

A Mars rover, likely Curiosity, is shown on a reddish, rocky planet surface. The rover has two large, white, fan-like solar panels extended. The background is a hazy, orange-tinted sky. A large, semi-transparent blue text overlay is centered on the image.

Séismologie planétaire

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Club Astro

17 octobre 2018

① Introduction

② Séismologie

Que nous apprennent les séismes ?

Instruments de mesure

③ Vers l'infini et au delà !

La Lune

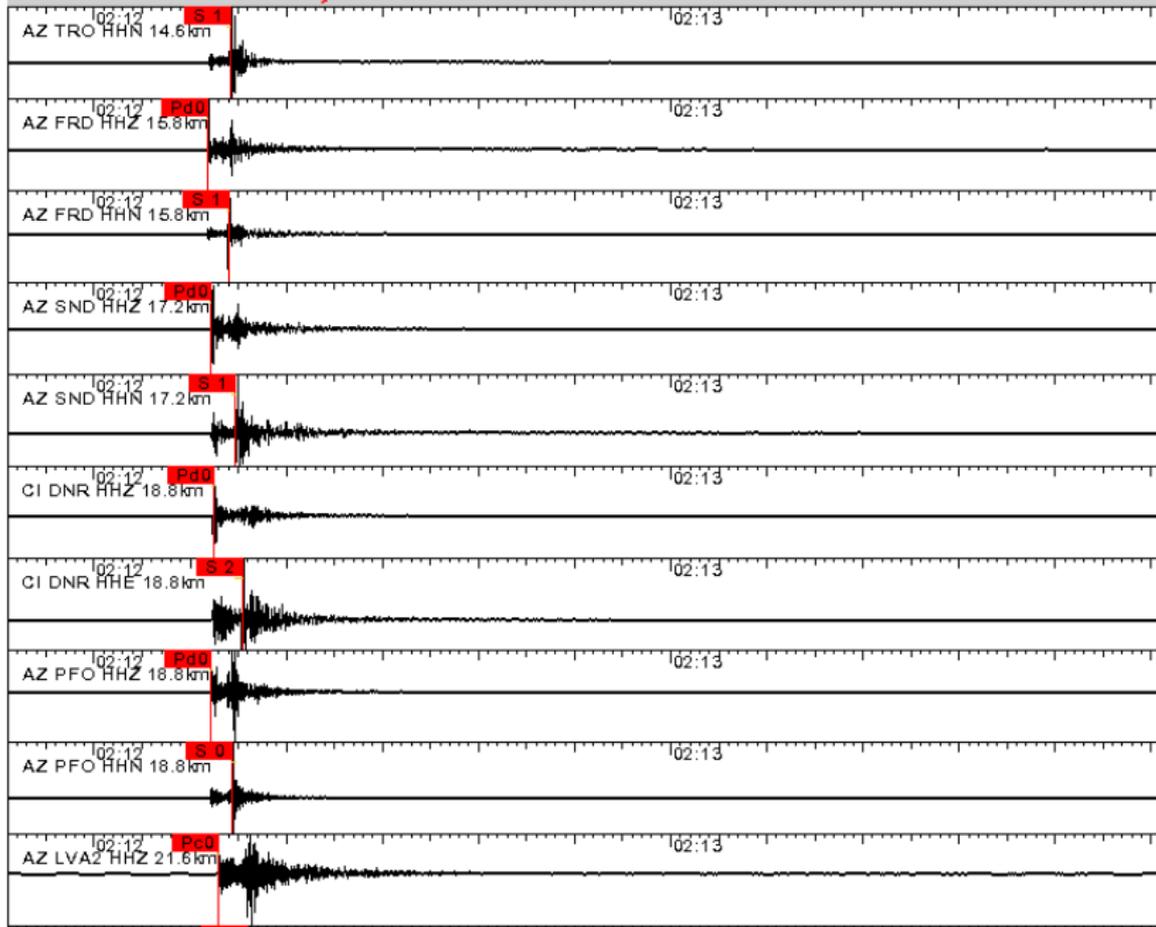
Mars

Vénus

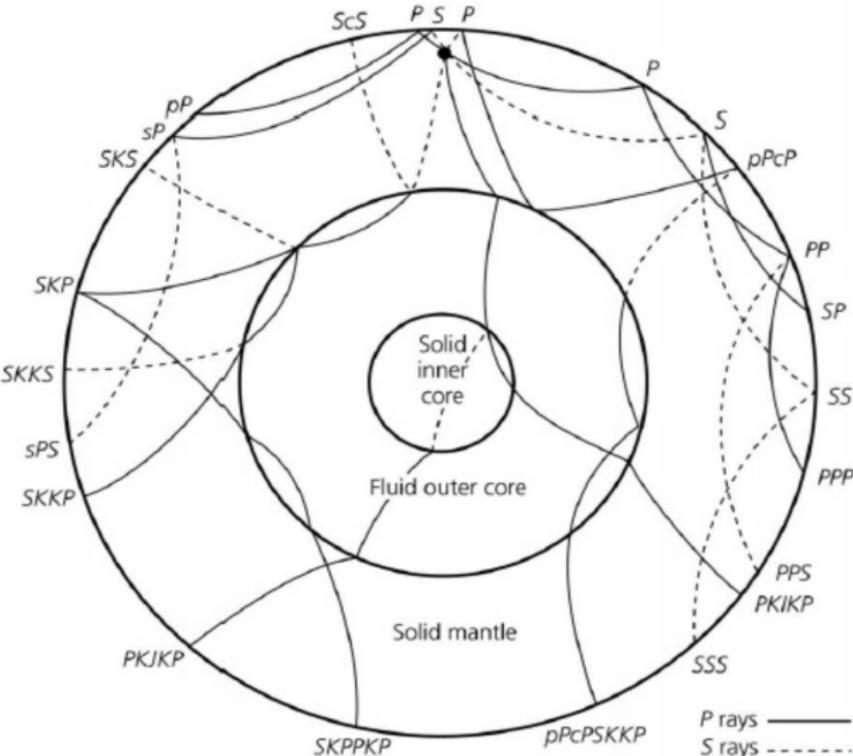
Petits corps

Séismogrammes

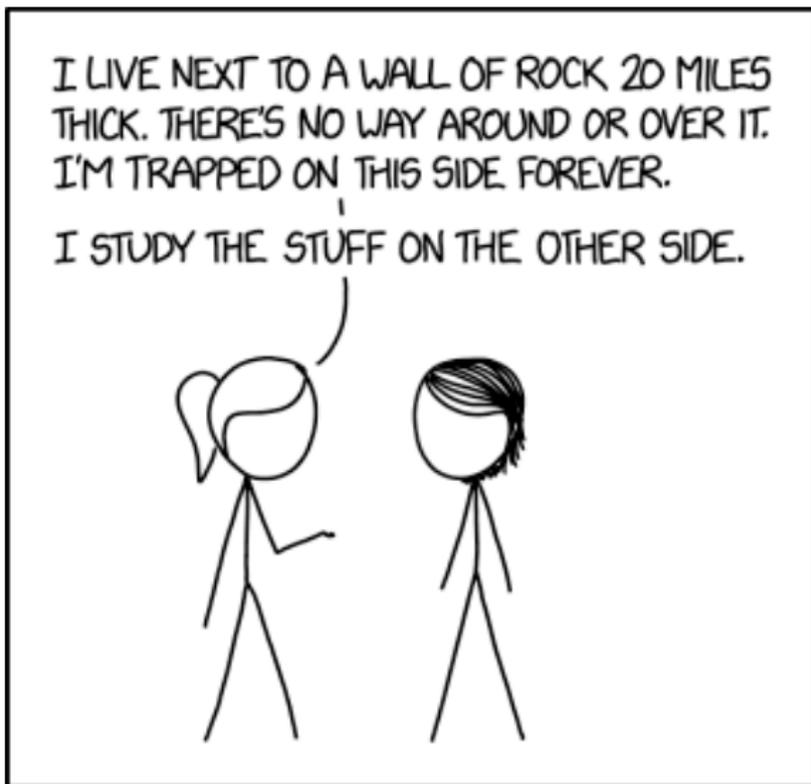
10054541 October 19, 2004 02:12:09.05 33.5003 -116.5113 14.6 3.23 MI local



Théorie des rayons



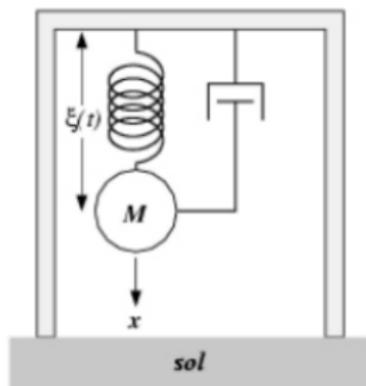
- composition interne
- structures cristallines
- mécanismes de formation
- histoire du système solaire



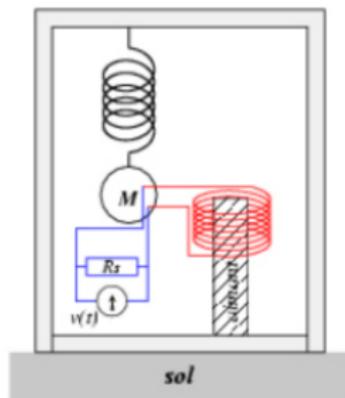
MANTLE GEOLOGY SEEMS LIKE THE MOST FRUSTRATING FIELD.



