la Luna è l'unico satellite naturale della Terra

il suo diametro
è pari a 1/4 della
Terra

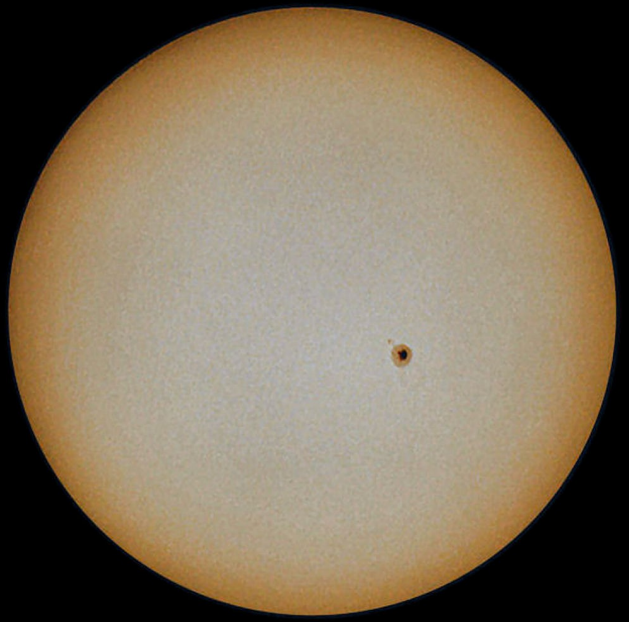
il Sole è una stella e trasforma la materia (idrogeno) in energia

le sue dimensioni sono enormi
se confrontate alla Terra (oltre 100 volte)


la Luna dista mediamente 400.000 km dalla Terra
la luce ci impiega 1,3 secondi ad arrivare a noi
400.000 km
a 130 km/h
4 mesi di viaggio


il Sole dista mediamente 150.000.000 km dalla Terra
la luce ci impiega 8 minuti ad arrivare a noi
150.000.000 km
a 130 km/h
130 anni di viaggio

