

“L’homme n’est qu’un roseau, le plus faible de la nature; mais c’est un roseau pensant. Il ne faut pas que l’univers entier s’arme pour l’écraser : une vapeur, une goutte d’eau suffit pour le tuer. Mais quand l’univers l’écraserait, l’homme serait encore plus noble que ce qui le tue, parce qu’il sait qu’il meurt, et l’avantage que l’univers a sur lui, l’univers n’en sait rien”. Blaise Pascal, Pensées (1670)

Omaggio a «Earthrise»

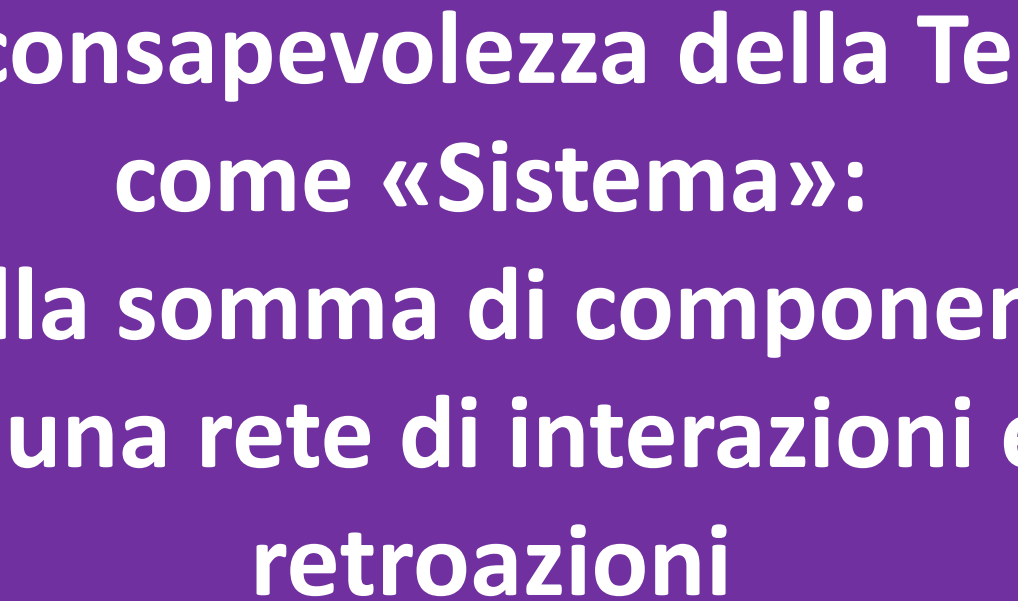





**“Earthrise”, Apollo 8,
24 December 1968, foto di B. Anders, NASA**



“Blue Marble”, Apollo 17, 7 December 1972, foto NASA



**La consapevolezza della Terra
come «Sistema»:
dalla somma di componenti
a una rete di interazioni e
retroazioni**

A satellite view of Earth showing the African continent and surrounding oceans. The image is centered on the African continent, with the Atlantic Ocean to the west and the Indian Ocean to the east. The Earth's curvature is visible at the top and bottom edges. A purple rectangular box is overlaid on the center of the image, containing white text.

**L'esplorazione delle
grandi questioni di ricerca
sul «Sistema Terra»**



Come funziona il clima di un pianeta roccioso?



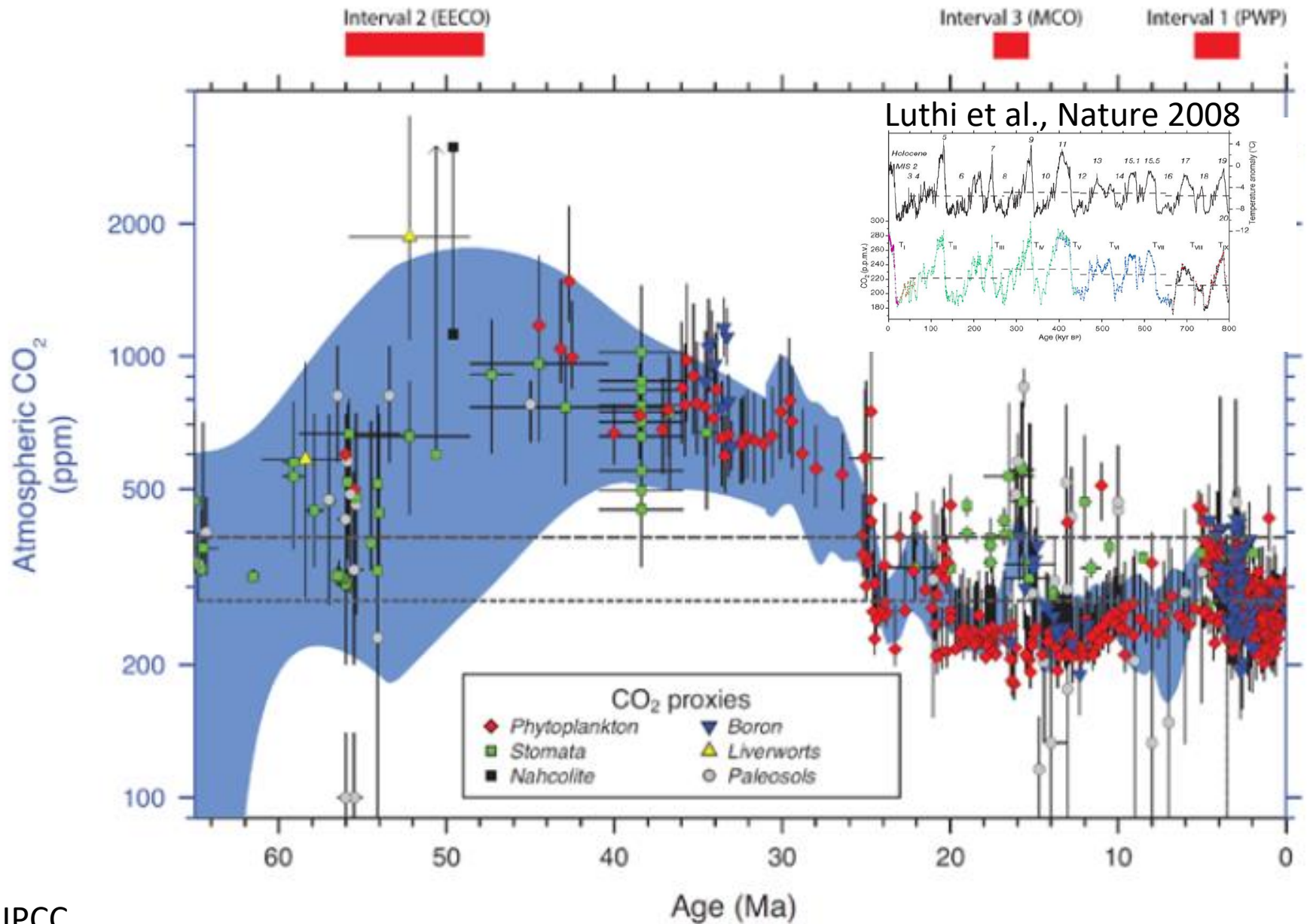
Earth
Distance: 19,703 km
Radius: 6,378.1 km
Apparent diameter: 28' 18" 37.8"

