

India's Pioneering Mission to Venus

India is set to launch its first mission to Venus in 2028. This interplanetary venture aims to study Earth's twin from orbit, offering insights into our planet's evolution.



by OJAANK IAS

INDIA
INDION OF
VENUS

Why Study Venus?



Earth's Twin

Similar mass, density, and size to Earth.



Extreme Conditions

Surface temperature of 462°C, high atmospheric pressure.



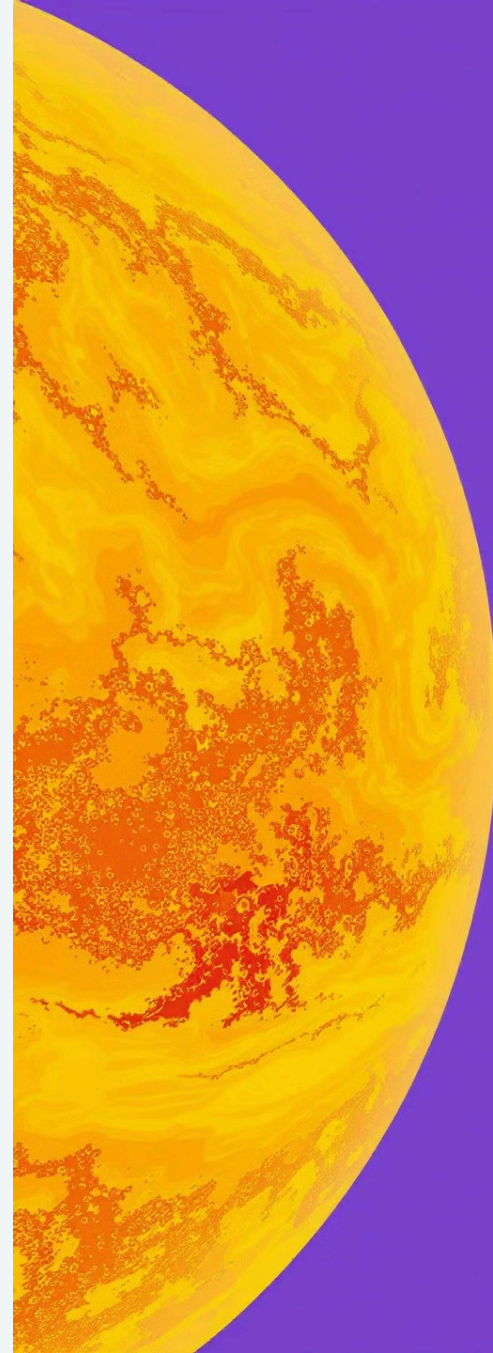
Unique Atmosphere

96.5% carbon dioxide, sulphuric acid clouds.



Slow Rotation

One Venus day equals 243 Earth days.



Venus vs. Earth

Venus has thick yellow cloud layer of sulphuric acid and harsh hot surface. Earth has blue atmosphere and moderate surface.

Earth



This simulation compares the blue, temperate Earth with the hot, sulfuric Venus. Earth has a moderate atmosphere and water, while Venus has a thick, hot atmosphere and no water.

Mission Overview

1

Launch

Scheduled for March 2028.

2

Journey

140-day travel to Venus.