UNIVERSO IN SCALA 1/10 miliardi



1.400.000 km

=

14 cm

UNIVERSO IN SCALA 1/10 miliardi

=

Terra 12.700 km

1,3 mm

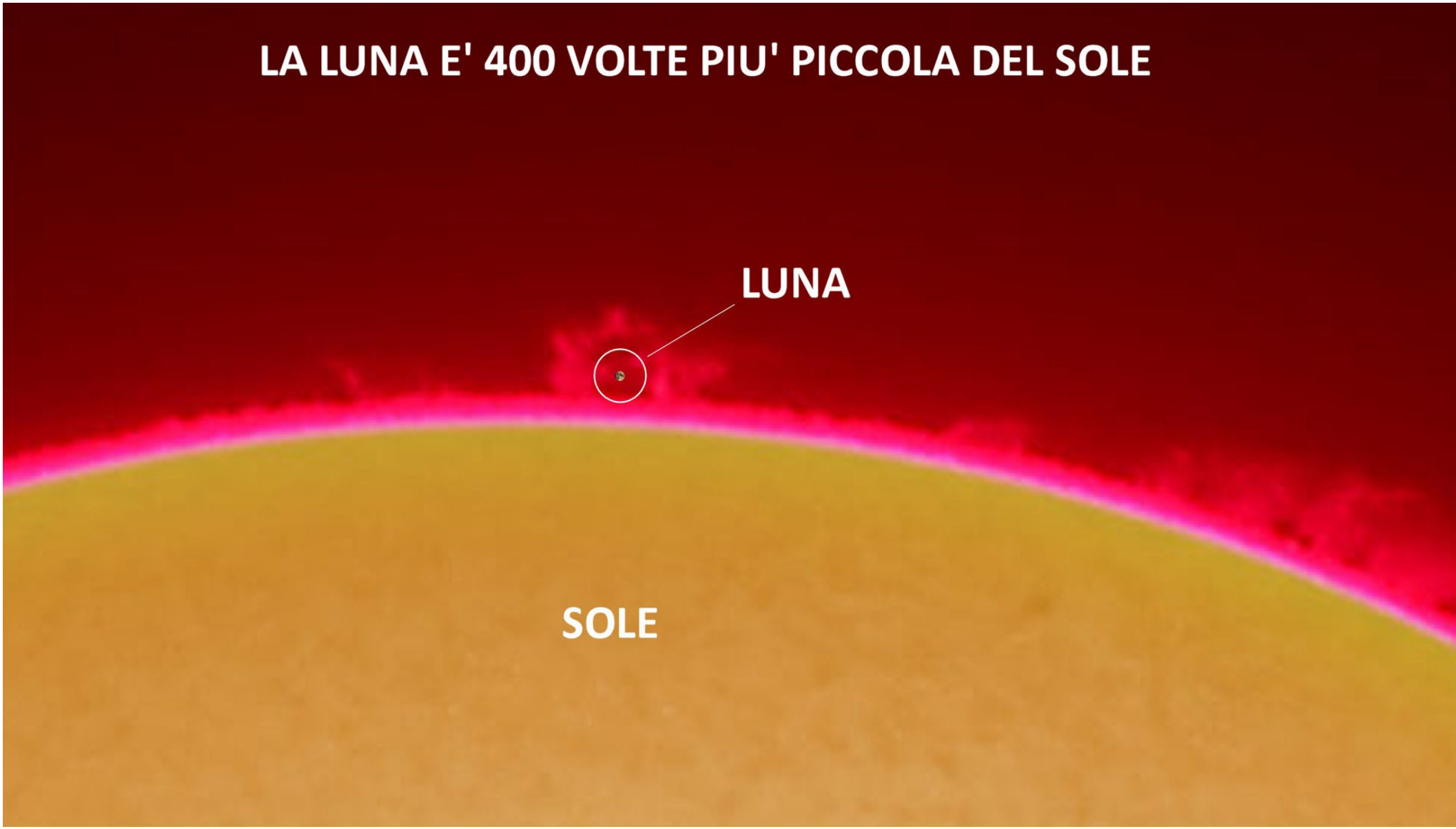
UNIVERSO IN SCALA 1/10 MILIARDI

1,3 mm

20 passi

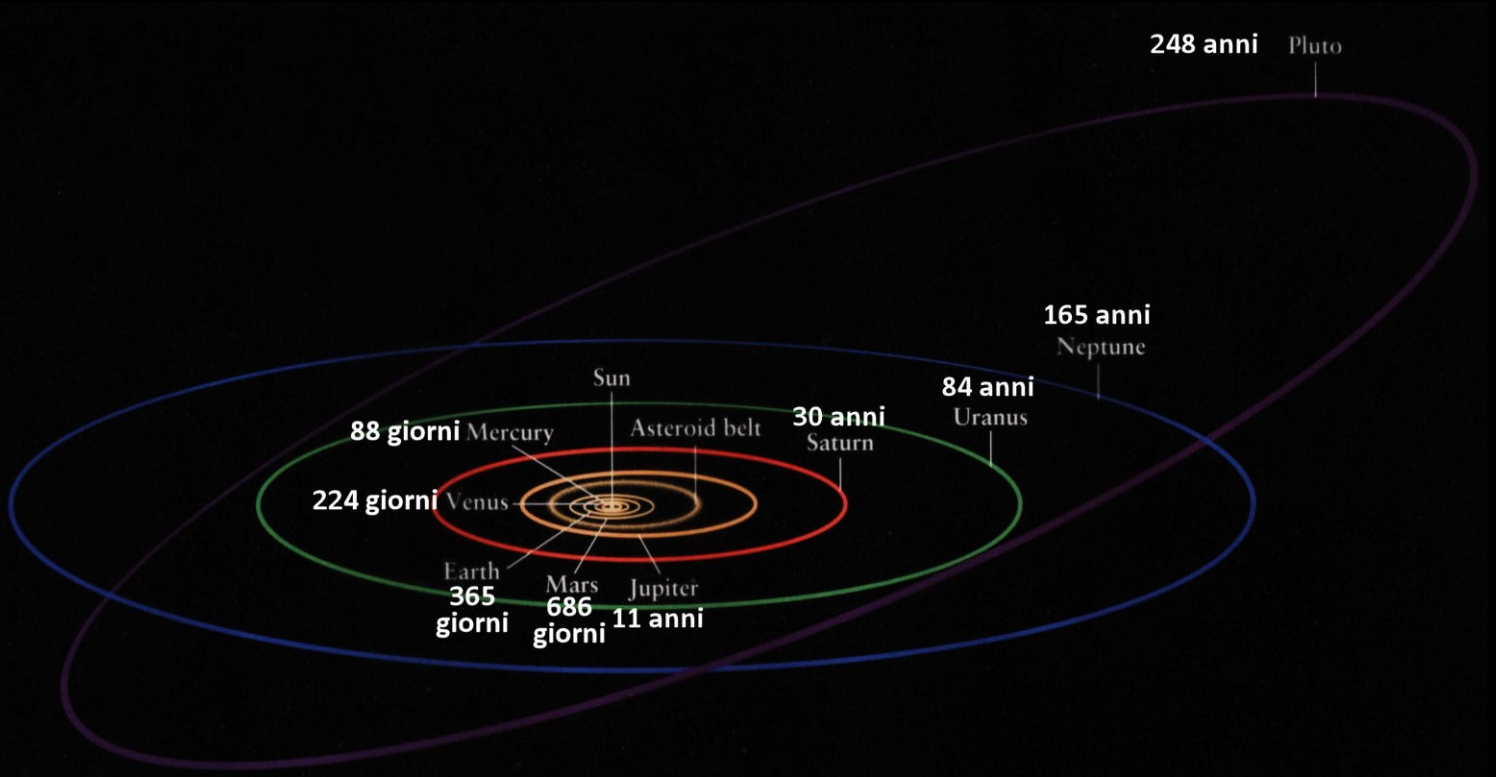
14 cm

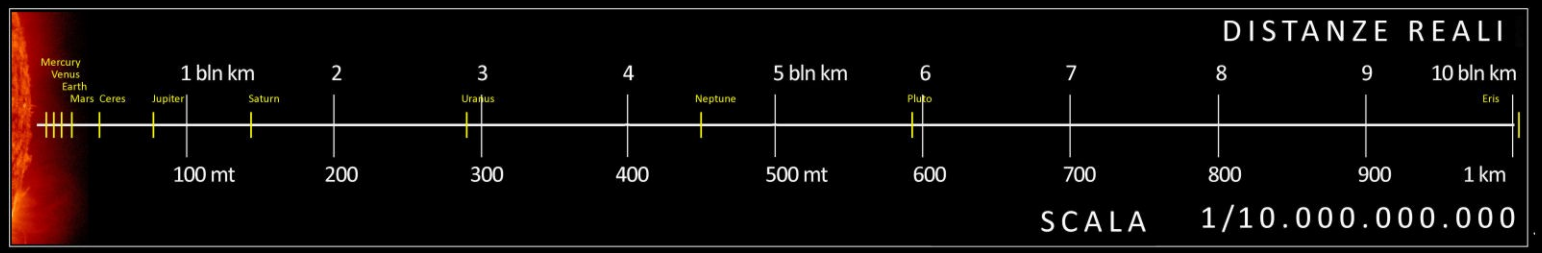
distanza 15 m


LA LUNA E' 400 VOLTE PIU' PICCOLA DEL SOLE
LUNA
SOLE

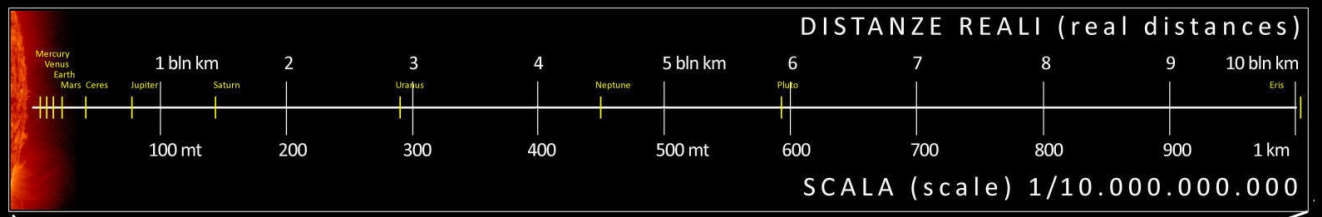
MA E' ANCHE 400 VOLTE PIU' VICINA

IN CIELO HANNO LE STESSE DIMENSIONI ANGOLARI

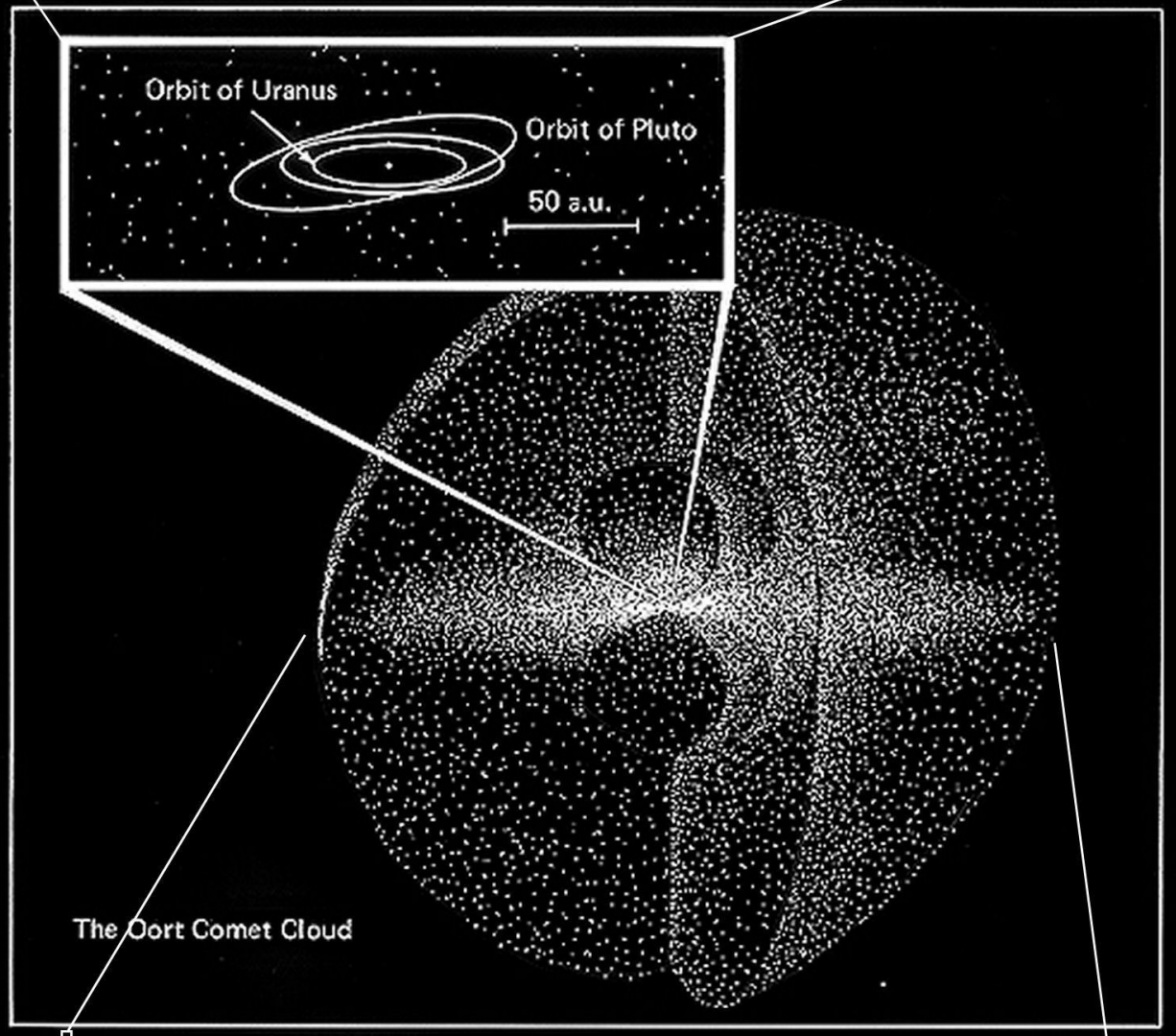




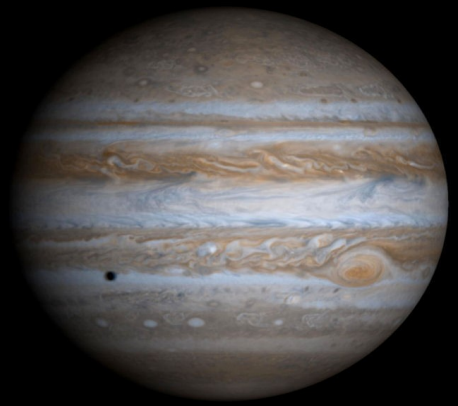
Periodi orbitali e distanze dei pianeti



10 mld km = 1 km universo in scala 1/10 mld



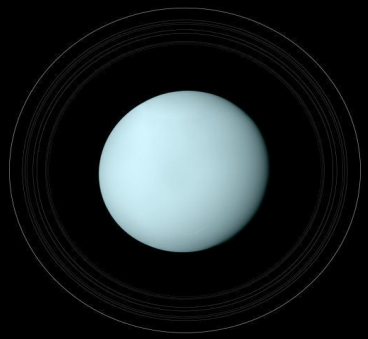
0,4 a.l. = 400 km universo in scala 1/10 mld