système masse-ressort



geophone



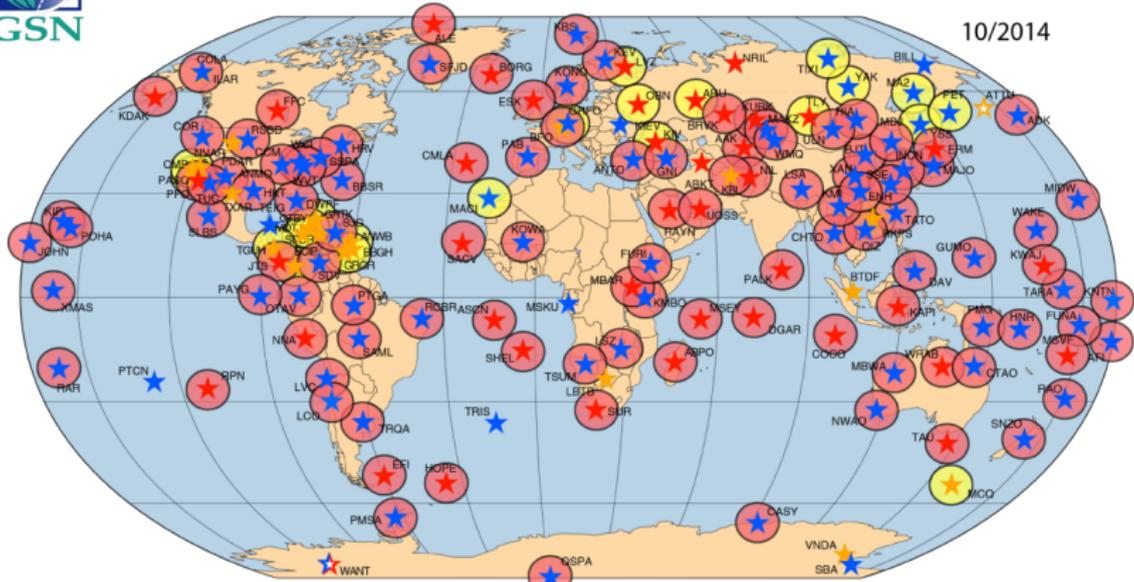
Sur terre ferme

Sans compter les balises mobiles



GLOBAL SEISMOGRAPHIC NETWORK

10/2014



- ★ IRIS / IDA Stations
- ★ IRIS / USGS Stations
- ★ Planned Stations

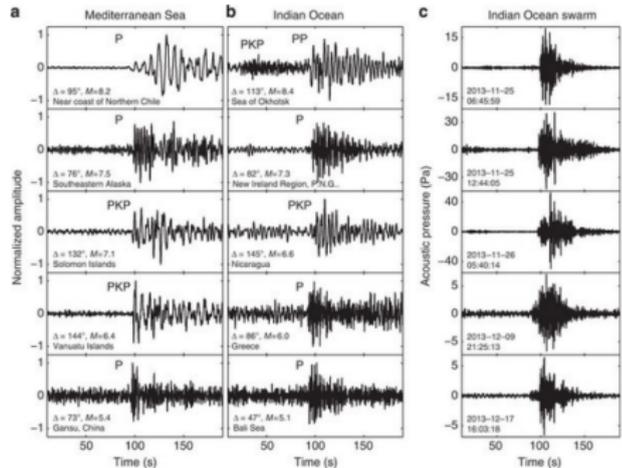
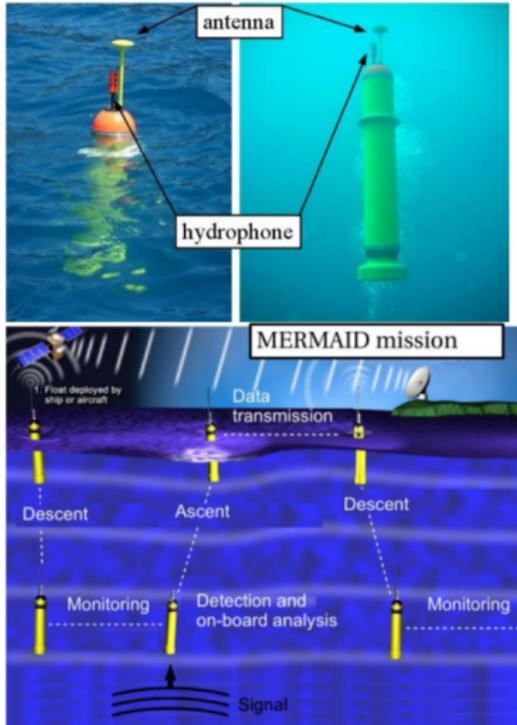
- ★ IRIS / USGS Stations

- ★ Affiliate Stations

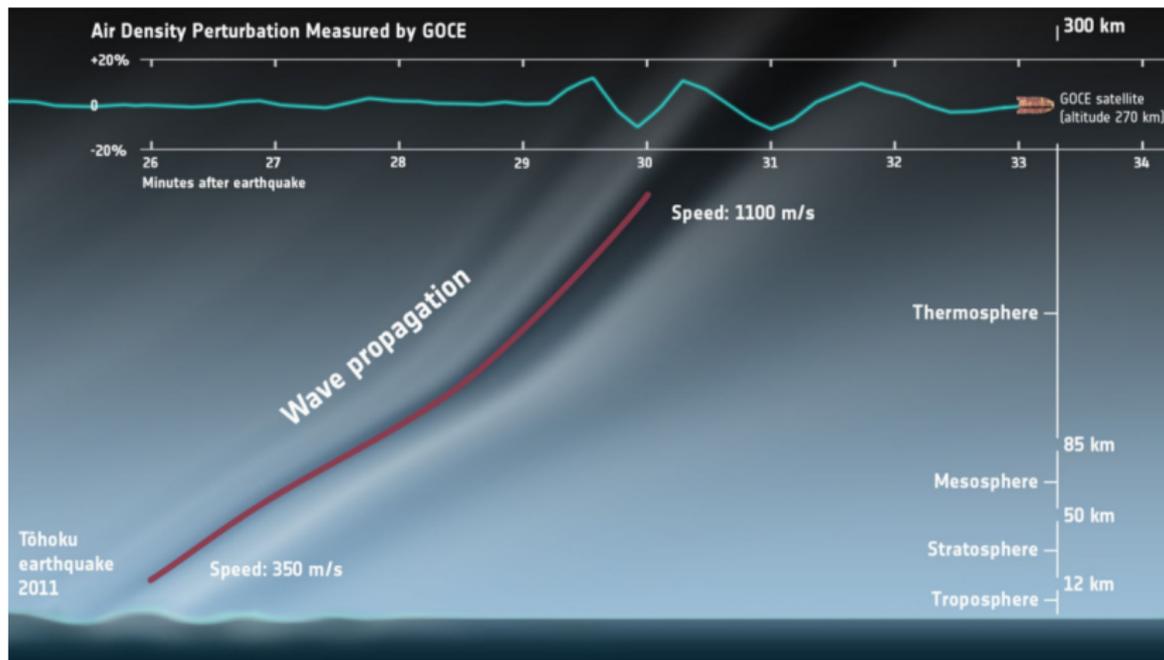
- GSN Stations Upgraded to Next Generation System

