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Balade dans le système solaire



Vivre mieux !

ASSOCIATION
DE MAILLET



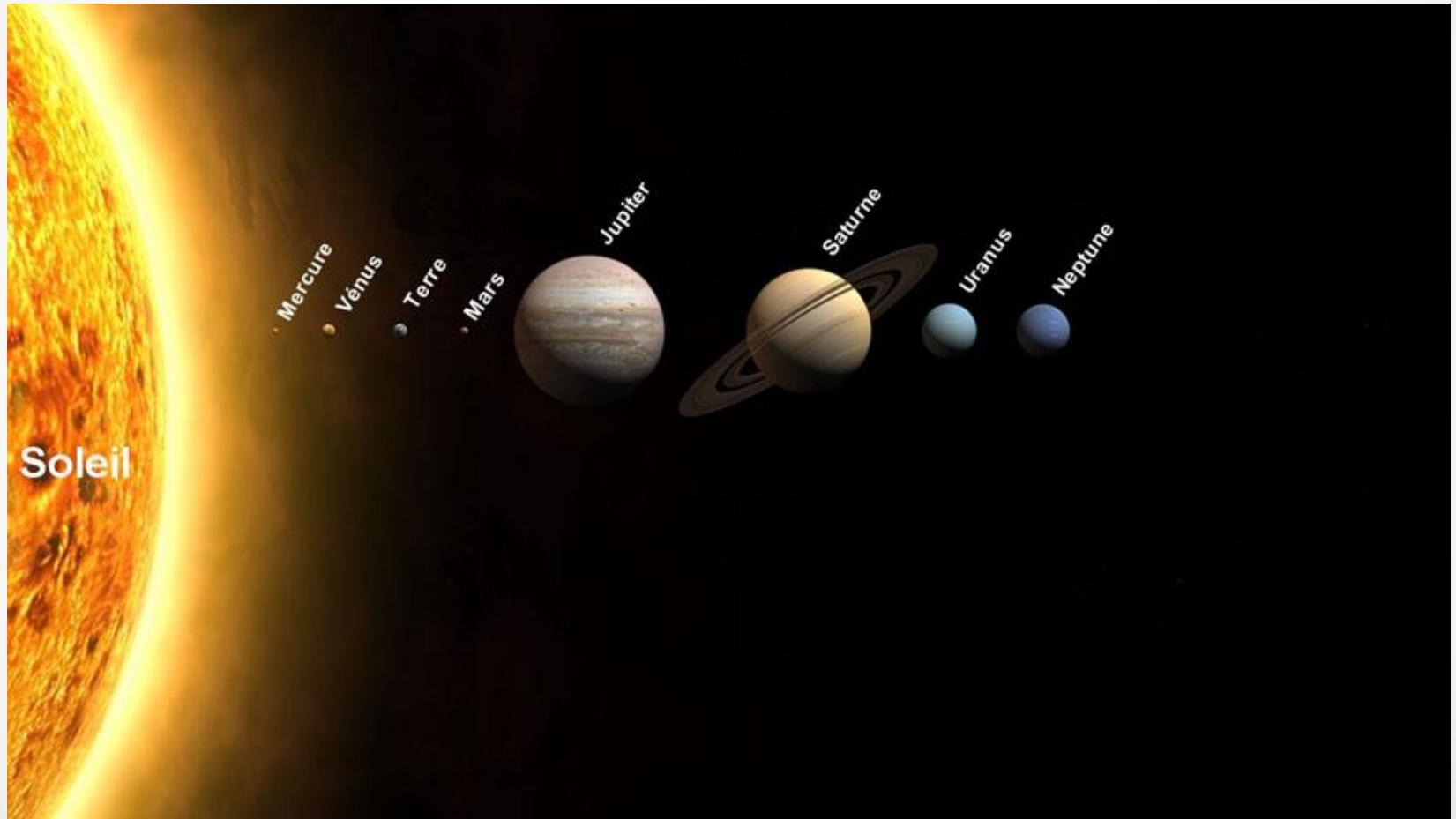
Club d'astronomie

• Caroline H

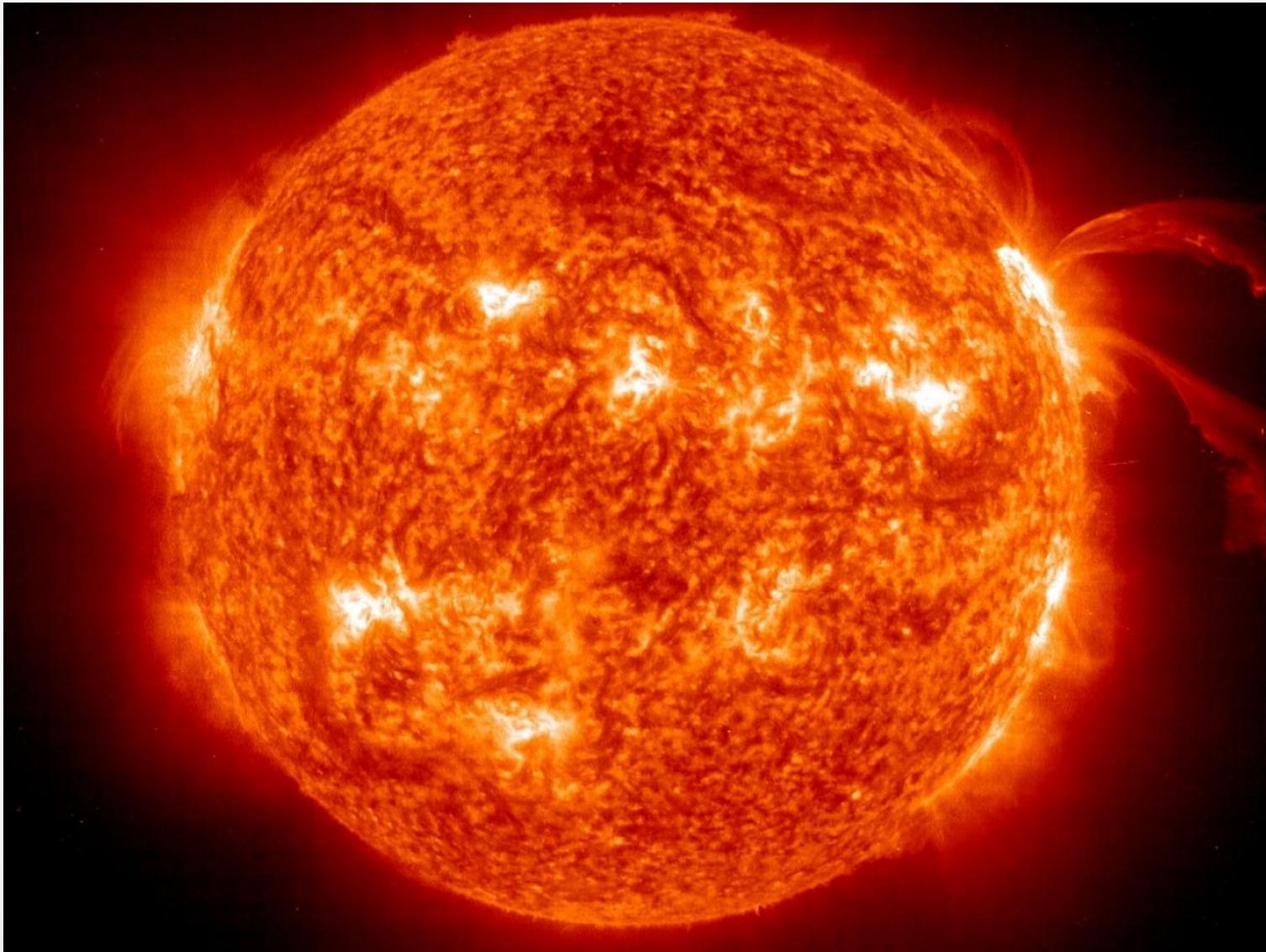


Jean-Pierre Maratrey

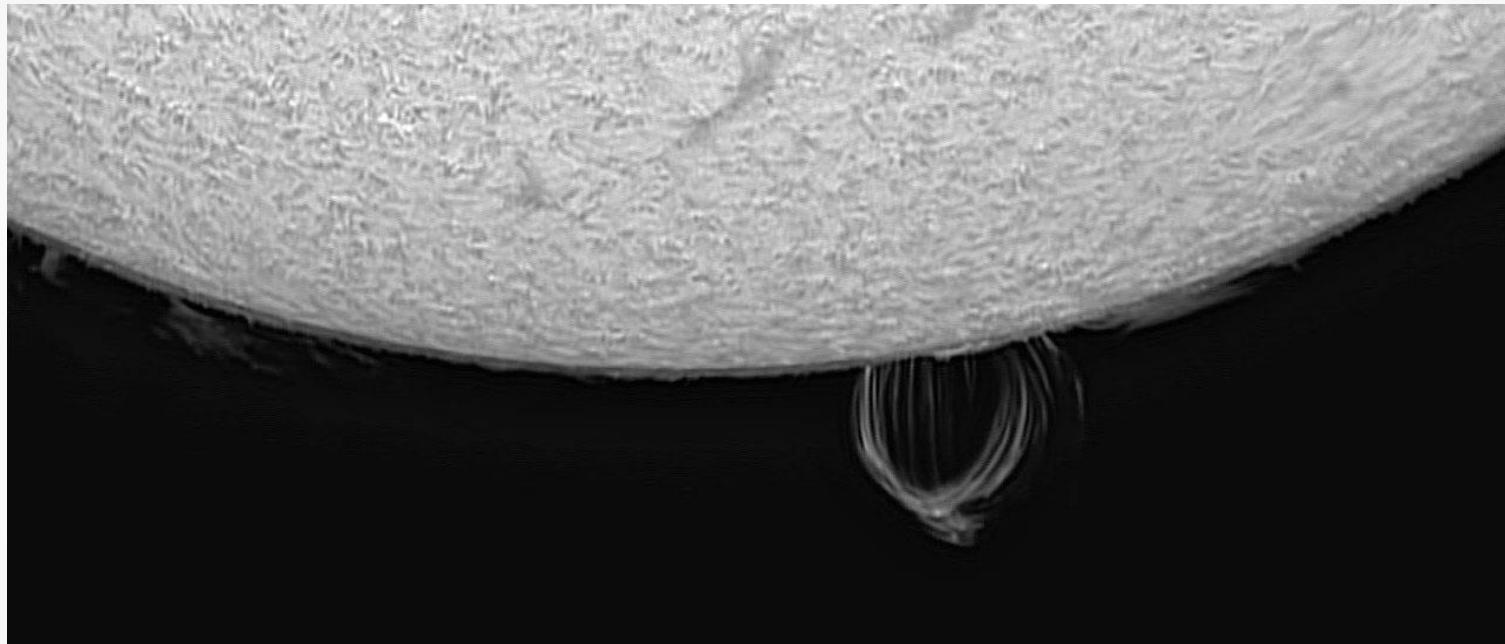
Les planètes du système solaire



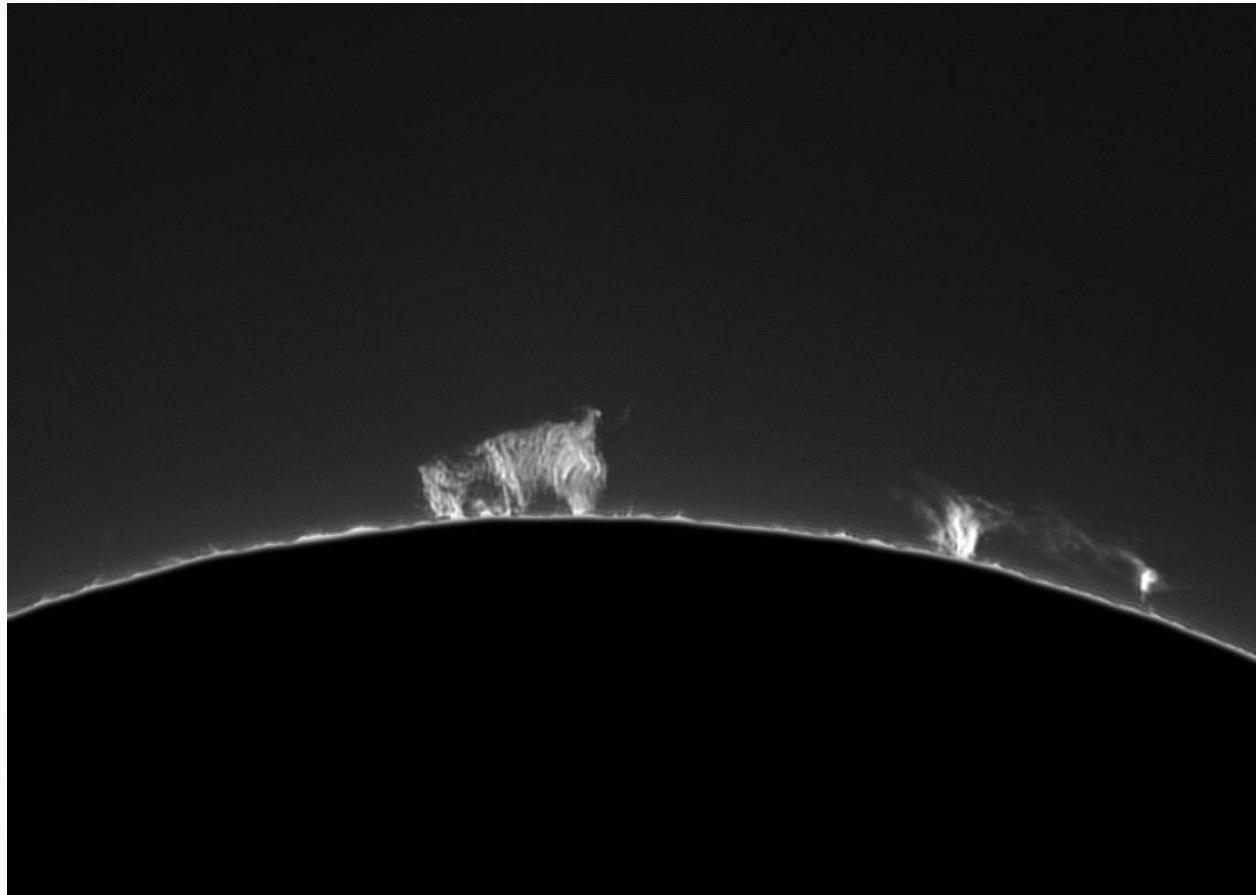
Le Soleil



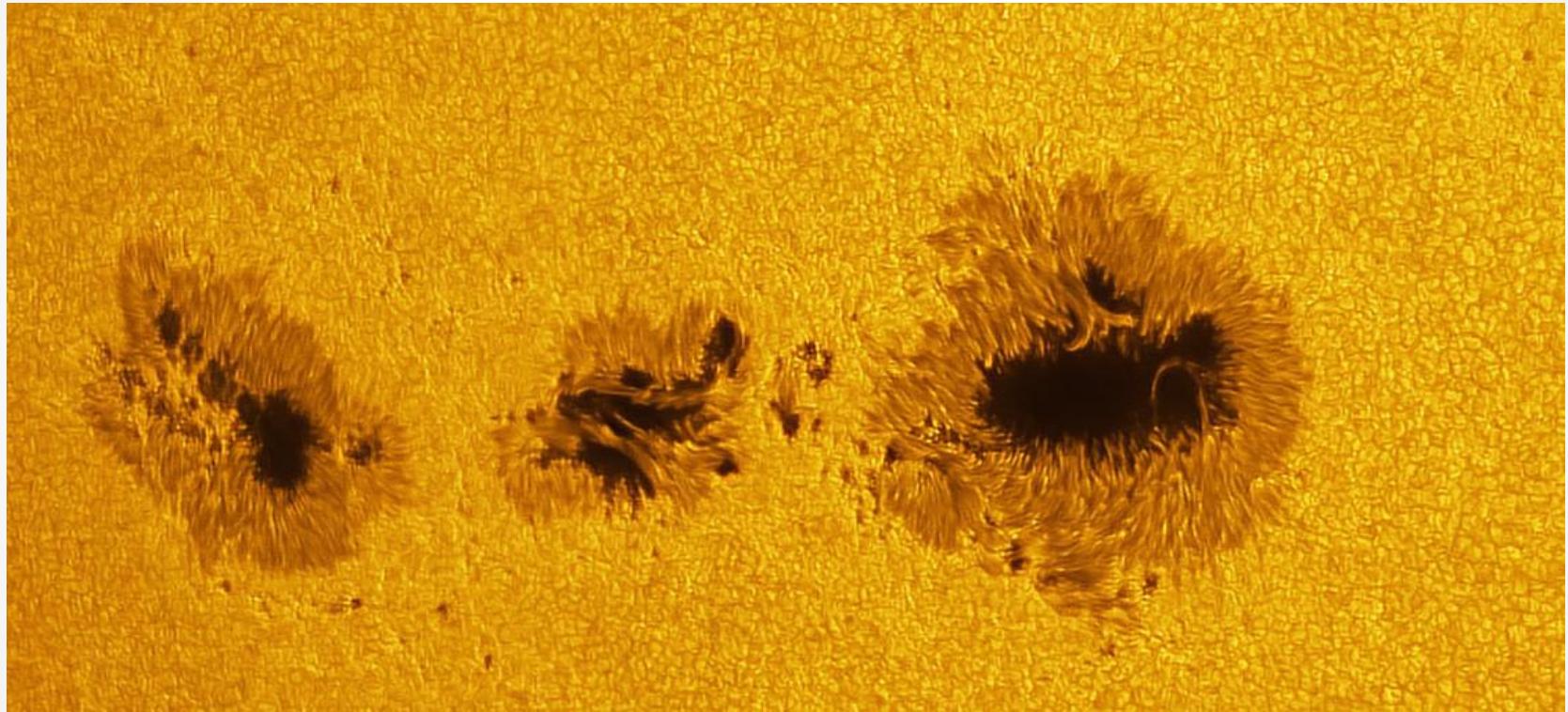
Les protubérances solaires



Les protubérances solaires



Les taches solaires

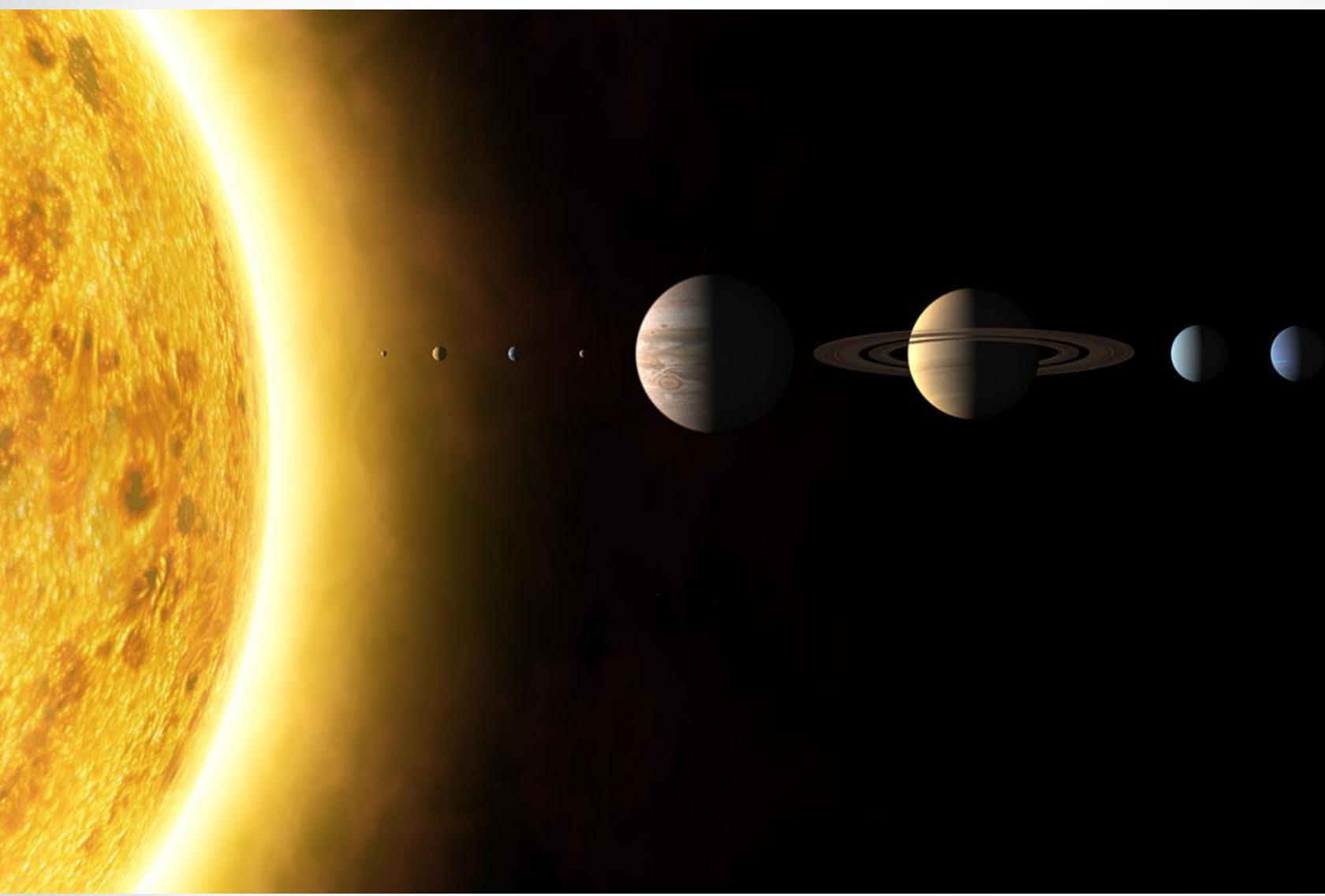


Visibles à l'œil nu...
mais bien mieux avec un télescope.