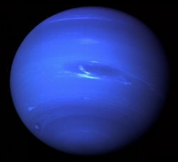
Giove

Saturno

PIANETI GIGANTI GASSOSI



Urano



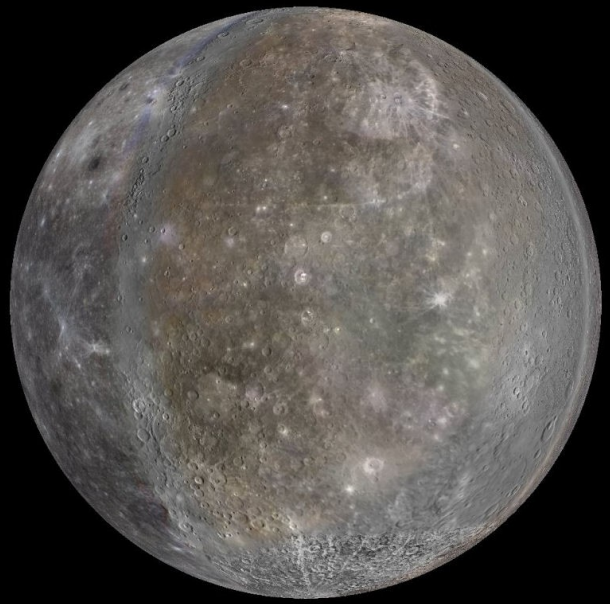
Nettuno

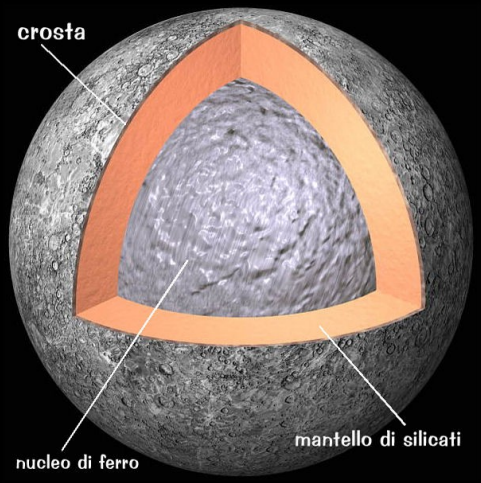
PIANETI GASSOSI

Terra Venere Marte Mercurio

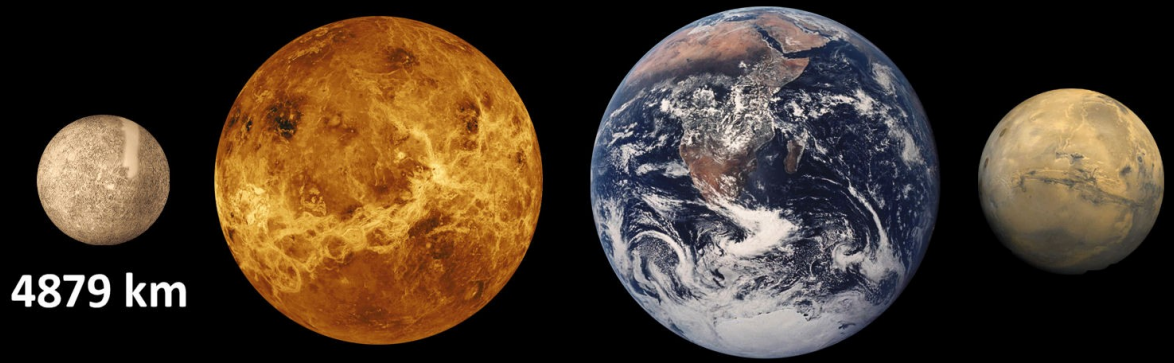
PIANETI ROCCIOSI

MERCURIO

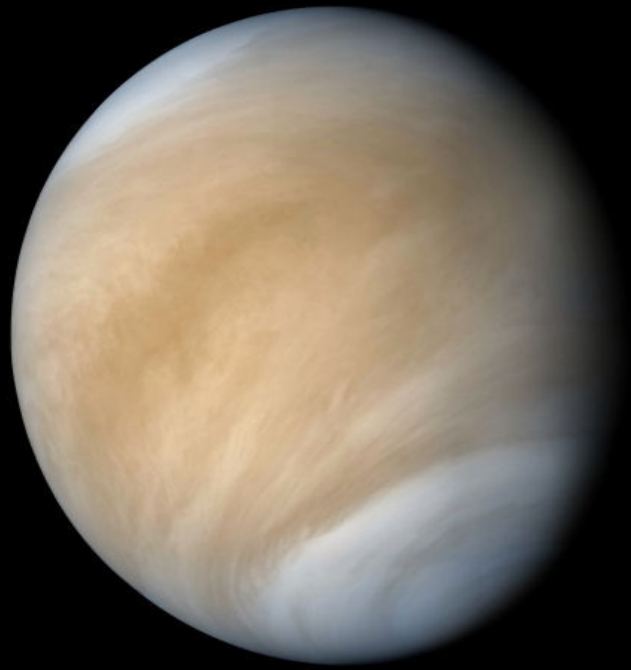


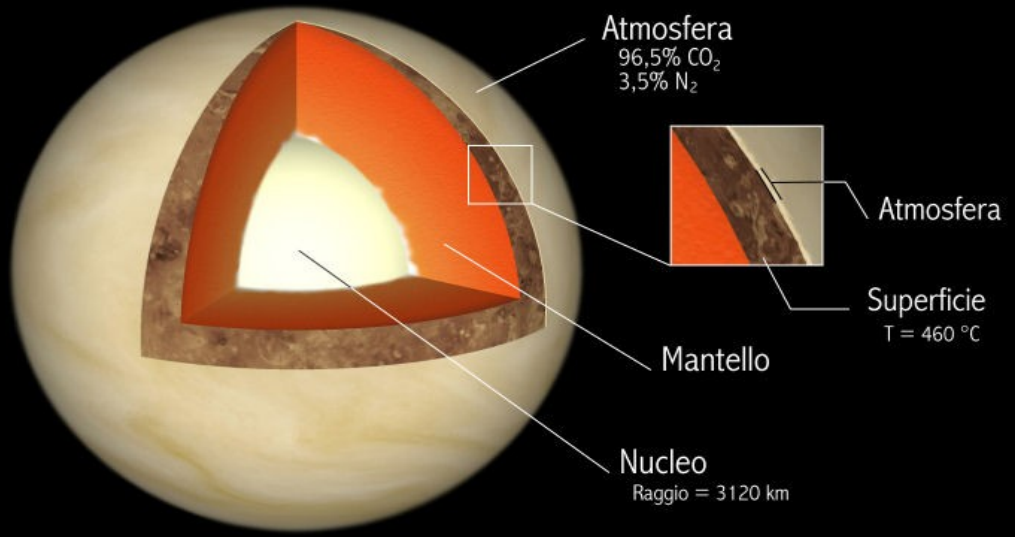


il pianeta più piccolo

