



**VISITOR PROFILES:**  
**DR. JENNIFER STERN**

1  
00:00:00,320 --> 00:00:13,110

[Music]

2  
00:00:18,280 --> 00:00:16,180

I'm Jennifer Stern and I'm at NASA

3  
00:00:20,589 --> 00:00:18,290

Goddard Space Flight Center so I'm a

4  
00:00:22,060 --> 00:00:20,599

planetary geochemist and I work on a

5  
00:00:25,359 --> 00:00:22,070

broad range of things but primarily

6  
00:00:28,300 --> 00:00:25,369

right now I'm interested in Mars and the

7  
00:00:30,909 --> 00:00:28,310

cycling or not cycling of nitrogen on

8  
00:00:32,950 --> 00:00:30,919

Mars and as part of that I work on the

9  
00:00:35,220 --> 00:00:32,960

sample analysis at Mars instrument suite

10  
00:00:38,770 --> 00:00:35,230

on the Mars Science Laboratory Rover

11  
00:00:41,020 --> 00:00:38,780

Curiosity my primary work is to look for

12  
00:00:44,080 --> 00:00:41,030

the chemical and isotopic signatures of

13  
00:00:45,970 --> 00:00:44,090

life elsewhere be that Mars or even icy

14

00:00:48,639 --> 00:00:45,980

worlds like Europa when we think about

15

00:00:50,829 --> 00:00:48,649

life possibility of life on Mars or any

16

00:00:53,560 --> 00:00:50,839

other planet we think about you know if

17

00:00:56,139 --> 00:00:53,570

you landed in the middle of Antarctica

18

00:00:58,029 --> 00:00:56,149

or some very some very place here that's

19

00:00:59,380 --> 00:00:58,039

devoid of life would you just

20

00:01:00,759 --> 00:00:59,390

immediately assume just because you

21

00:01:02,470 --> 00:01:00,769

don't see life right there on the

22

00:01:04,329 --> 00:01:02,480

surface that there isn't life there at

23

00:01:07,180 --> 00:01:04,339

all probably not you really want to do a

24

00:01:10,210 --> 00:01:07,190

thorough search for life and we're still

25

00:01:12,580 --> 00:01:10,220

discovering on earth new habitats that

26

00:01:14,950 --> 00:01:12,590

life has exploited and sort of branched

27

00:01:17,469 --> 00:01:14,960

out into I get excited about the fact

28

00:01:20,499 --> 00:01:17,479

that we have not seen anything of the

29

00:01:22,510 --> 00:01:20,509

subsurface of Mars so we know something

30

00:01:25,060 --> 00:01:22,520

about the surface and we've imaged it

31

00:01:28,120 --> 00:01:25,070

and mapped it but we know nothing below

32

00:01:29,380 --> 00:01:28,130

a couple of centimeters and so we don't

33

00:01:31,300 --> 00:01:29,390

know anything about the geothermal

34

00:01:33,010 --> 00:01:31,310

gradient we don't know anything about

35

00:01:34,749 --> 00:01:33,020

whether there are nutrients there

36

00:01:37,749 --> 00:01:34,759

whether there might be some sort of

37

00:01:39,609 --> 00:01:37,759

habitat for life there and I'm excited

38

00:01:41,920 --> 00:01:39,619

because some of the upcoming Mars

39

00:01:44,560 --> 00:01:41,930

missions may at least start to answer

40

00:01:46,630 --> 00:01:44,570

some of those questions working where I

41

00:01:49,420 --> 00:01:46,640

do at NASA Goddard we have a lot of

42

00:01:51,639 --> 00:01:49,430

chemists a lot of geologists and a lot

43

00:01:54,429 --> 00:01:51,649

of people who do a lot of laboratory

44

00:01:57,999 --> 00:01:54,439

experiments but coming here to this sort

45

00:02:00,310 --> 00:01:58,009

of workshop I talked to more biologists

46

00:02:02,770 --> 00:02:00,320

and more people who are looking at how

47

00:02:04,840 --> 00:02:02,780

biology is expressing itself in the

48

00:02:07,630 --> 00:02:04,850

fossil record and so the good thing

49

00:02:09,669 --> 00:02:07,640

about that is that we all do speak the

50

00:02:13,090 --> 00:02:09,679

same language in some ways as scientists

51  
00:02:16,640 --> 00:02:13,100  
sometimes you have to sort of step back

52  
00:02:18,140 --> 00:02:16,650  
explain from the top down and you should

53  
00:02:22,210 --> 00:02:18,150  
be able to do that as a scientist should

54  
00:02:24,770 --> 00:02:22,220  
be able to communicate to any level the

55  
00:02:27,710 --> 00:02:24,780  
challenges for somebody in my position

56  
00:02:29,840 --> 00:02:27,720  
where I work on missions and trying to

57  
00:02:33,170 --> 00:02:29,850  
develop instrumentation is working with

58  
00:02:35,180 --> 00:02:33,180  
engineers and they speak of slightly or

59  
00:02:37,870 --> 00:02:35,190  
maybe not so slightly different language

60  
00:02:40,190 --> 00:02:37,880  
than scientists at times the scientist

61  
00:02:43,520 --> 00:02:40,200  
thinks big and wants to build something

62  
00:02:46,430 --> 00:02:43,530  
that can do new thing as the engineer

63  
00:02:48,980 --> 00:02:46,440

wants to use something that has heritage

64

00:02:50,570 --> 00:02:48,990

that is proven to work it's kind of a

65

00:02:53,870 --> 00:02:50,580

little bit of a culture shock at first

66

00:02:55,220 --> 00:02:53,880

but it's really helpful at Goddard we

67

00:02:57,050 --> 00:02:55,230

work very closely we're actually

68

00:02:58,580 --> 00:02:57,060

co-located with the engineers who are

69

00:03:00,770 --> 00:02:58,590

working on the mission so we're in the

70

00:03:02,930 --> 00:03:00,780

same hallway saying you know path people

71

00:03:05,750 --> 00:03:02,940

in offices and so that I think that

72

00:03:07,370 --> 00:03:05,760

helps a lot being at LC has been amazing

73

00:03:10,430 --> 00:03:07,380

because I mean even just the very first

74

00:03:11,960 --> 00:03:10,440

day I met a master's student who told me

75

00:03:13,280 --> 00:03:11,970

that she had read my paper about

76

00:03:15,260 --> 00:03:13,290

nitrogen and and was doing

77

00:03:16,910 --> 00:03:15,270

photochemistry experiments to try to

78

00:03:19,010 --> 00:03:16,920

understand that how the nitrate is

79

00:03:21,470 --> 00:03:19,020

formed on Mars she showed me her results

80

00:03:22,820 --> 00:03:21,480

and I just this is so awesome that was

81

00:03:26,240 --> 00:03:22,830

really exciting and then there were a

82

00:03:28,880 --> 00:03:26,250

couple of presentations from folks from

83

00:03:31,340 --> 00:03:28,890

Elsi that were that were really neat but

84

00:03:32,570 --> 00:03:31,350

I may not have seen had I not come to a

85

00:03:34,430 --> 00:03:32,580

workshop like this which is

86

00:03:45,180 --> 00:03:34,440

interdisciplinary and bringing people