3

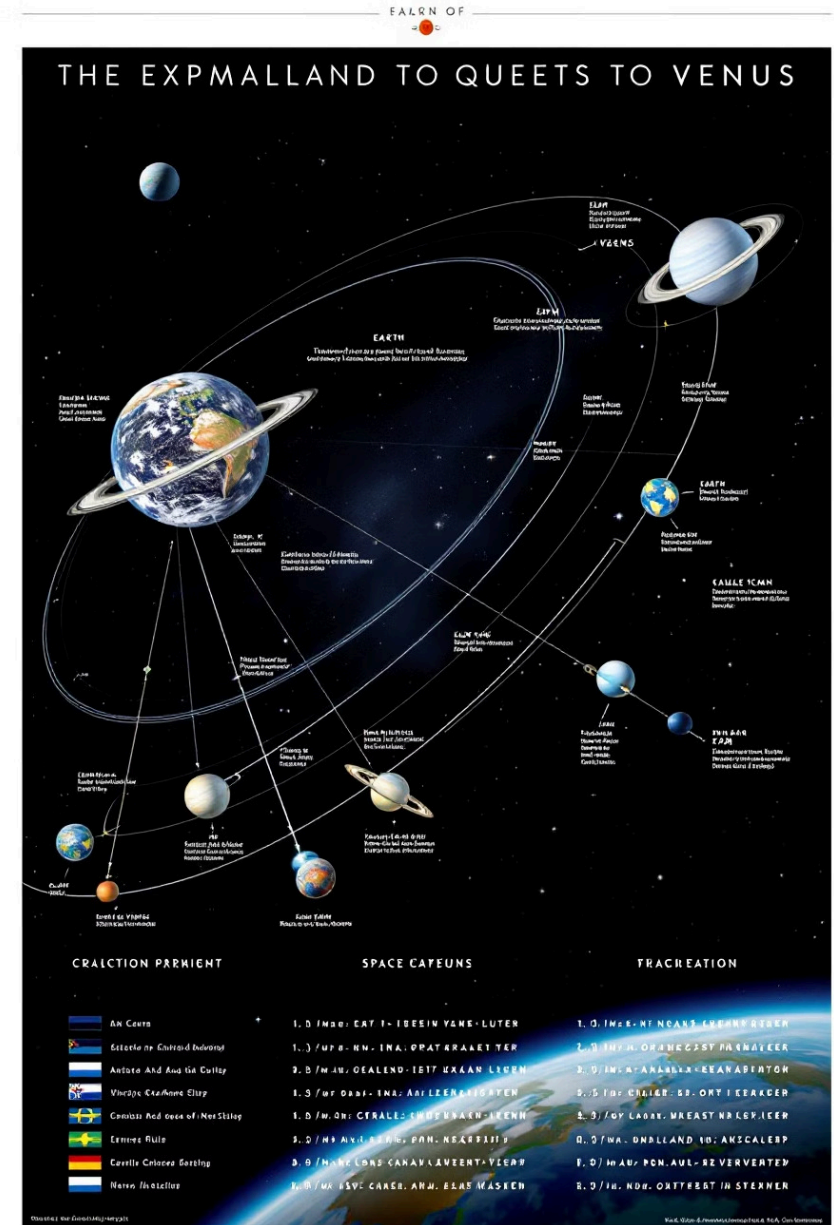
Orbit

Initial elliptical orbit of 500 km x 60,000 km.

