

**The atmosphere****95 %**

carbon dioxide (CO<sub>2</sub>), 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**

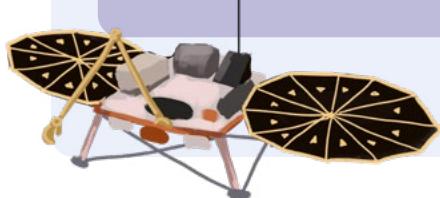
**2008****Phoenix Mission**

**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.

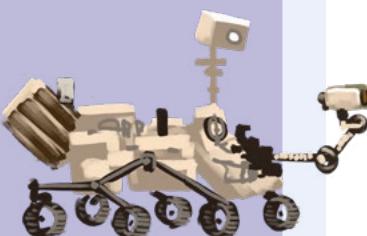
**Importance:** this mission proved that Mars still contains water in the form of ice, which is essential for understanding its climate and potential habitability.

**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.