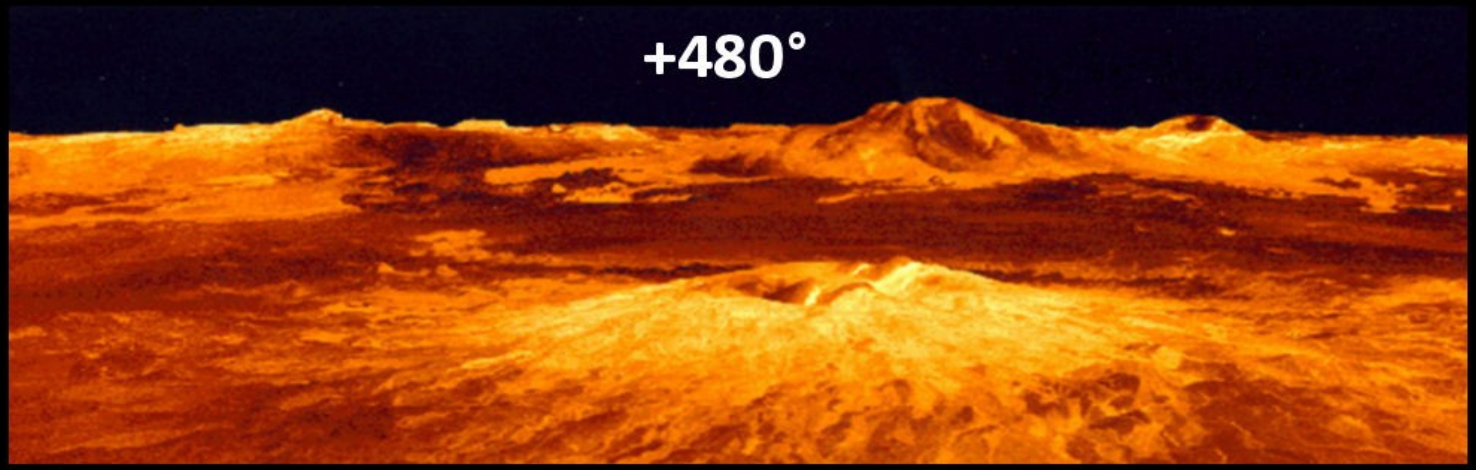


VENERE

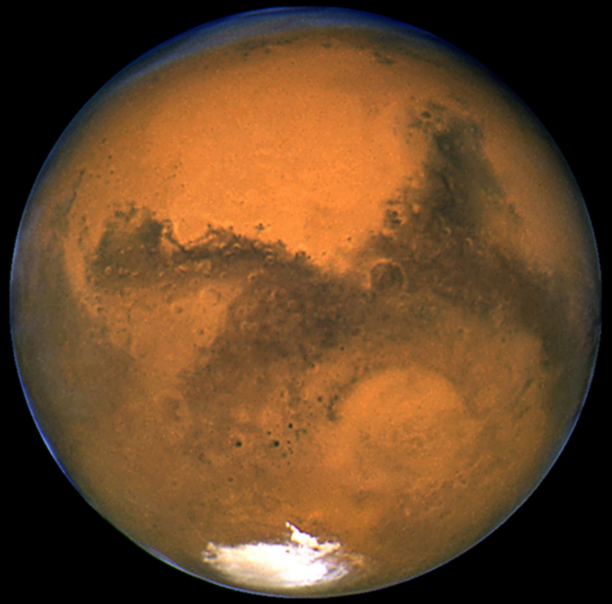


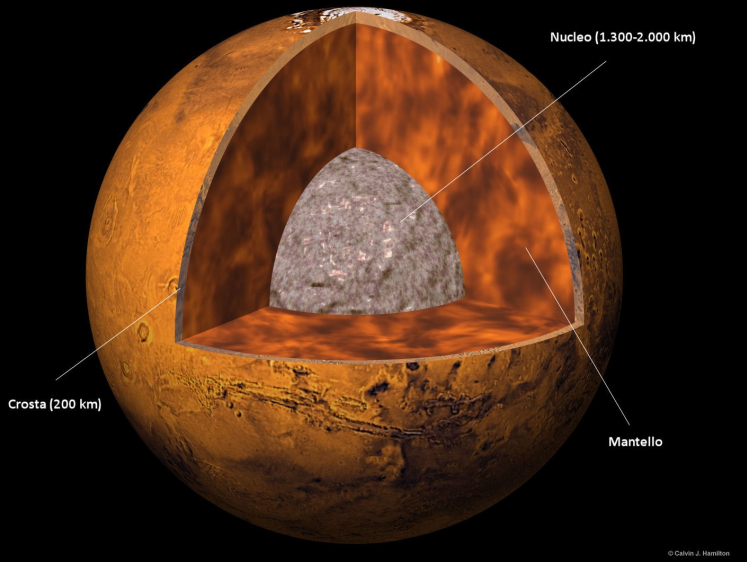


il pianeta più caldo



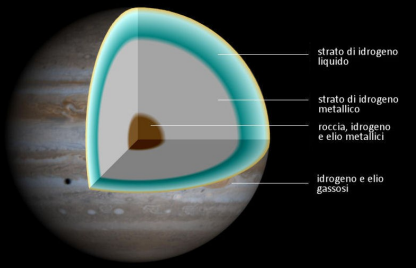
MARTE



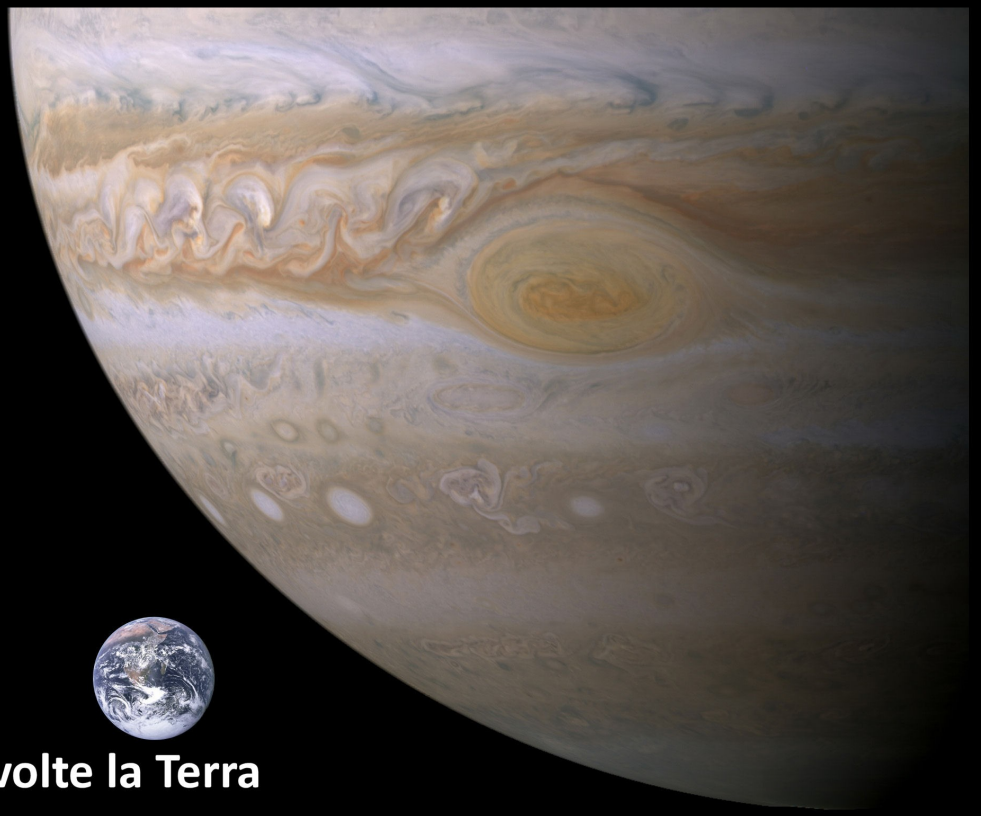


il più simile alla Terra

GIOVE

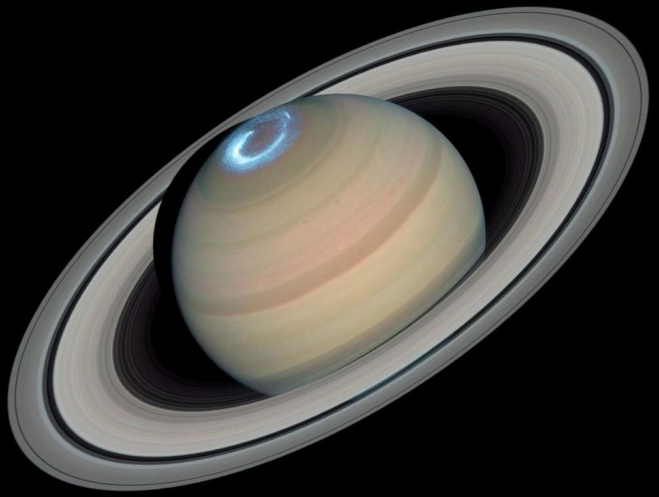


il pianeta più grande

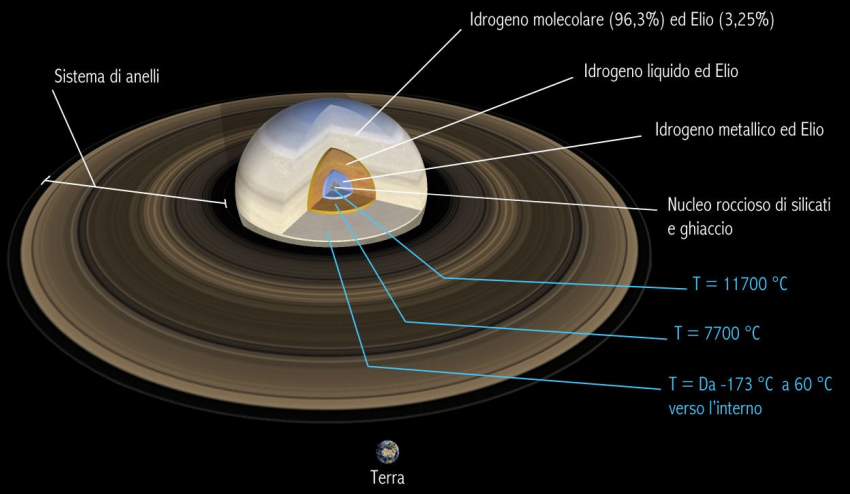


