Area di Ricerca del CNR
Istituto Nazionale di Astrofisica
Radio Astronomia

Bologna, 18 e 19 Maggio 2018.

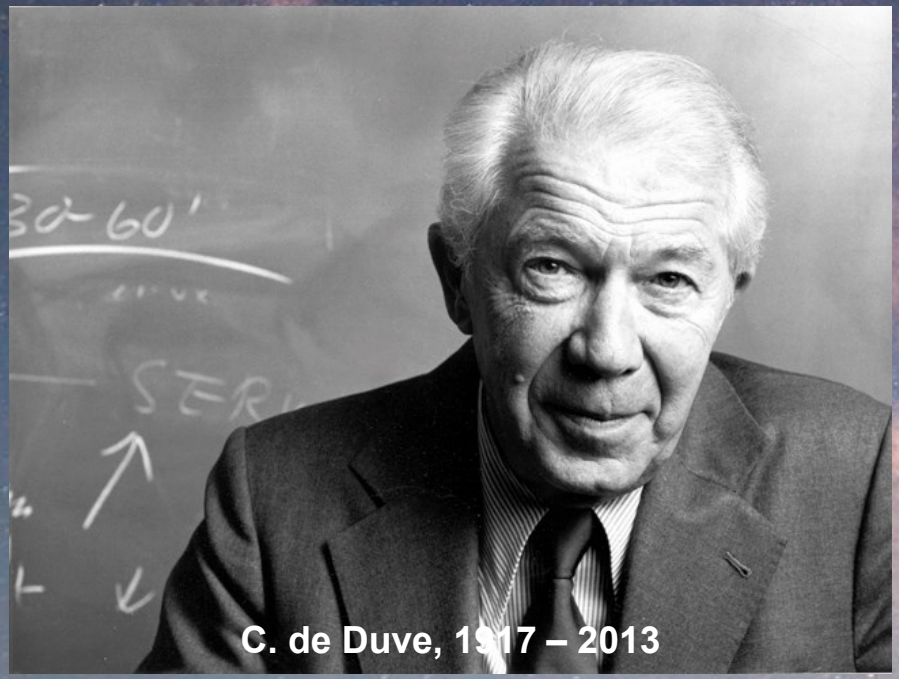
SRITAC 2 - 2018 - Officine orbitali, primo livello di espansione civile nello spazio