- Q330 Upgrades by GSN Affiliates

Sous l'océan



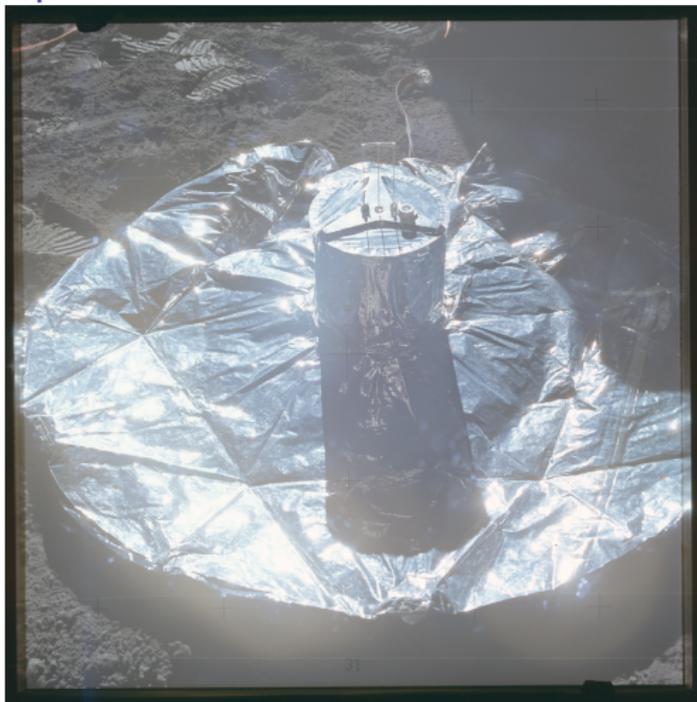
Depuis l'ionosphère



Instruments

- 4 séismomètres (Apollo 12, 14, 15 et 16)
- 1969 - 1977

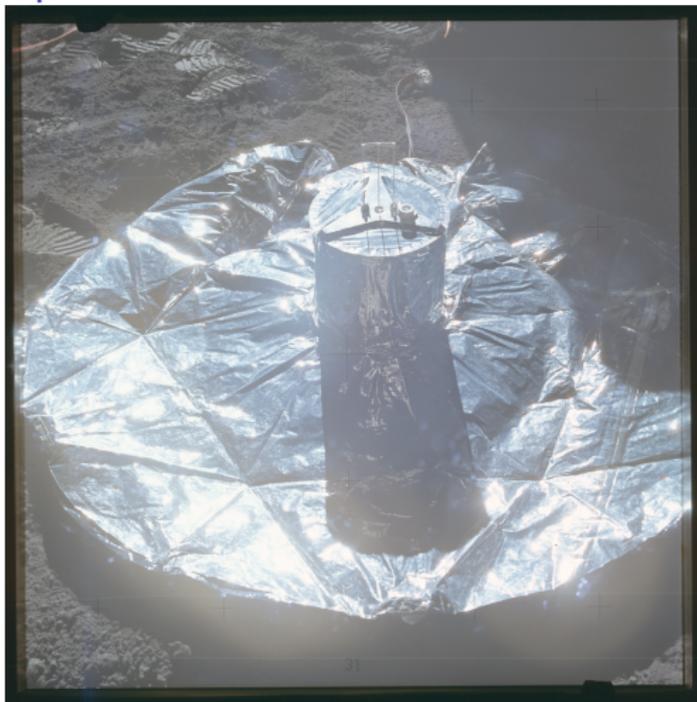
Apollo 12



Instruments

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- LLR

Apollo 12



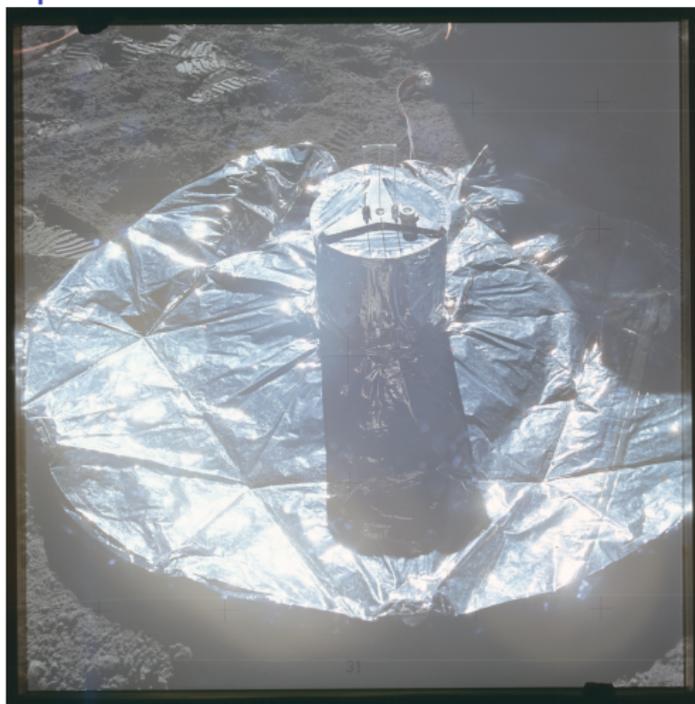
Instruments

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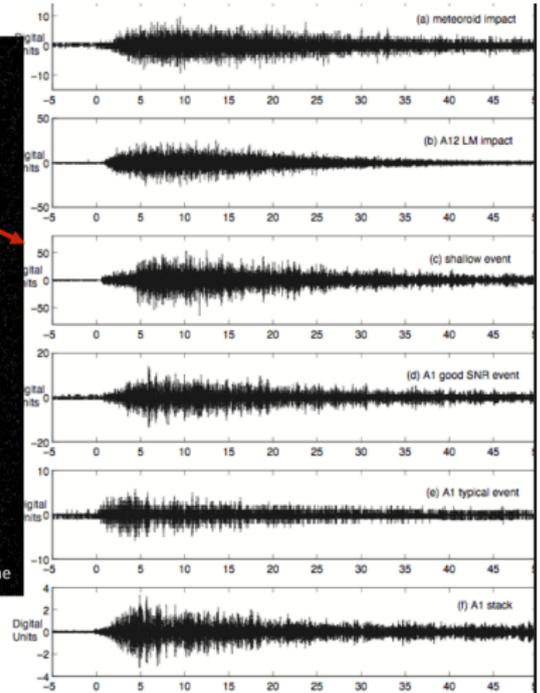
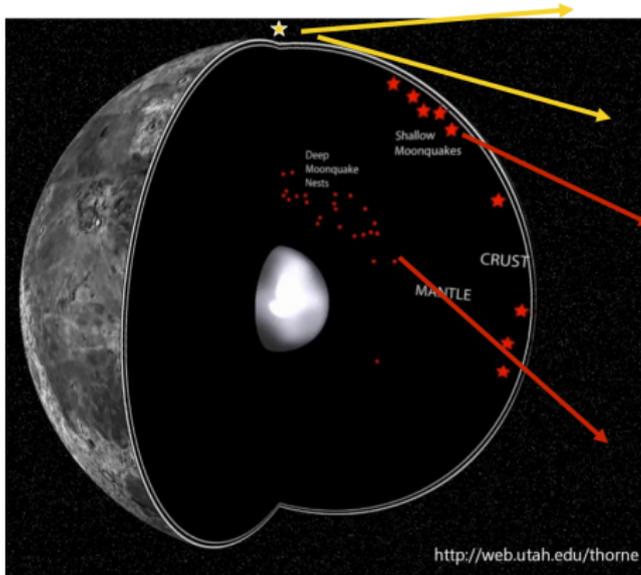
Mesures

- séismes
- impacts de météorites
- alunissages et décollages