12 volte la Terra

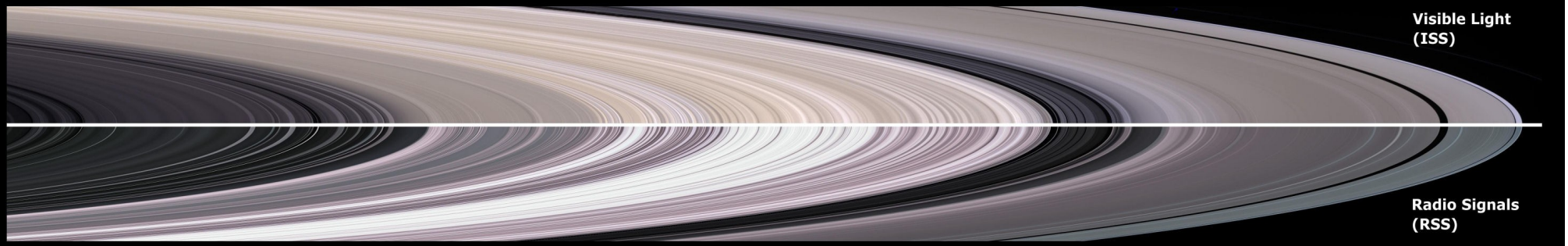
SATURNO



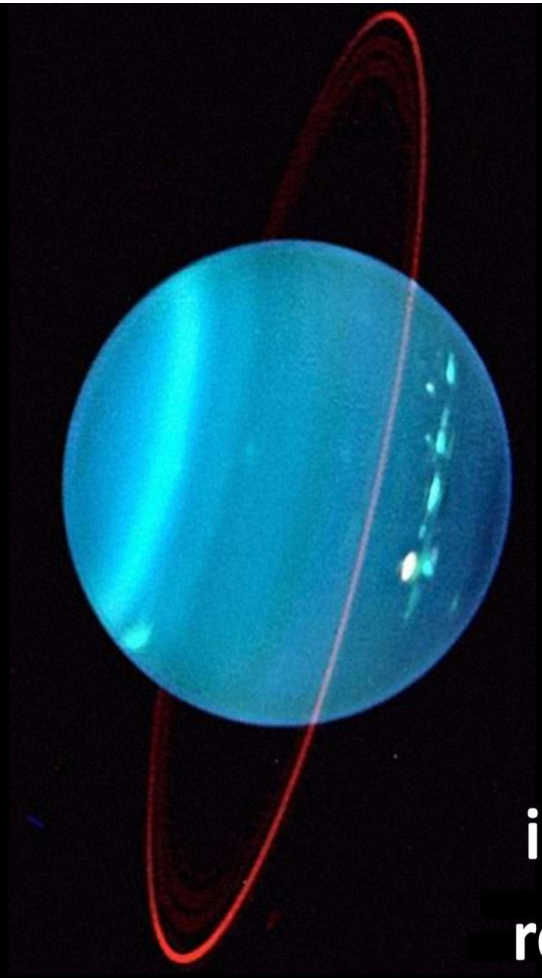
Struttura interna di Saturno

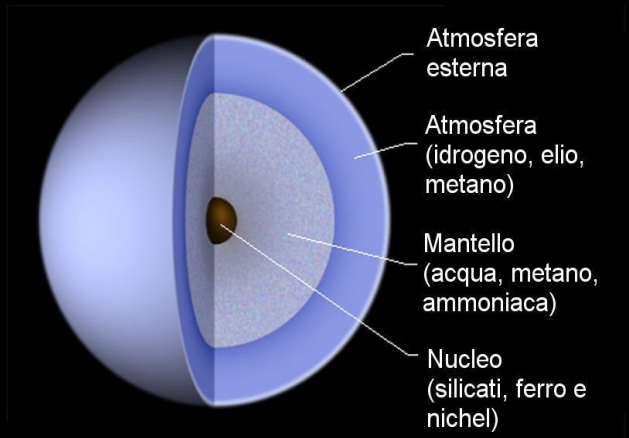


il pianeta più bello

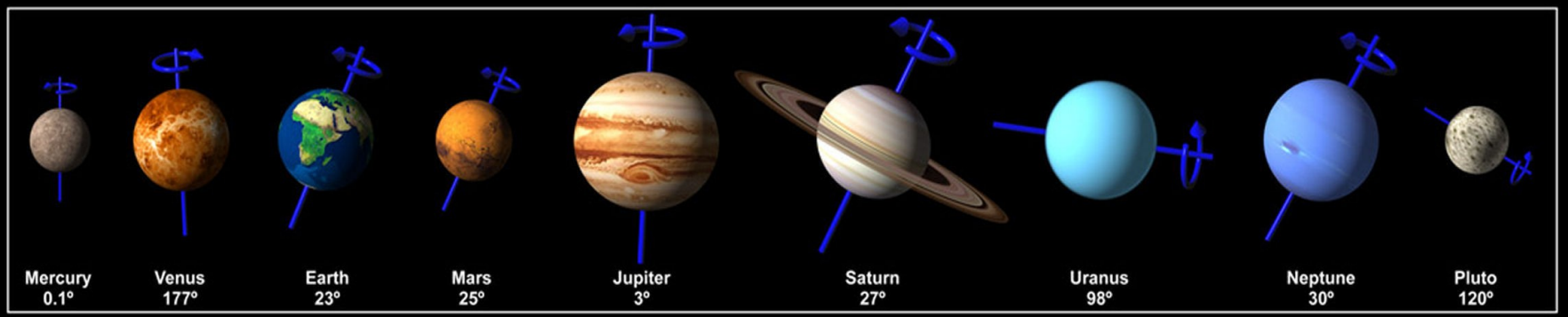


URANO



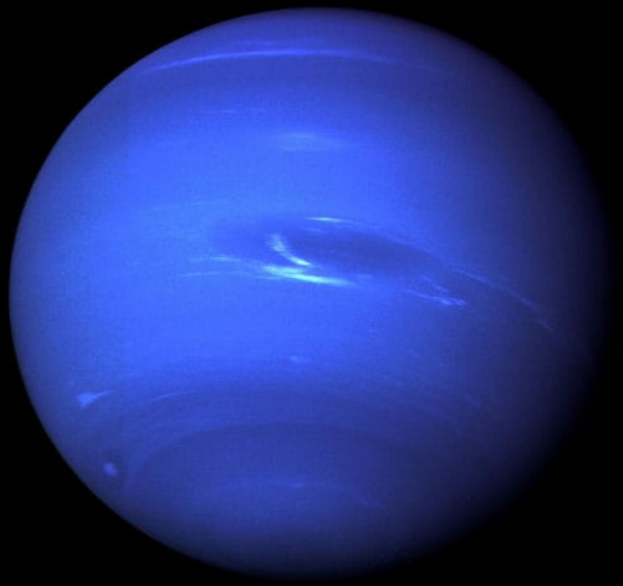


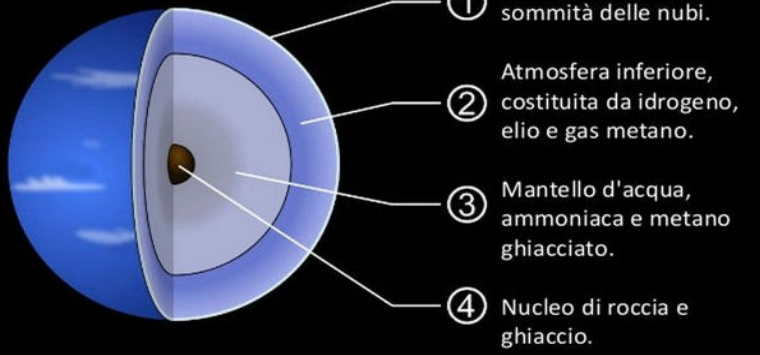
il pianeta più strano
rotola sulla sua orbita