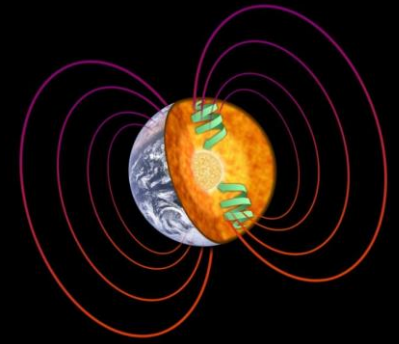
2006-09-08 06:19:08 UTC
Real time

Speed: 0.00000 m/s

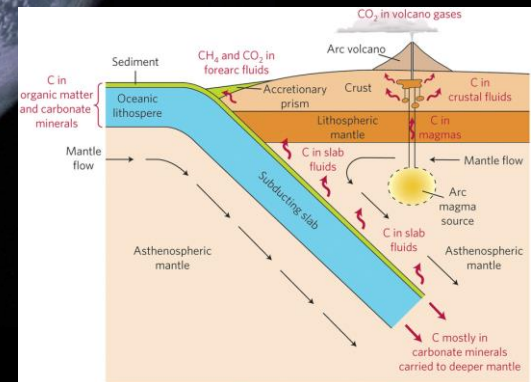
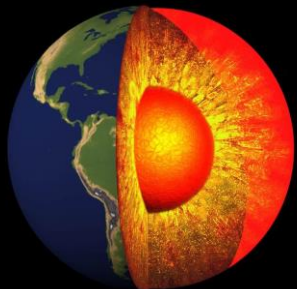
Visible Earth
Elev: 28.2 km 37.2" 0.00

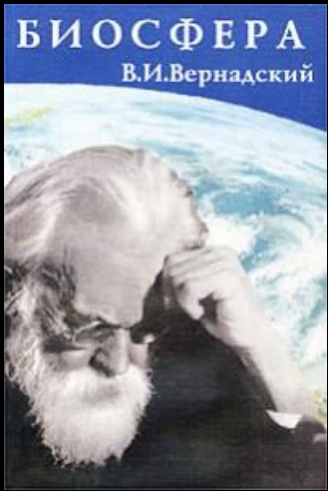
Variazioni climatiche forti ma limitate



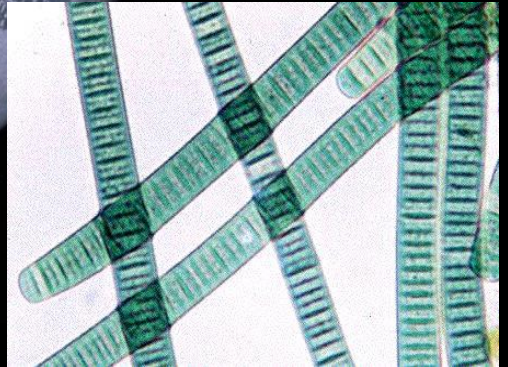
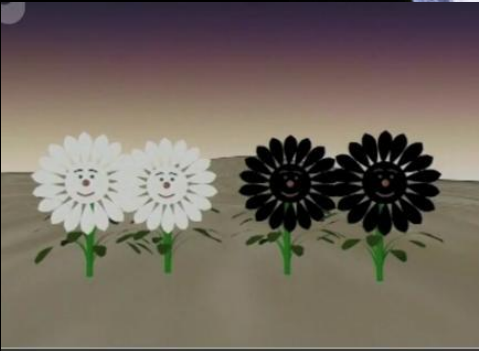
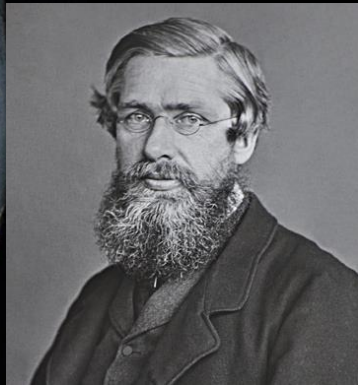


Come funziona l'interno di un pianeta roccioso?