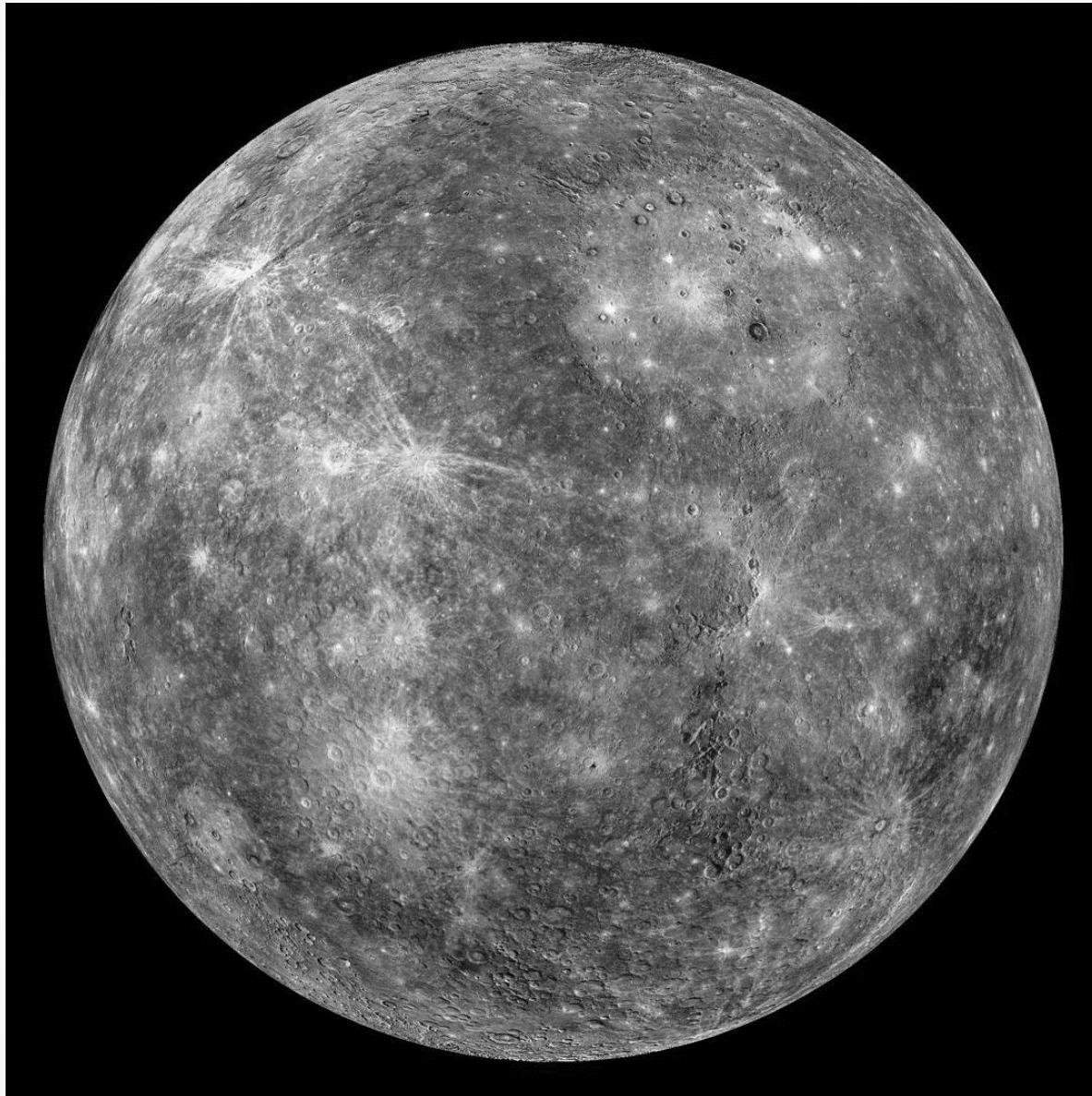
La couronne solaire



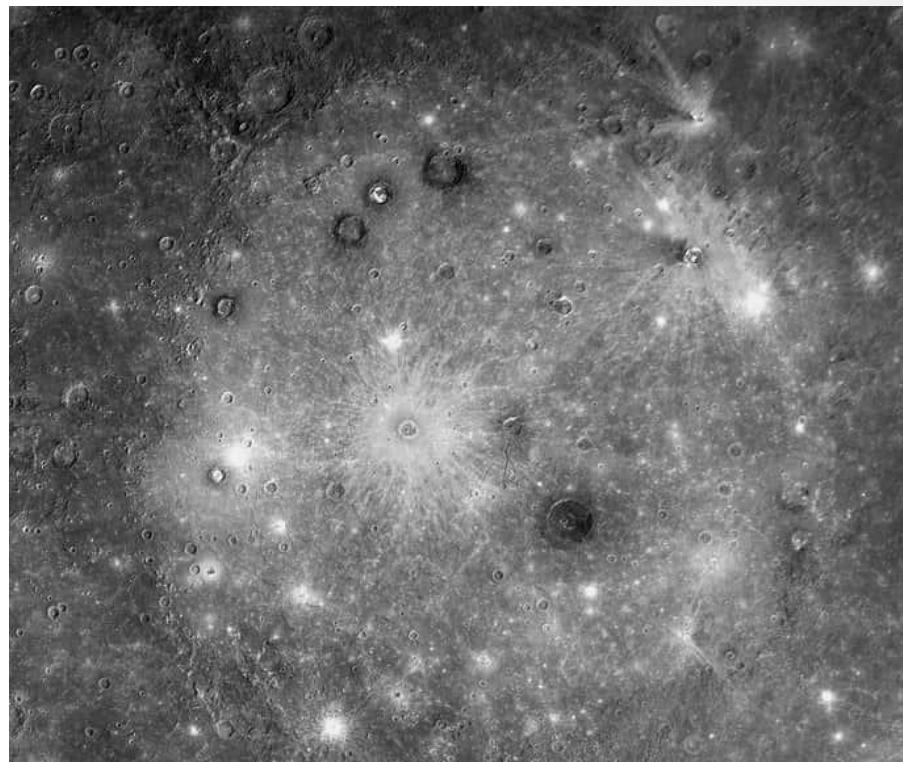
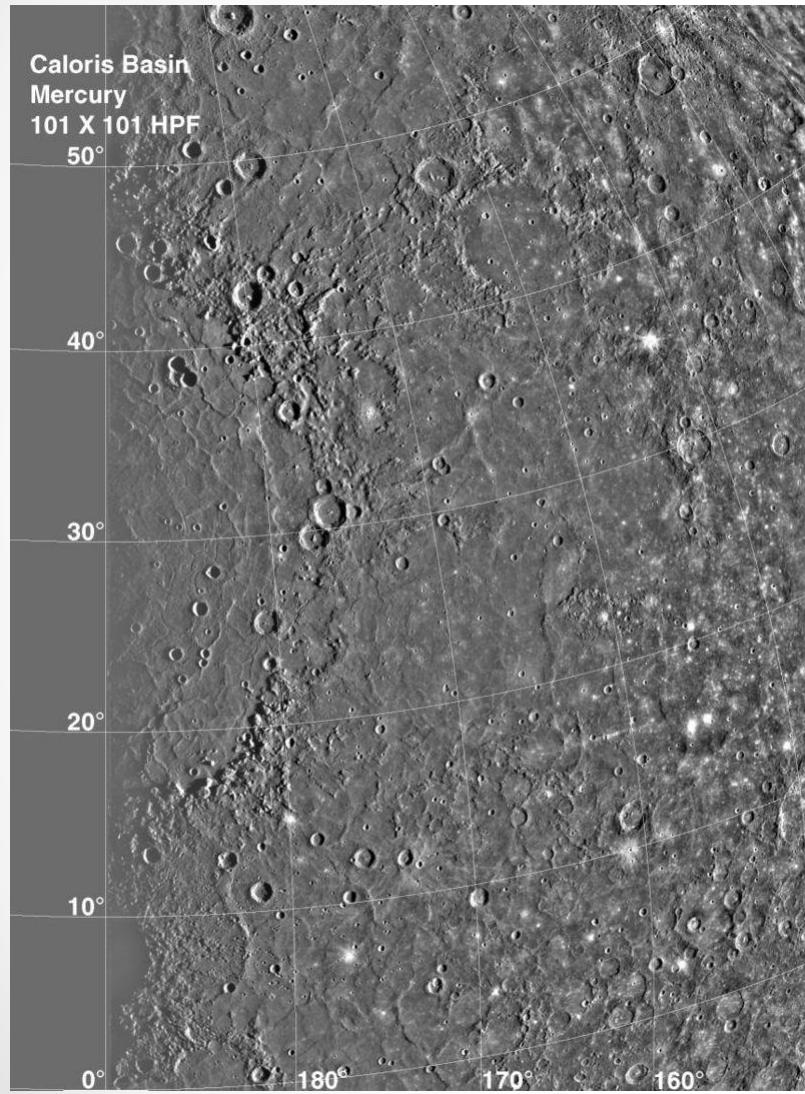
Les planètes



