

The atmosphere

95 %

carbon dioxide (CO₂), with a little nitrogen and argon. Oxygen represents only 0.13% and water vapor 0.03%.

- Impossible to breathe.
- Liquid water cannot stay on the surface.

150 to 200 x
lower

The atmosphere is much thinner than Earth's: the pressure is

Mars

Water exists as ice or very thin vapor.

Polar ice caps:
Water ice and carbon dioxide ice (called "dry ice")

Like Earth, Mars has **seasons due to the tilt of its axis**. Temperatures go from -14°C in summer to -120°C in winter, with an average of about -60°C. Ice caps are therefore **naturally found at the poles**.



Sublimation

No atmosphere
= No protective blanket to keep water



And just like that, ice turns **directly into water vapor**: this is **sublimation**

2008

Phoenix Mission

Main goal: Study the Arctic region of Mars, near the polar ice cap.

Major discovery: Phoenix confirmed **the presence of water ice** in Martian soil by photographing it over several days and watching it sublimate.

Other results: the probe observed Martian snowfall and showed that water can move between the atmosphere and the ground.

Importance: this mission proved that Mars still contains water in the form of ice, which is essential for understanding its climate and potential habitability.

Robots searching
for ice

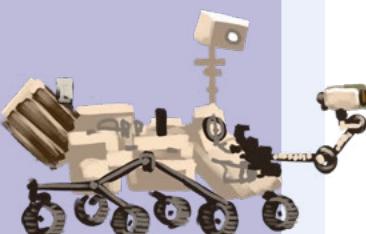
Since 2021

Perseverance Mission

Exploration site: Jezero Crater, which once contained a lake and a delta formed by water.

Main goal: search for signs of past water activity and collect rock samples.

Recent discoveries:
Perseverance identified minerals such as kaolinite (clay), which formed in the presence of liquid water in the past.



Importance: by studying these rocks, scientists want to understand whether Mars could once have been habitable and if it preserved traces of ancient life.