Apollo 12



Lognonné & Johnson, 2007



Mars : missions passées



Mars : missions passées

Viking 2



- 1500 h d'enregistrements
- Du vent !



Mars : missions passées

Viking 2



- 1500 h d'enregistrements
- Du vent !



Et c'est tout

:(

Mission InSight

- 26 novembre 2018
- < 10 000 km de Mars

Mission InSight

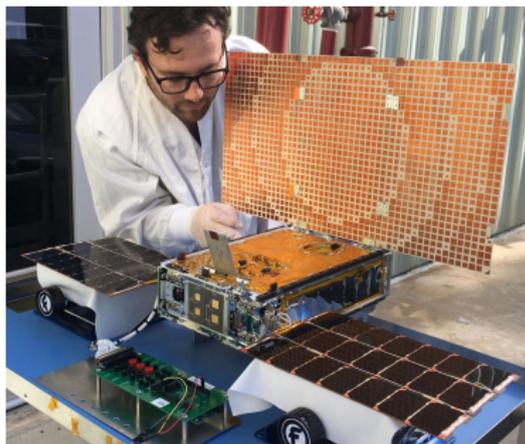
- 26 novembre 2018
- < 10 000 km de Mars
- 708 Sols
- 9 séismes

Mission InSight

- 26 novembre 2018
- < 10 000 km de Mars
- 708 Sols
- 9 séismes
- Formation et évolution de Mars
- Activité tectonique