Obliquity of the Nine Planets

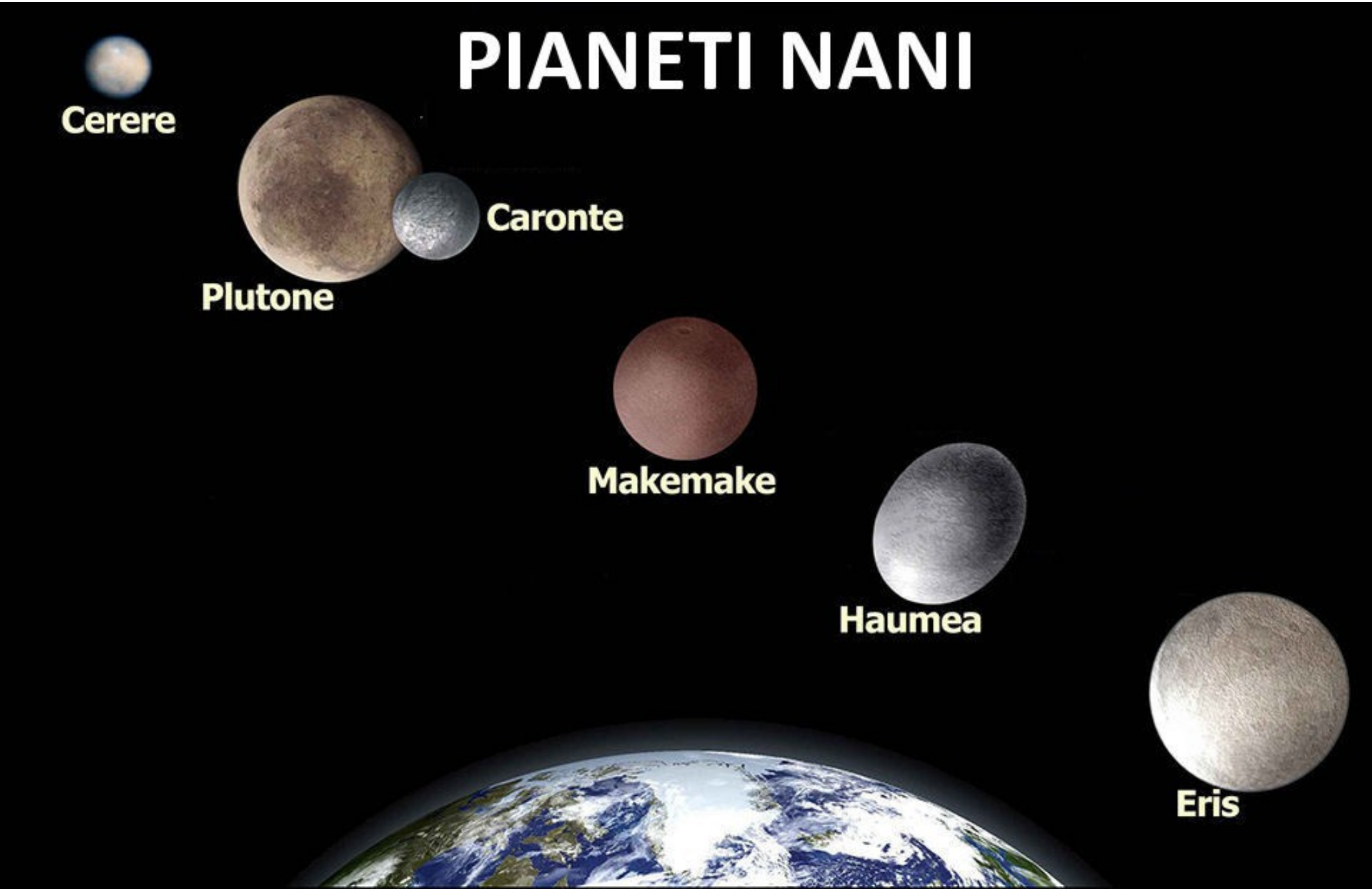
NETTUNO



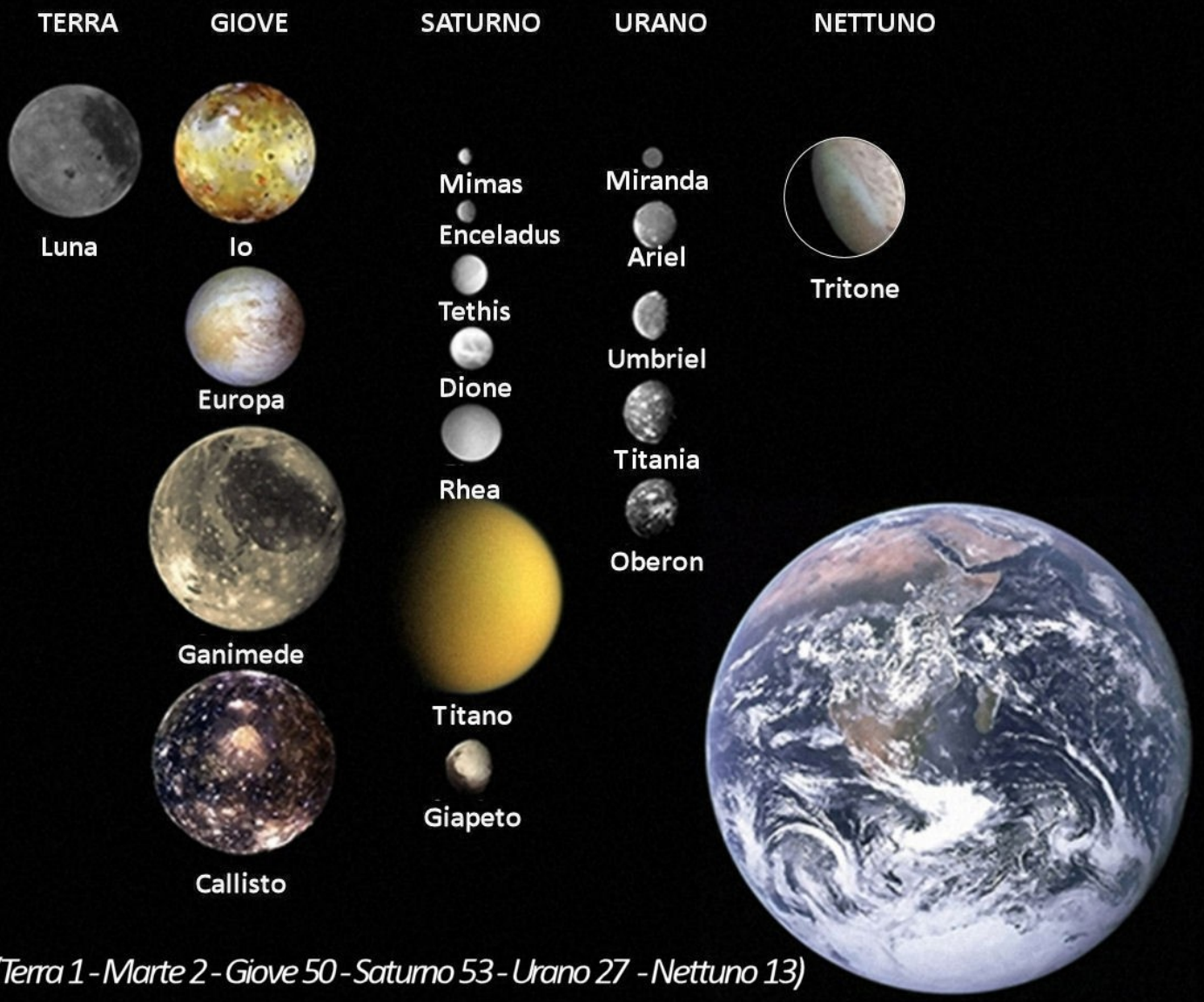


i venti più impetuosi

2.200 km/h


PIANETI NANI
Cerere
Caronte
Plutone
Makemake
Haumea
Eris

SATELLITI MAGGIORI



quasi 150 lune *(Terra 1 - Marte 2 - Giove 50 - Saturno 53 - Urano 27 - Nettuno 13)*

3 corpi di dimensioni planetarie (> 4.000 km)

12 corpi di dimensioni sub-planetaria (4.000 ÷ 1.000 km)

3 corpi di dimensioni big-asteroidale (< 1.000 km)


ASTEROIDI MAGGIORI
Cerere
PIANETA NANO
2 Pallas
4 Vesta
10 Hygiea
704 Interamnia
52 Europa
511 Davida
87 Sylvia
624 Hektor
31 Euphrosyne
1000 km