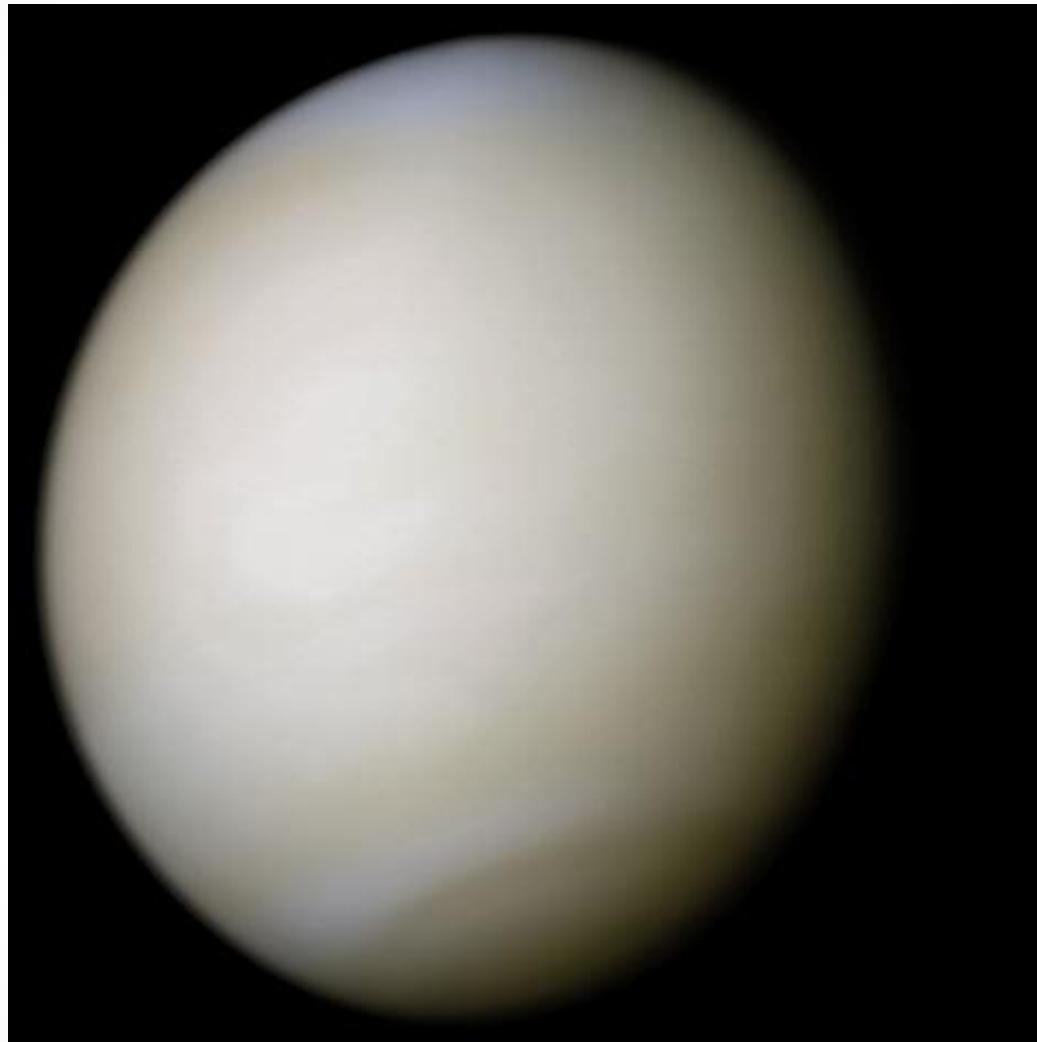
Mercure



Mercure : le bassin de Caloris



Vénus



Vénus

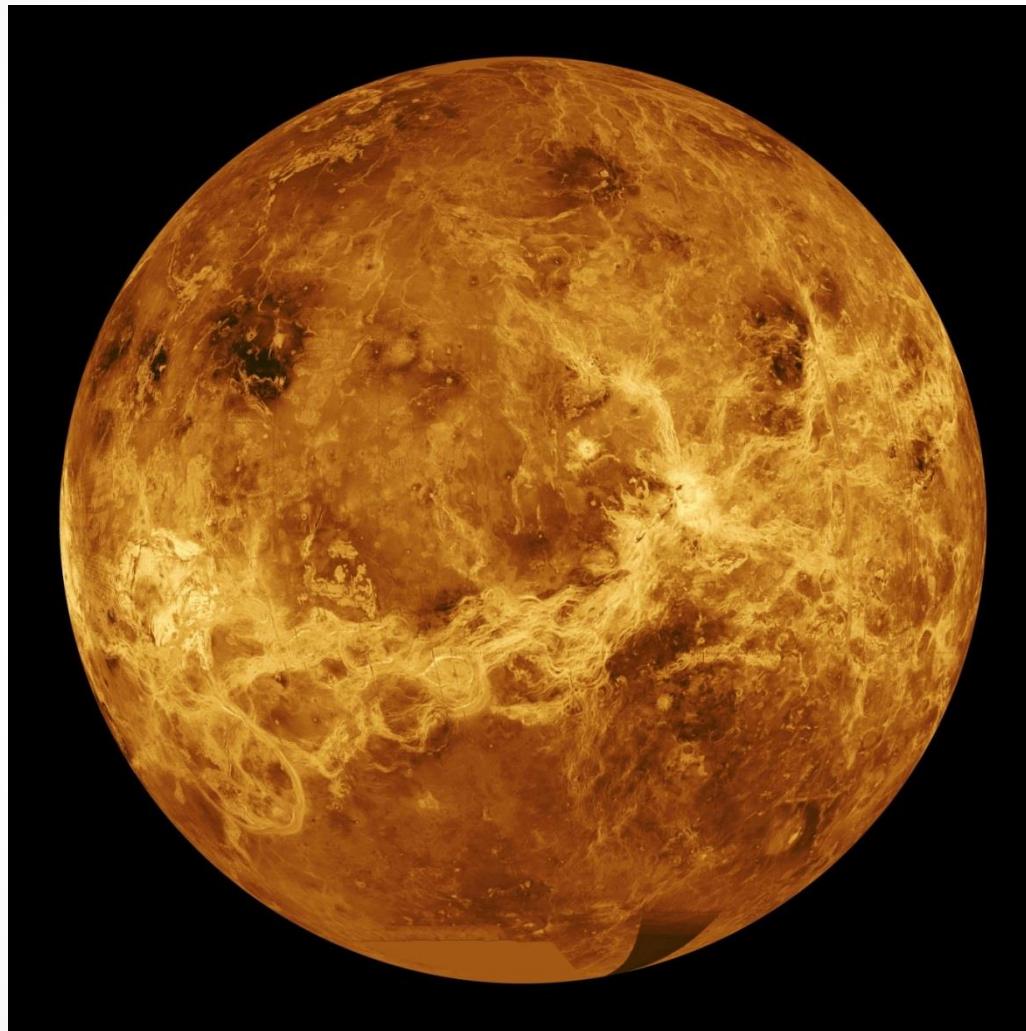


Image synthétique radar

Images synthétiques radar

Vénus

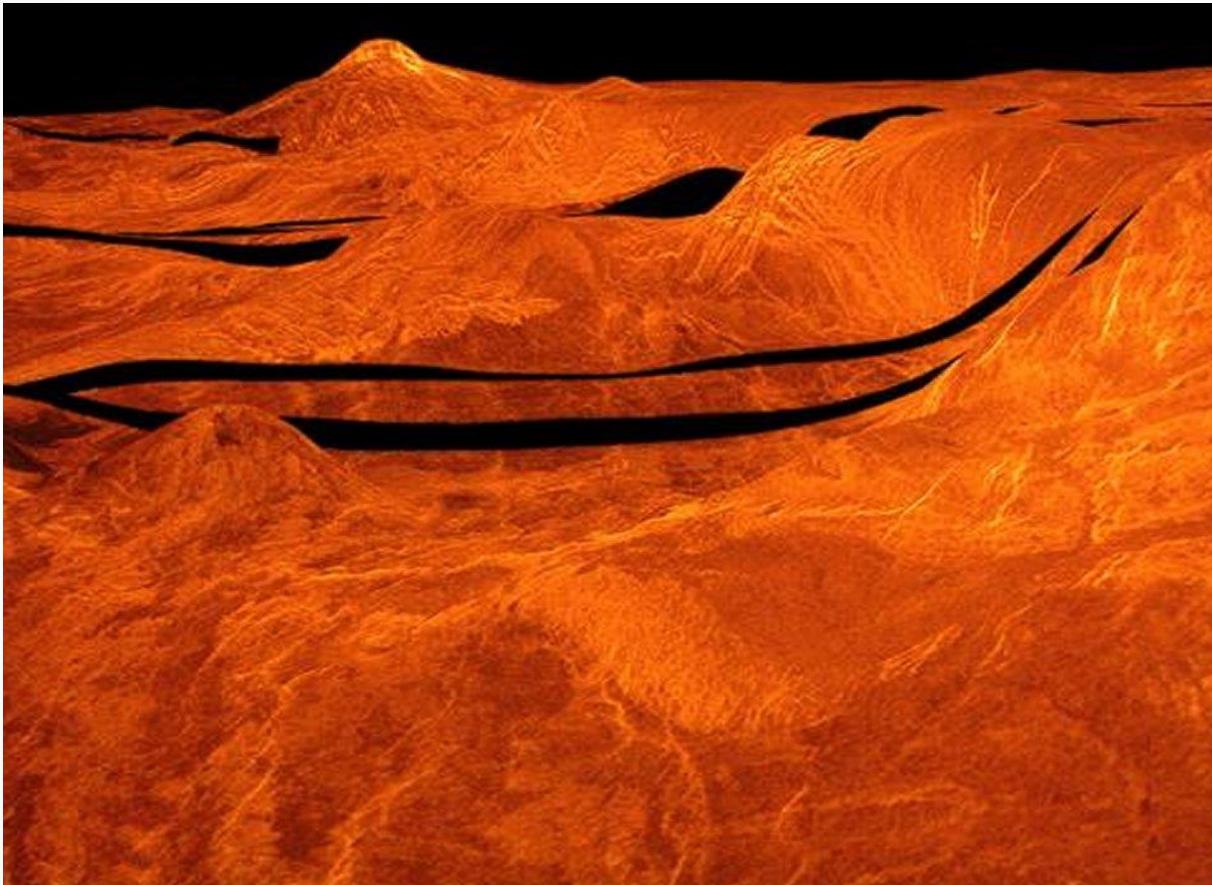


Image synthétique radar

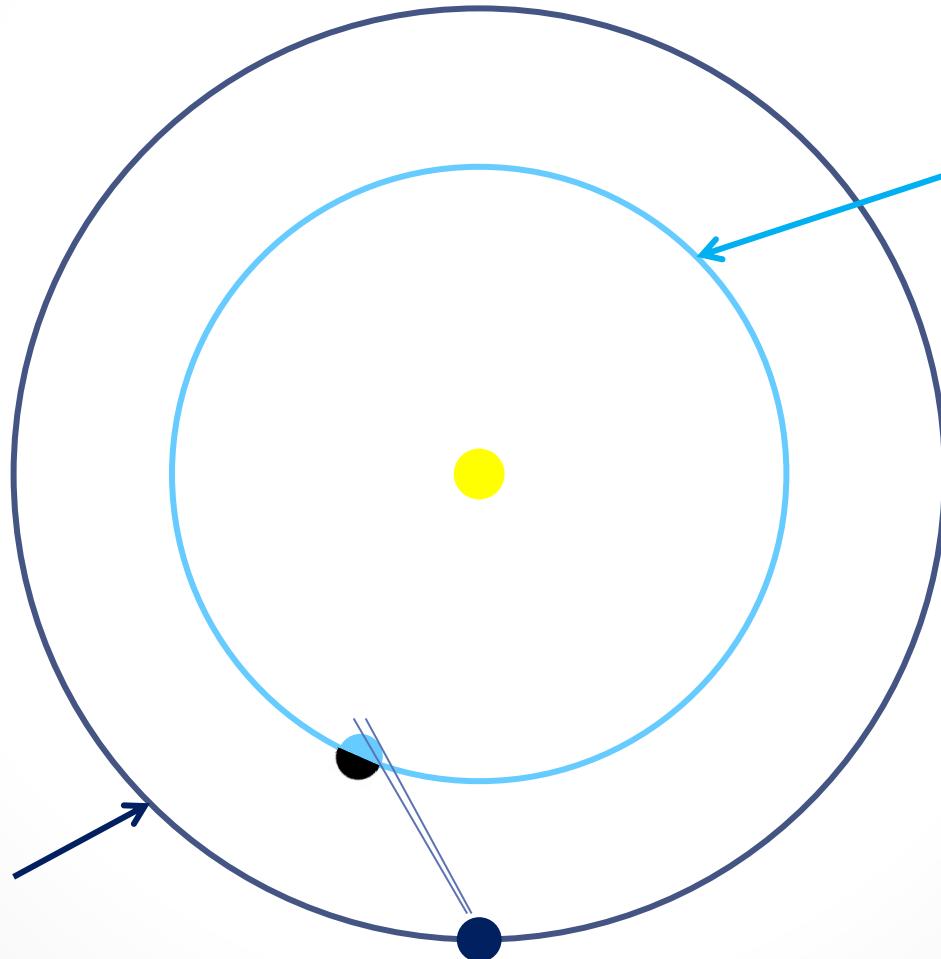
Vénus : des phases comme avec la Lune



Vénus : des phases comme avec la Lune

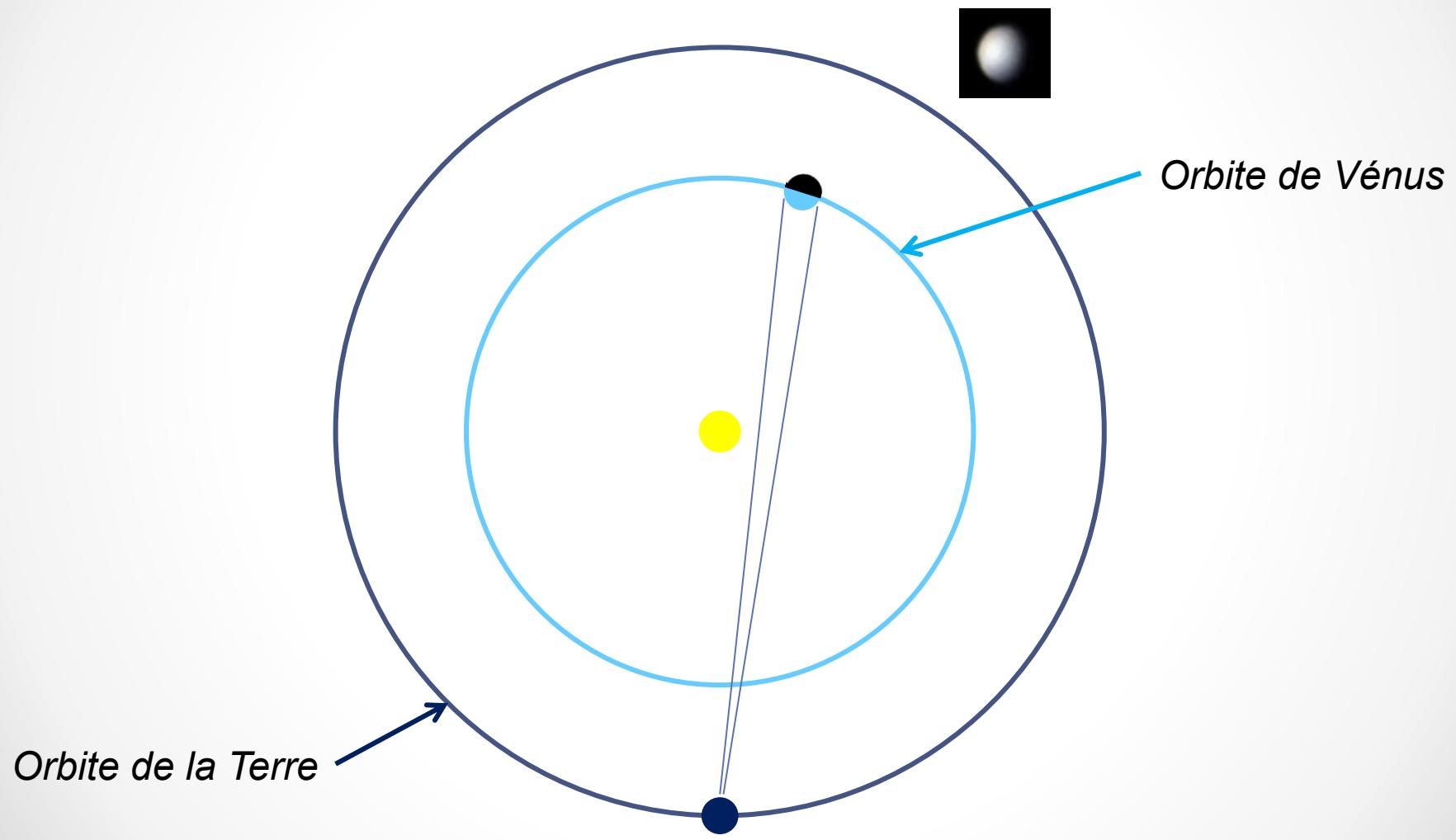


Orbite de la Terre



Orbite de Vénus

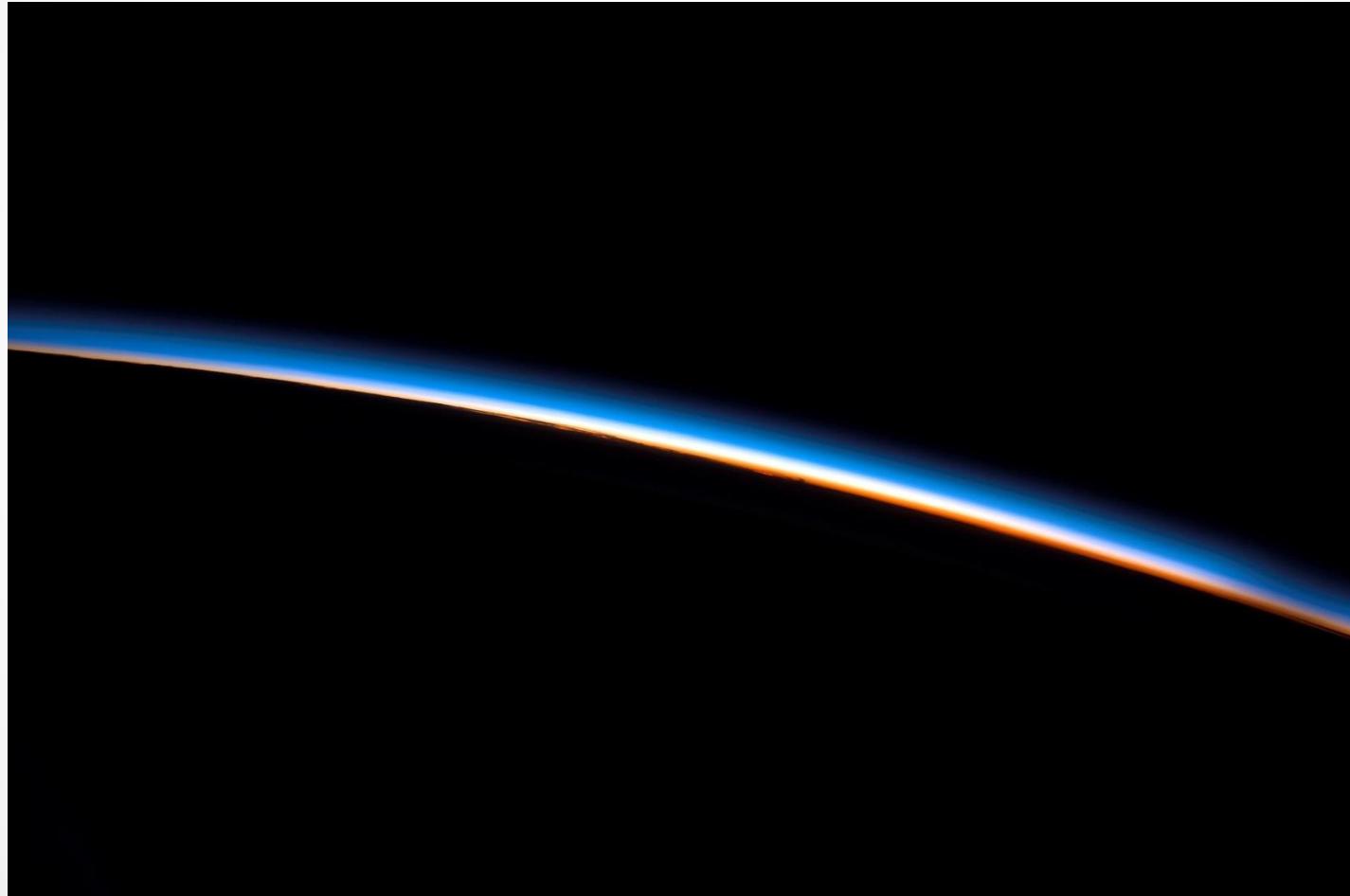
Vénus : des phases comme avec la Lune



La Terre



La Terre : l'atmosphère



Le Meteor Crater (USA)



Le volcan Pinatubo (1991)



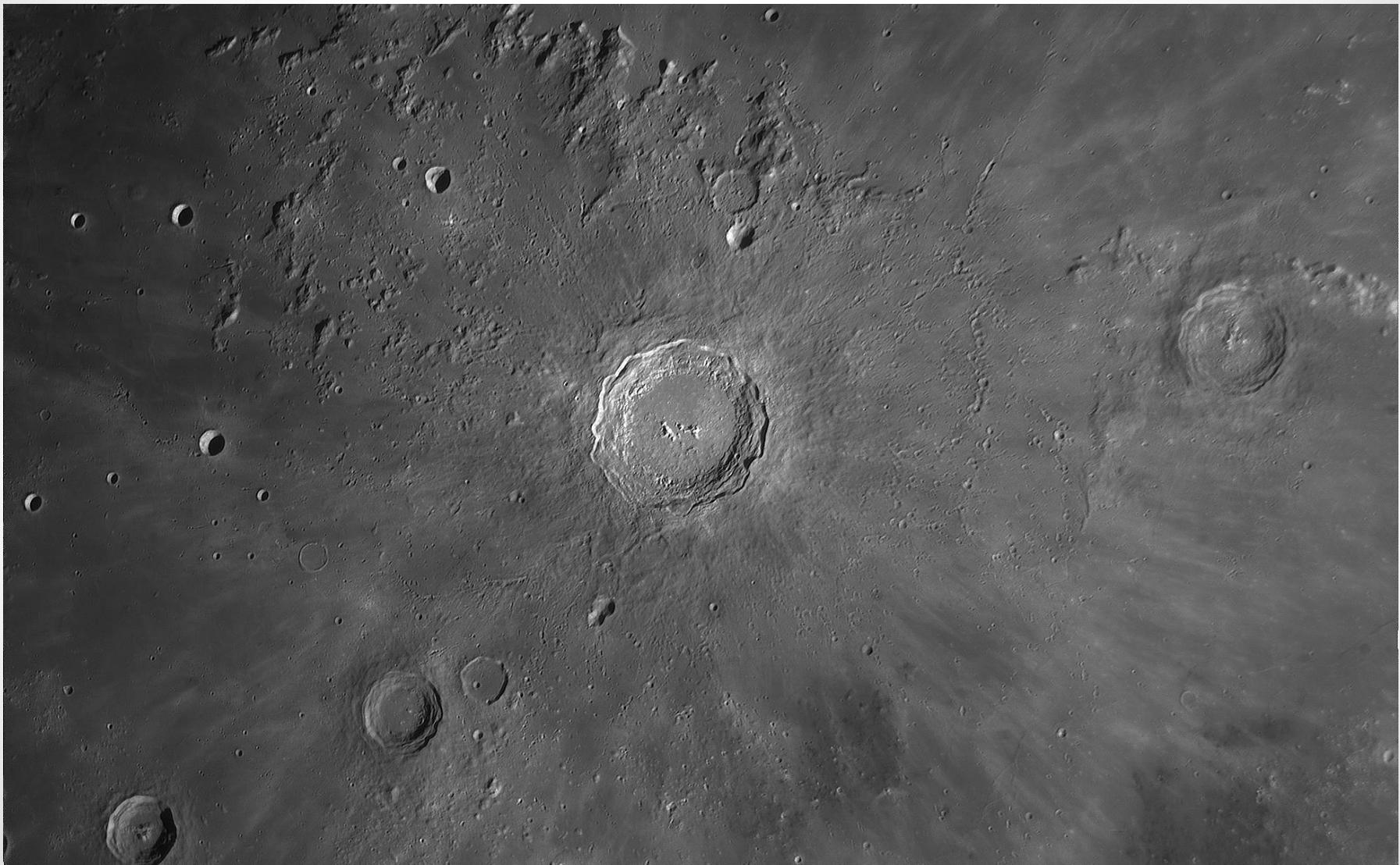
L'ouragan Elena



La Lune



La Lune : le cratère Copernic



La Lune : Aristarque et Hérodote



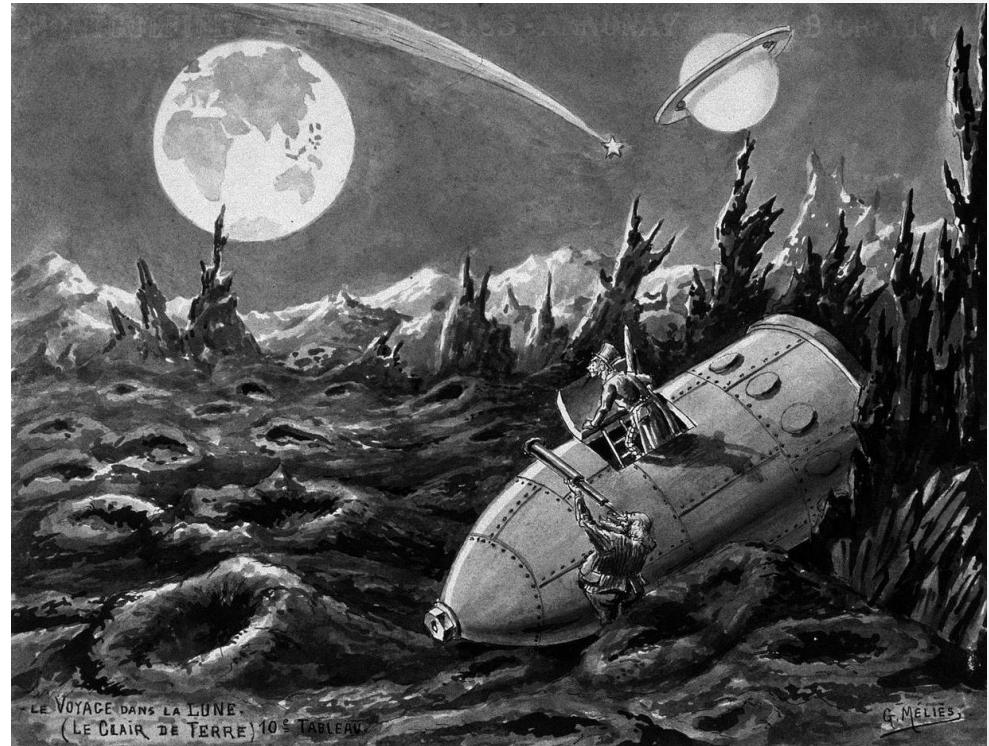
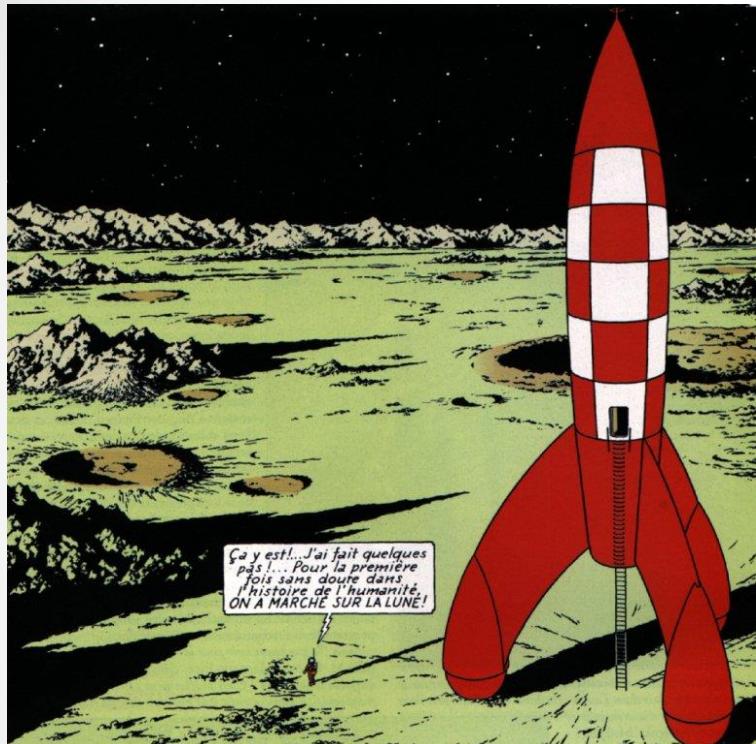
La Lune : Chaîne des Apennins