# LO SVILUPPO DELLA VITA NEGLI AMBIENTI PRIMITIVI E NELLO SPAZIO


BARBARA CAVALAZZI
UNIVESITÀ DI BOLOGNA

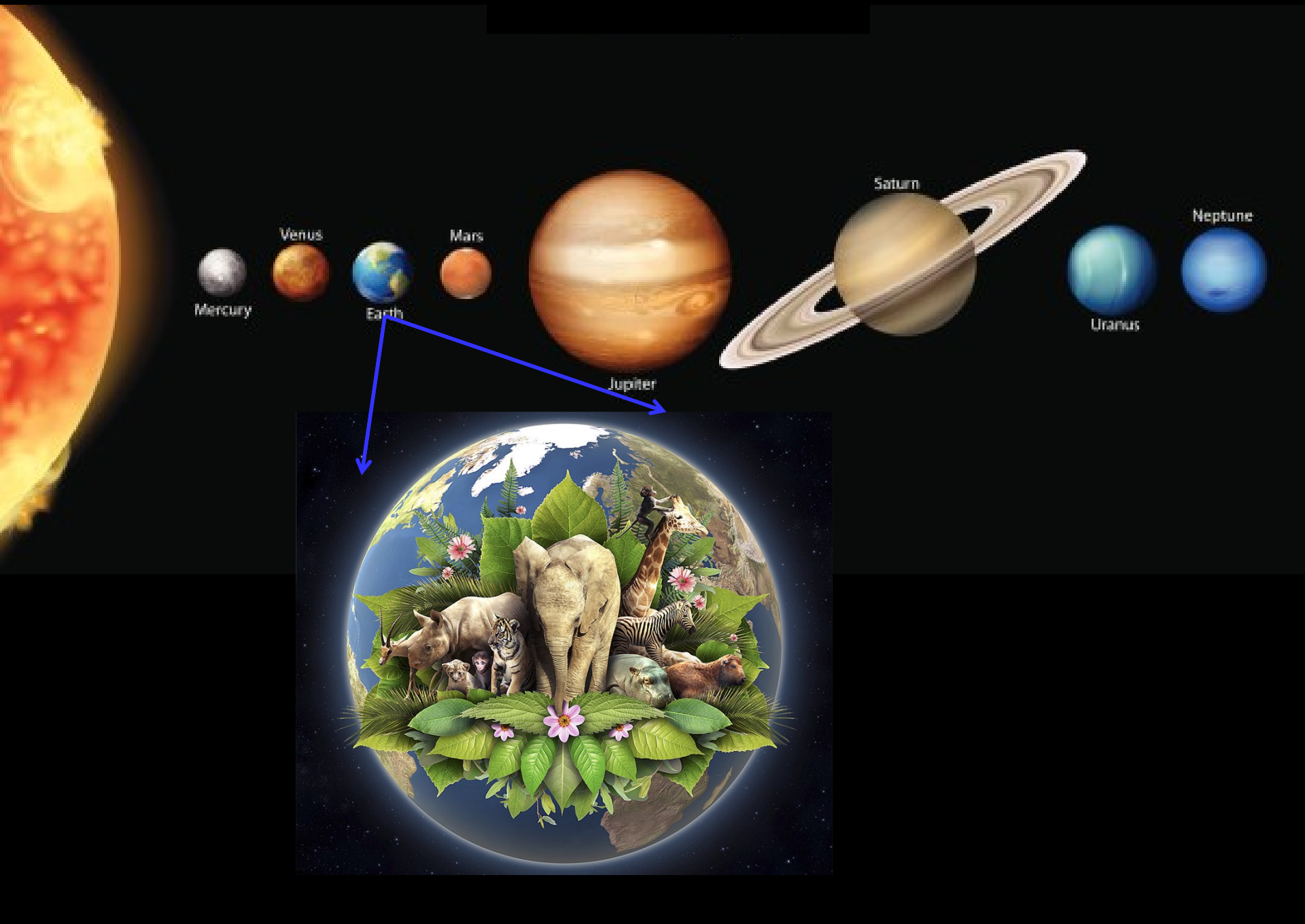


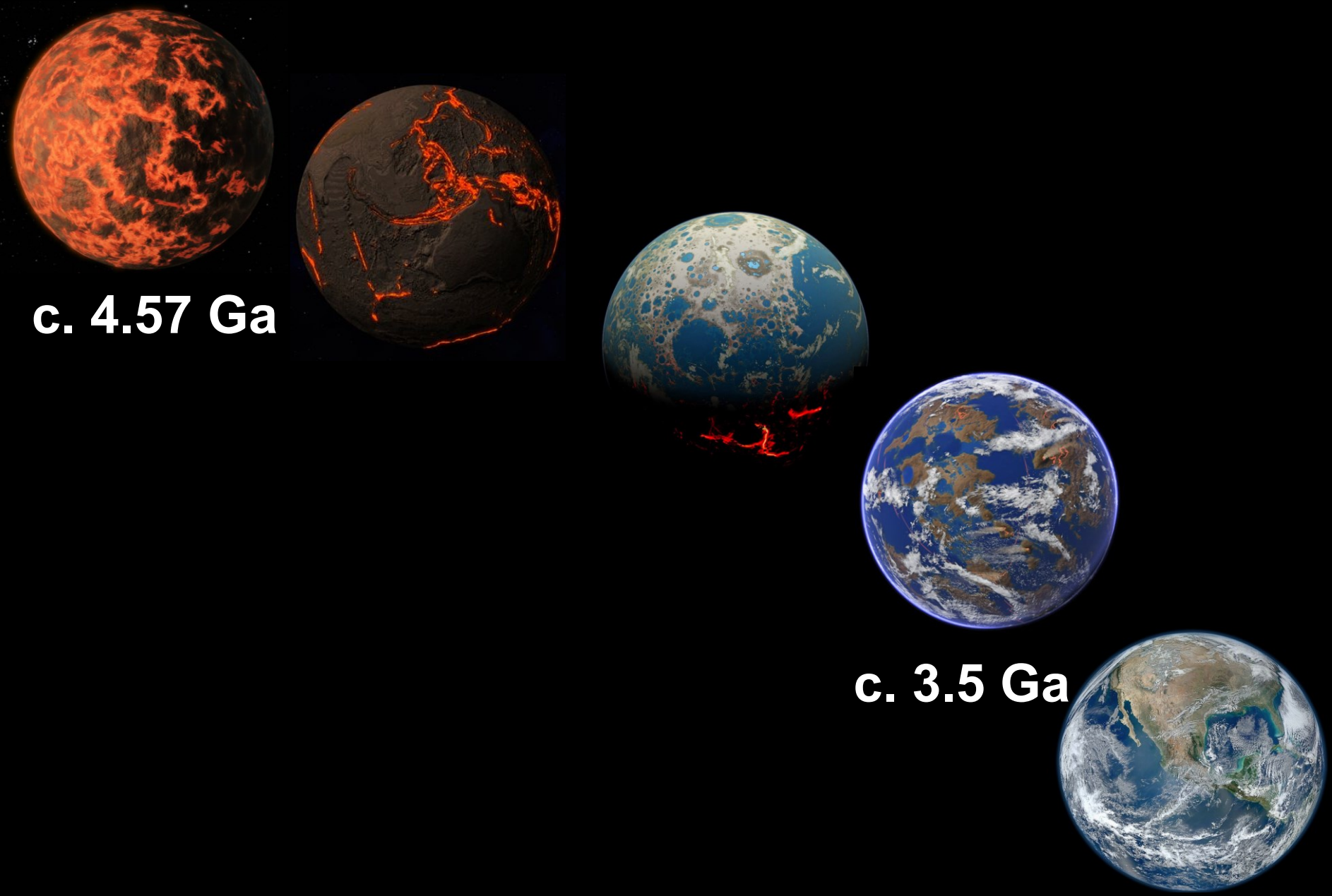
SIAMO SOLI NELL'UNIVERSO?