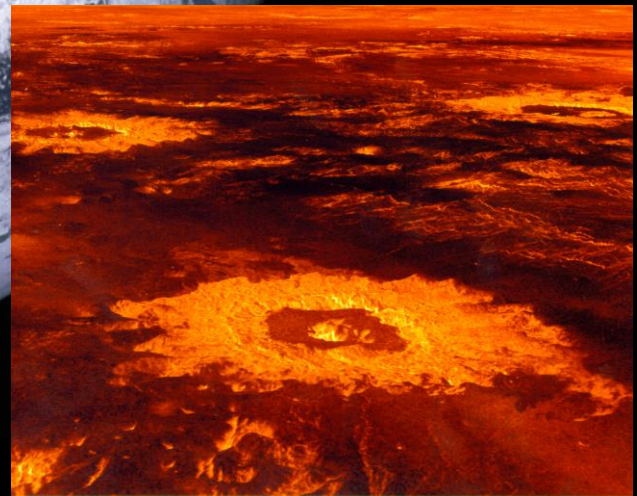


Quale ruolo giocano gli organismi viventi nella dinamica planetaria?

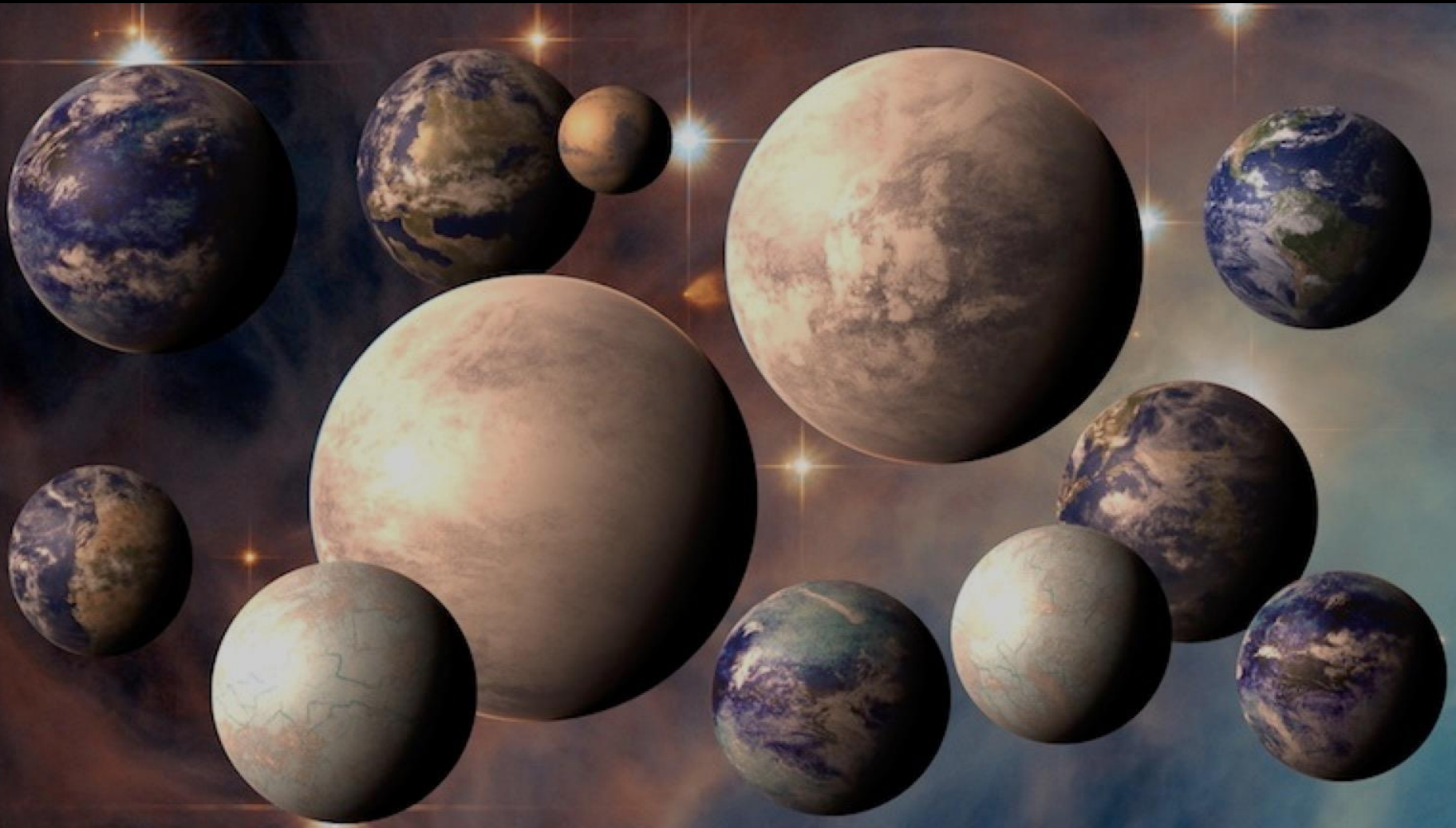




**Che cosa rende
abitabile Sol 3?**



Ma esiste un “infinito numero” di pianeti..