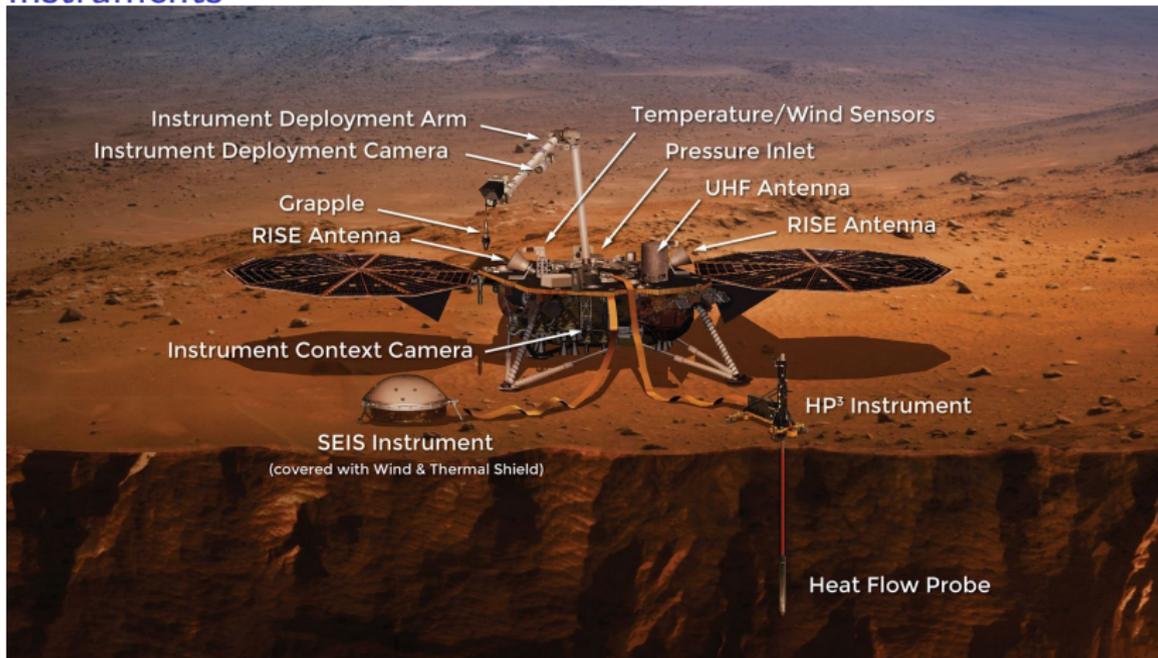
Mission InSight

- 26 novembre 2018
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- Formation et évolution de Mars
- Activité tectonique
- MarCO

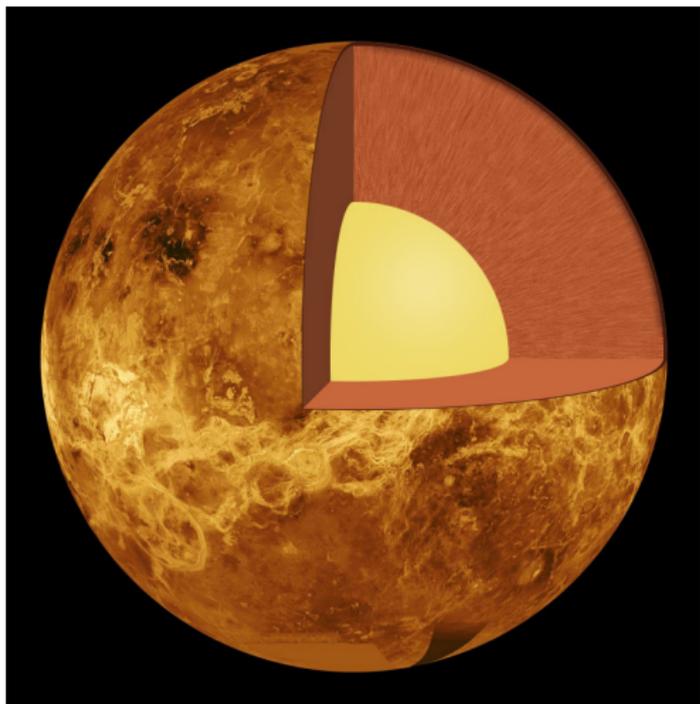


Mission InSight

Instruments



Vénus

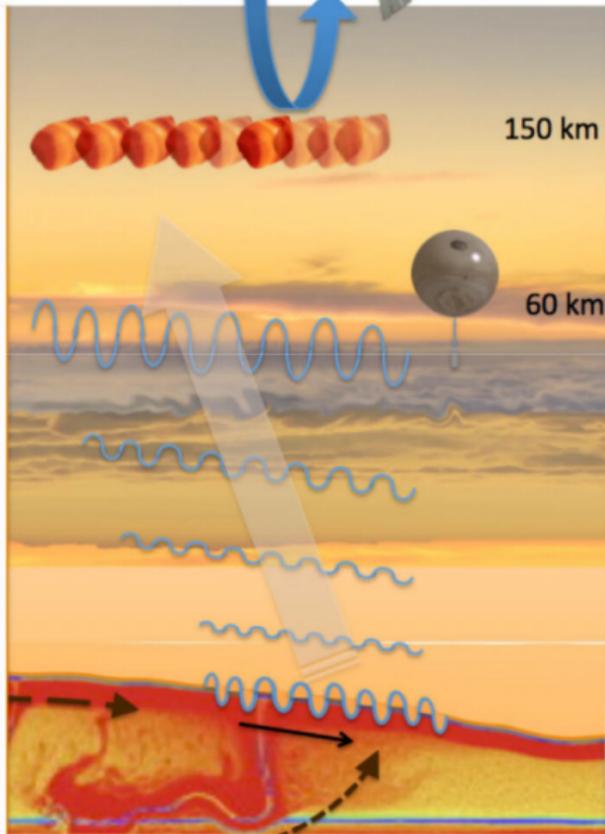
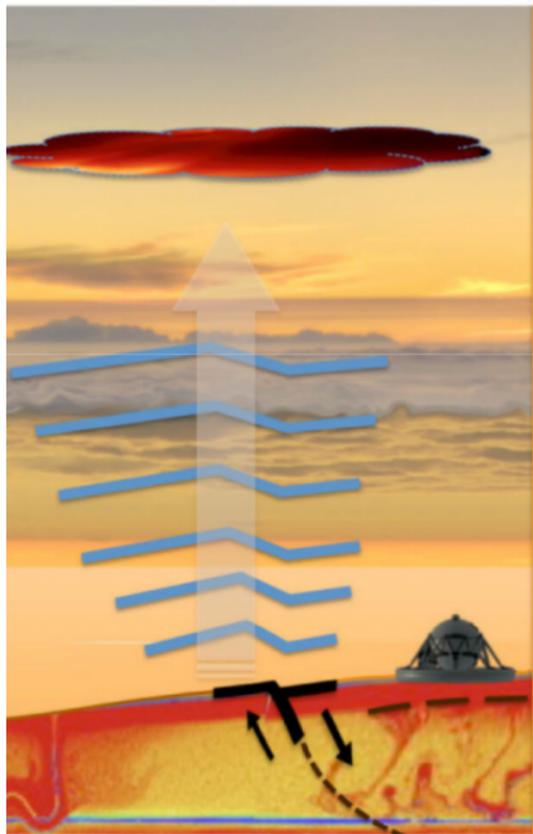