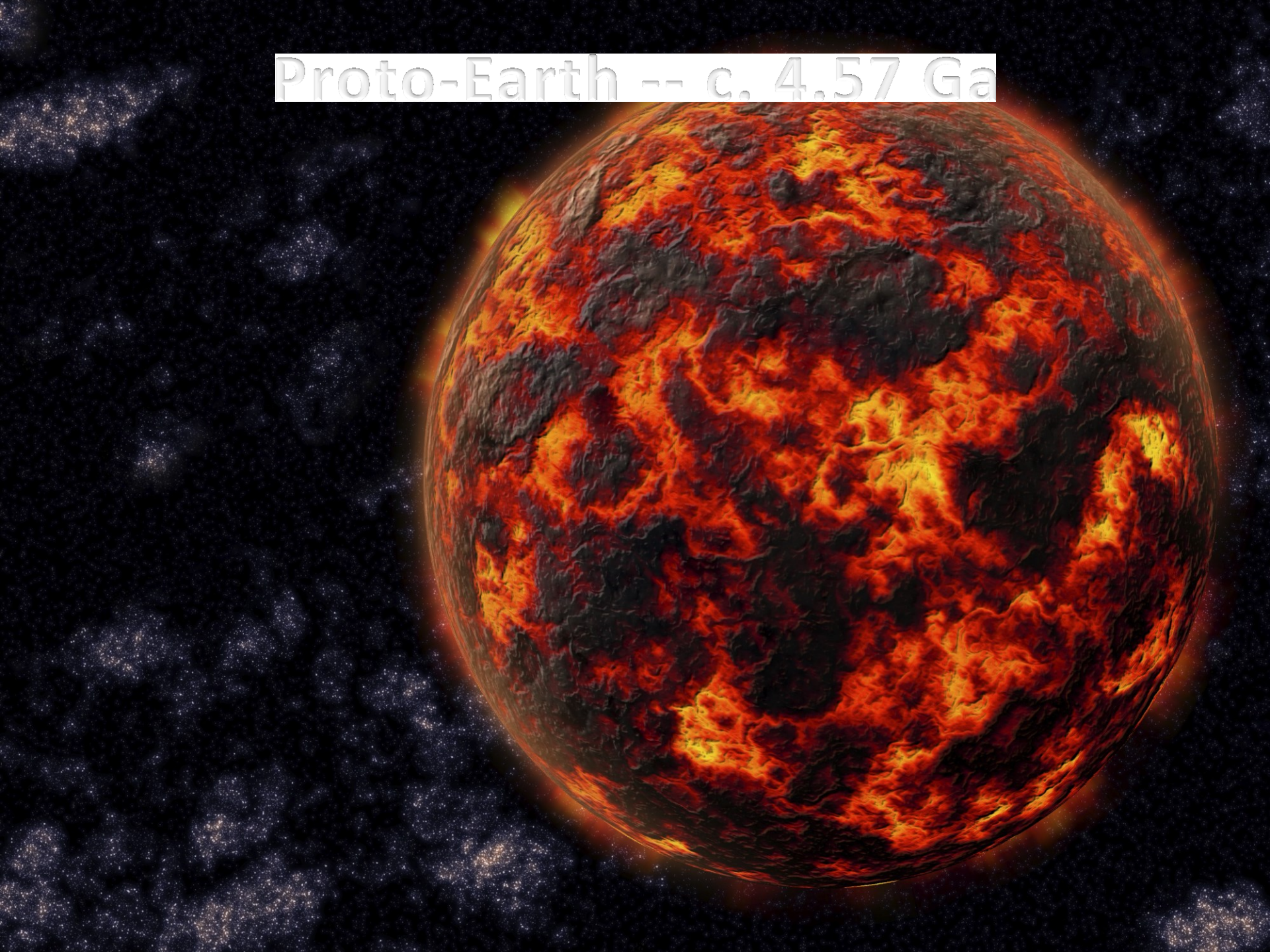
C. de Duve, 1917 – 2013

C. de DUVE, 1996


Mercury
Venus
Earth
Mars
Jupiter
Saturn
Uranus
Neptune

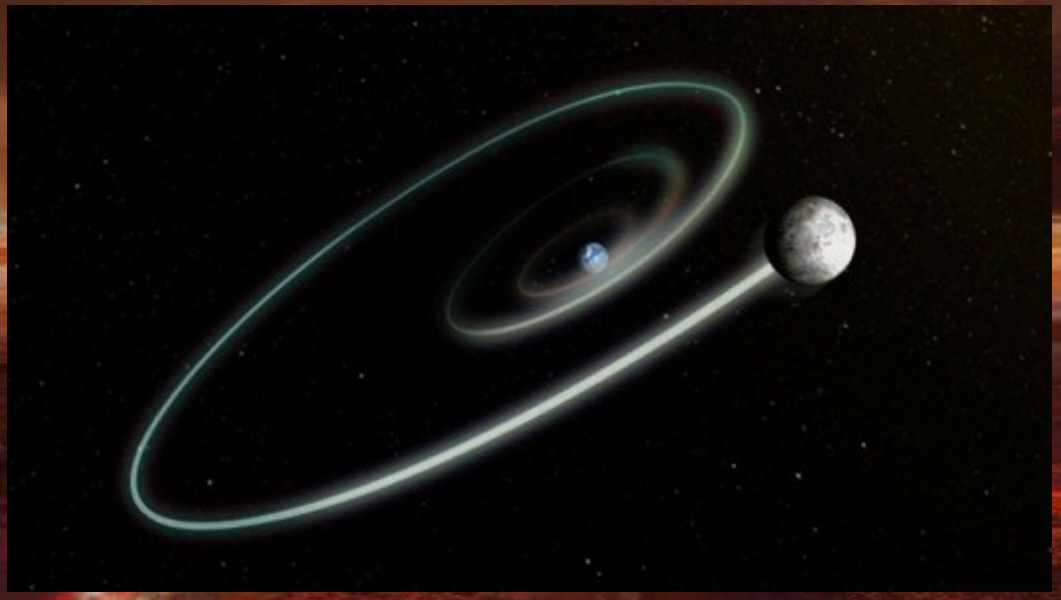

c. 4.57 Ga
c. 3.5 Ga
present