Credit: PHL @ UPR Arcibo, ESA/Hubble, NASA

e siamo all'inizio di una rivoluzione concettuale

**Perché la Terra è
l'unico pianeta noto
con tettonica
a placche attiva?**

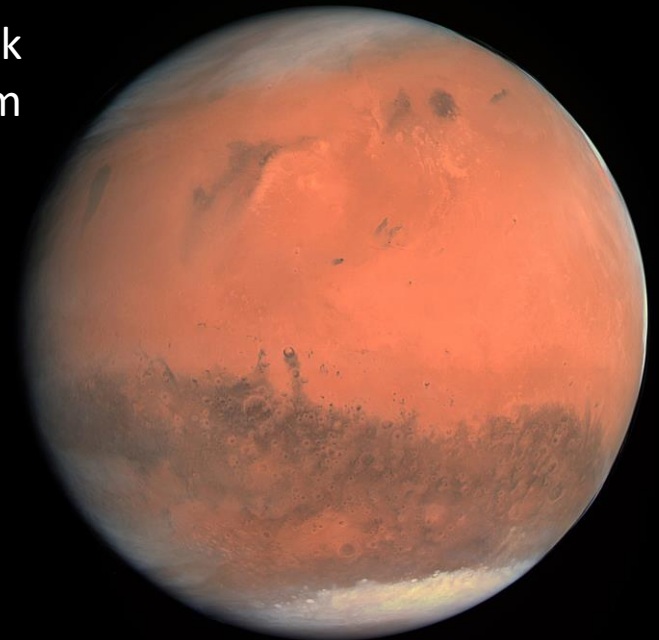


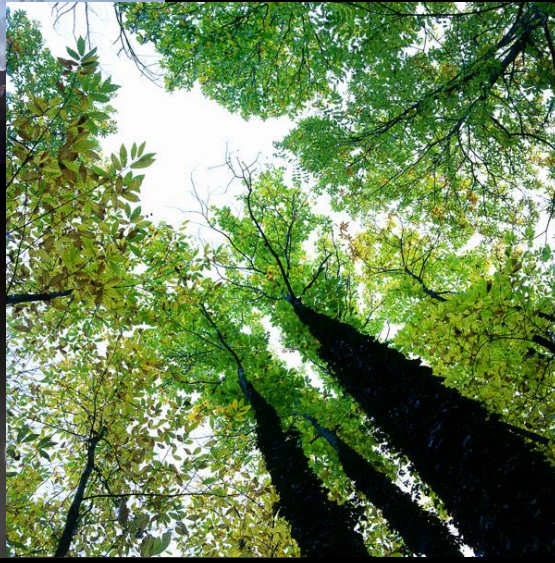
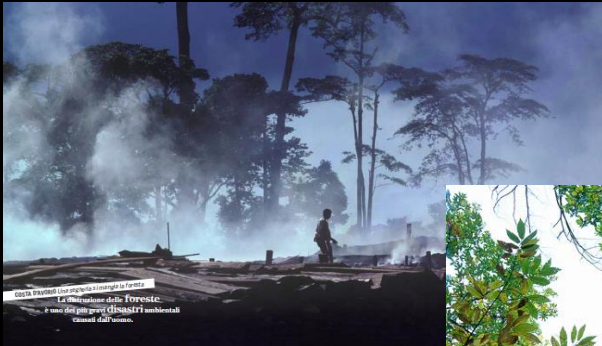
NASA's Magellan spacecraft

By ESA - European Space Agency & Max-Planck
Institute for Solar System Research for OSIRIS Team

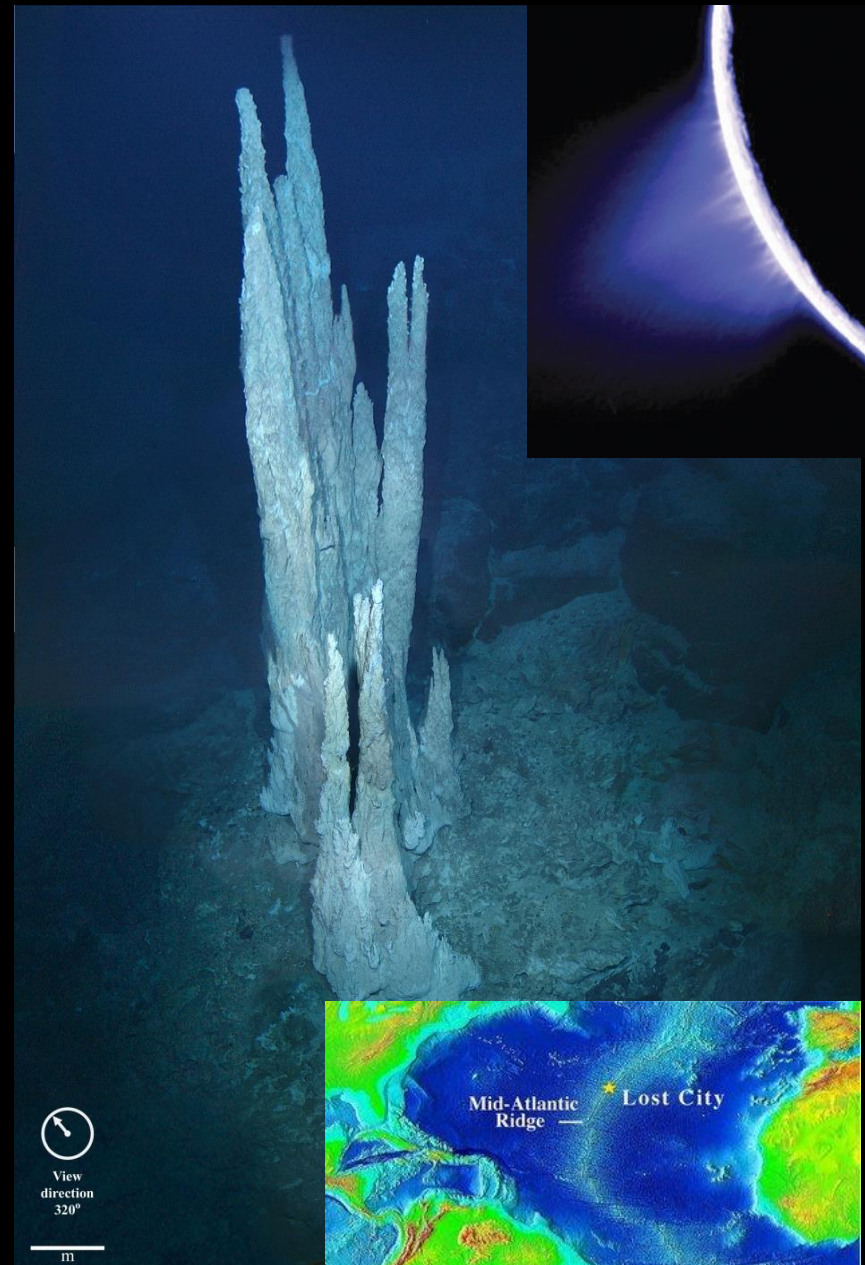


NASA/Johns Hopkins
University Applied Physics
Laboratory/Carnegie Institution
of Washington



