
EXPLORING VENUS
with DA VINCI

1
00:00:02,002 --> 00:00:03,803
It's 900 degrees hot at the

2
00:00:03,803 --> 00:00:06,773
surface, has powerful high altitude winds,

3
00:00:06,973 --> 00:00:10,143
and is blanketed by a dense carbon
dioxide atmosphere.

4
00:00:10,944 --> 00:00:13,880
The planet Venus, although the same size

5
00:00:13,880 --> 00:00:17,050
and density as Earth,
the similarities end there.

6
00:00:17,050 --> 00:00:18,718
Earth has water and life.

7
00:00:18,718 --> 00:00:19,219
Venus is desolate,

8
00:00:20,920 --> 00:00:24,657
dry, apparently lifeless.

9
00:00:30,897 --> 00:00:32,132
The DAVINCI mission

10
00:00:32,132 --> 00:00:36,069
named after Leonardo
da Vinci will now take us back to Venus

11
00:00:36,069 --> 00:00:39,873
and address unresolved questions
about this mysterious planet.

12
00:00:40,507 --> 00:00:44,344

This exciting new mission
will launch in June 2029.

13
00:00:44,377 --> 00:00:48,782
During two gravity assist flybys,
DAVINCI will study the cloud tops

14
00:00:48,782 --> 00:00:52,652
in ultraviolet light,
tracking cloud motions and analyzing

15
00:00:52,652 --> 00:00:55,922
mysterious ultraviolet absorbing
chemicals.

16
00:00:56,456 --> 00:01:01,294
Both flybys will also examine
nightside heat emanating from the surface.

17
00:01:01,561 --> 00:01:05,665
These geological clues
will paint a global picture of surface

18
00:01:05,665 --> 00:01:07,967
composition and its evolution.

19
00:01:07,967 --> 00:01:12,238
Seven months after our second flyby,
DAVINCI will release its atmospheric

20
00:01:12,238 --> 00:01:16,309
descent probe, which will enter the
atmosphere over the course of two days.

21
00:01:16,709 --> 00:01:18,511
The probe will take about an hour

22
00:01:18,511 --> 00:01:22,082
to fall through the atmosphere,
taking measurements down to the surface.

23
00:01:22,615 --> 00:01:25,885
These measurements
will include profiles of composition,

24
00:01:25,885 --> 00:01:29,456
winds, temperature pressure
and acceleration.

25
00:01:29,989 --> 00:01:34,227
Key gases will help us understand
how Venus formed and evolved.

26
00:01:34,561 --> 00:01:39,532
Some of these measurements may even reveal
signatures of ancient water.

27
00:01:39,933 --> 00:01:43,803
The spherical probe houses
the state of the art instruments

28
00:01:43,870 --> 00:01:47,774
that will work together to address
questions about the Venus atmosphere,

29
00:01:47,774 --> 00:01:50,443
protecting them
from the extreme temperatures,

30
00:01:50,443 --> 00:01:53,379
high pressures and acidic clouds
in the environment.

31
00:01:53,613 --> 00:01:57,050
DAVINCI's camera peers down
through a small viewing port,

32
00:01:57,150 --> 00:02:00,787
and once the probe passes below
the clouds, it will start to collect

33
00:02:00,787 --> 00:02:04,958
a series of three dimensional views
that will also help us understand

34
00:02:04,958 --> 00:02:08,795
whether the rocks of the Alpha Regio
Highland region reveal

35
00:02:08,795 --> 00:02:13,233
a story of an ancient continent
shaped by water and an oxygen

36
00:02:13,233 --> 00:02:14,767
sensing student collaboration

37
00:02:14,767 --> 00:02:18,872
experiment will reveal the role of this
gas in the deep atmosphere.

38
00:02:18,972 --> 00:02:22,709
The discoveries that emerge
from this diverse dataset, will help

39
00:02:22,709 --> 00:02:25,345
tell us whether Venus was once habitable

40
00:02:25,812 --> 00:02:30,750
and the story that we reveal will reach
even beyond our solar system

41
00:02:30,950 --> 00:02:34,020
to analog exoplanets that will be observed

42
00:02:34,020 --> 00:02:36,222
with the James Webb Space Telescope.

43
00:02:37,023 --> 00:02:39,192
Venus is waiting for us all