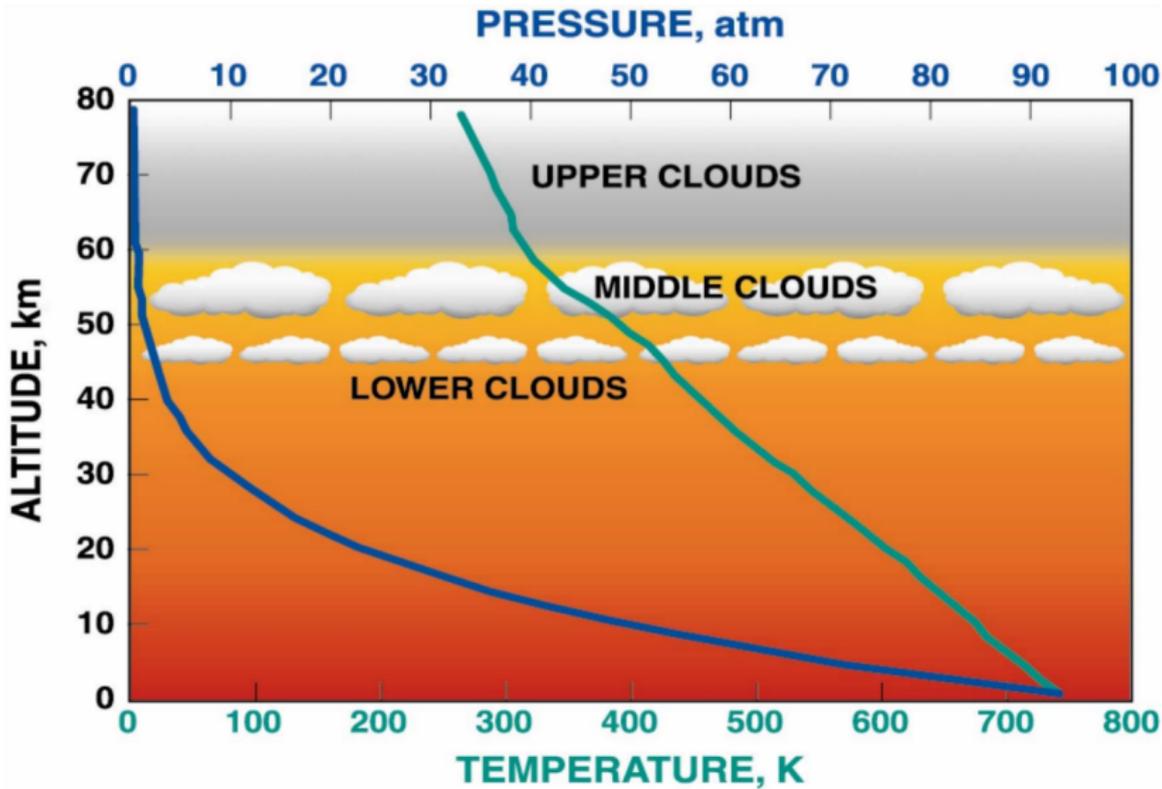
Venus Climate Mission

- gondole instrumentée
- portée par un ballon
- > 2023 ?