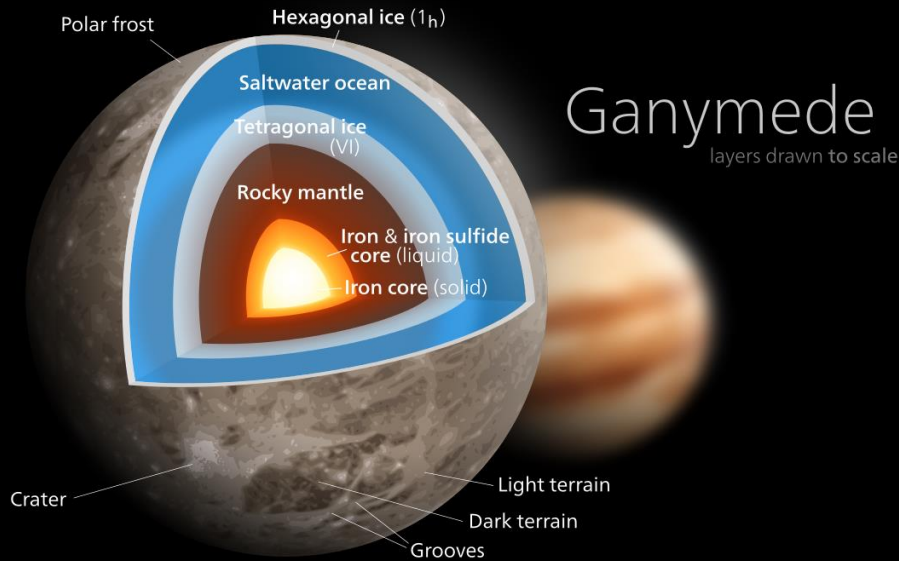


Come interagiscono il
ciclo del carbonio
“geologico”,
“biologico” e
“antropico”?

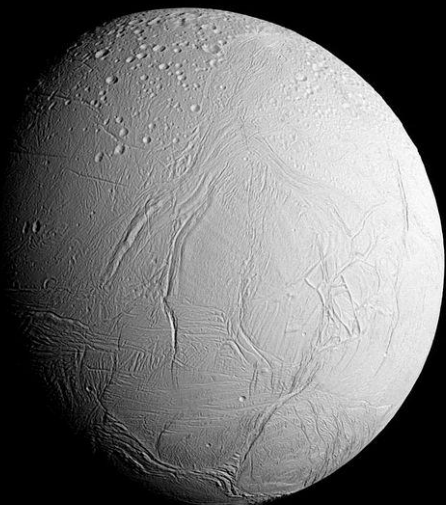
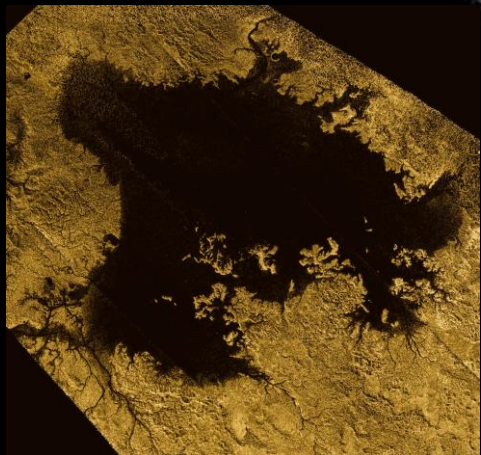
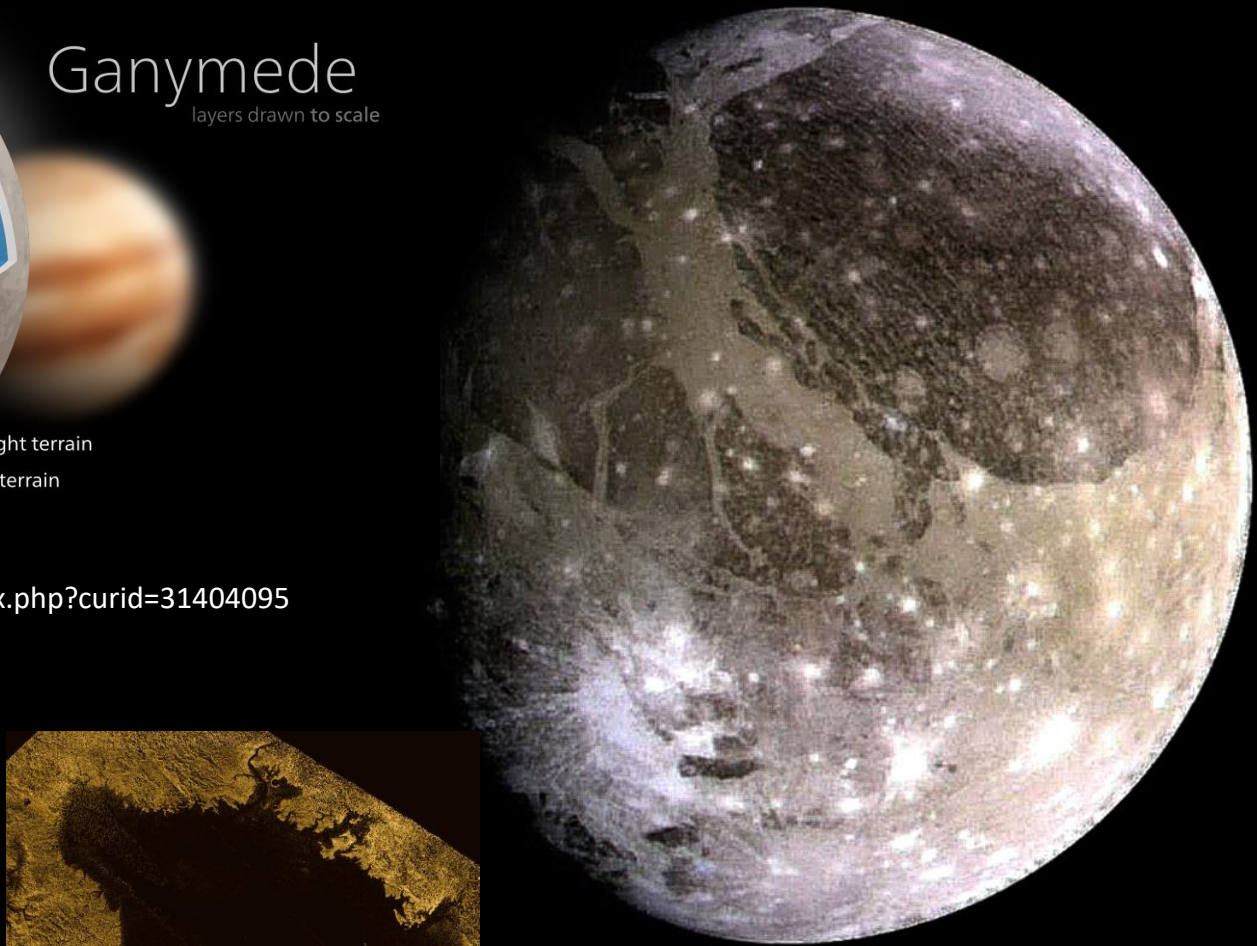


