geology of planetary surfaces: the Earth, Moon, Mars, Venus.

5
00:00:22,250 --> 00:00:24,880
There's a lot of things you can learn about the Earth by studying other planets.

6
00:00:24,900 --> 00:00:28,100
For example on the Earth we have a lot of erosive processes.

7
00:00:28,120 --> 00:00:33,480
You know, it rains, it washes parts of the surface away, we have plate tectonics, which recycles the crust.

8
00:00:33,500 --> 00:00:36,230
But on other planets those processes don't necessarily occur.

9
00:00:36,250 --> 00:00:40,160
So, for example, when we look at the Moon we're seeing a surface that's much older.

10
00:00:40,180 --> 00:00:44,130
We can use impact cratering on the Moon, to sort of understand how many impacts happened,

11
00:00:44,150 --> 00:00:48,010
the size of the objects that were hitting each other in the in the early solar system.

12
00:00:48,030 --> 00:00:50,930
Generally what I would do every day is a variety of things.

13
00:00:50,950 --> 00:00:56,530

Like I might come in and do some image analysis, and then do some writing about our scientific results.

14
00:00:56,550 --> 00:00:59,100
Sometimes I do field work in Hawaii or Arizona.

15
00:00:59,120 --> 00:01:03,450
We take a ground-penetrating radar out and we learn more about lava flows on the Earth.

16
00:01:03,470 --> 00:01:06,180
One of my favorite things is to use radar remote sensing.

17
00:01:06,200 --> 00:01:10,650
For example, on Mars we can use radars to sound all the way to the bottom of Mars' polar caps

18
00:01:10,670 --> 00:01:13,450
and see all this layering within the polar caps.

19
00:01:13,470 --> 00:01:16,820
And on the Moon we're using it to study impact cratering.

20
00:01:16,840 --> 00:01:20,610
Sometimes when an impact crater is formed a huge sheet of melt is thrown out.

21
00:01:20,630 --> 00:01:26,120
This melted rock flows across the surface, but then over time it's covered over by stuff from other impacts.

22
00:01:26,140 --> 00:01:28,310
But with the radar it just blows right through all of that

23
00:01:28,330 --> 00:01:32,580
and you can see this beautiful image of the melt flow coming out of the crater.

24
00:01:32,600 --> 00:01:34,880
Looking ahead to the future there are so many different things that we could learn

25
00:01:34,900 --> 00:01:36,980
about planetary science that would be interesting.

26
00:01:37,000 --> 00:01:42,660
One of my favorites is Venus, actually, because it's about the same size and it's very close to the Earth in the s

27
00:01:42,680 --> 00:01:46,780
And why has there been this divergent evolution between these two worlds that are very similar?

28
00:01:46,800 --> 00:01:49,750
And I think understanding that problem will be very interesting.