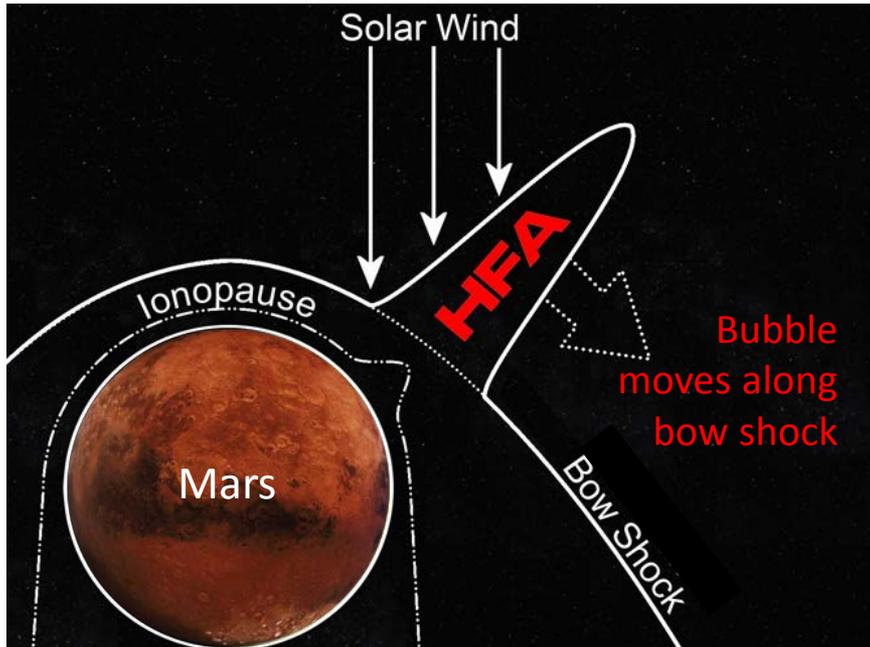


Hot Flow Anomalies at Mars

An explosive space weather phenomenon at Mars engulfs the planet

Glyn Collinson (673/695)



What is the science question

- How does a planet without a magnetic field interact with the solar wind?

What were your findings?

- MAVEN engulfed by explosive plasma phenomena known as a Hot Flow Anomaly (HFA), common to Earth and Venus.
- HFAs form rapidly and sweep across the entire bow shock (tens of thousands of miles) in a matter of minutes.

What was the impact?

- MAVEN can not just detect HFAs, but measure the conditions inside the “eye” of the explosion.
- The punch of the HFA is capable of producing dramatic, planet-scale disruptions, possibly sucking the ionosphere up and away from the surface.
- The switch-off of Mars’ planetary magnetic dynamo field (around the same time as the loss of its oceans and atmosphere) left Mars’ ionosphere vulnerable to HFAs.

Why does it matter to non-scientists?

- Provides insight into the key differences between Earth and Mars.