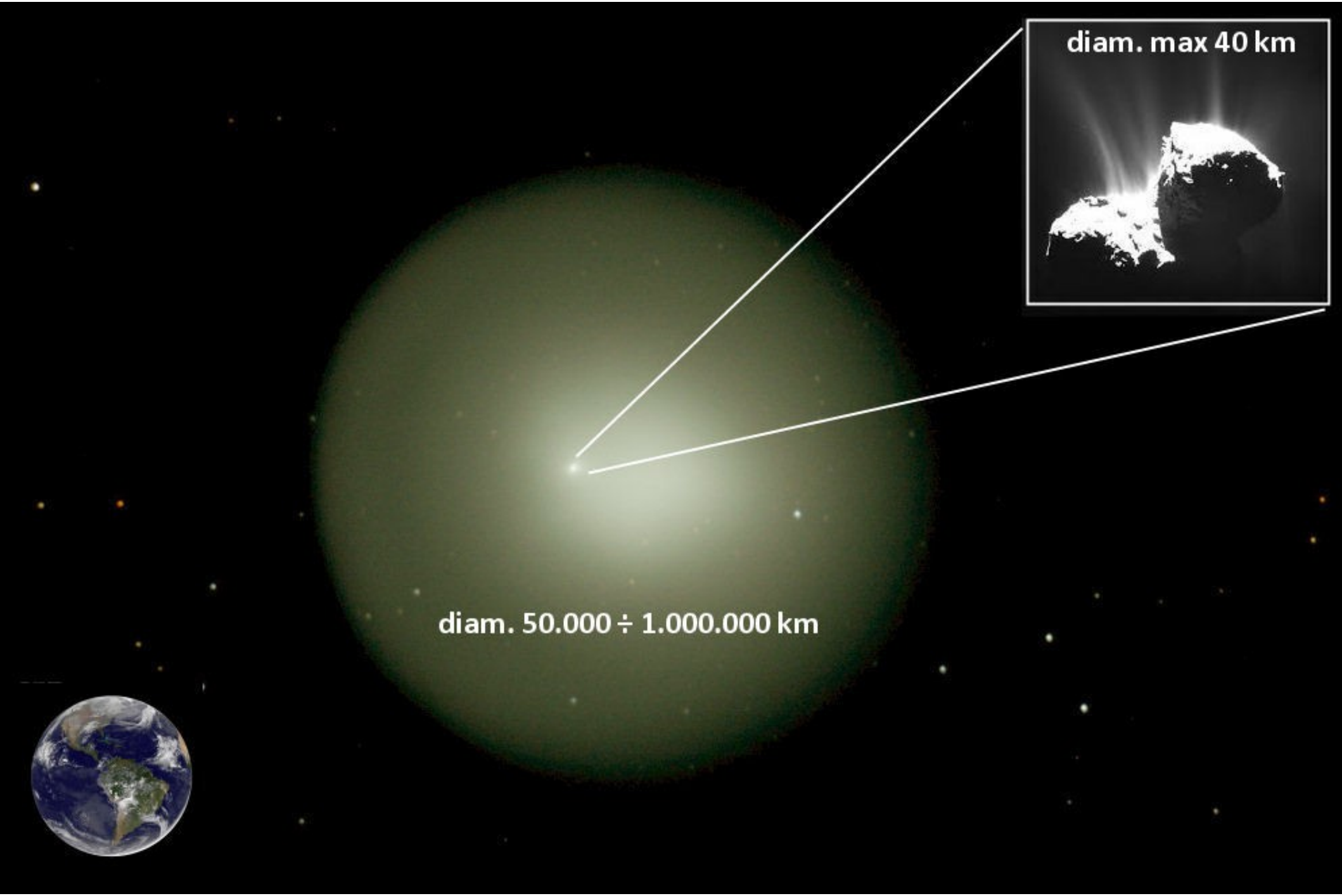
asteroide Cortina

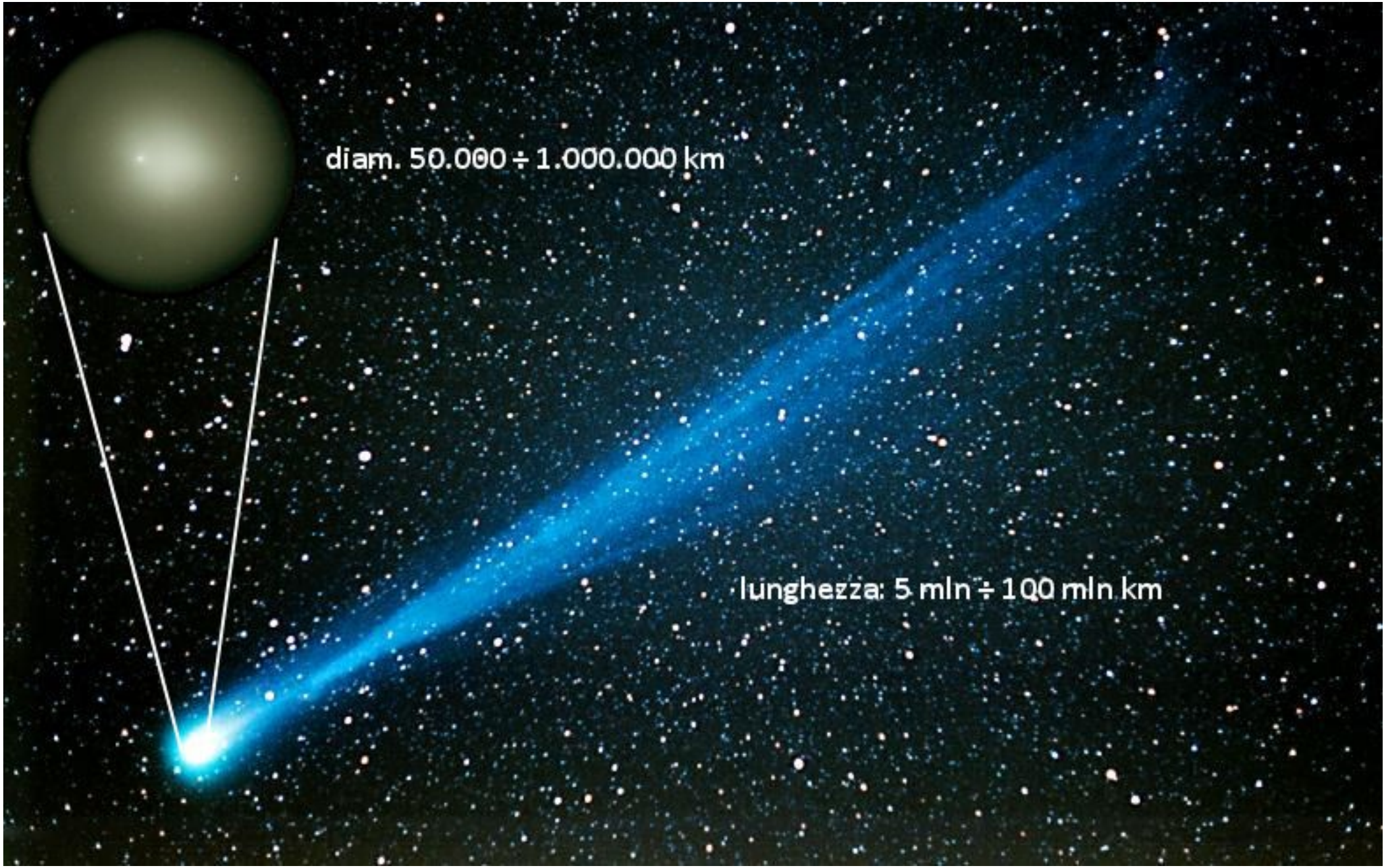
scoperto al Col Drusciè nel 2000

28/01/2000

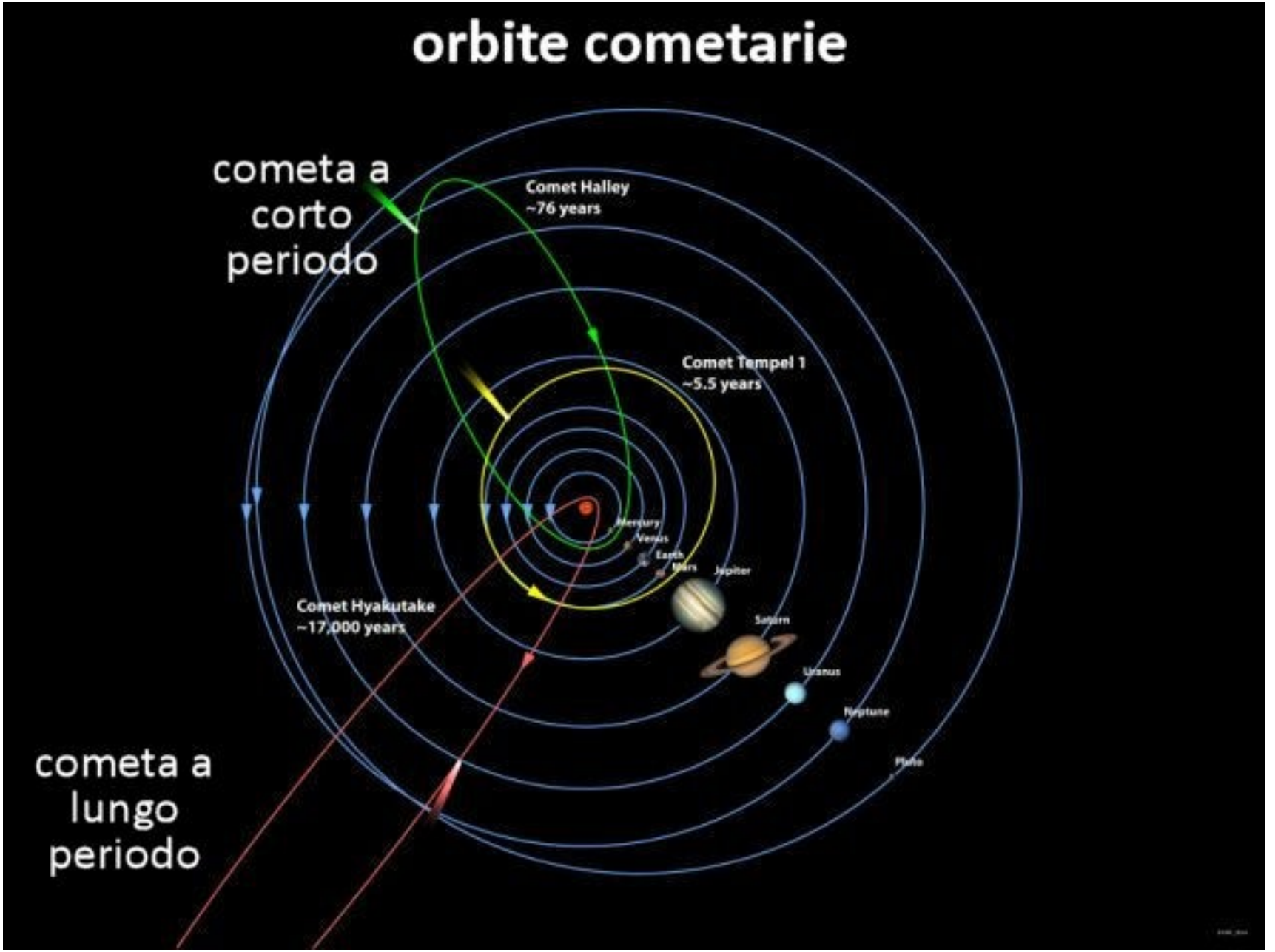
NGC 4394

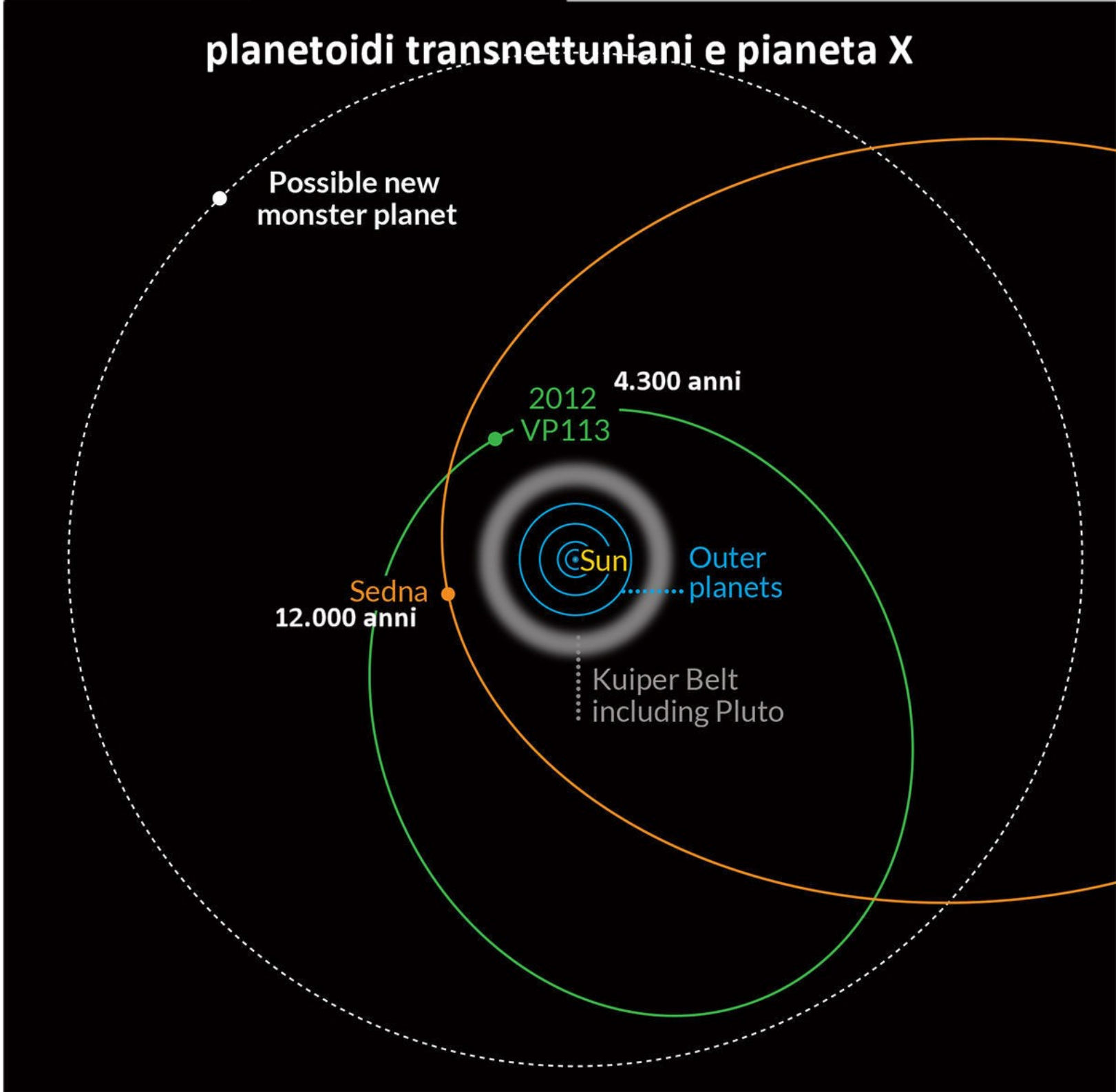
27/01/2000


diam. max 40 km
diam. 50.000 ÷ 1.000.000 km

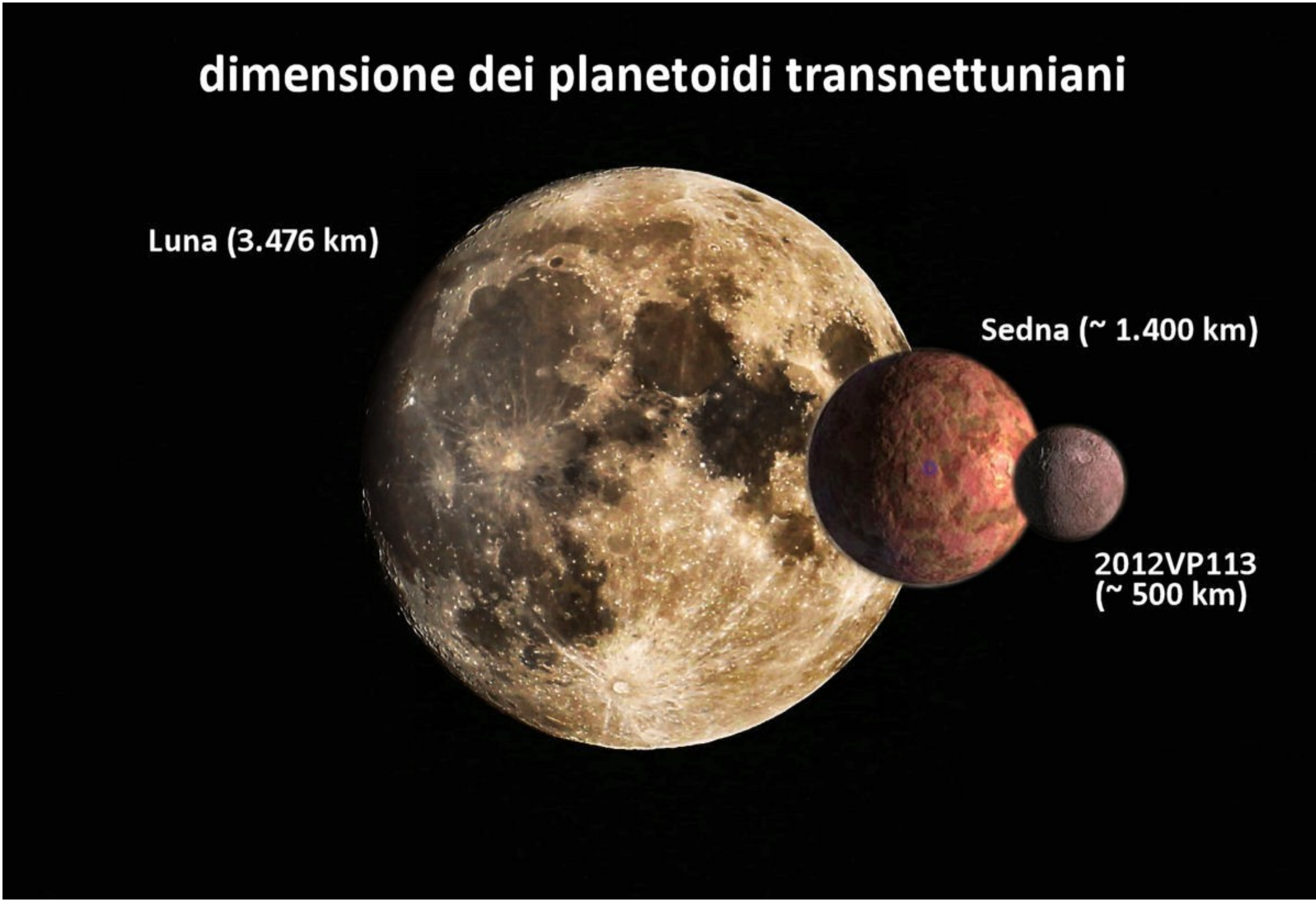

diam. 50.000 ÷ 1.000.000 km
lunghezza: 5 mln ÷ 100 mln km


coda di gas
coda di polveri


orbite cometarie
cometa a corto periodo
Comet Halley ~76 years
Comet Tempel 1 ~5.5 years
Comet Hyakutake ~17,000 years
Mercury
Venus
Earth
Mars
Jupiter
Saturn
Uranus
Neptune
Pluto
cometa a lungo periodo


planetoidi transnettuniani e pianeta X
Possible new monster planet
4.300 anni
2012 VP113
Sun
Outer planets
Sedna
12.000 anni
Kuiper Belt including Pluto

dimensione dei planetoidi transnettuniani



LA TERRA NON E' L'UNICO LUOGO NEL SISTEMA SOLARE ADATTO ALLA NASCITA DELLA VITA

tenue atmosfera
molta acqua ghiacciata
temperature sopportabili
ciclo stagionale
ciclo giorno/notte

microorganismi
alghe-licheni

MARTE

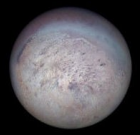
densa atmosfera
ciclo del metano
mari-laghi-fiumi
precipitazioni

microorganismi
anaerobici

TITANO

consistenti riserve di acqua liquida
sotto la superficie ghiacciata

microorganismi mono e pluri cellulari
possibili forme di vita più complesse



EUROPA TRITONE ENCELADO

FINE