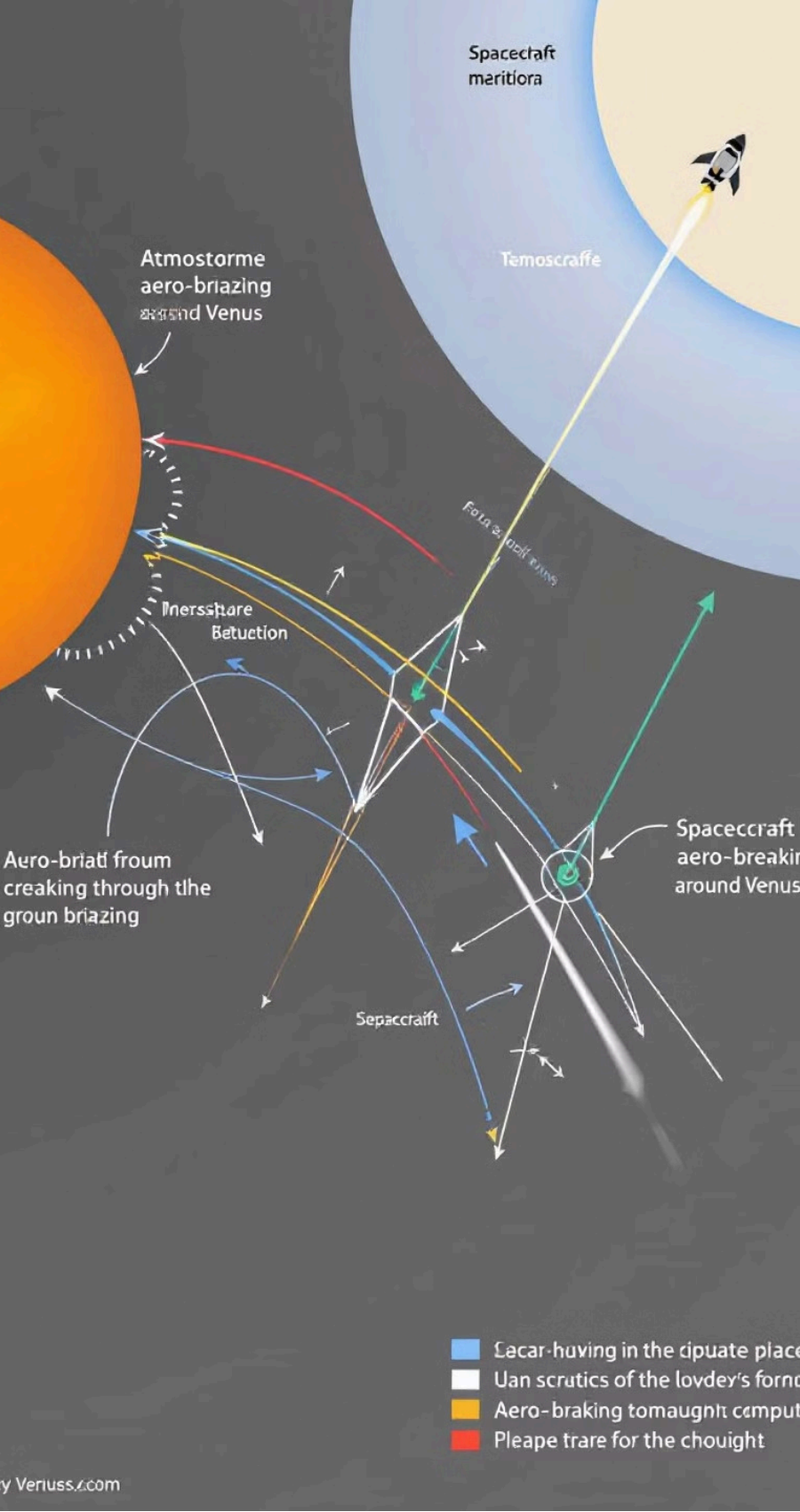
4

Aero-braking

Lowering orbit to 300 x 300 km or 200 x 600 km.



Aero-braking Technique



Initial Orbit

1

Satellite placed in highly elliptical orbit.

Atmospheric Skimming

2

Satellite lowered to 140 km, creating drag.

Orbit Reduction

3

Gradual lowering over six months.

Final Orbit

4

Satellite exits atmosphere to maintain desired orbit.

Scientific Payloads



Synthetic Aperture Radar

L and S band for surface imaging.



Thermal Camera

For temperature mapping.



Particle Studies

Analyzing interplanetary dust and high-energy particles.



Atmospheric Analysis

Studying composition, structure, and thermal state.

SHAKTI



ALL INDIA TEST SERIES - PRELIMS 2025 (20 Tests)

- 8 Fundamental Tests
- 7 Advanced Tests
- 5 Full Length Tests
- Current Affairs

EACH TEST HAVE 100 QUESTIONS

~~₹5000/-~~ ₹2300/-



8285894079
8750711100

GET IT ON
Google Play

Download on the
App Store



International Collaboration

Indian Experiments

At least 17 Indian payloads selected for the mission.