<https://www.nasa.gov/content/the-lost-city-formation/>
Image courtesy D. Kelley and M. Elend/University of Washington

Mondi di ghiaccio e acqua

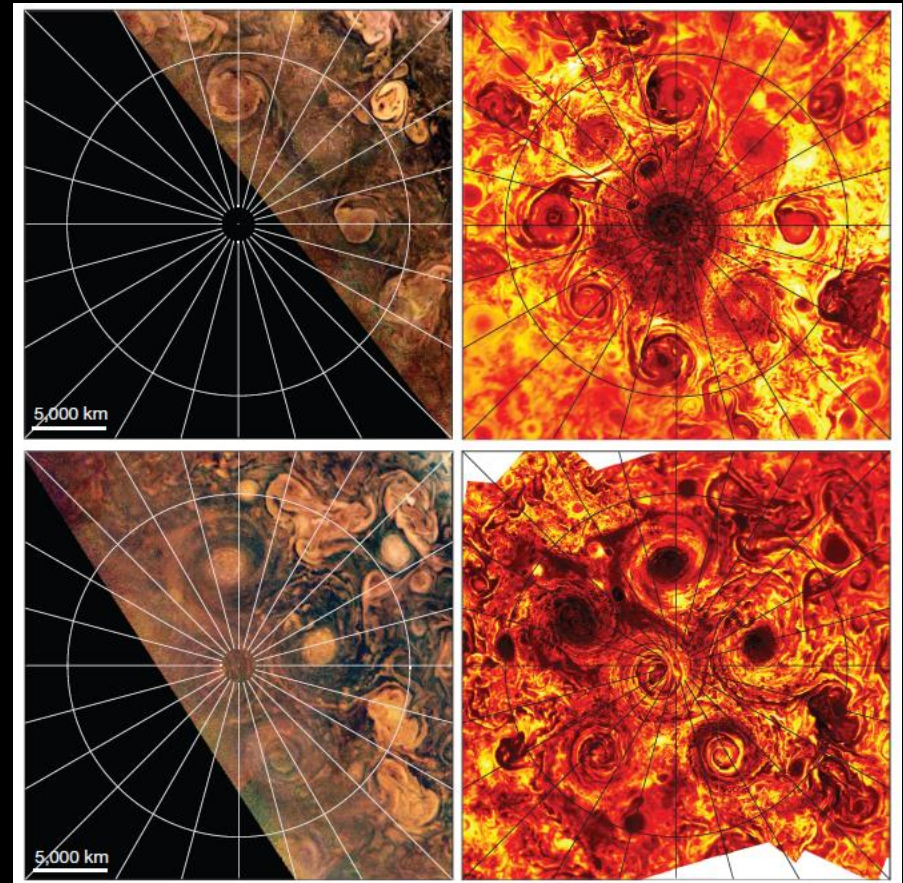
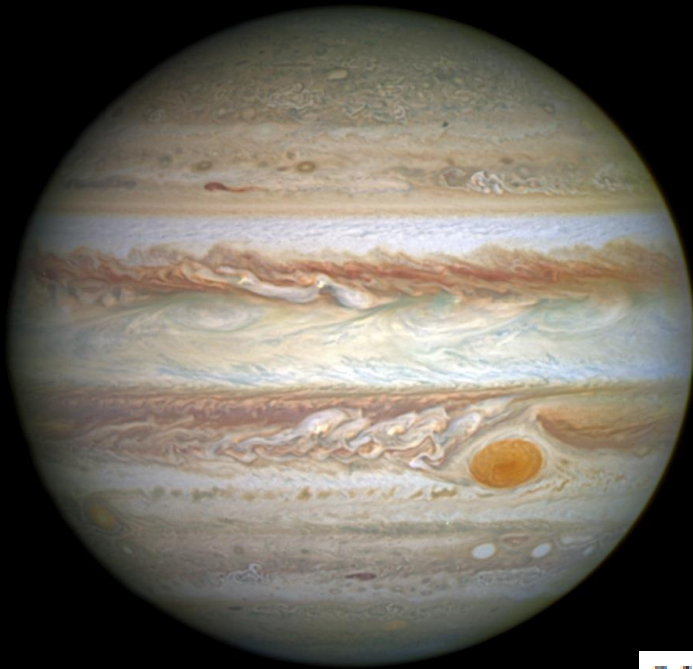


By Kelvinsong - Own work, CC BY-SA 3.0,
<https://commons.wikimedia.org/w/index.php?curid=31404095>



I giganti gassosi

NASA, ESA, and A. Simon (Goddard Space Flight Center)



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Clusters of cyclones encircling Jupiter's poles