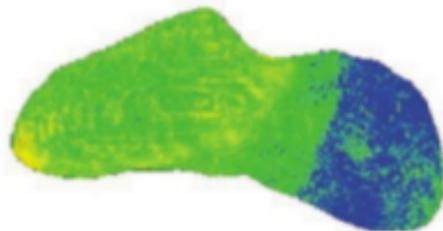
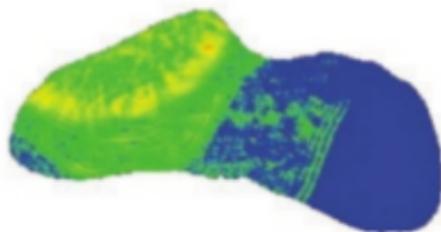
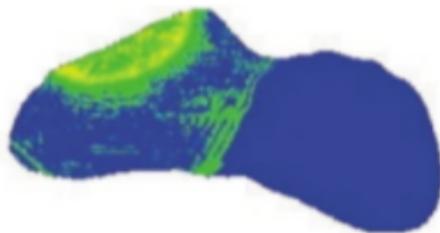
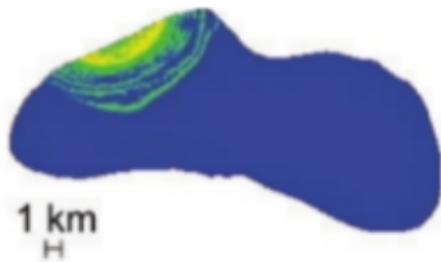
Venera-D

- partenariat US-Russie
- 2 ballons + mini sondes

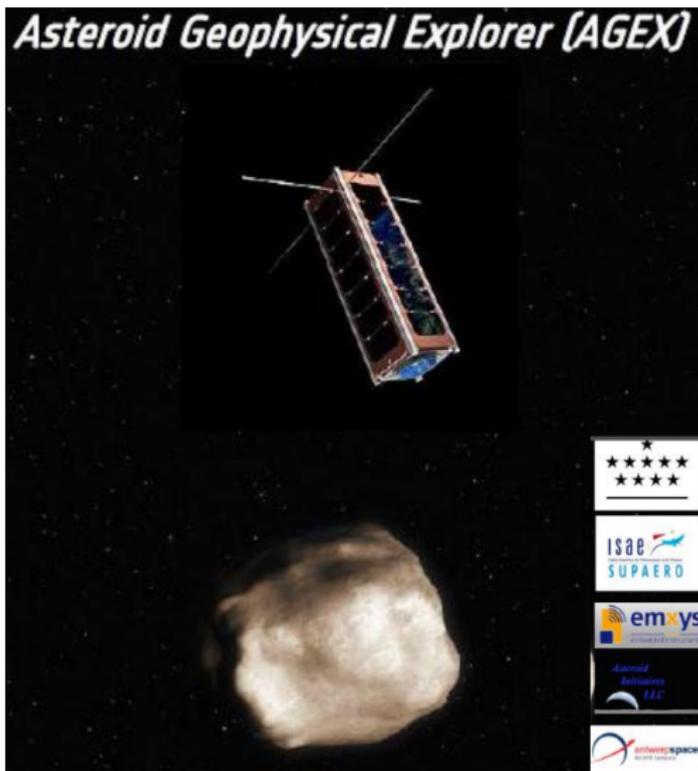




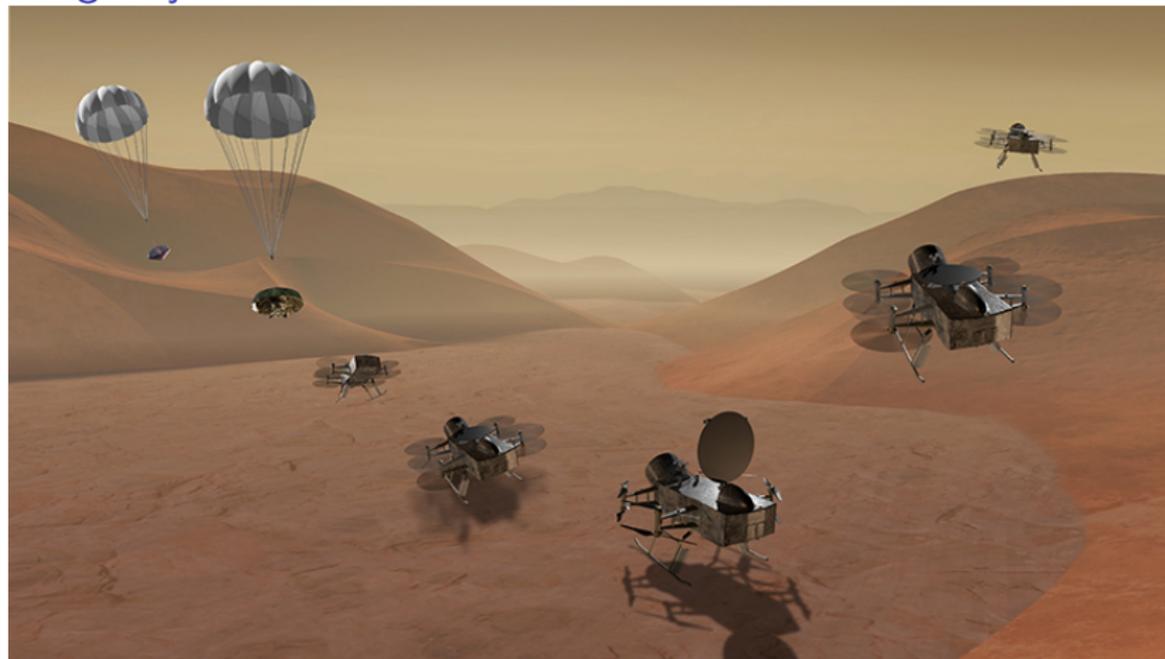
Simulations



Astéroïdes



Dragonfly



Merci !

