1
00:00:00,433 --> 00:00:02,002
[music]

2
00:00:02,002 --> 00:00:06,940
The human exploration of space is still in its infancy.

3
00:00:06,940 --> 00:00:09,609
The Apollo missions were just the first step

4
00:00:09,609 --> 00:00:15,081
in our goal to have astronauts working on the surface of worlds beyond our own.

5
00:00:15,081 --> 00:00:20,854
And as NASA plans its return of humans to the Moon, and eventually onto Mars,

6
00:00:20,854 --> 00:00:25,258
a team of scientists have come together to test and build some of the tools

7
00:00:25,258 --> 00:00:28,995
our future explorers may use on these journeys.

8
00:00:28,995 --> 00:00:33,099
Based out of NASA’s Goddard Space Flight Center in Greenbelt Maryland,

9
00:00:33,099 --> 00:00:36,236
this group is called the Goddard Instrument Field Team,

10
00:00:36,236 --> 00:00:39,105
otherwise known as GIFT.

11
00:00:39,105 --> 00:00:59,426
[music]

12
00:00:59,426 --> 00:01:04,030
The scientists in GIFT collect data on some of the most unique terrains on Earth –

13
00:01:04,030 --> 00:01:05,832

such as glaciers in Iceland,

14
00:01:05,832 --> 00:01:07,634
lava tubes in Hawai'i,

15
00:01:07,634 --> 00:01:09,736
maar craters in New Mexico,

16
00:01:09,736 --> 00:01:12,939
and the desert regions of Chile.

17
00:01:12,939 --> 00:01:16,376
The goal is to conduct field research in geologic settings

18
00:01:16,376 --> 00:01:21,648
that share similarities to locations on other planets, moons, and even asteroids.

19
00:01:21,648 --> 00:01:25,018
Scientists call these sites "planetary analogs"

20
00:01:25,018 --> 00:01:29,255
as they help us learn how to interpret data from across the solar system

21
00:01:29,255 --> 00:01:33,760
while also getting a better understanding of Earth.

22
00:01:33,760 --> 00:01:37,130
In these environments, GIFT researchers test both commercial

23
00:01:37,130 --> 00:01:40,100
and newly developed scientific equipment.

24
00:01:40,100 --> 00:01:43,770
These are portable devices that could be used by astronauts,

25
00:01:43,770 --> 00:01:48,308
or used aboard future rovers or other types of spacecraft.

26
00:01:48,308 --> 00:01:52,345
These field instruments are capable of multiple types of analysis,

27
00:01:52,345 --> 00:01:55,849
with some providing instantaneous feedback.

28
00:01:55,849 --> 00:02:01,054
The team uses devices that can observe and characterize the landscape around a user,

29
00:02:01,054 --> 00:02:04,357
as well as ones that analyze the chemical composition

30
00:02:04,357 --> 00:02:09,395
and physical properties of materials found at and below the surface.

31
00:02:09,395 --> 00:02:13,600
The team also works with instruments that measure aerosols in the atmosphere,

32
00:02:13,600 --> 00:02:16,970
magnetic fields, and solar radiation.

33
00:02:16,970 --> 00:02:19,506
No matter which field campaign they are on,

34
00:02:19,506 --> 00:02:22,976
the scientists in GIFT are selecting and using their instruments

35
00:02:22,976 --> 00:02:26,446
to answer high priority science questions.

36
00:02:26,446 --> 00:02:29,415
And to more fully capture the essence of how humans would explore

37
00:02:29,415 --> 00:02:31,584
the surface of the Moon or Mars,

38
00:02:31,584 --> 00:02:36,756

GIFT members also simulate astronaut E.V.A's, or extra vehicular activities,

39
00:02:36,756 --> 00:02:39,159
at the planetary analogs they study.

40
00:02:39,159 --> 00:02:44,764
Both former and current astronauts have accompanied GIFT on these simulations.

41
00:02:44,764 --> 00:02:49,202
Overall, the Goddard Instrument Field Team provides a unique resource to NASA

42
00:02:49,202 --> 00:02:51,237
and the external science community

43
00:02:51,237 --> 00:02:57,377
by combining the studies of planetary science, earth science, and hardware technology.

44
00:02:57,377 --> 00:03:00,346
All of the tests, experiments, and data collected