La Lune

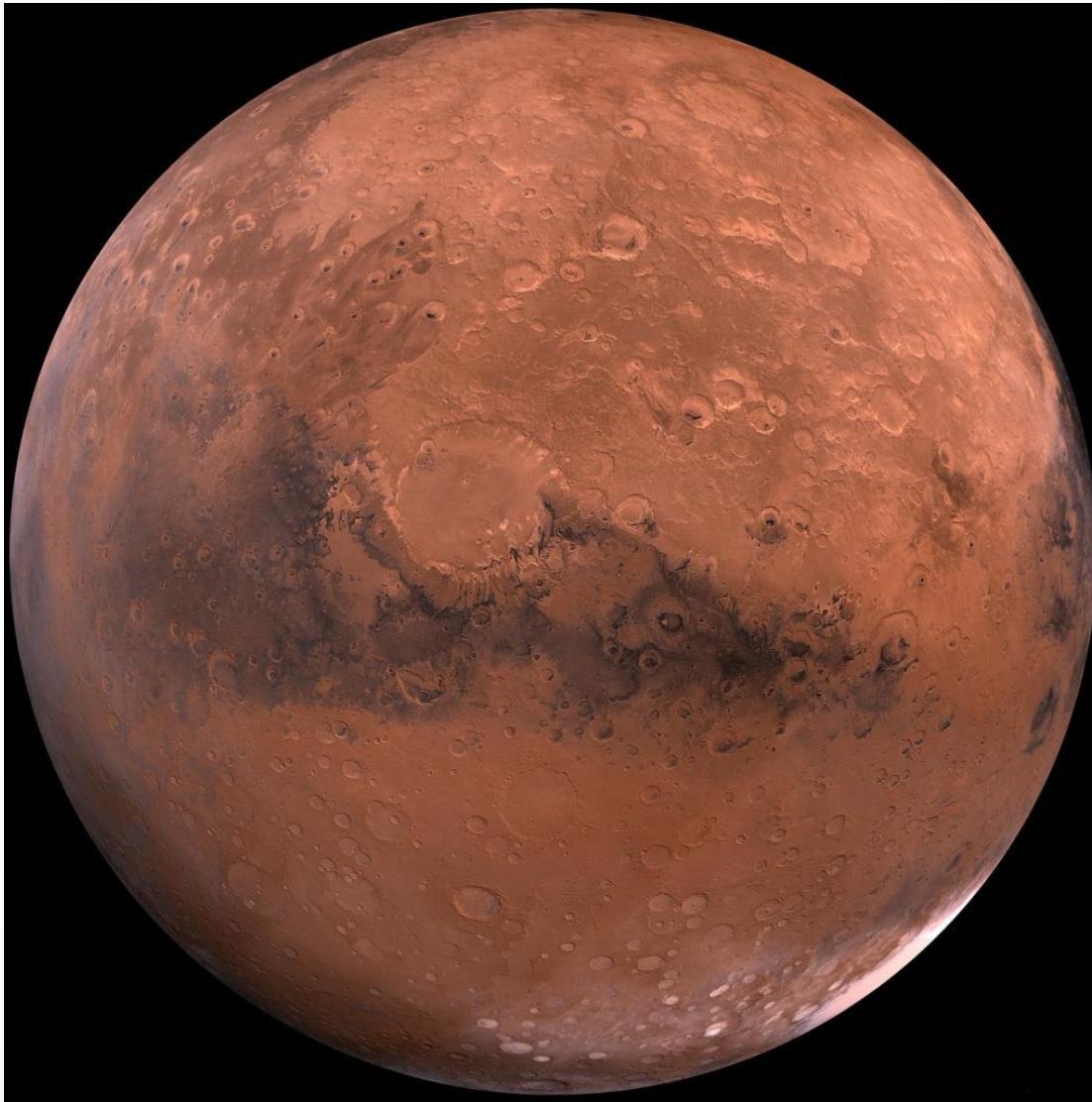


Tintin sur la Lune

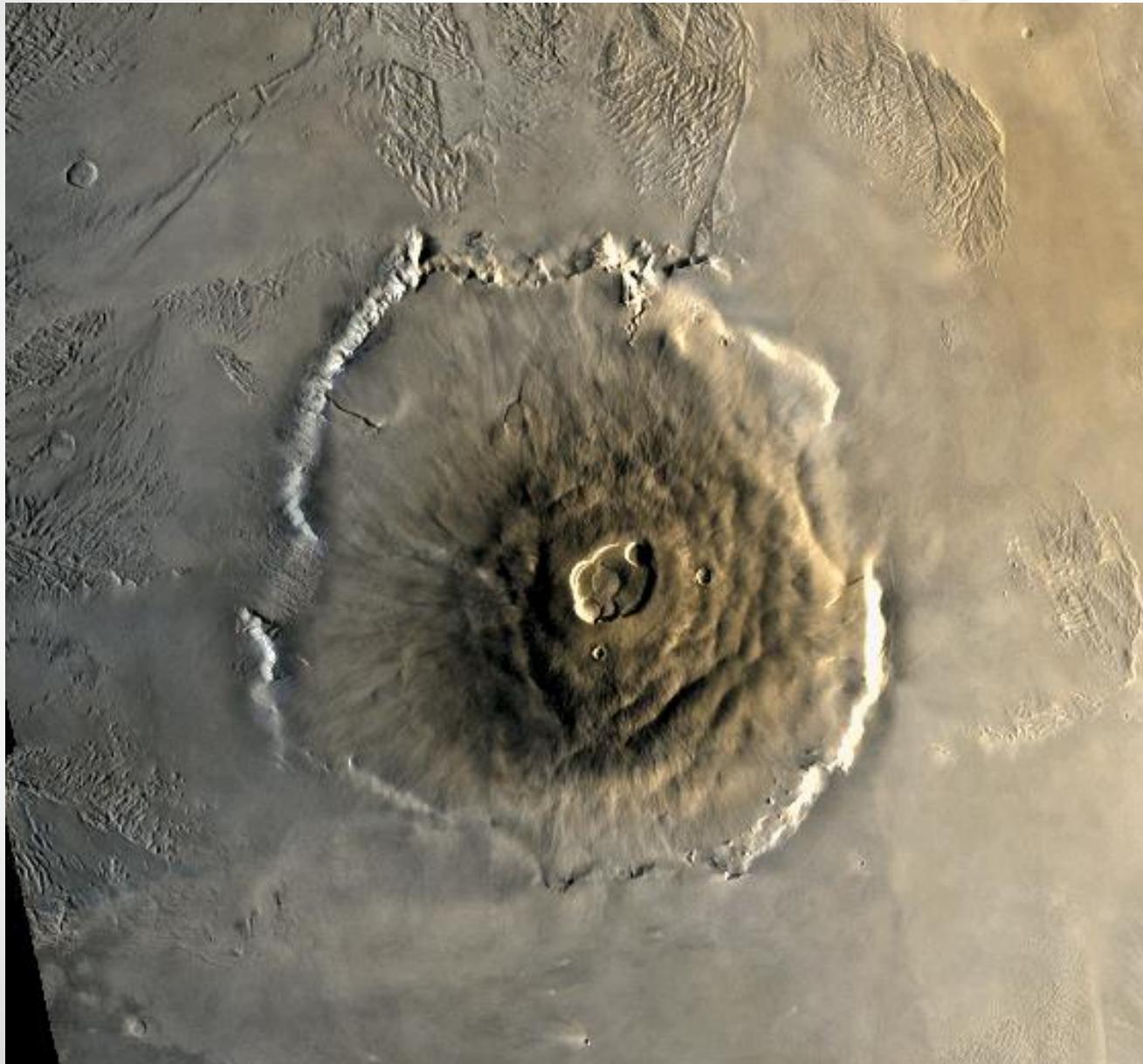


Jules Verne sur la Lune

Mars

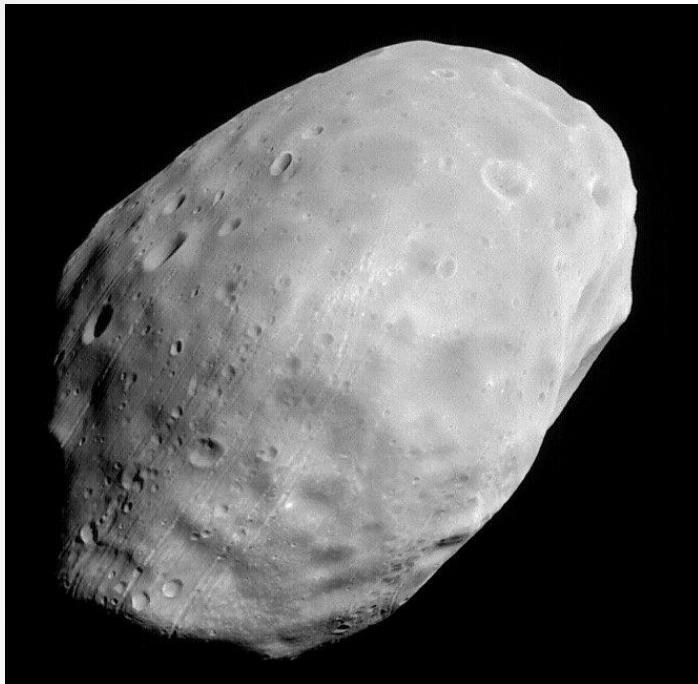


Le mont Olympus

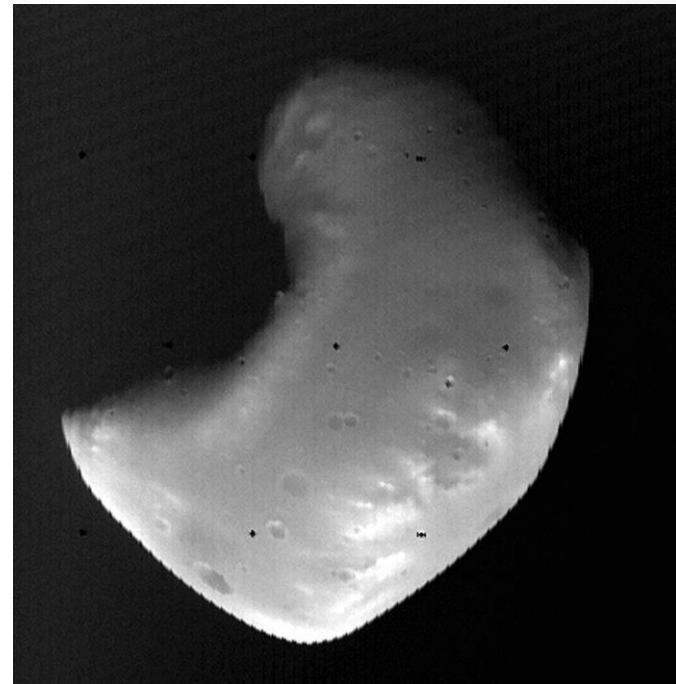


22,5 km au
dessus des
plaines
environnantes

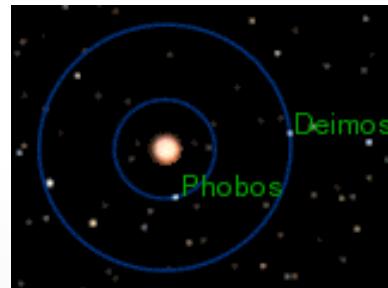
Mars : ses satellites



Phobos
27x22x18 km
9 400 km de Mars



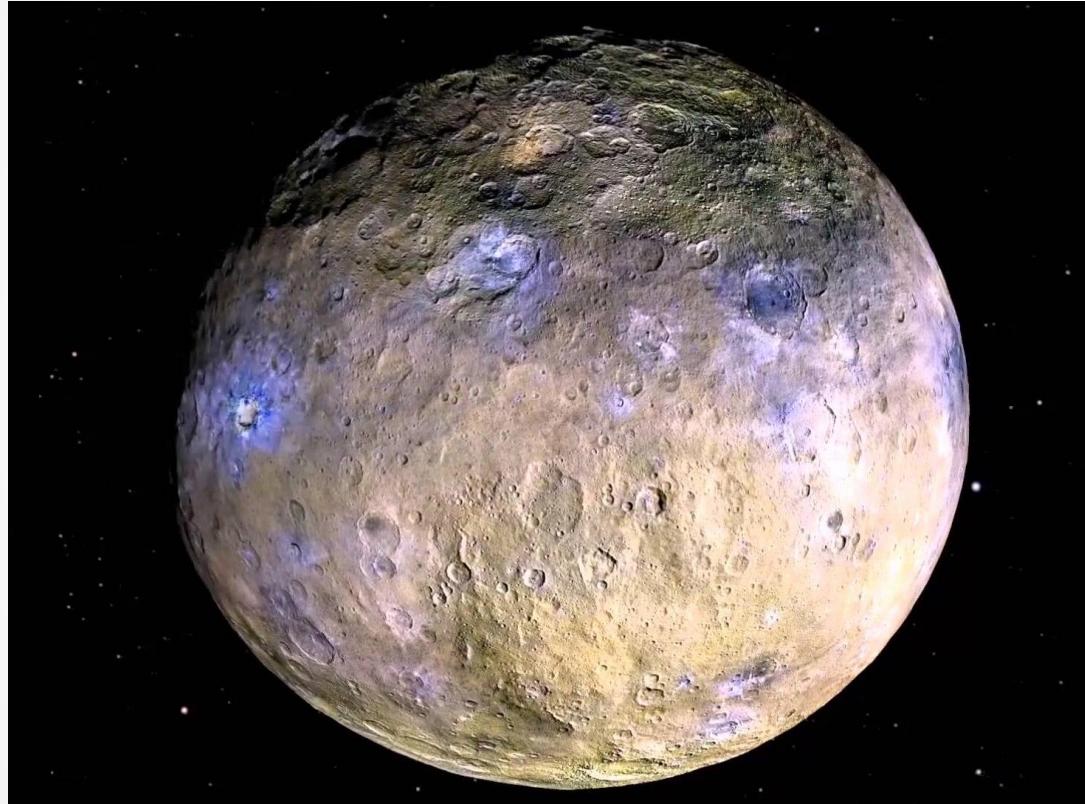
Deimos
15x12x10 km
23 500 km de Mars



La ceinture d'astéroïdes



Les astéroïdes



Céres (975 km)

Photo : Sonde Dawn

Les astéroïdes

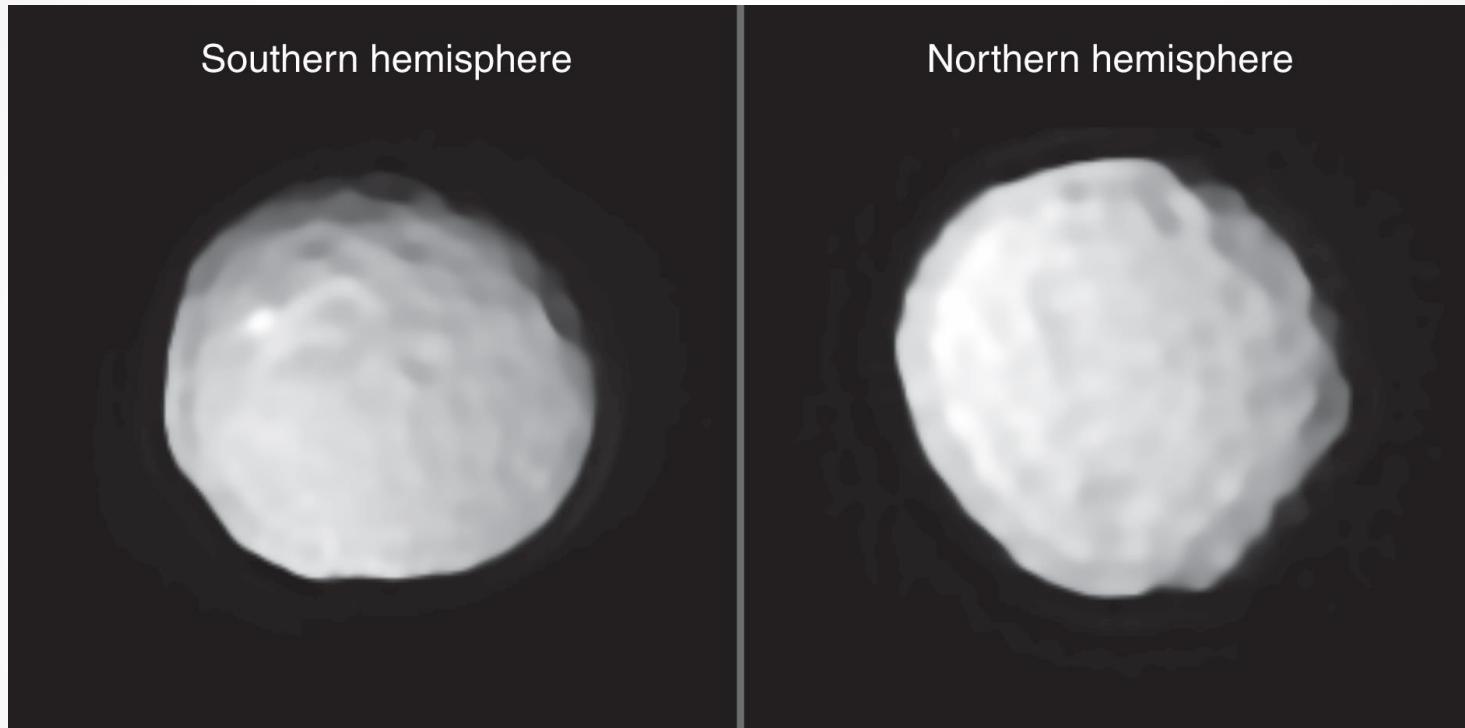
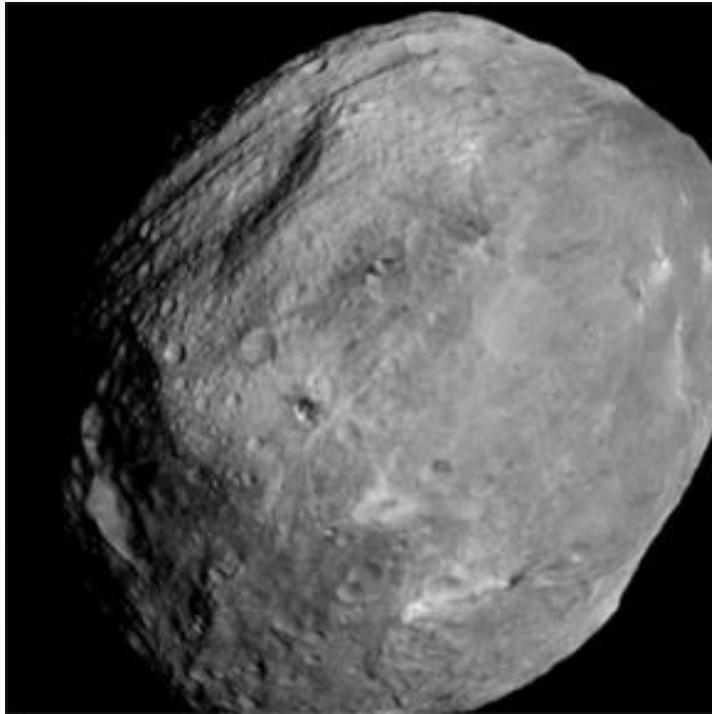


Photo : VLT

Pallas (582 km)

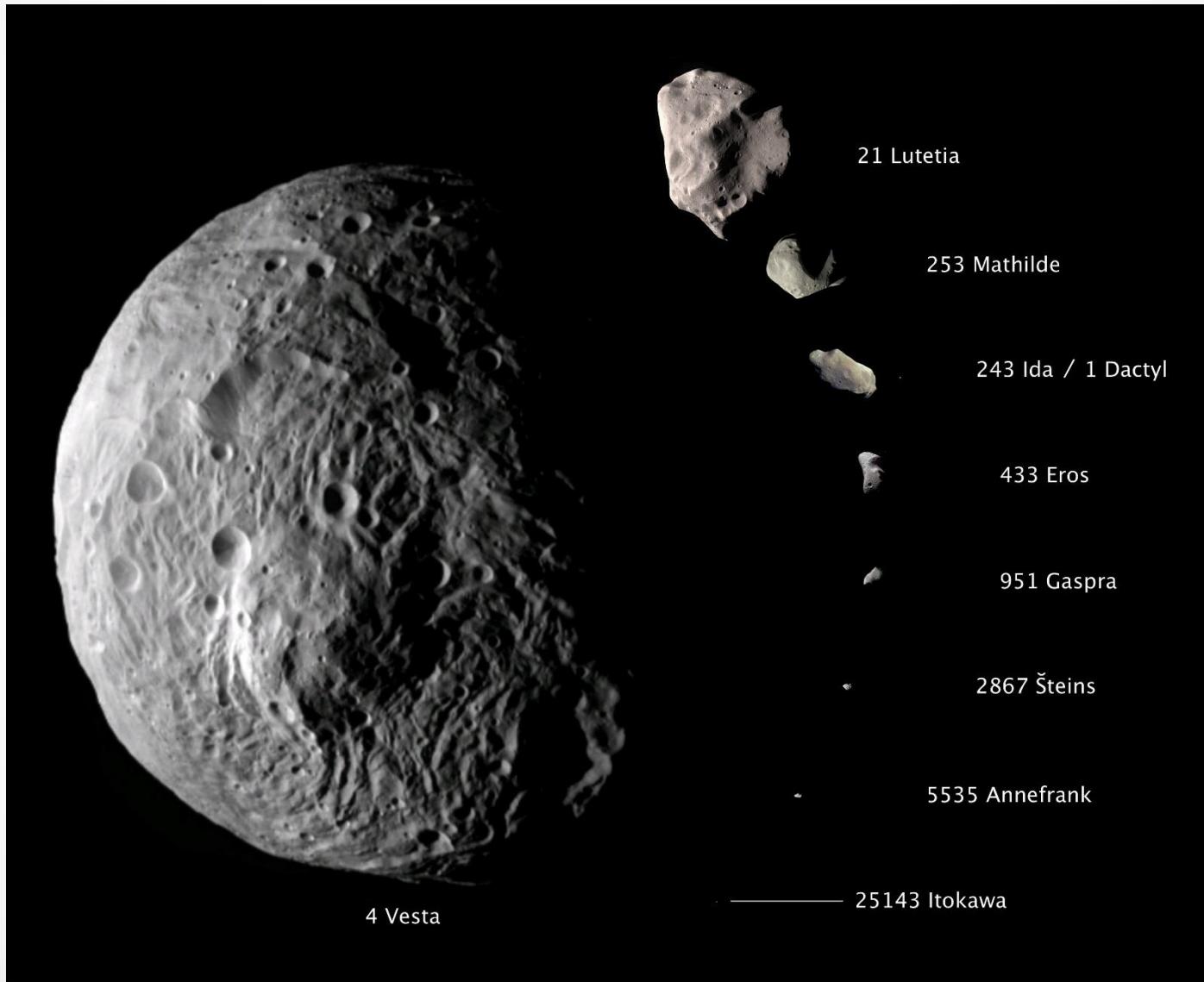
Les astéroïdes



Vesta (560 km)

Photo : Sonde Dawn

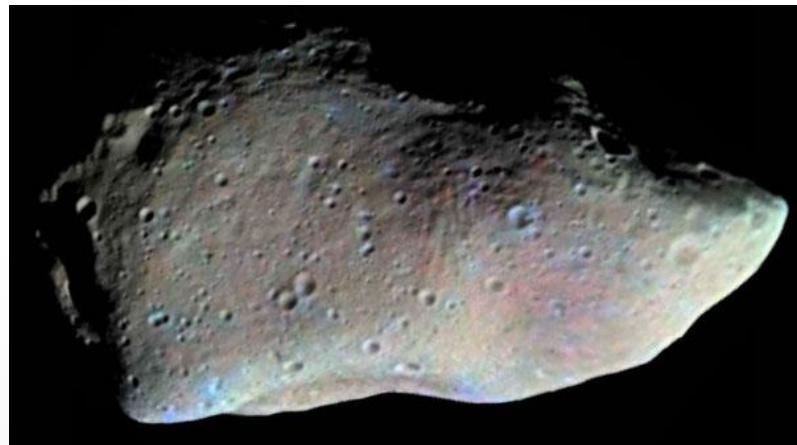
Les astéroïdes



Les astéroïdes



*Ida (56 km) et
Dactyl (1,4 km)*



Gaspra (19 km)

Photos : Galileo

Jupiter

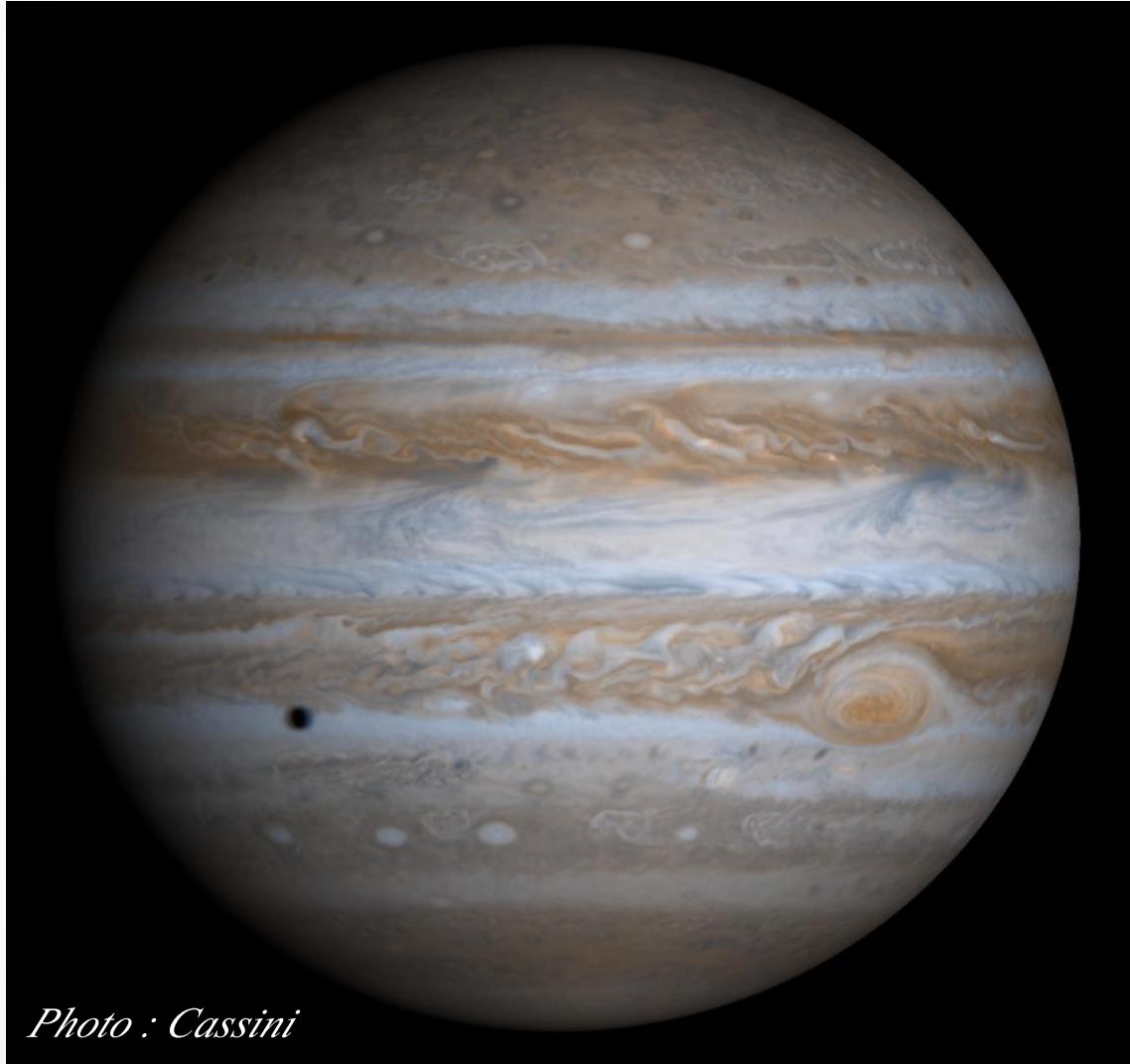


Photo : Cassini

Jupiter



Photo :