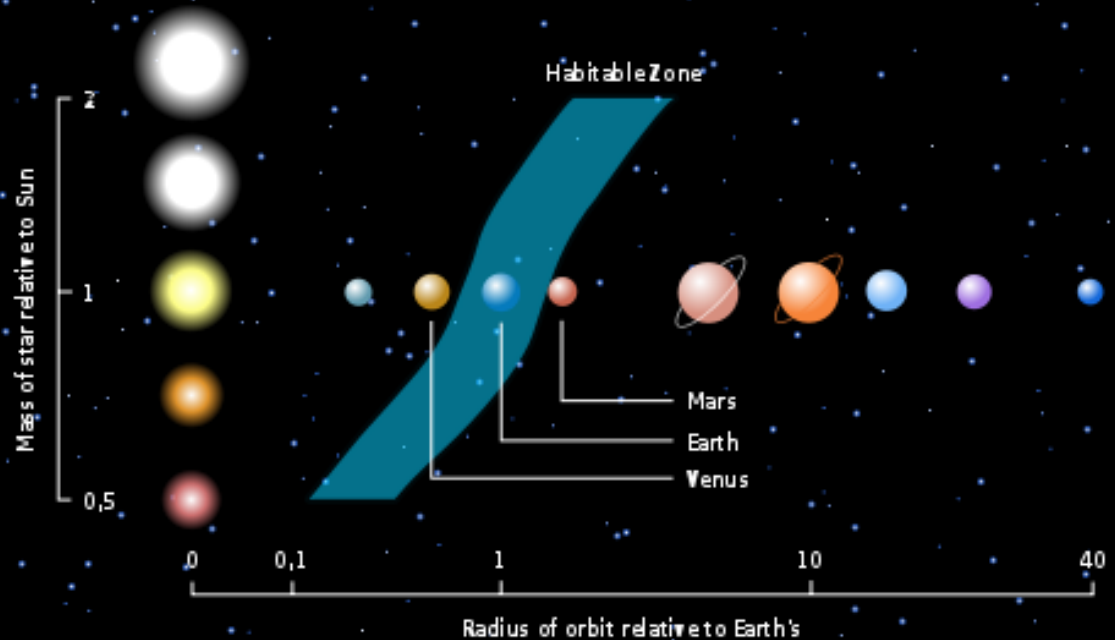
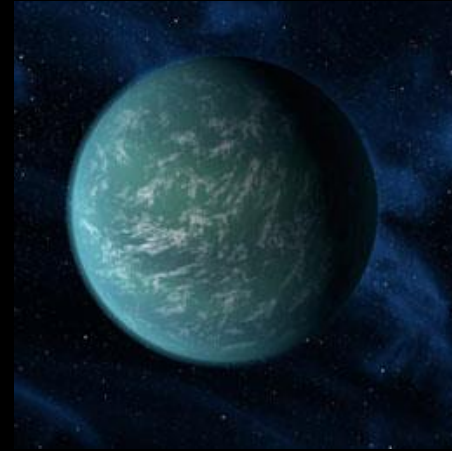
A. Adriani¹, A. Mura¹, G. Orton², C. Hansen³, F. Altieri¹, M. L. Moriconi⁴, J. Rogers⁵, G. Eichstädt⁶, T. Momary², A. P. Ingersoll⁷, G. Filacchione¹, G. Sindoni¹, F. Tabataba-Vakili², B. M. Dinelli⁴, F. Fabiano^{4,8}, S. J. Bolton⁹, J. E. P. Connerney¹⁰, S. K. Atreya¹¹, J. I. Lunine¹², F. Tosi¹, A. Migliorini¹, D. Grassi¹, G. Piccioni¹, R. Noschese¹, A. Cicchetti¹, C. Plainaki¹³, A. Olivieri¹³, M. E. O'Neill¹⁴, D. Turrini^{1,15}, S. Stefani¹, R. Sordini¹ & M. Amoroso¹³

Gli esopianeti e la “ricerca della vita”