# … the Apollo Moon missions transformed planetary science in many ways!

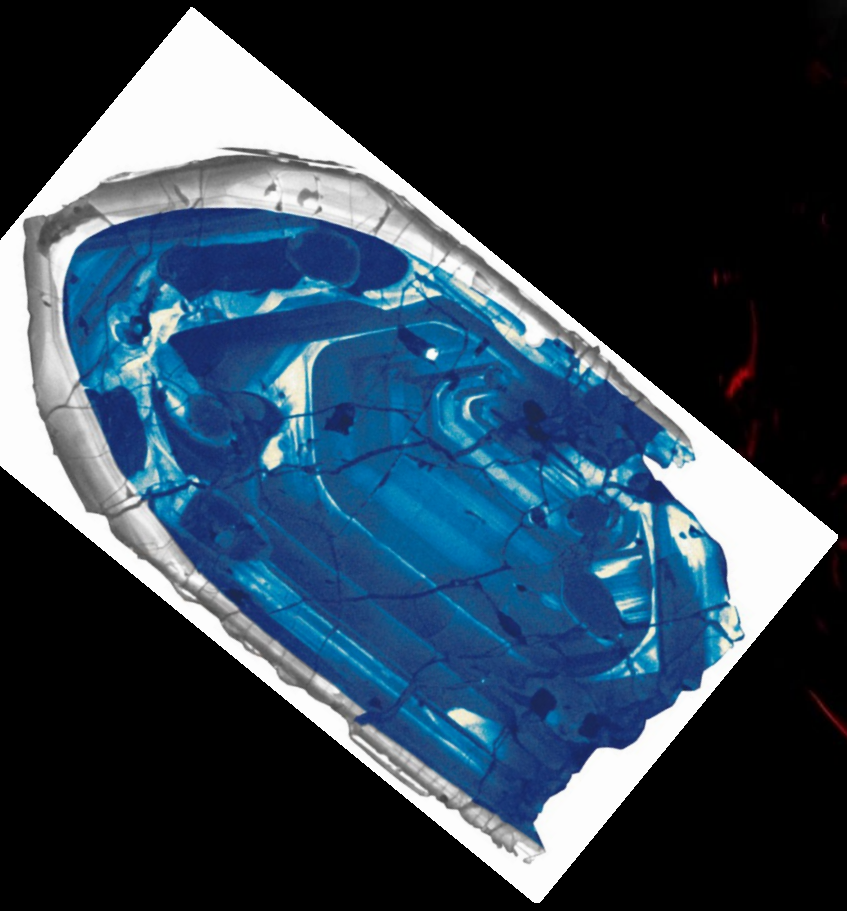

Proto-Earth -- c. 4.57 Ga

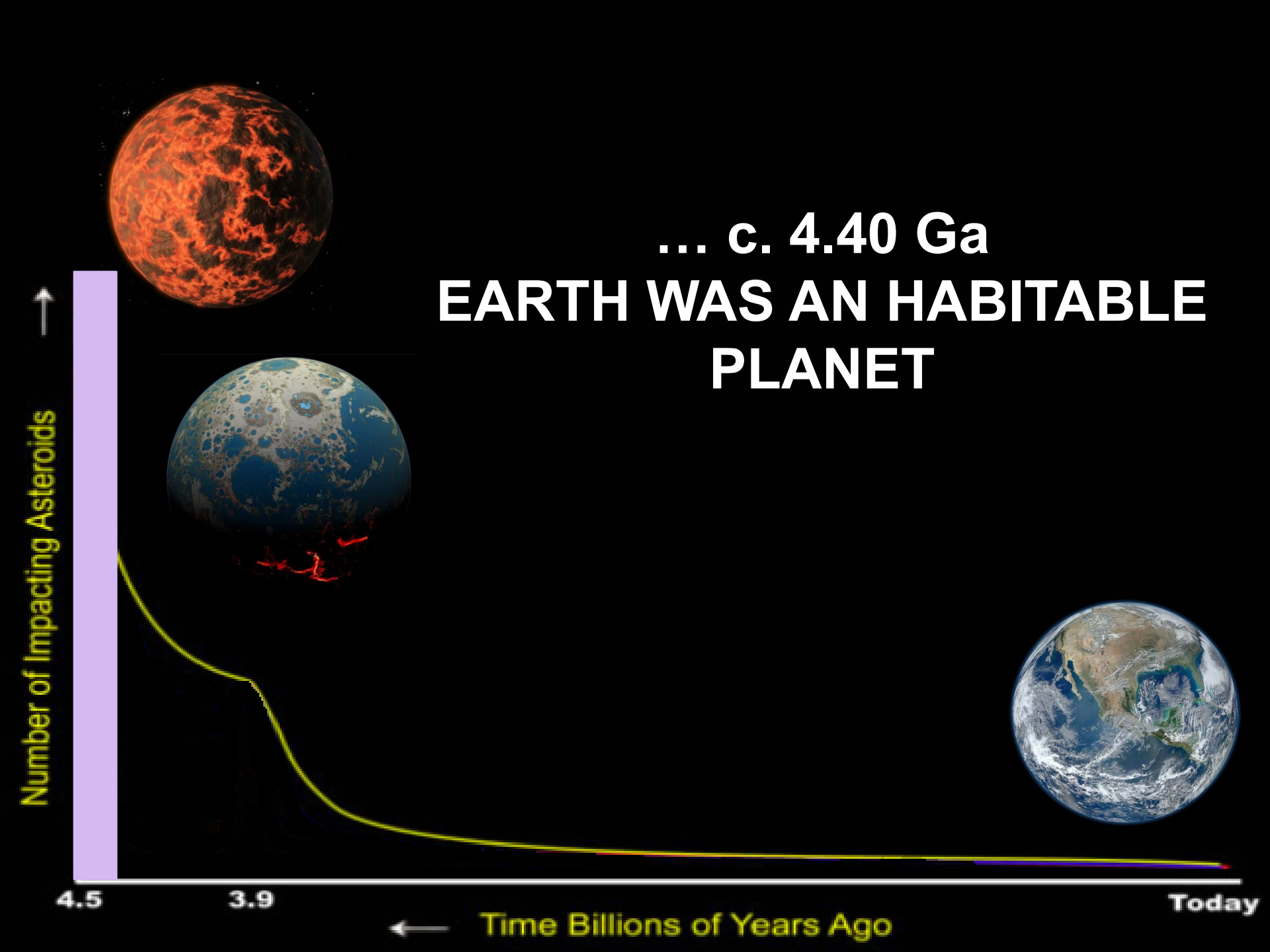
# … it is all about a long coling process!