Photo : Voyager

Jupiter : les 4 satellites galiléens



Diamètres

Io : 3 643 km

(Lune : 3 475 km)

Europe : 3 112 km

Ganymède : 5 262 km

Calisto : 4 820 km

Saturne

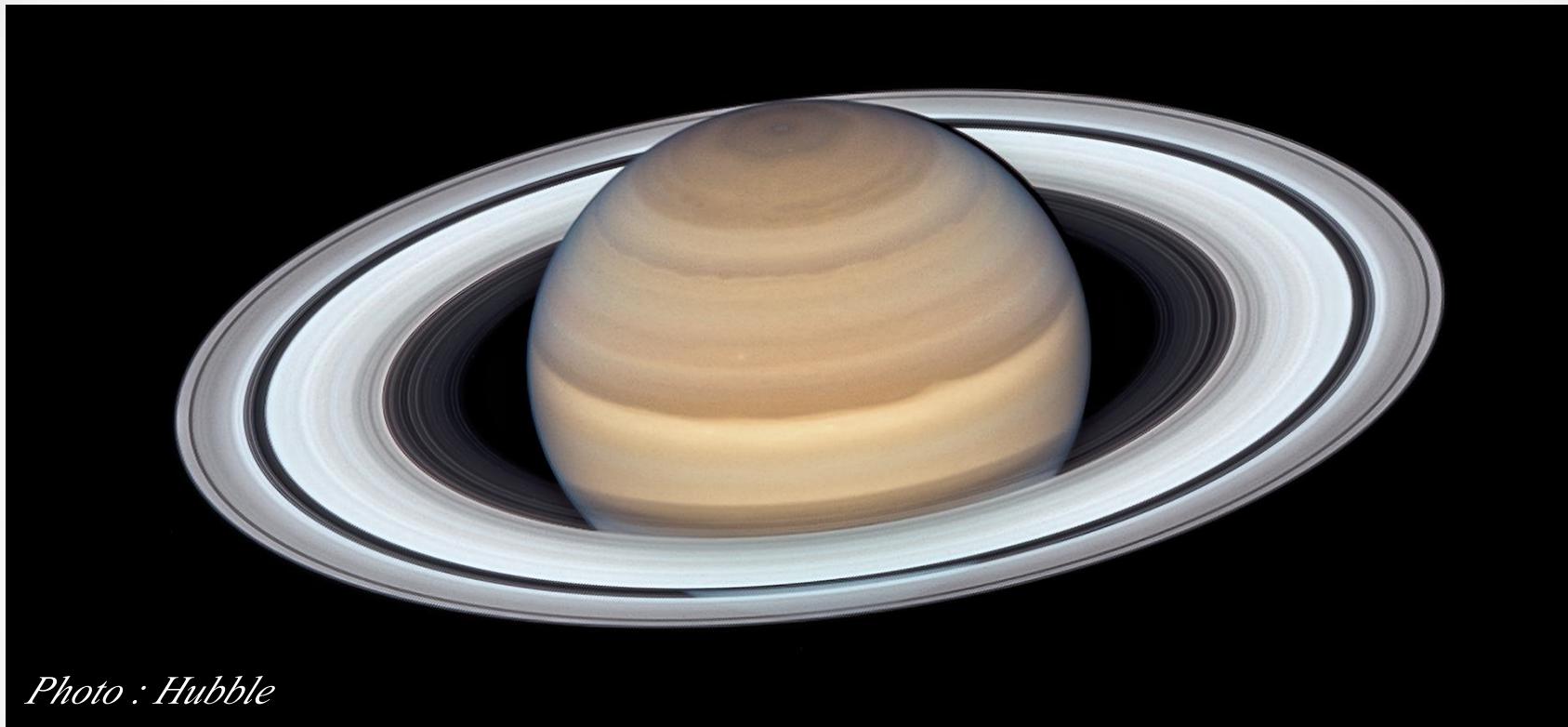
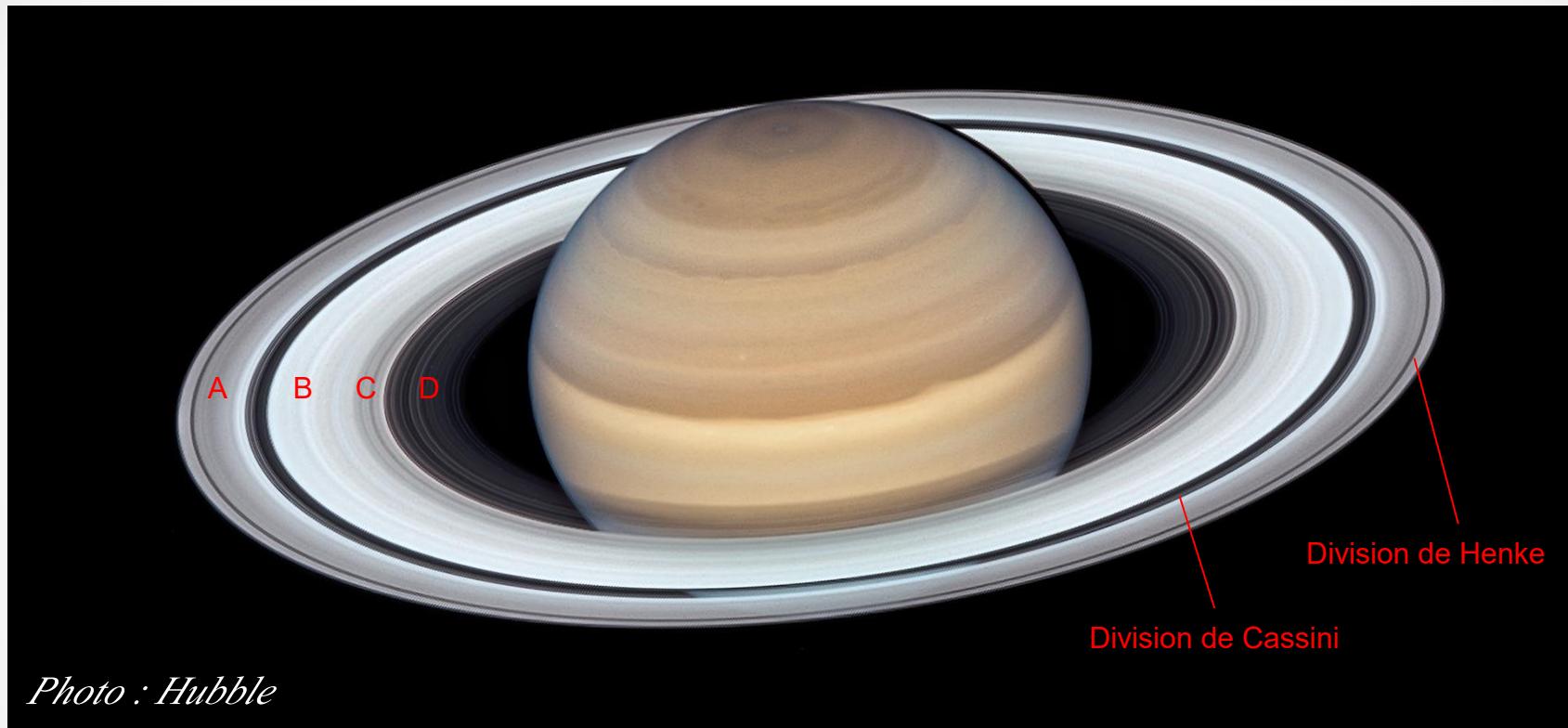
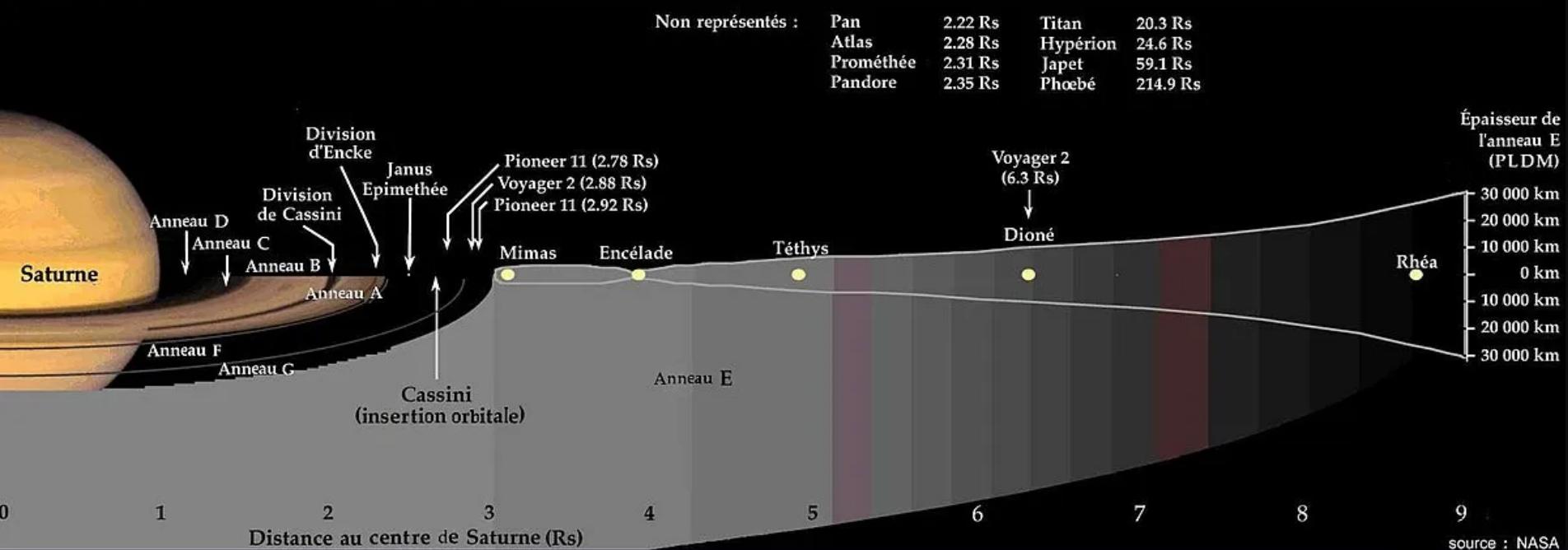


Photo : Hubble

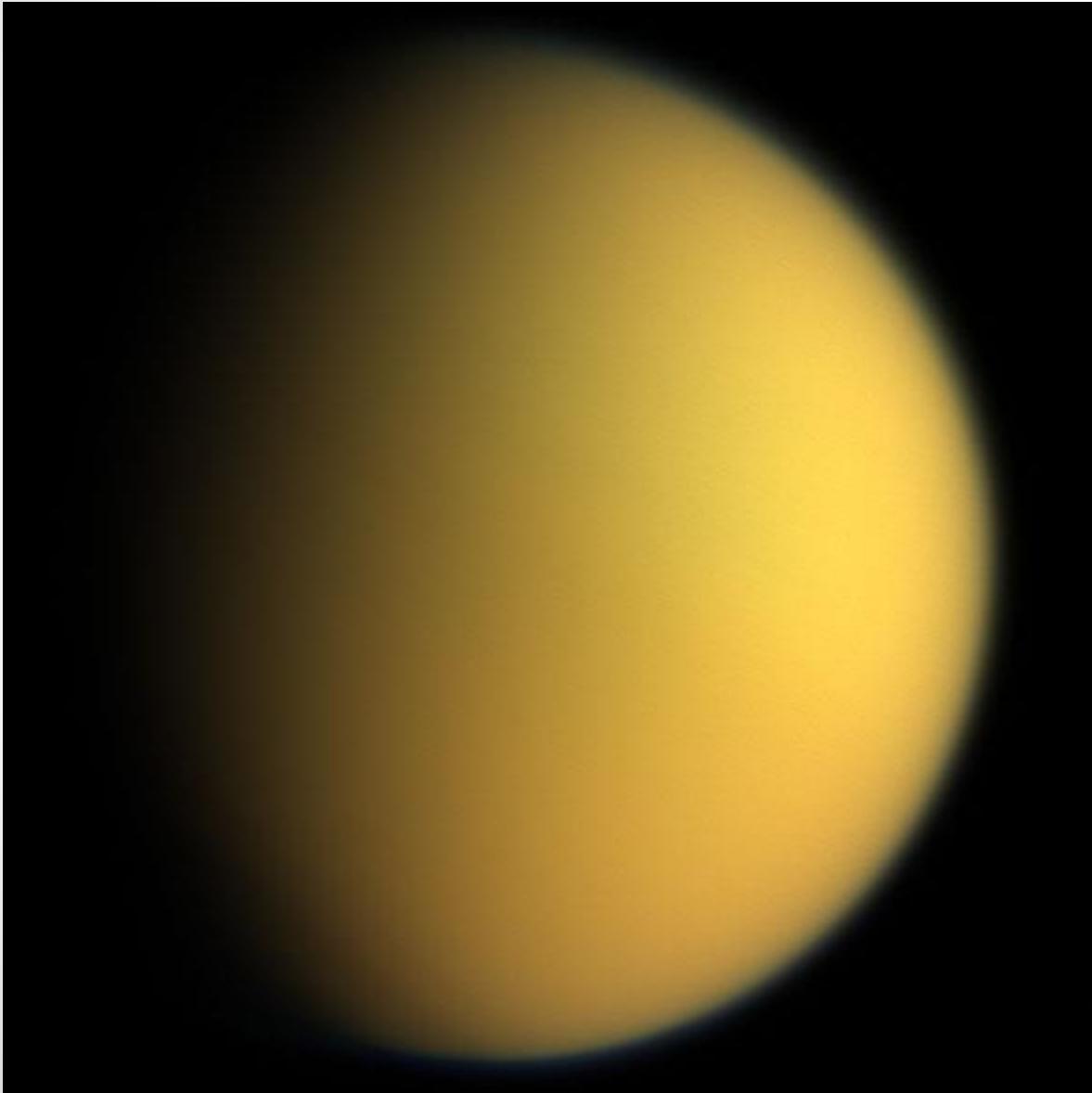
Saturne



Saturne : les anneaux

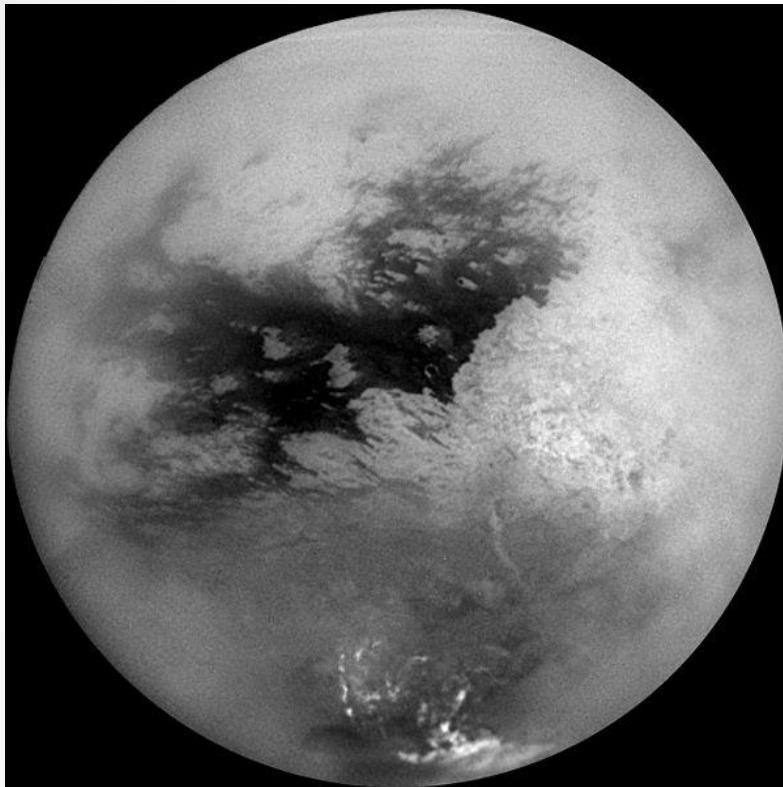


Saturne : de nombreux satellites

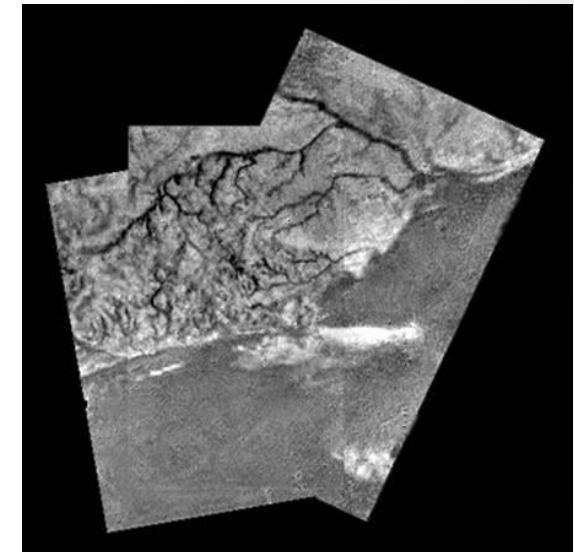


Titan (5 151 km)

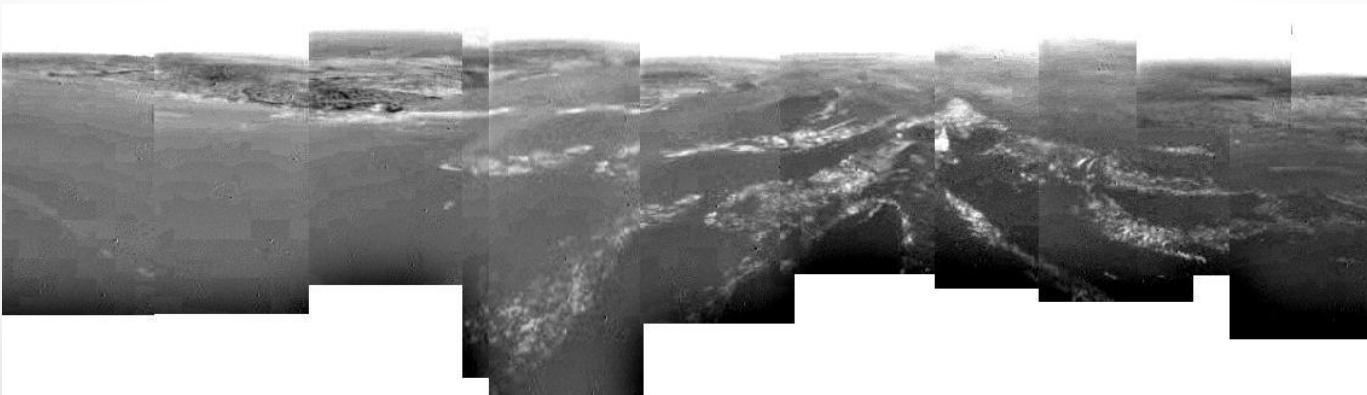
Saturne : de nombreux satellites



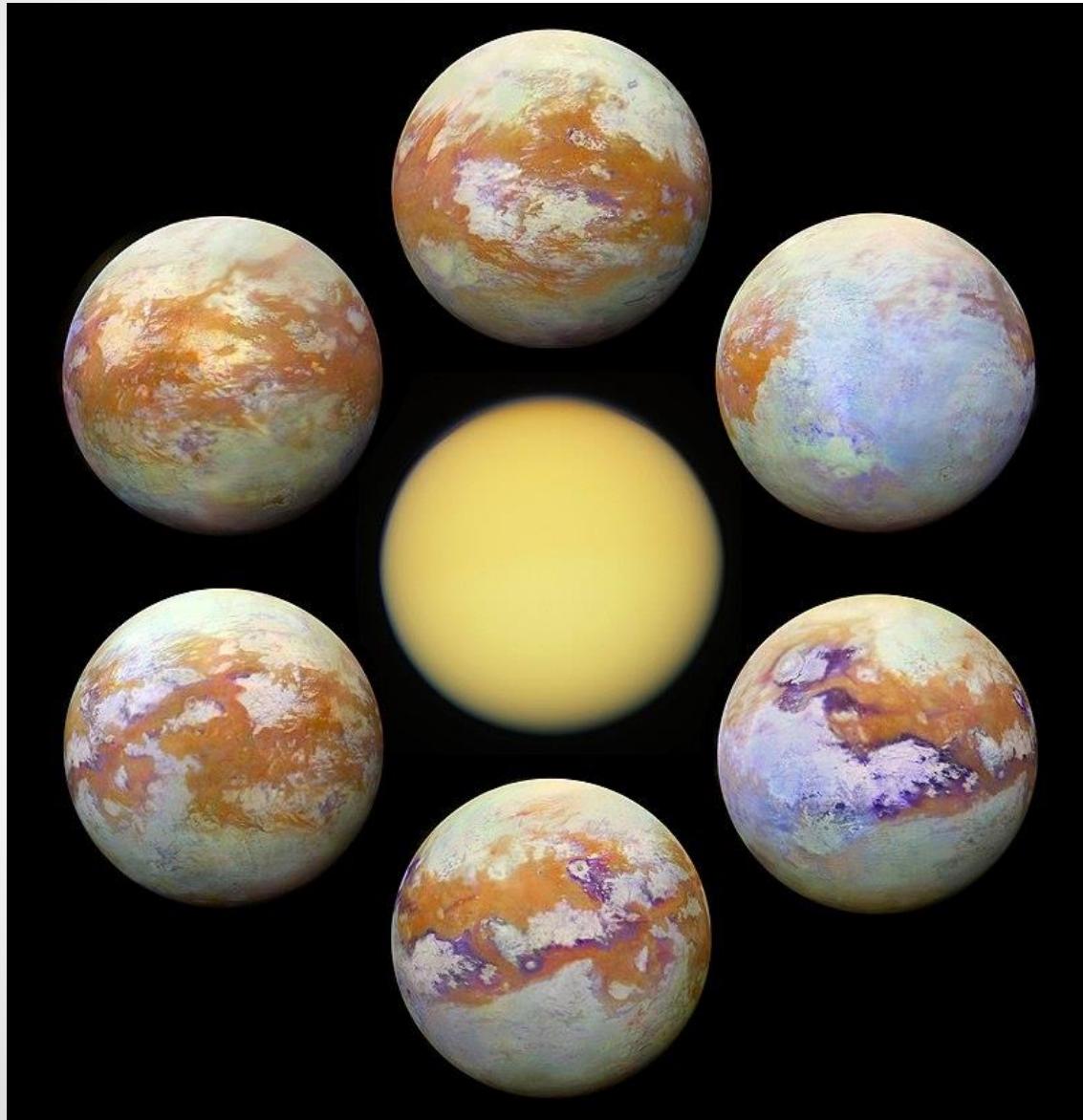
Titan



Atterrisseur Huygens (2005)