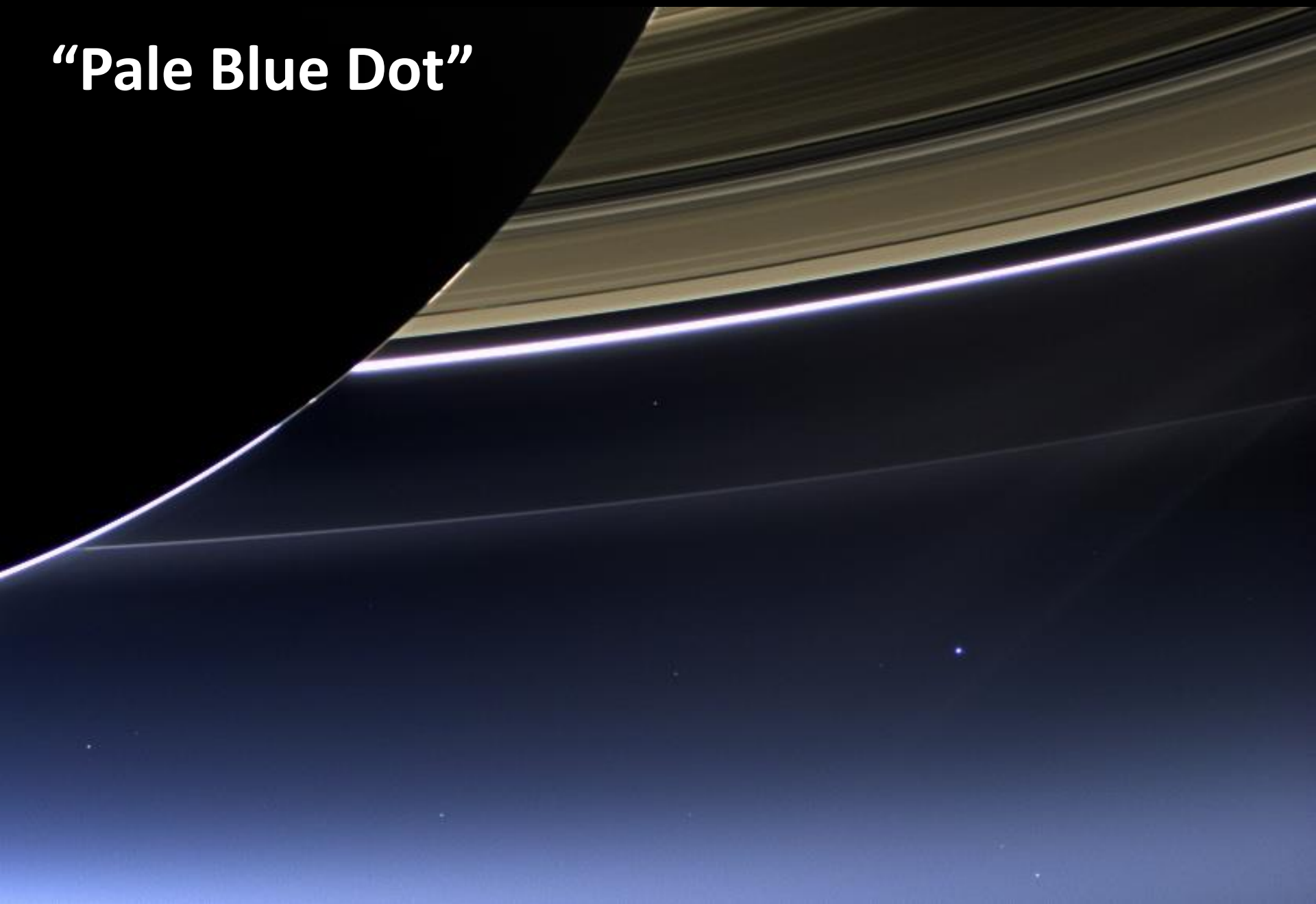


Kepler mission, NASA

GAIA mission, ESA



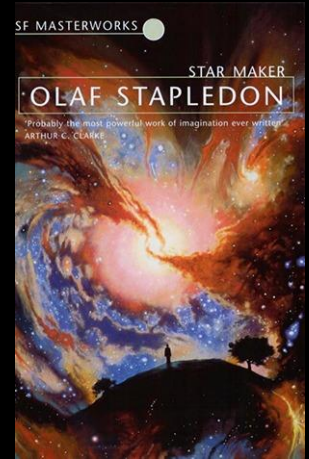
“Pale Blue Dot”



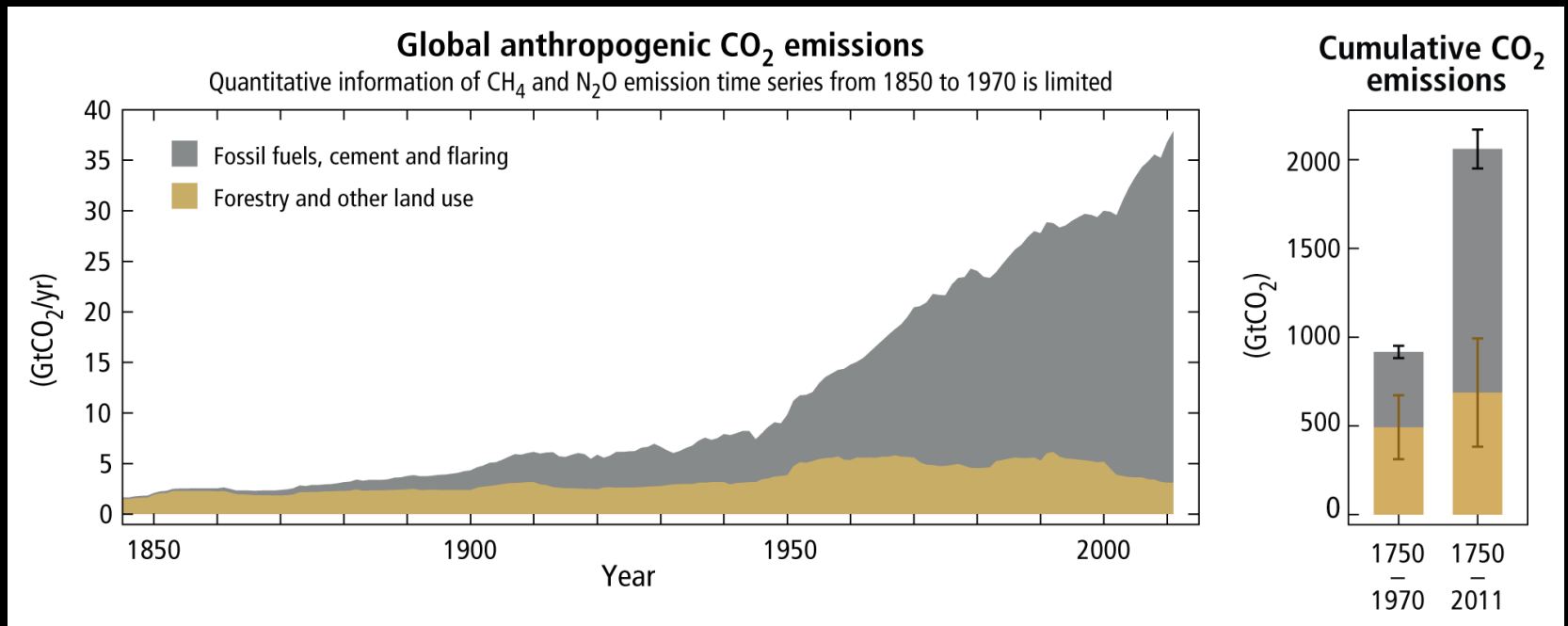


But: there is no “planet b”

Ritorno alle Terra e alla «scimmia nuda»



http://ar5-syr.ipcc.ch/topic_observedchanges.php





Grazie per l'attenzione