# Earth – c. 4.51 Ga



# Water on Earth -- c. 4.40 Ga

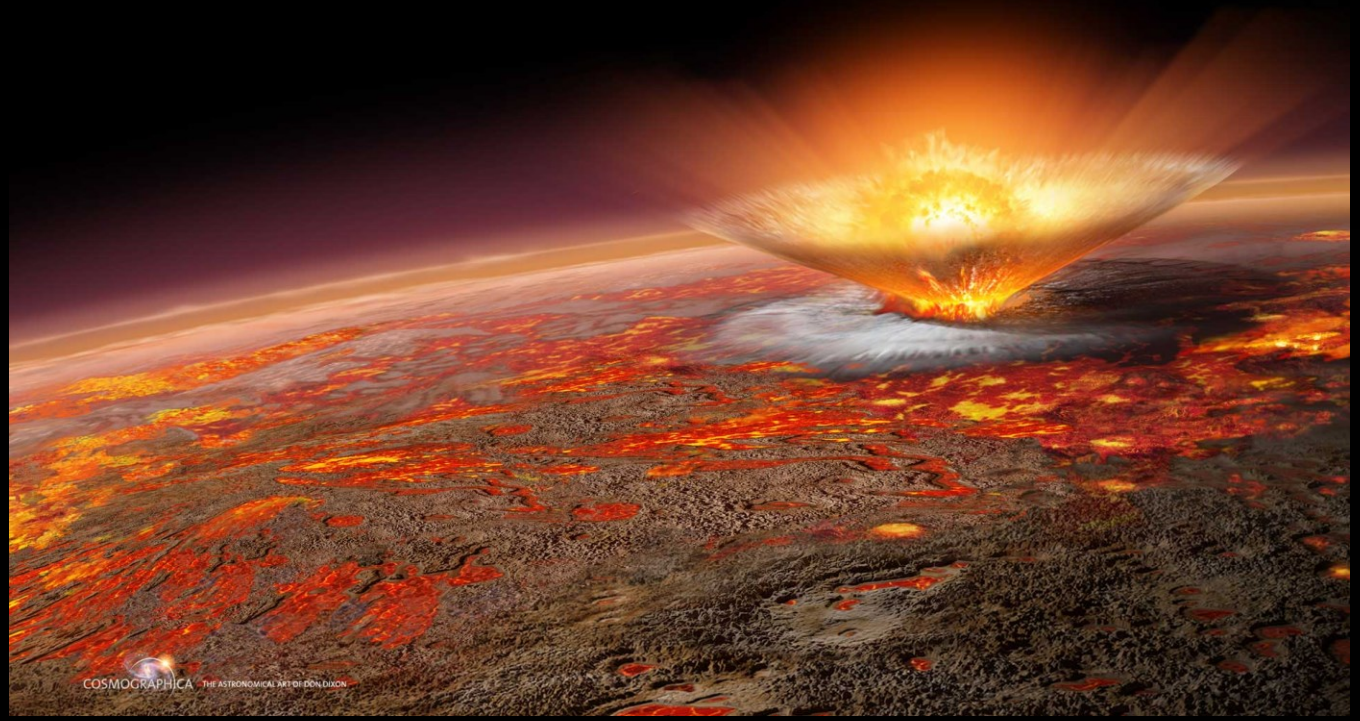



… c. 4.40 Ga
EARTH WAS AN HABITABLE PLANET
Number of Impacting Asteroids
4.5
3.9
Today
Time Billions of Years Ago

# THE NICE SIDE OF THE MOON

# BOMBARDAMENTO TARDIVO MASSIVO
## ca. 4.2-3.8 Ga

# very first MASS EXTINTION?




Number of Impacting Asteroids


4.5

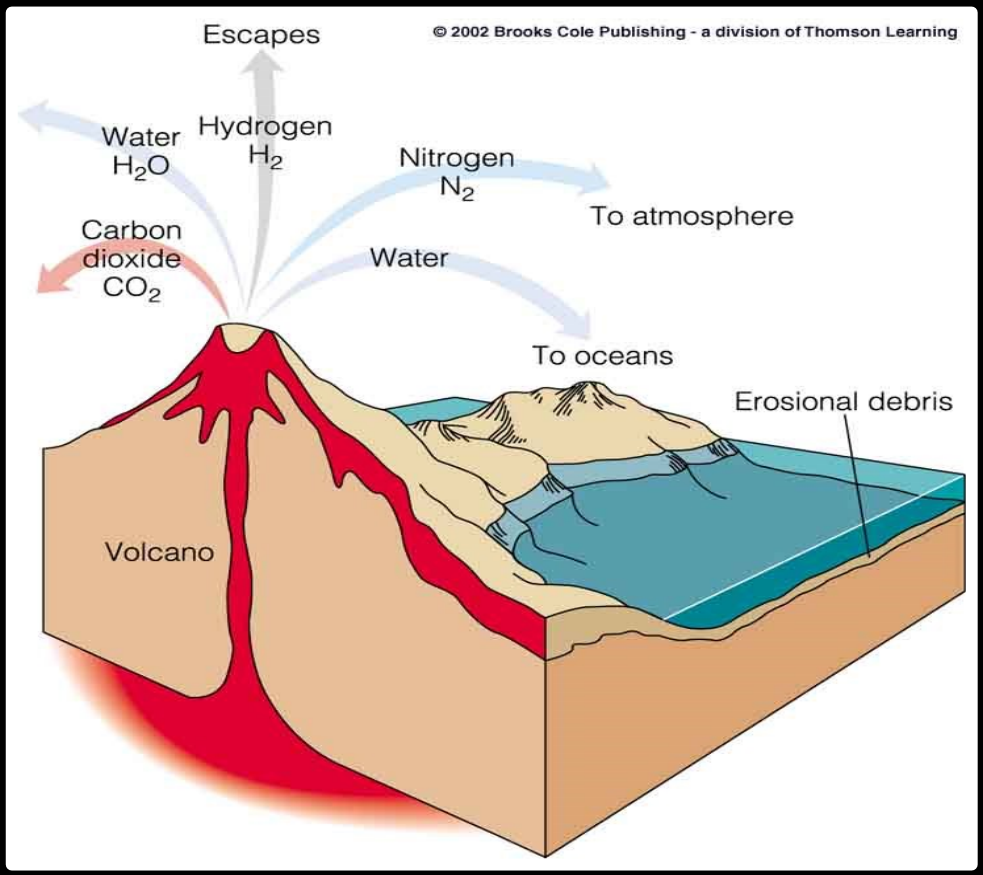
????