International Participation

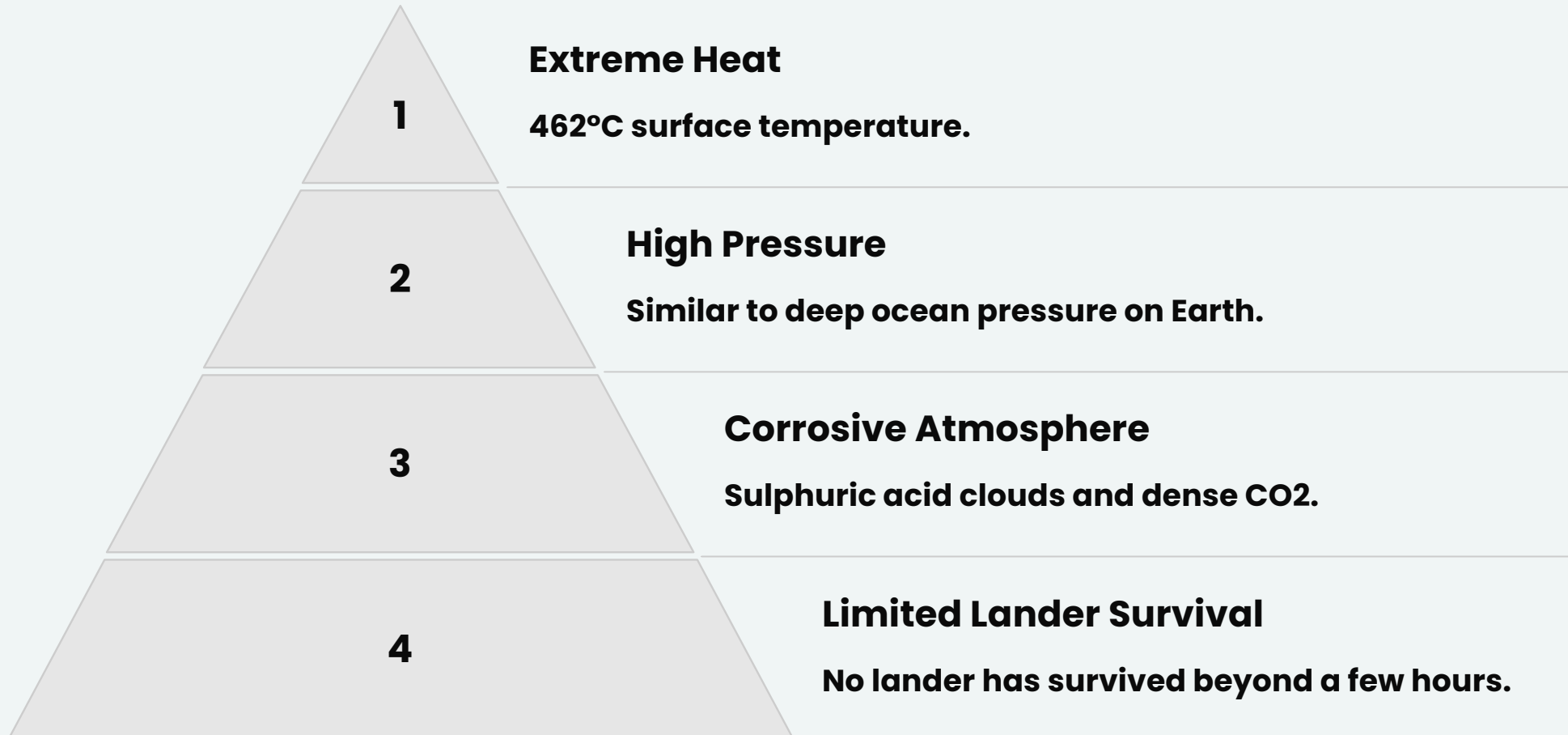
Seven international experiments included in the mission.