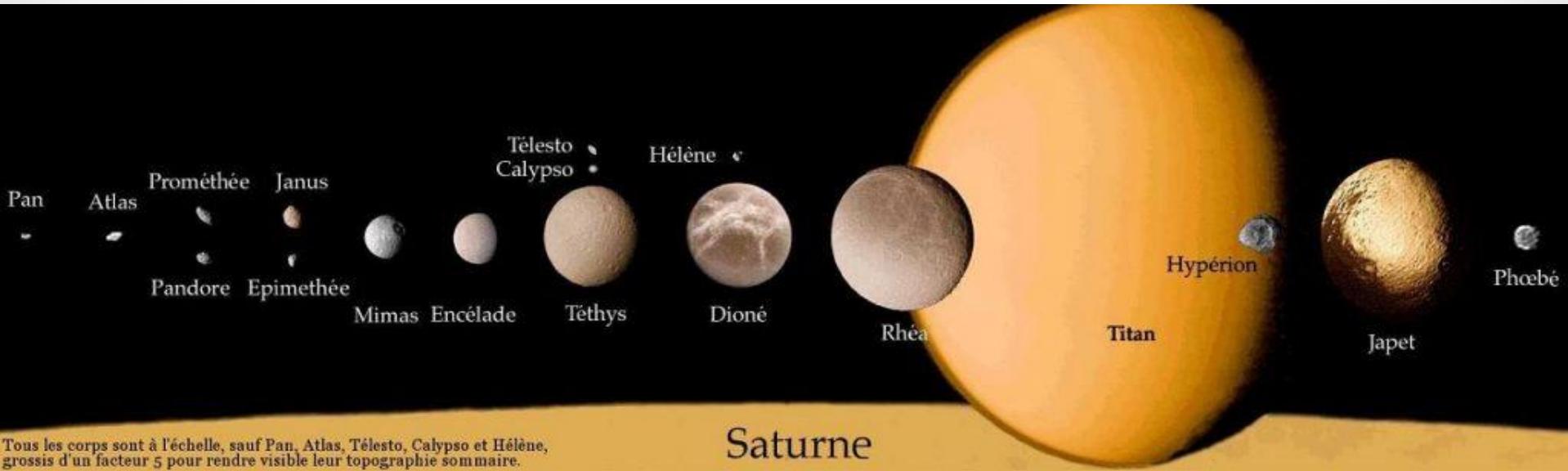


Saturne : de nombreux satellites



Titan vue par la sonde Cassini en IR
En visible au centre

Saturne : de nombreux satellites



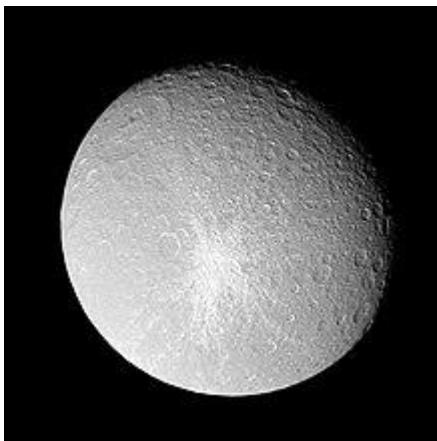
Tous les corps sont à l'échelle, sauf Pan, Atlas, Télesio, Calypso et Hélène,
grossis d'un facteur 5 pour rendre visible leur topographie sommaire.

Saturne

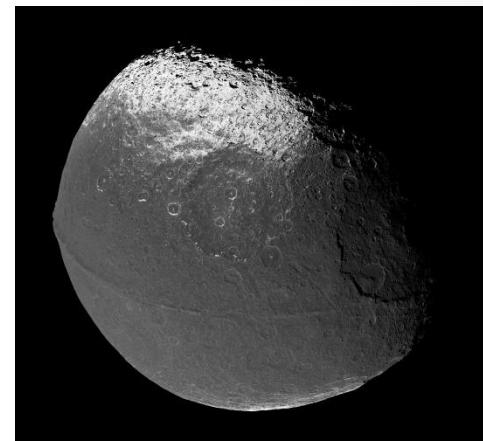
Saturne : de nombreux satellites



Dioné
 $D = 1\ 123\ km$



Rhéa
 $D = 1\ 528\ km$



Japet
 $D = 1\ 495\ km$

Au-delà de Saturne

Les planètes situées au-delà de Saturne n'étaient pas connues des anciens (sinon nos semaines comporteraient peut-être plus de 7 jours...).

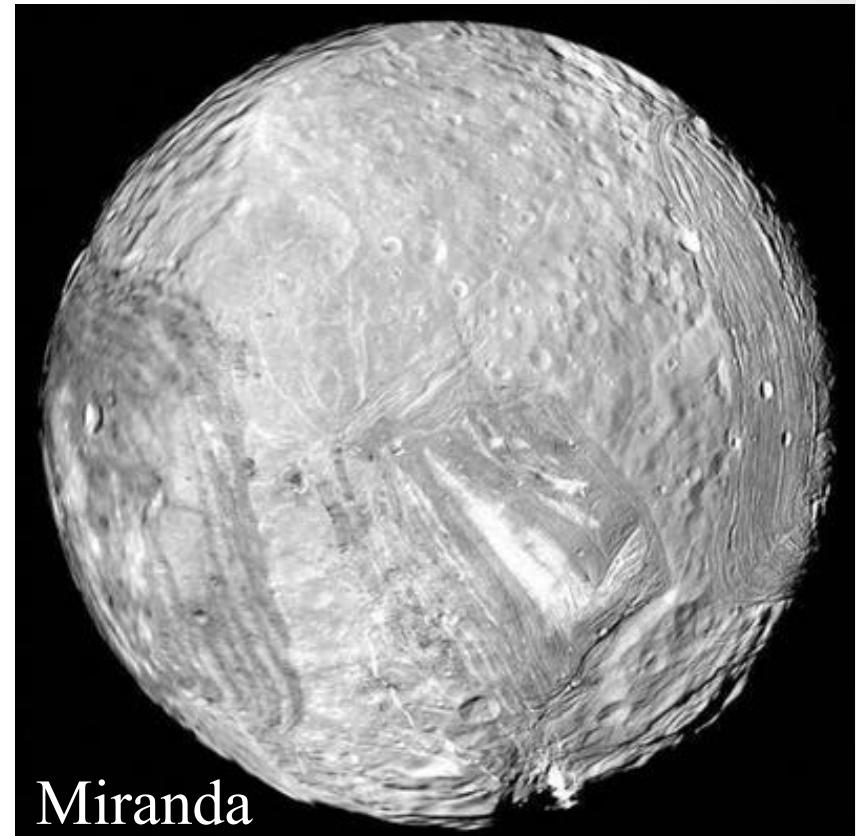
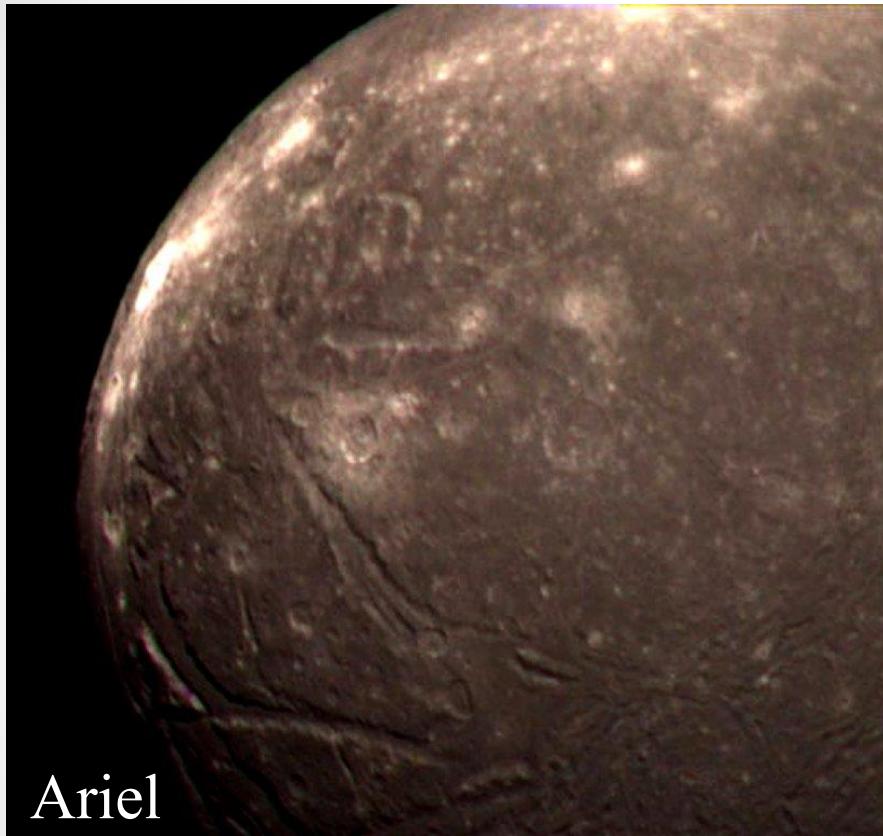
- Uranus a été découverte en 1781 par Herschel.
- Neptune a été découverte en 1846 par Urbain Le Verrier.
- Pluton (qui n'est plus considéré comme une planète) a été découverte en 1930 par Clyde Tombaugh.
- D'autres planètes naines très éloignées ont été découvertes après l'an 2000.

Uranus

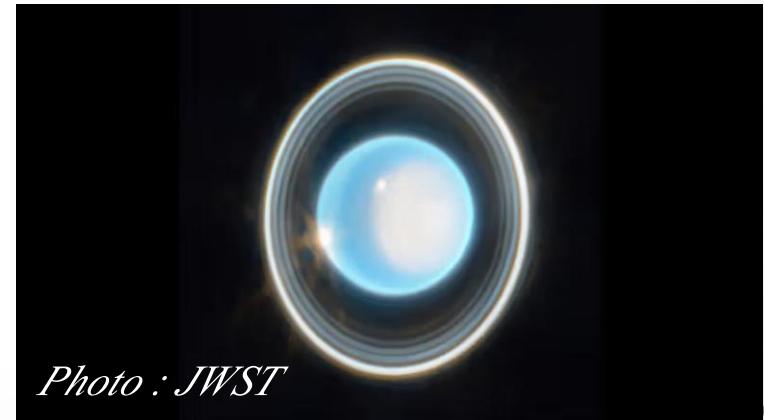


Photo : Voyager

Uranus : satellites



Uranus : les anneaux



Neptune

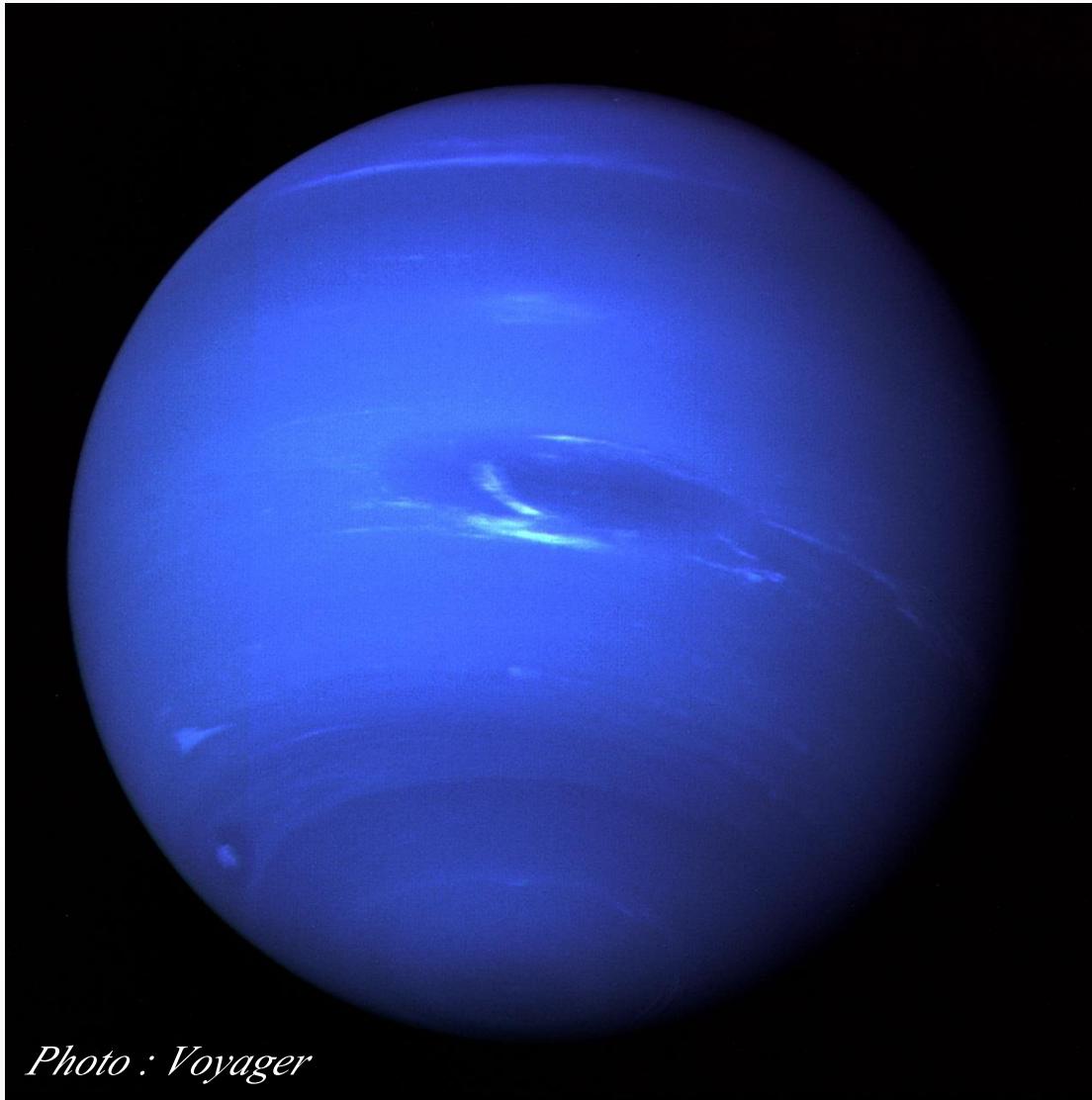
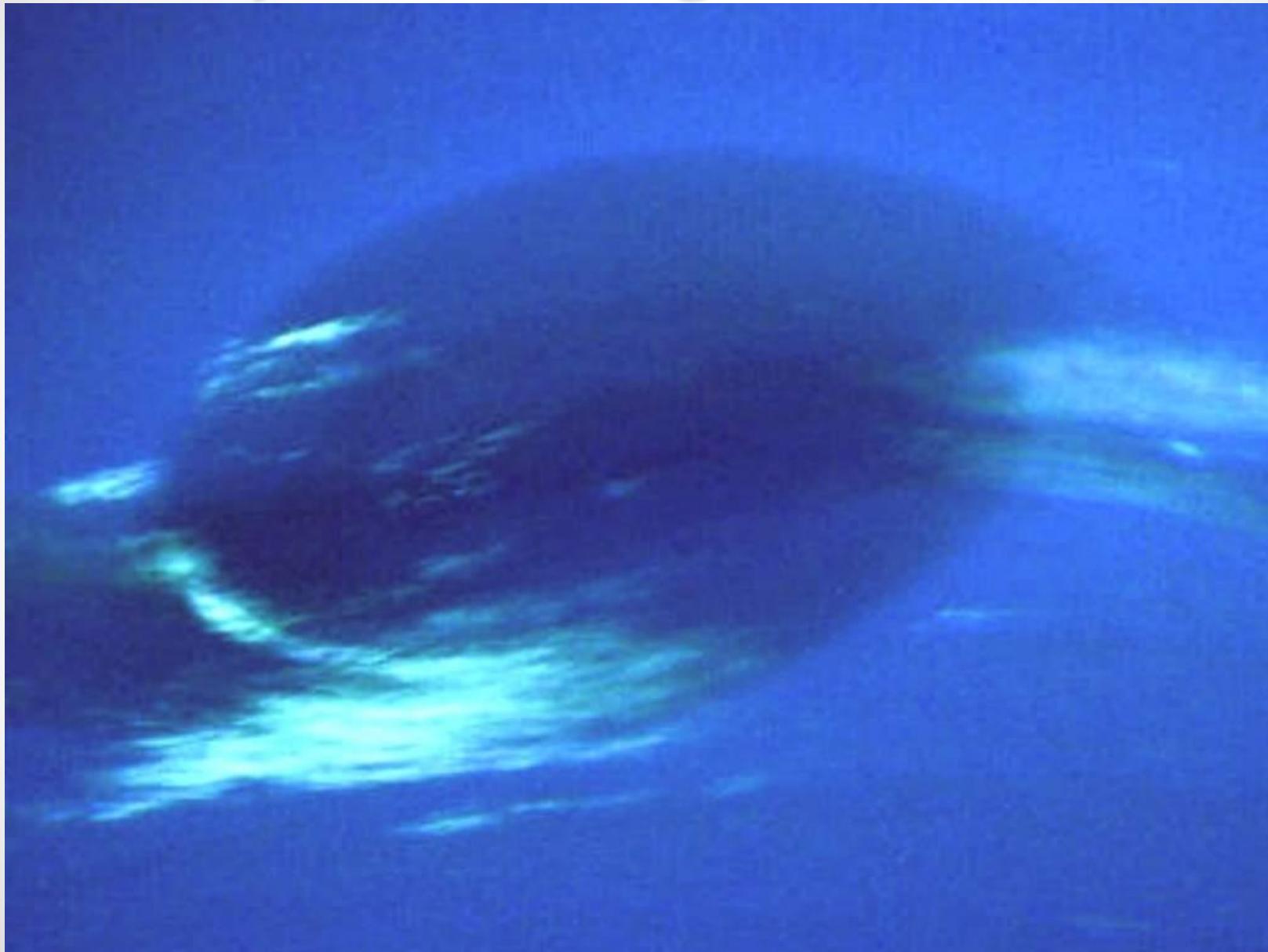
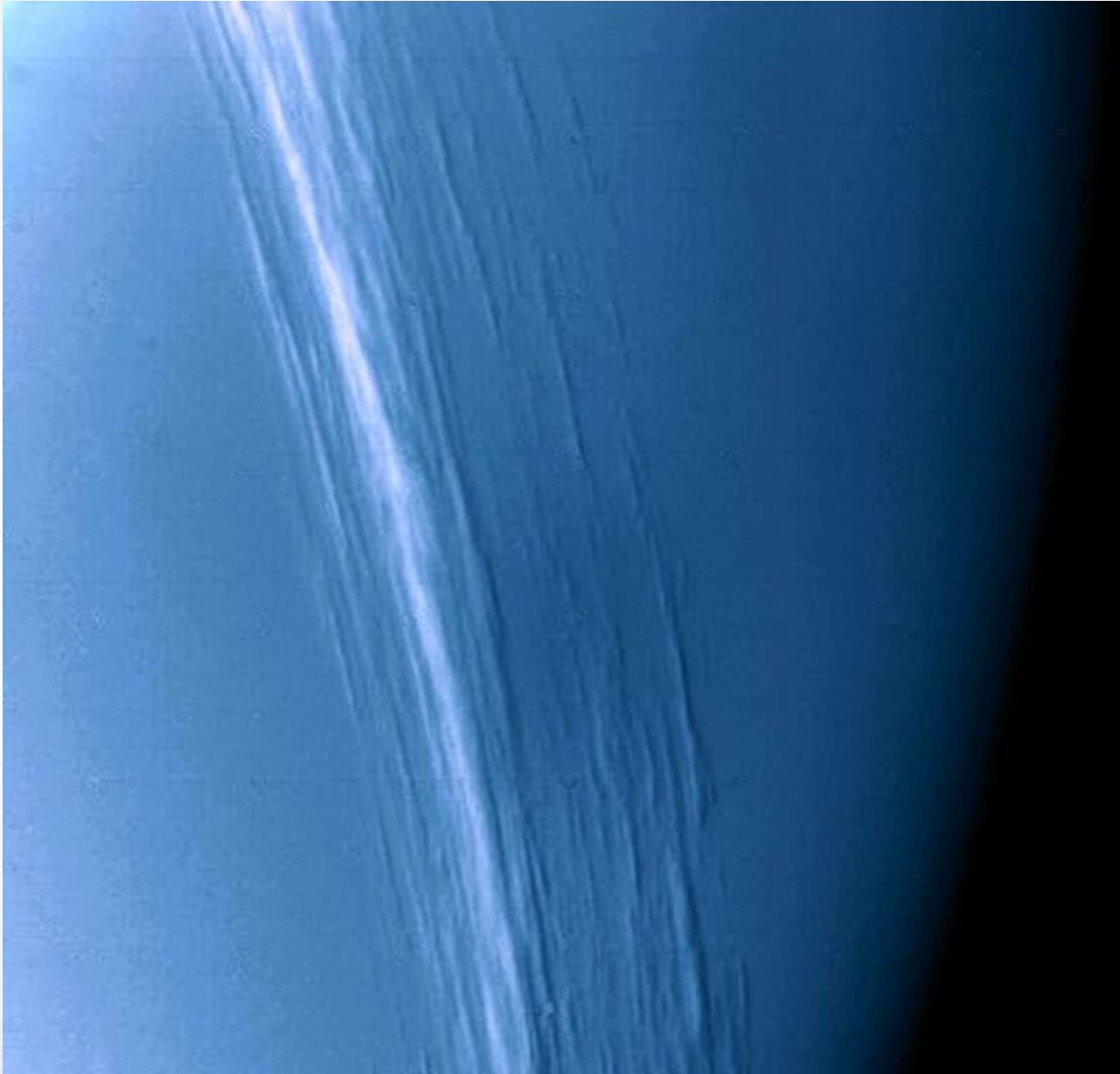


