
DAVINCI
Deep Atmosphere Venus Investigation of Noble gases, Chemistry, and Imaging

1
00:00:10,400 --> 00:00:11,000
Launching in

2
00:00:11,000 --> 00:00:15,933
2029, the DAVINCI mission named after
Leonardo da Vinci is designed to address

3
00:00:15,933 --> 00:00:20,200
fundamental questions about the origin,
evolution and composition of Venus.

4
00:00:21,700 --> 00:00:24,066
During two gravity assist flybys,

5
00:00:24,066 --> 00:00:26,933
DAVINCI will study
the cloud tops in ultraviolet light.

6
00:00:27,200 --> 00:00:30,666
Tracking cloud patterns
as they change with time and analyzing

7
00:00:30,666 --> 00:00:33,766
signatures of mysterious chemicals
that absorb ultraviolet

8
00:00:33,766 --> 00:00:34,566
light.

9
00:00:37,066 --> 00:00:39,966
Both flybys will also examine heat
emanating

10
00:00:39,966 --> 00:00:42,333
from the Venus surface on the planet's
night side.

11
00:00:44,000 --> 00:00:46,733
We will look for geological clues

of this planet's

12
00:00:46,733 --> 00:00:50,400
mysterious past to paint a global picture
of surface composition

13
00:00:50,700 --> 00:00:53,400
and the evolution of the planet's
ancient highlands.

14
00:00:54,333 --> 00:00:56,633
seven months after our second flyby,

15
00:00:56,633 --> 00:00:59,466
DAVINCI will release its atmospheric
descent probe.

16
00:01:00,033 --> 00:01:03,433
The spacecraft will watch its probe enter
Venus's atmosphere

17
00:01:03,433 --> 00:01:05,100
over the course of two days.

18
00:01:07,300 --> 00:01:10,200
The probe will take about an hour
to fall through the atmosphere,

19
00:01:10,200 --> 00:01:13,266
taking measurements
and snapping images down to the surface.

20
00:01:14,000 --> 00:01:16,733
These measurements
include profiles of composition,

21
00:01:16,733 --> 00:01:19,466
winds, temperature, pressure
and acceleration.

22
00:01:20,100 --> 00:01:24,266
Key gases will be measured to help us
understand how Venus formed and evolved.

23
00:01:24,800 --> 00:01:28,700
Some of these measurements may reveal
chemical signatures of ancient water.

24
00:01:30,333 --> 00:01:33,633
With our suite of measurements,
DAVINCI will provide new insights

25
00:01:33,633 --> 00:01:37,500
into Venus's atmospheres, complex
composition, structure and chemistry.

26
00:01:38,966 --> 00:01:43,166
As the probe nears the surface, its
descent camera will capture breathtaking

27
00:01:43,166 --> 00:01:47,333
bird's eye views of the mysterious terrain
known as the Alpha Regio tessera,

28
00:01:47,833 --> 00:01:50,566
possibly revealing evidence in the rocks
that water

29
00:01:50,566 --> 00:01:52,900
once flowed across the Venusian surface.

30
00:01:53,600 --> 00:01:57,200
These up close images of the surface
will provide new insights

31
00:01:57,200 --> 00:02:00,633
into geologic processes
and will help us to understand

32

00:02:00,633 --> 00:02:03,400
what it might be like
to stand on the Venus surface.

33
00:02:07,766 --> 00:02:11,300
The oxygen sensing student collaboration
experiment will shed light

34
00:02:11,300 --> 00:02:13,766
on the role of this gas in the Venus
atmosphere.

35
00:02:15,366 --> 00:02:17,700
The discoveries that emerge
from this diverse

36
00:02:17,700 --> 00:02:21,066
data set will tell us
whether Venus was truly habitable

37
00:02:21,566 --> 00:02:26,133
and the story we reveal at Venus
will reach even beyond the Solar System

38
00:02:26,133 --> 00:02:29,200
to analog exoplanets
that will be observed with the James

39
00:02:29,200 --> 00:02:31,700
Webb Space Telescope.

40
00:02:34,666 --> 00:02:36,533
Venus is waiting for us all,