Global Venus Exploration

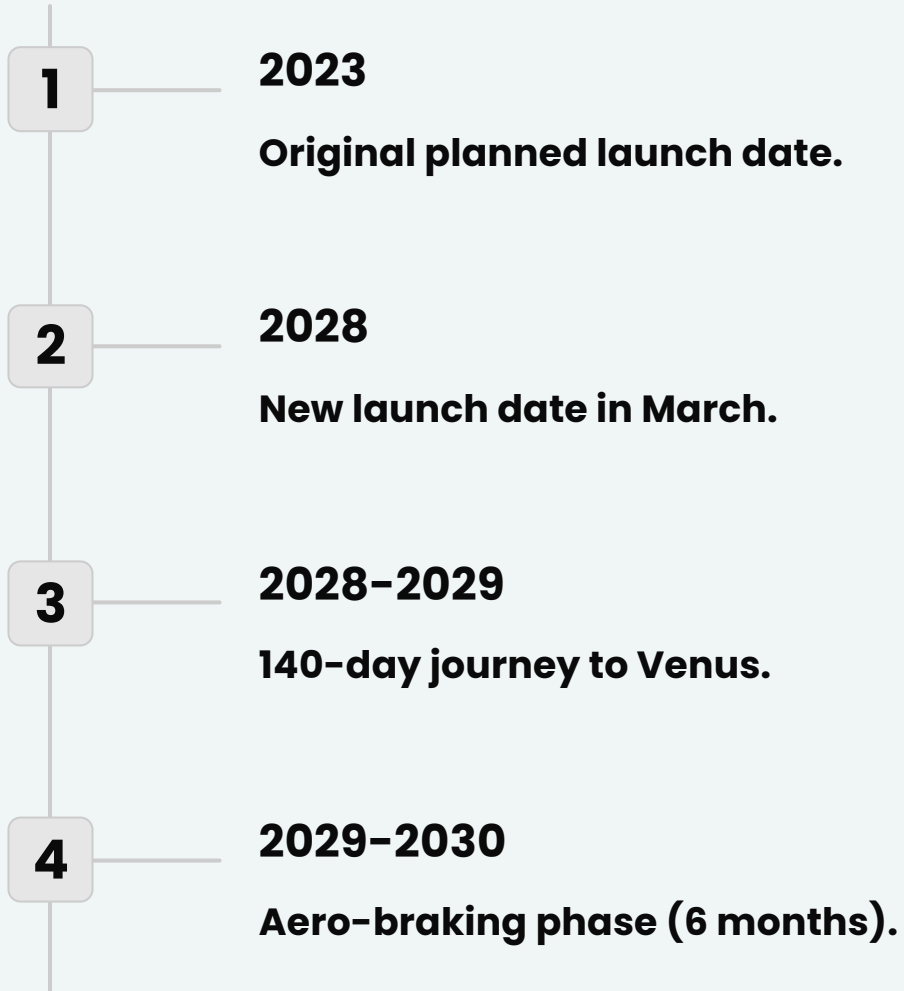


NASA's DAVINCI mission will drop a sphere through Venus's atmosphere in 2031, while ESA's EnVision will use radar to map the surface in unprecedented detail. The US VERITAS mission will create 3D global maps, and Japan's Akatsuki continues to study Venus's atmosphere since its 2015 arrival. Together with India's upcoming mission, these spacecraft will form the most comprehensive study of Venus ever attempted.

Challenges of Venus Exploration



Mission Timeline



INDIA'S VENUS TIMELINE

India's mission this timission at buter-oura T imetion.



Significance of India's Venus Mission

Scientific Advancement

Contributes to understanding planetary evolution and Earth's future.

Technological Prowess

Demonstrates India's growing capabilities in deep space exploration.

International Collaboration

Fosters global scientific cooperation in space research.

LIMITED TIME
OFFER

ब्रह्माstra

IAS Prelims 2025

What will you get:

- ✓ Selection Wali Class
- ✓ GS Test Series (~~Rs. 2300~~ Free)
- ✓ CSAT
- ✓ GS (100 Hours)



BY OJAANK SIR

~~Rs. 30,000~~

Rs. 25,000



First 3 Day Classes
Free



IAS With Ojaank Sir



www.ojaank.com



8506845434
8750711100



8285894079

Follow Ojaank Sir



IAS with Ojaank Sir



Ojaank_Sir



IAS with Ojaank Sir

Free **PDF** Content
पाने के लिए अभी JOIN करें



8285894079



8285894079