Photo : Voyager

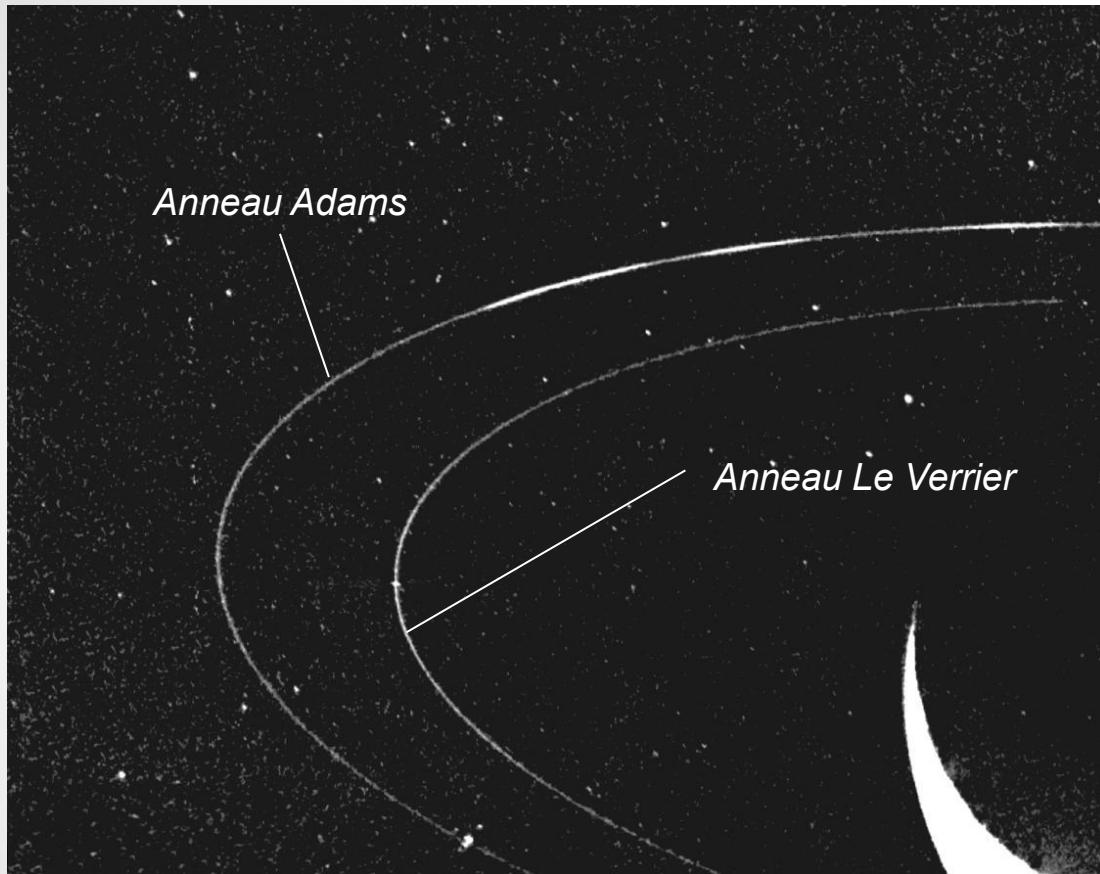
Neptune : une grande tache



Neptune : les nuages



Neptune : les anneaux

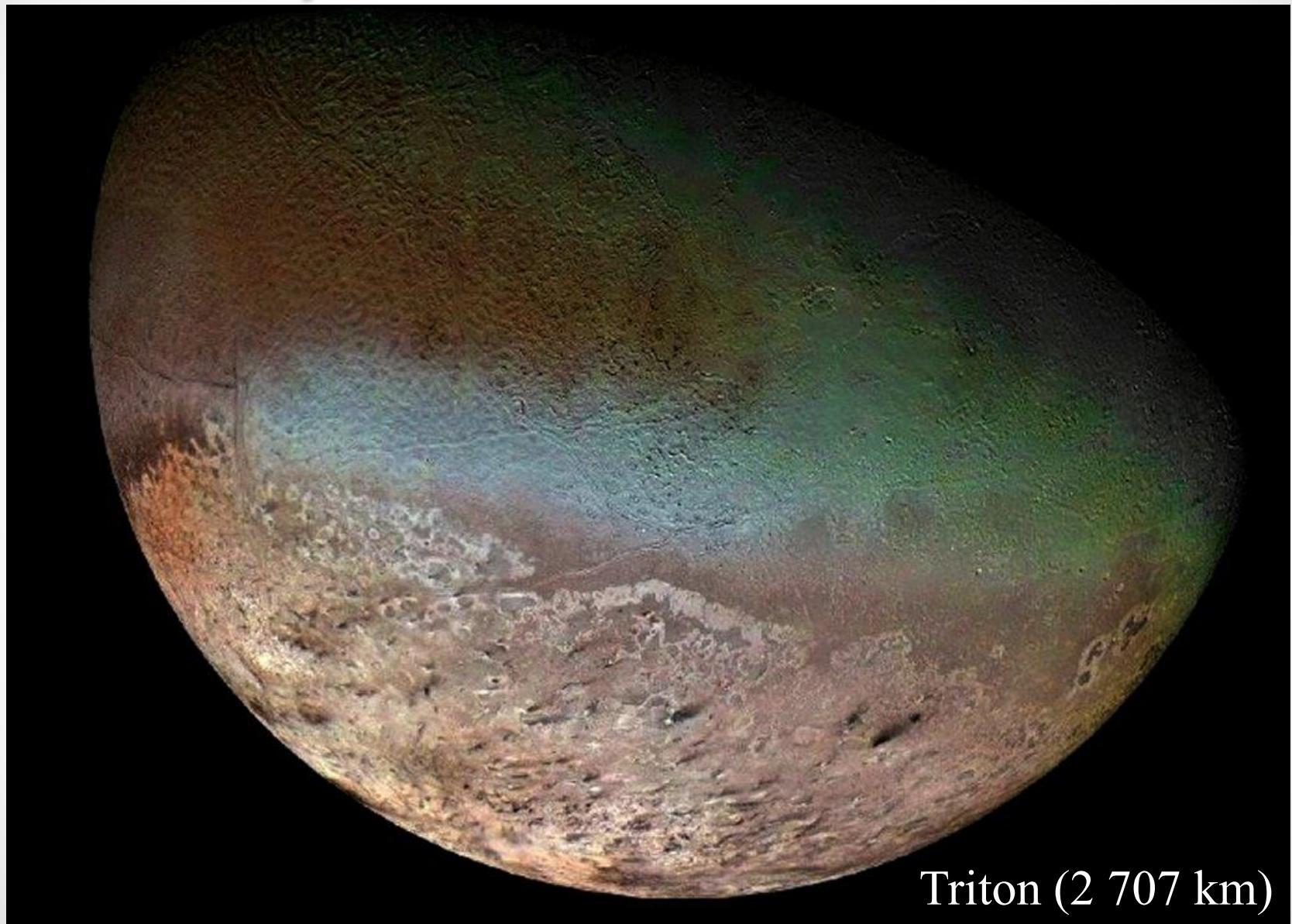


Arcs de l'anneau d'Adams : Liberté, Egalité, Fraternité



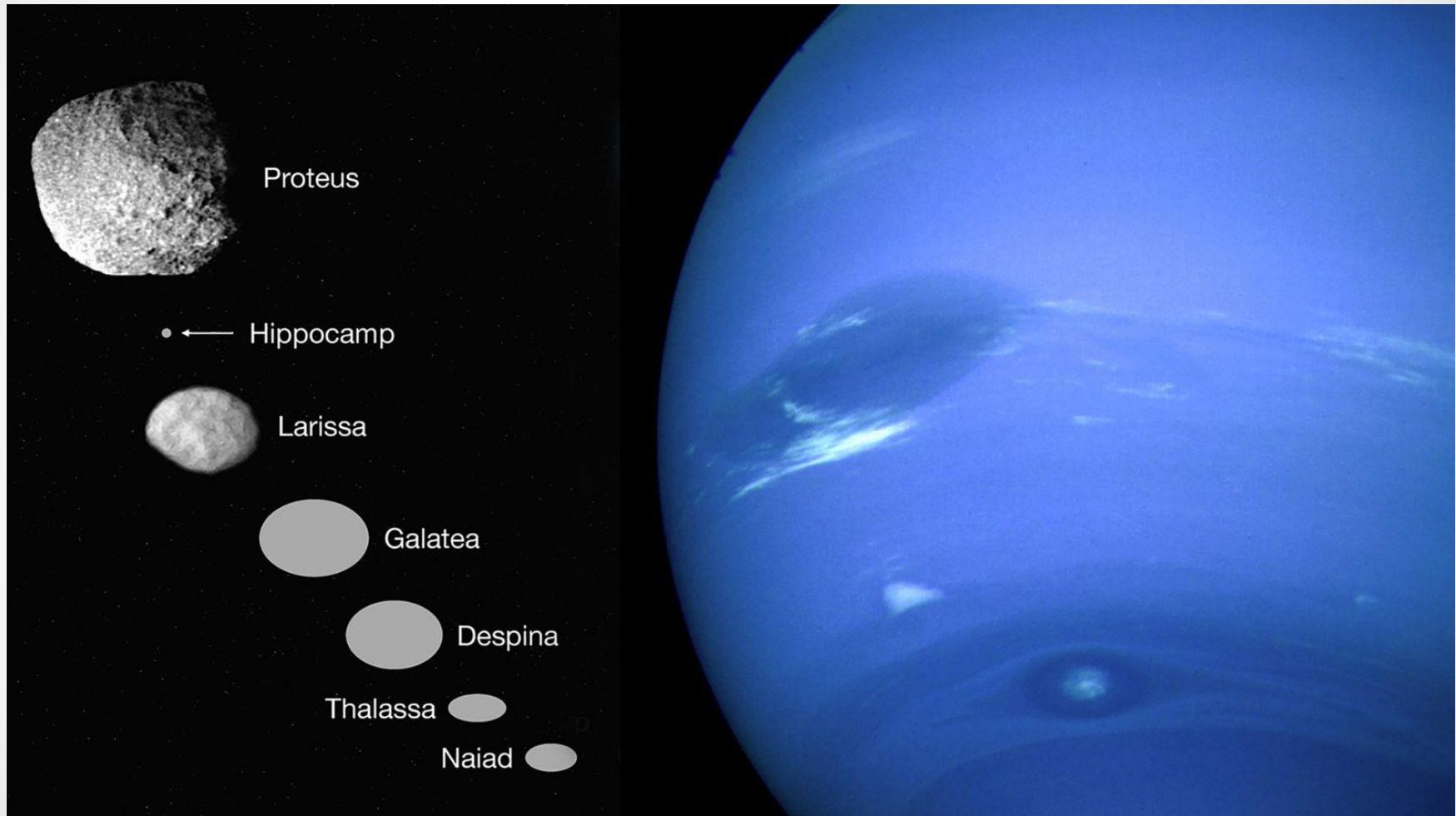
Photo : JWST

Neptune : les satellites

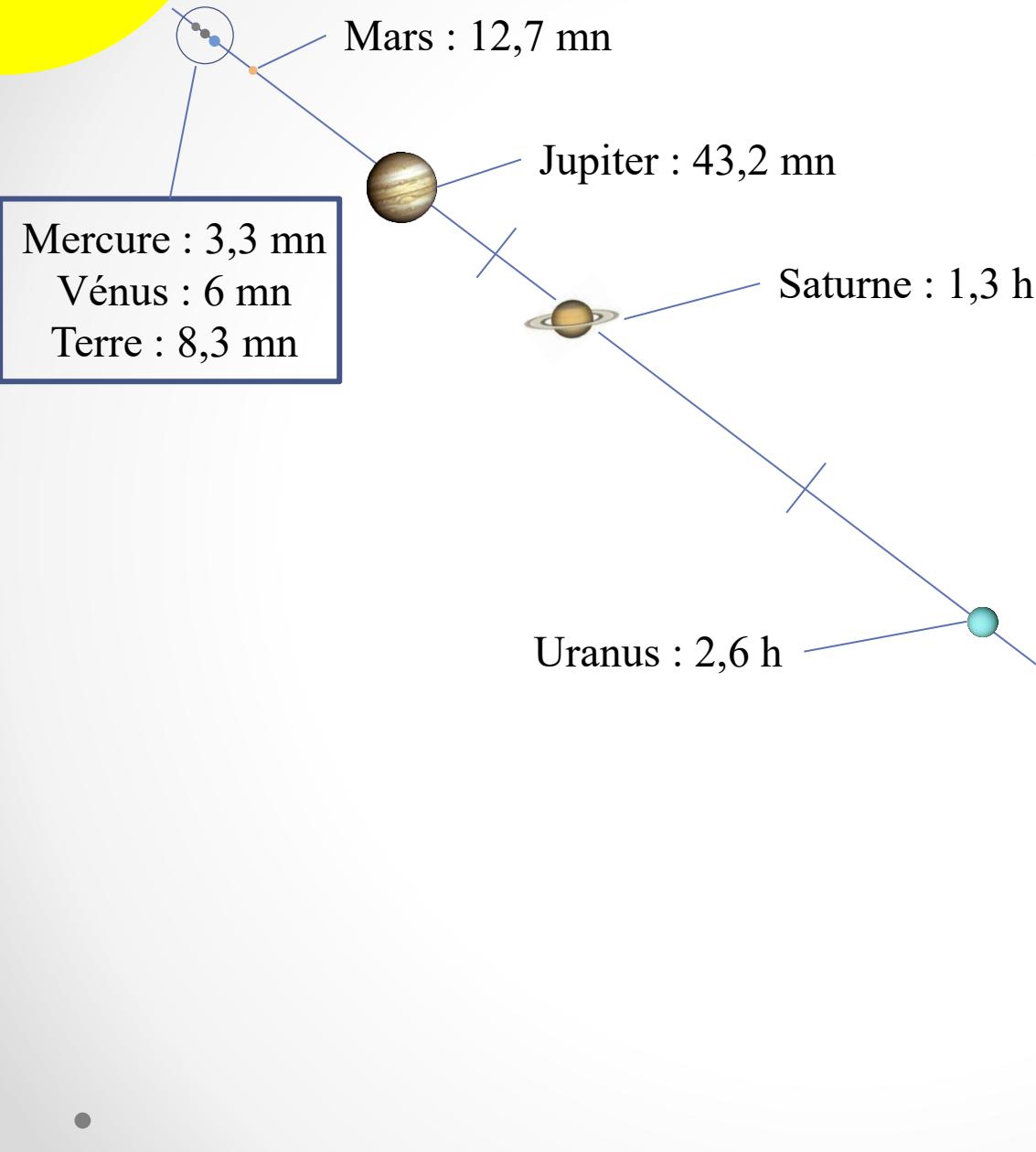


Triton (2 707 km)

Neptune : les satellites

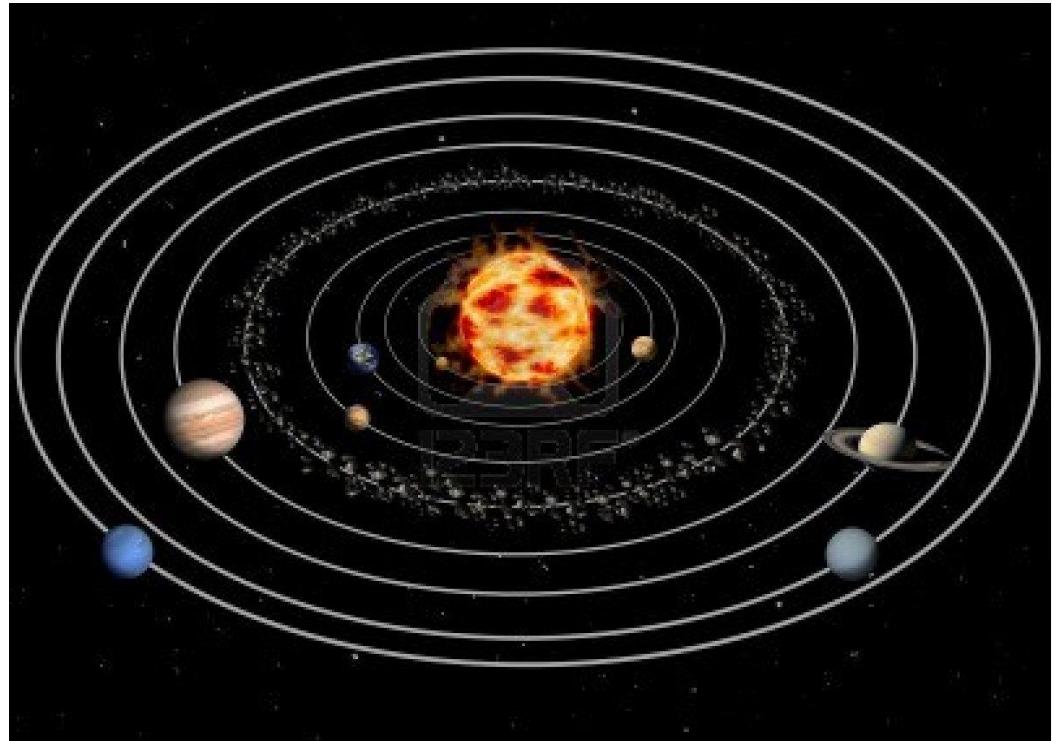


Les planètes



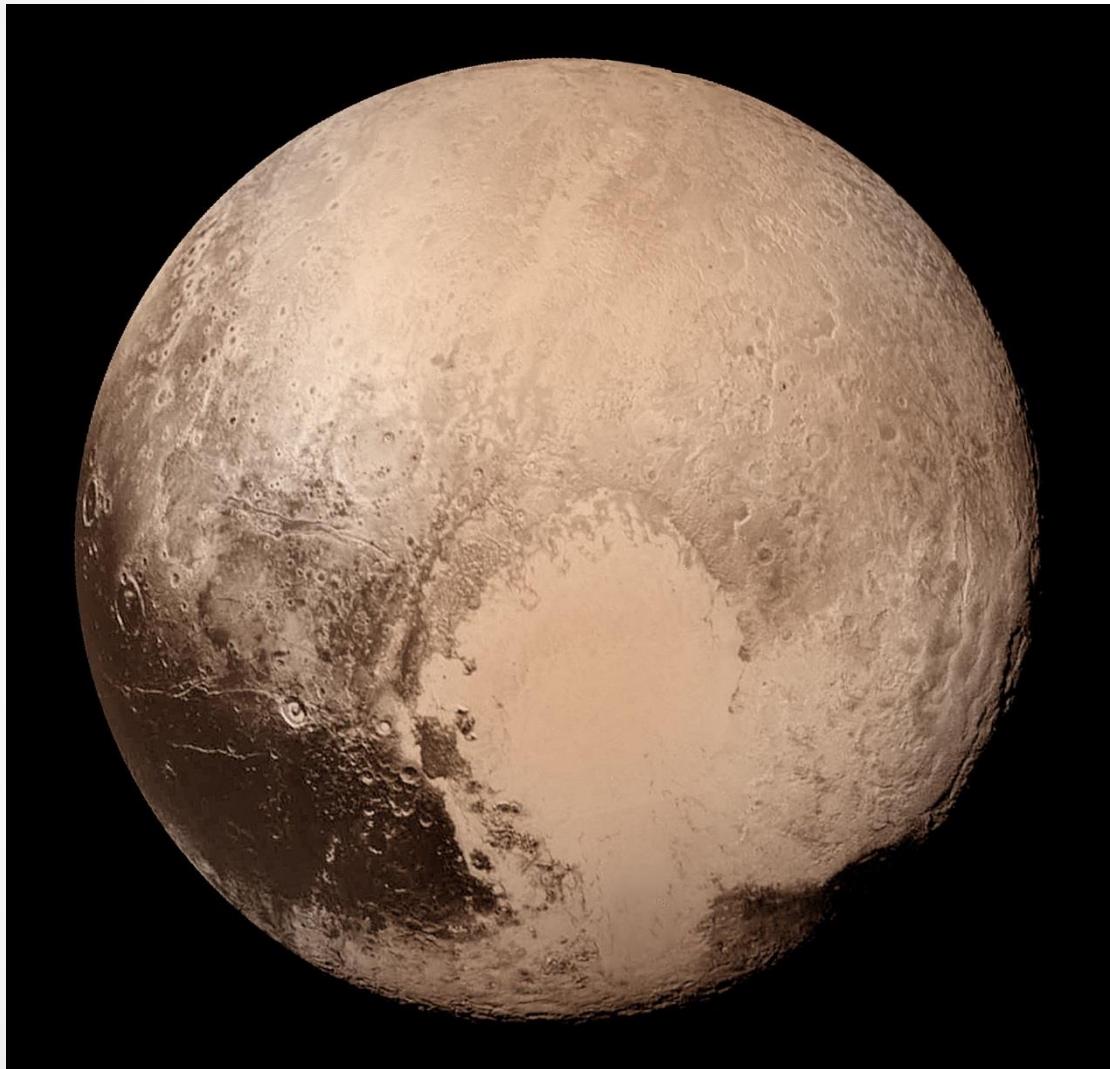
Les temps des révolutions

Planète	Révolution
Mercure	88 j
Vénus	225 j
Terre	365 j
Mars	687 j = 1,88 ans
Jupiter	11,9 ans
Saturne	29,5 ans
Uranus	83,2 ans
Neptune	164,8 ans



Et après Neptune ?