H-possible

3.9

Today

← Time Billions of Years Ago





Number of Impacting Asteroids

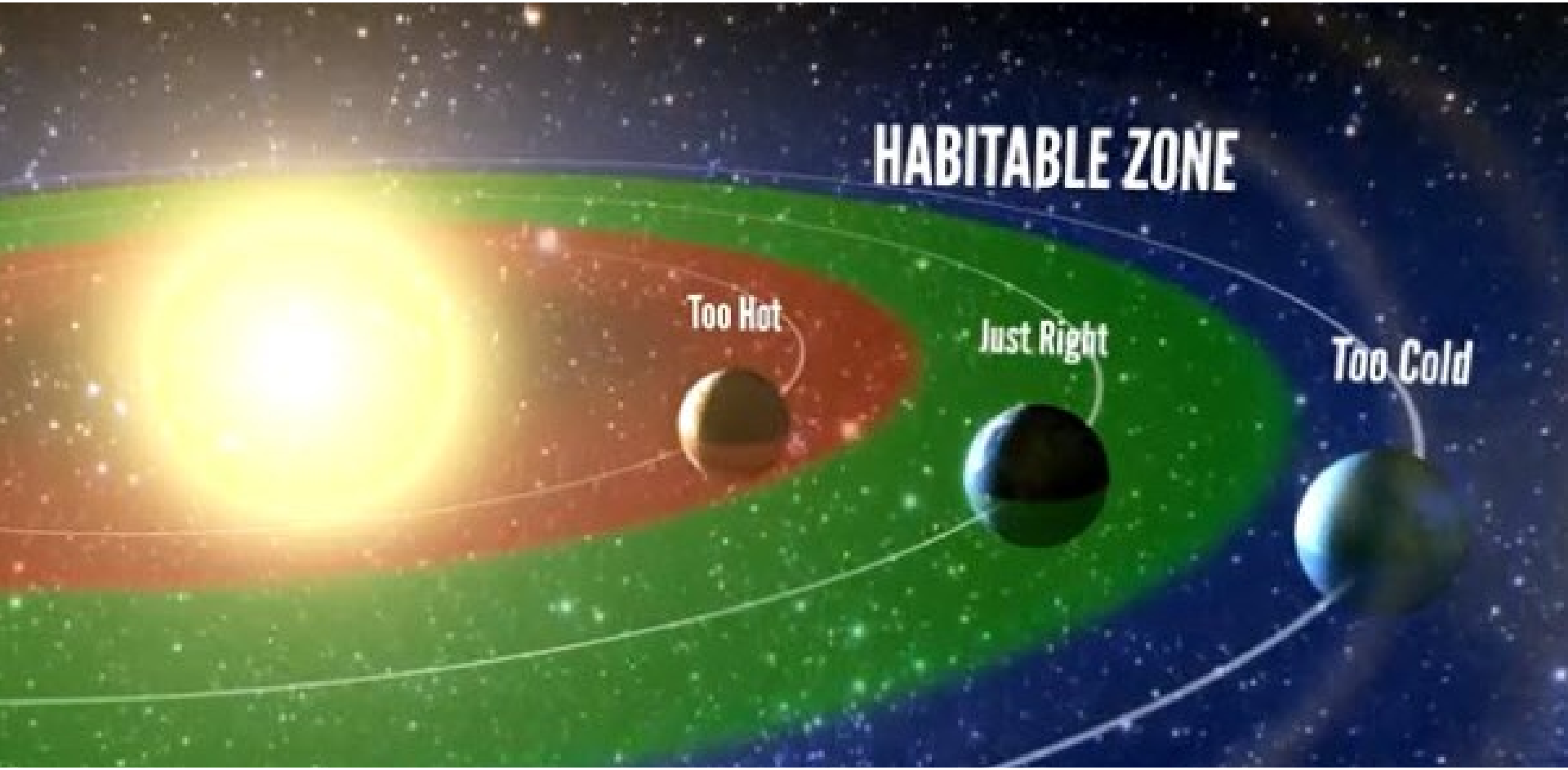
LIFE

4.5 ???? 3.9 Today

Time Billions of Years Ago

# ABITABILITÀ PLANETARIA

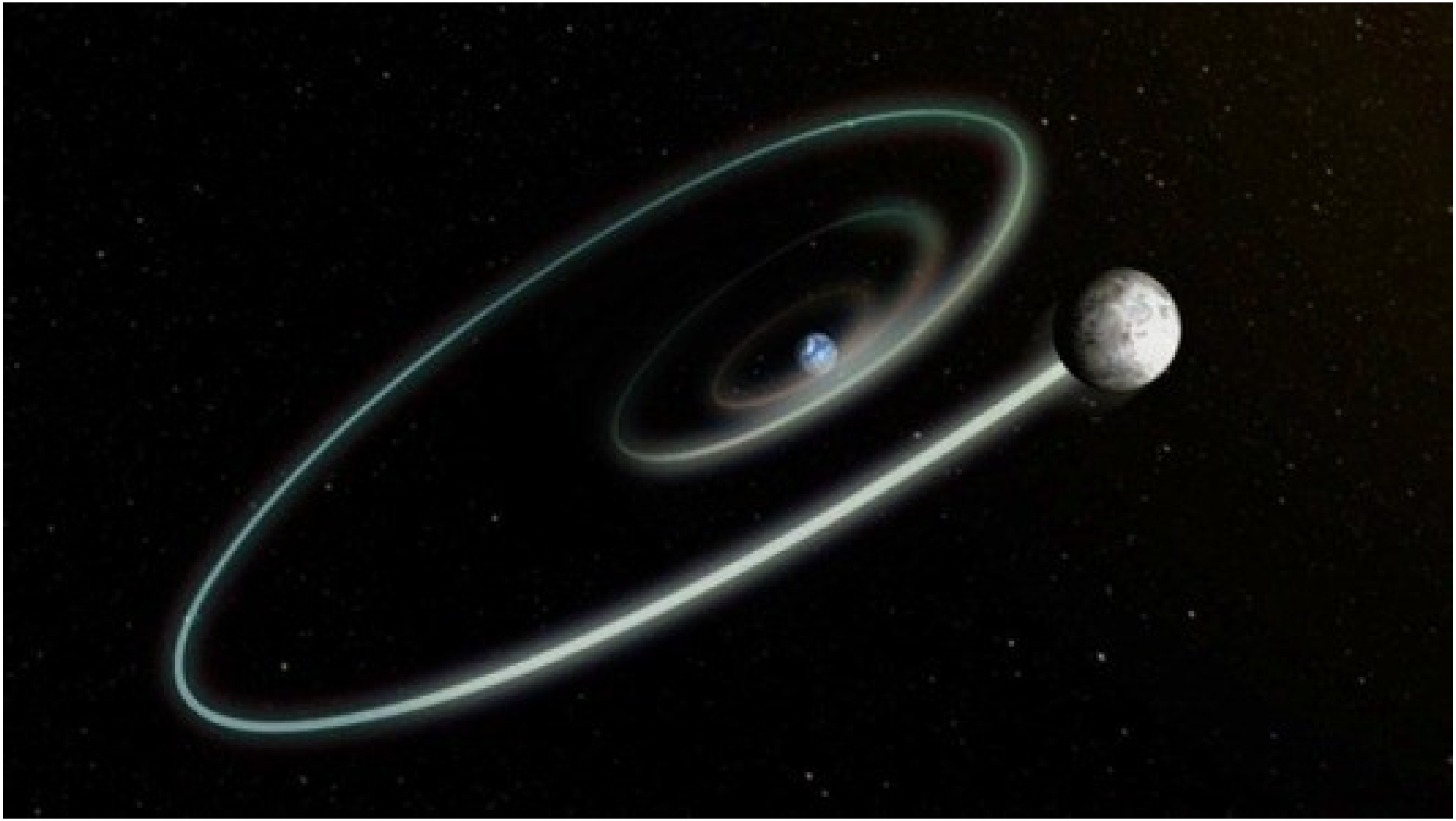
**è la misura del potenziale di un pianeta o di un satellite di SVILUPPARE e SOSTENERE la vita**



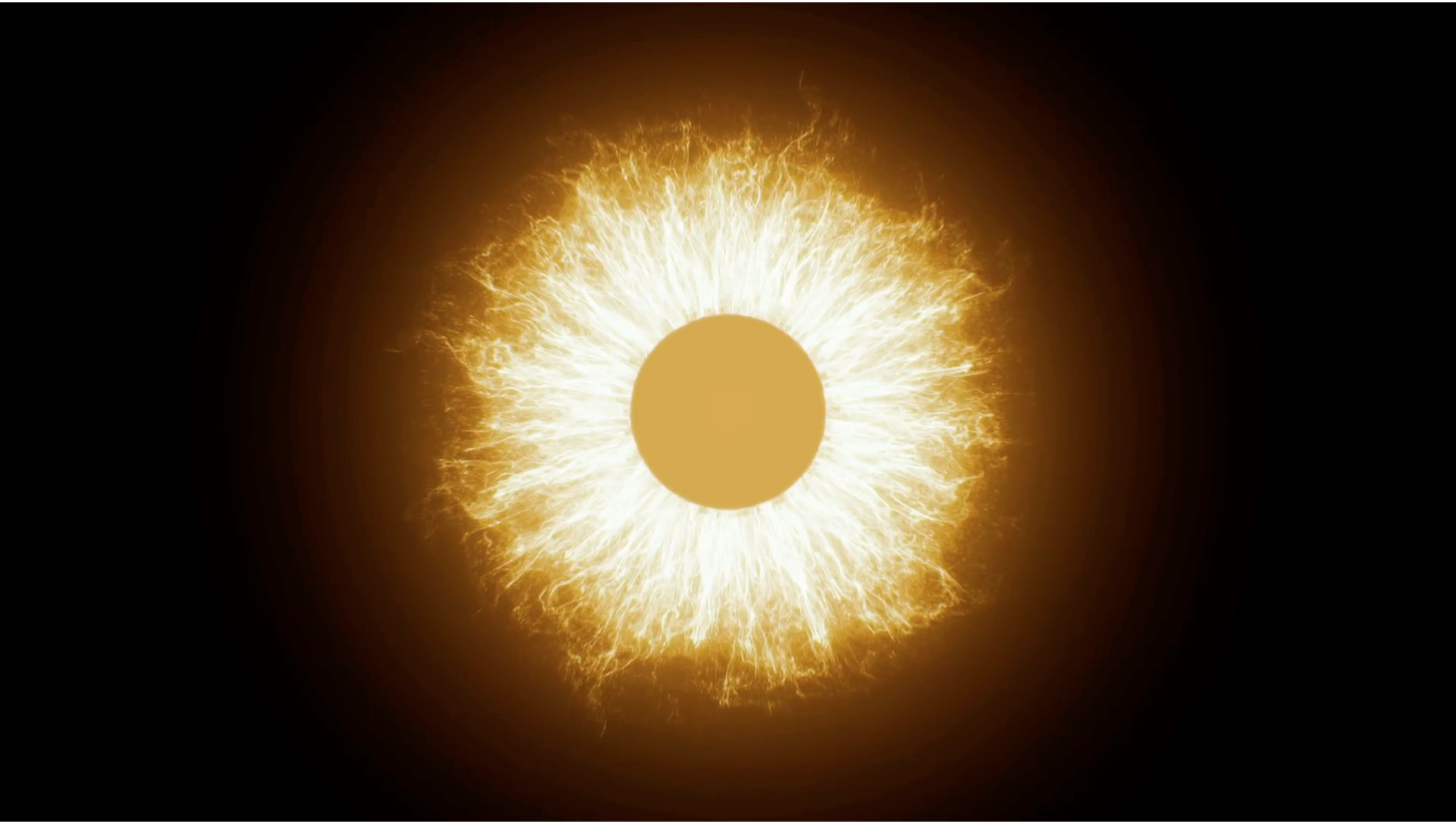

## ZONA ABITABILE

**regione intorno ad una stella che contiene gli ingredienti per la vita così come la conosciamo**

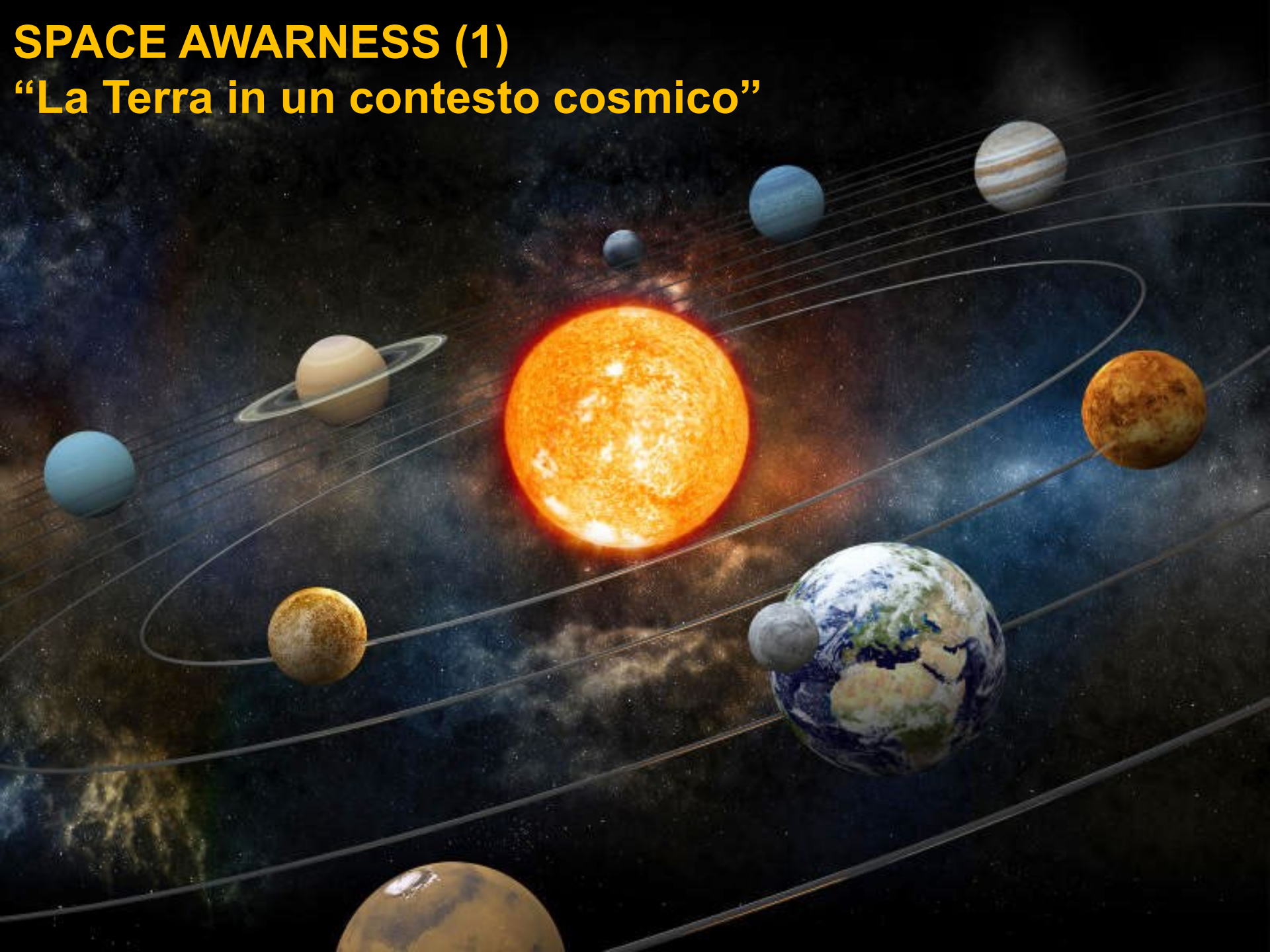
# FUTURO DELLA VITA SULAL TERRA?



# FUTURO DELLA VITA SULAL TERRA?