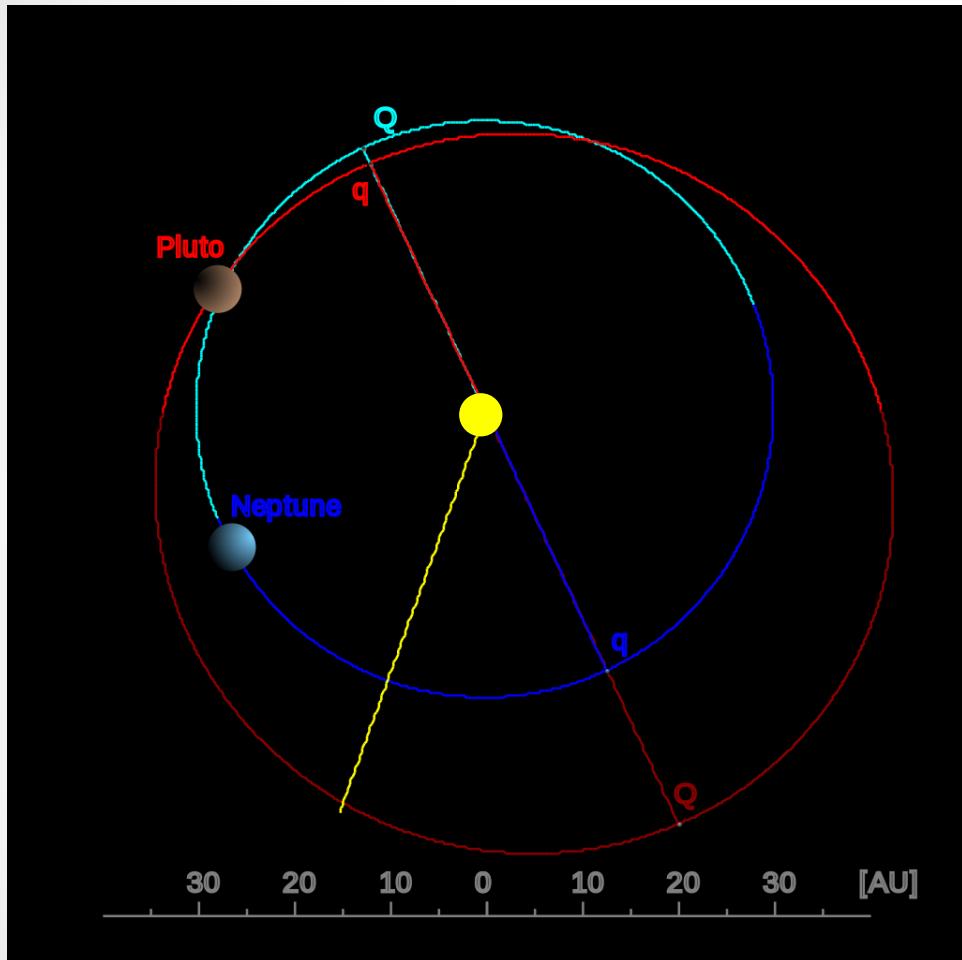
Les trans-neptuniens



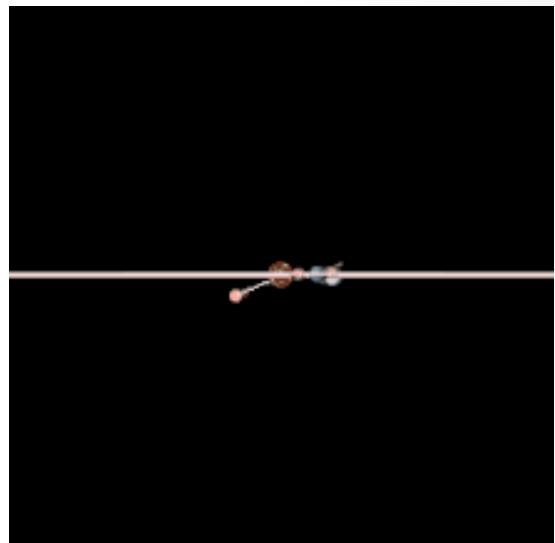
Pluton
(2 370 km)

Photo : Sonde New Horizons

Pluton

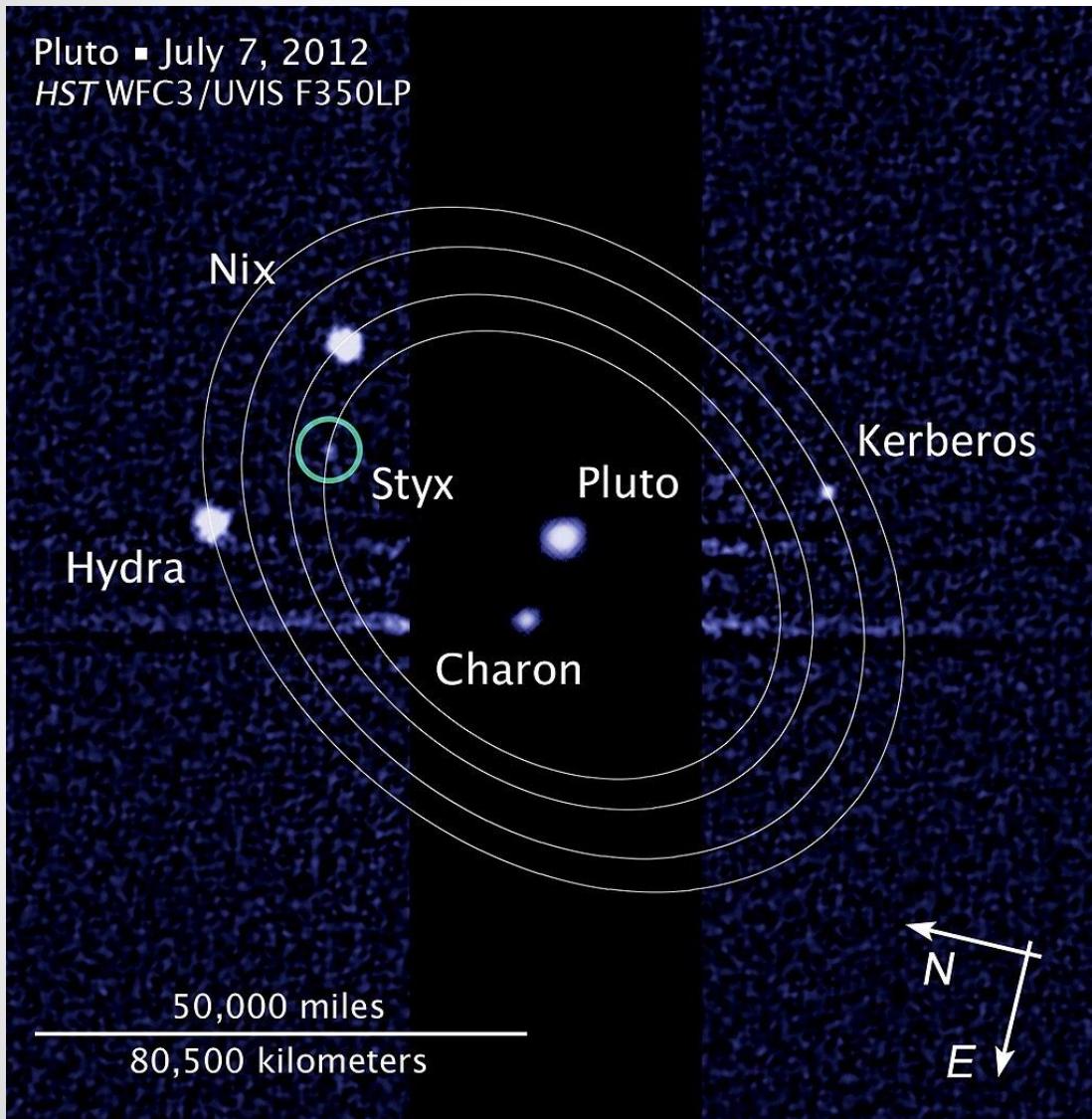


Distance au Soleil :
entre 29,7 et 49,5 ua (Neptune : 30,1 ua)
Année = 248 années terrestres



Inclinaison de 17°

Satellites de Pluton

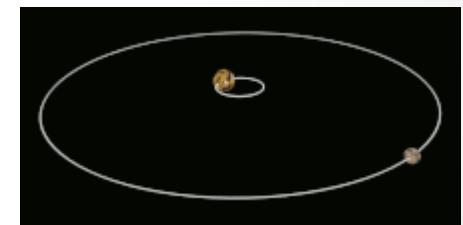


Couple Pluton/Charon

Diamètre de Pluton : 2 370 km

Diamètre Charon : 1 214 km

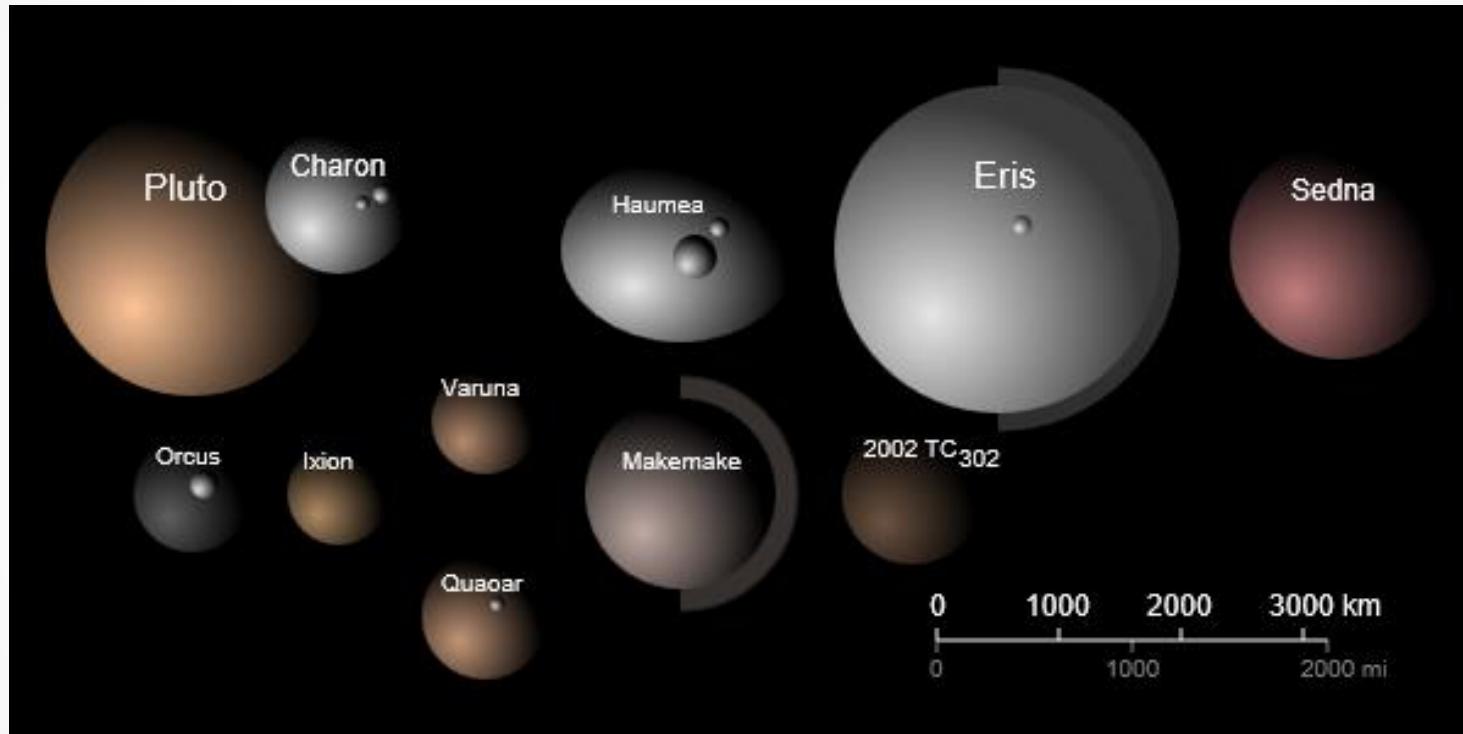
Distance Pluton-Charon : 17 000 km



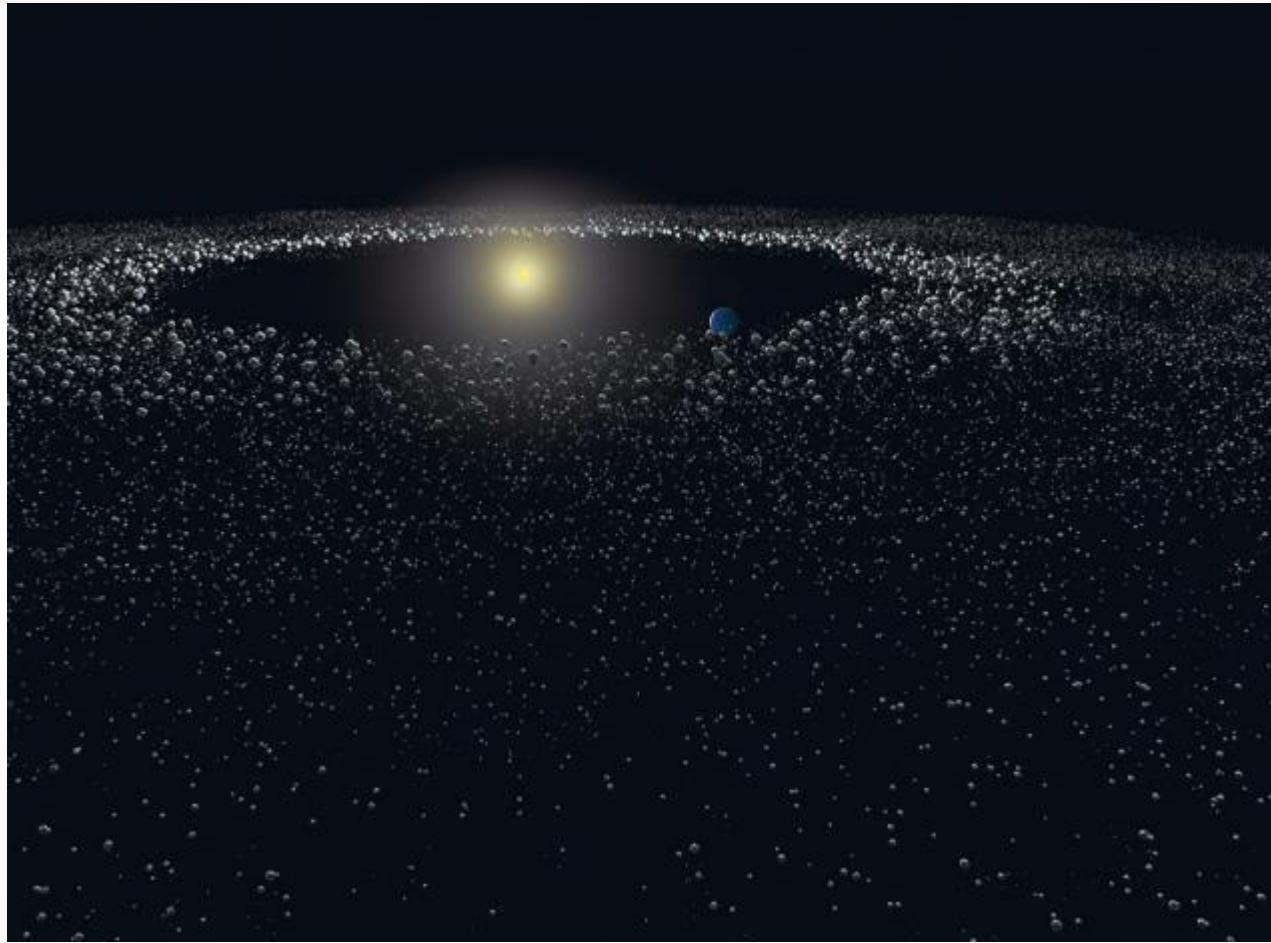
Rotation synchrone

Photo : HST

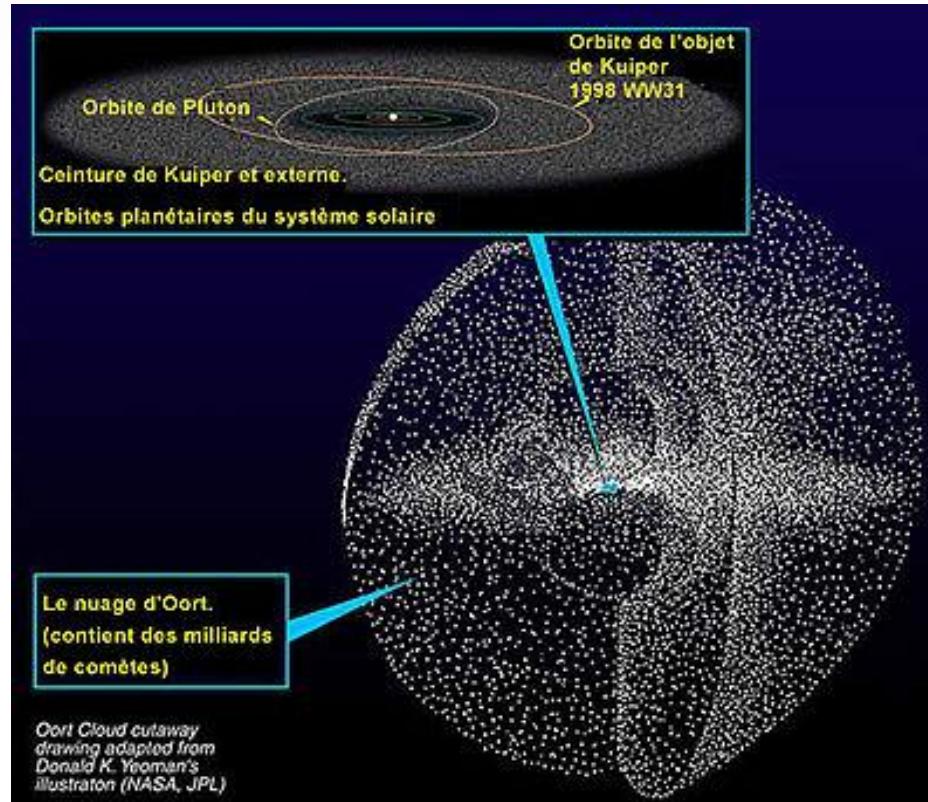
Les trans-neptuniens



La ceinture de Kuiper



Le nuage de Oort



Ceinture de Kuiper et nuage de Oort = réservoir de comètes

Les Comètes : Halley (1986)

Prochain passage : juillet 2061

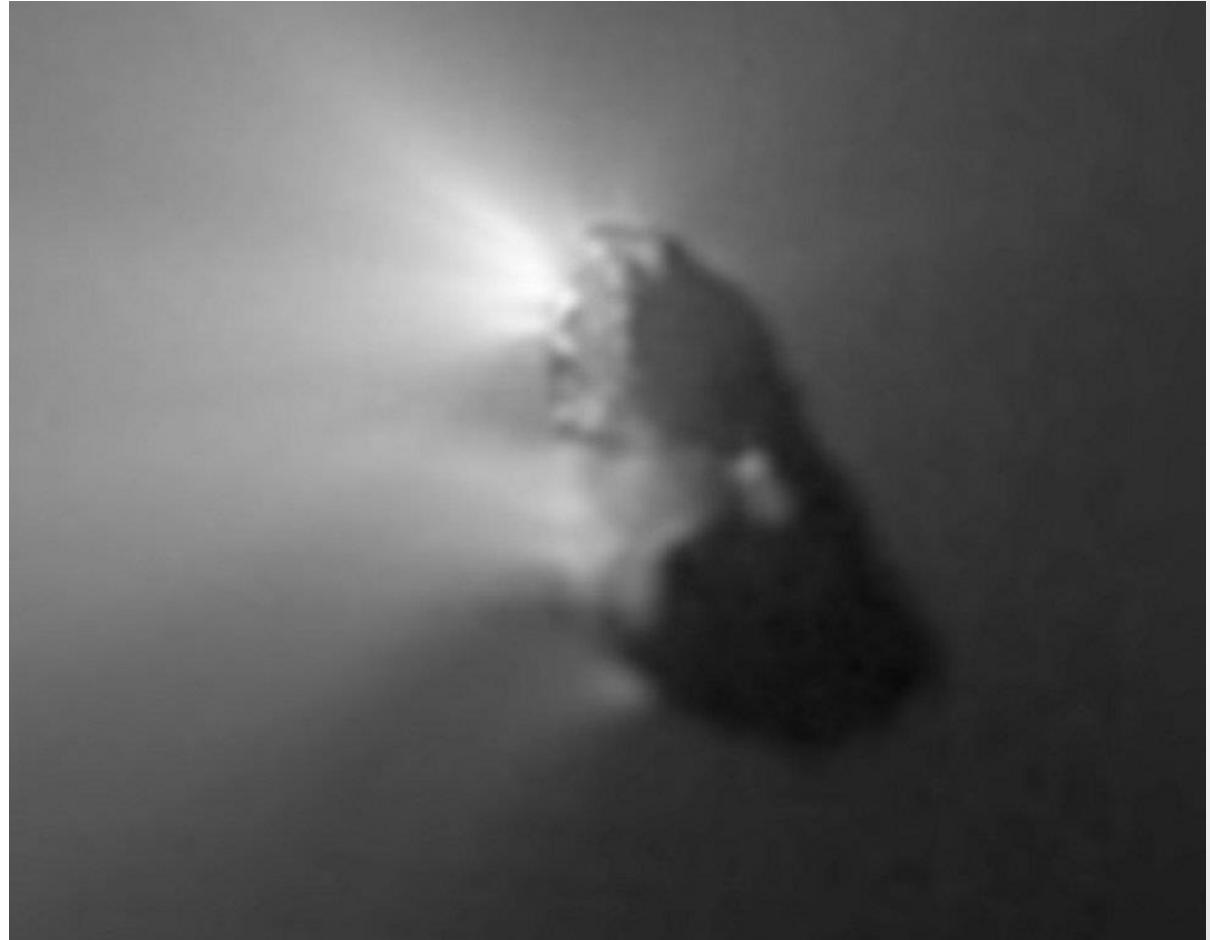


Photo : Giotto

Les Comètes : Hale-Bopp (1997)



Les Comètes : Holmes (2007)



Les Comètes : Lovejoy (2015)



Les Comètes