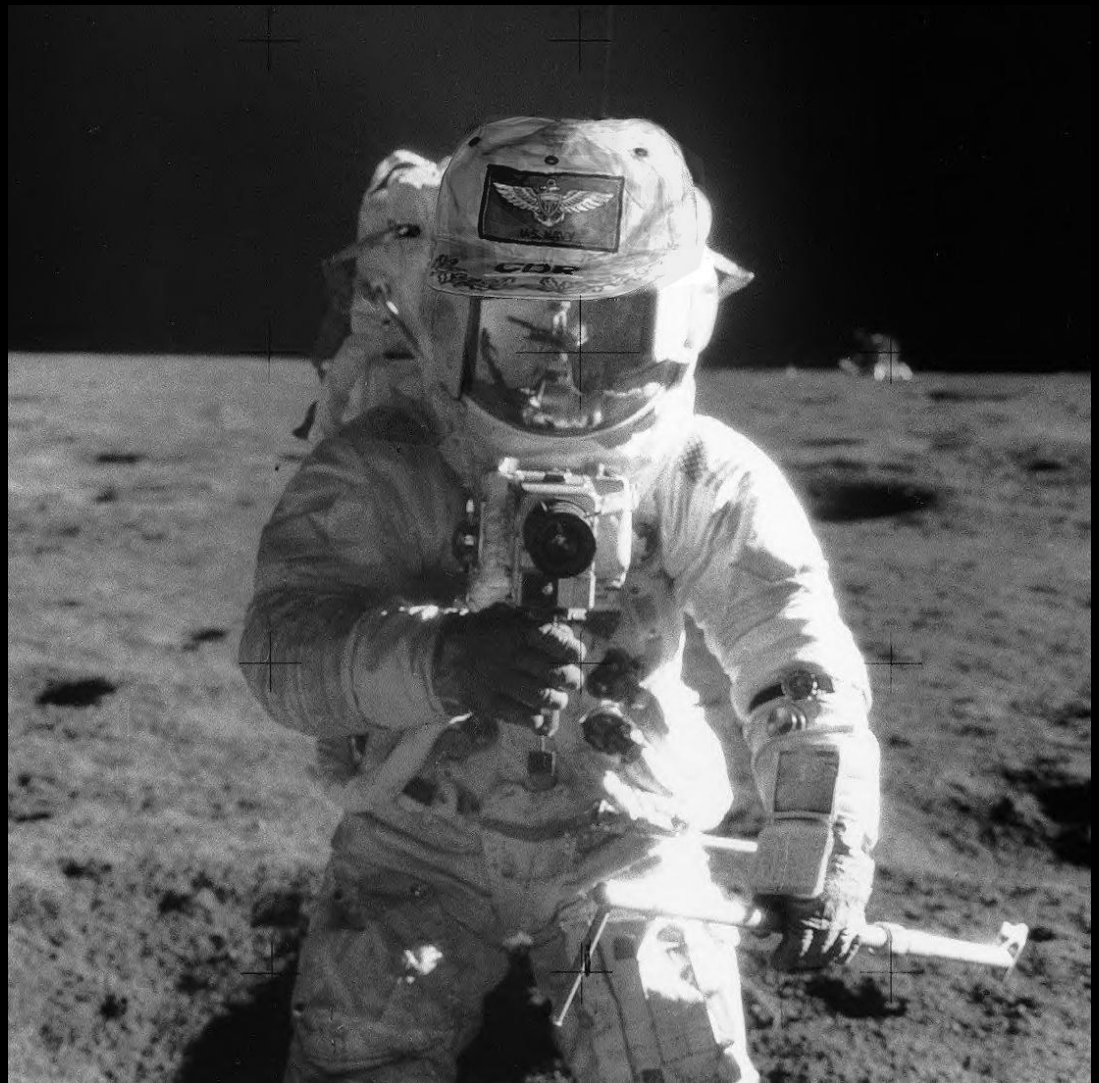


# SPACE AWARNESS (1)
# “La Terra in un contesto cosmico”



# SPACE AWARNESS (2)

**"*Siamo partiti in questa avventura per scoprire la LUNA, ma la cosa più importante che abbiamo scoperto è la Terra!*" Bill Anders**



# Grazie!