

Desideriamo cieli diversi ...



che non siano muti,



ma scrigni di misteriosi messaggi



2.
L'Inferno
L'Inferno



Amore mio mi fu quest' come colle,
E questa sera da un tanta parte
Della ^{l'altissimo} ~~scuola~~ ^{inipponibile} ~~comparsa~~ il mondo ^{colle} ~~colle~~
Ma attende e mirando, un ^{colle} ~~colle~~ ^{colle} ~~colle~~
Spazio di lei in quella, e ^{colle} ~~colle~~ ^{colle} ~~colle~~
Silenzii e profondità quiete
Ch' io nel pensiero mi fingo, ove per poco
Al cor non si ^{colle} ~~colle~~ ^{colle} ~~colle~~
Ora stormio ^{colle} ~~colle~~ ^{colle} ~~colle~~
L'Inferno ^{colle} ~~colle~~ ^{colle} ~~colle~~
Ma comparsa ^{colle} ~~colle~~ ^{colle} ~~colle~~
E la morte ^{colle} ~~colle~~ ^{colle} ~~colle~~
E via, e l' ^{colle} ~~colle~~ ^{colle} ~~colle~~
L' ^{colle} ~~colle~~ ^{colle} ~~colle~~
E l' naufragio ^{colle} ~~colle~~ ^{colle} ~~colle~~

che ci parlino
dell'infinito

A long-exposure photograph of a night sky showing numerous concentric star trails. The trails are centered around a point in the sky, likely the North Star. The foreground is dark, showing the silhouettes of trees and a horizon line. The overall tone is dark and atmospheric.

e siano motore

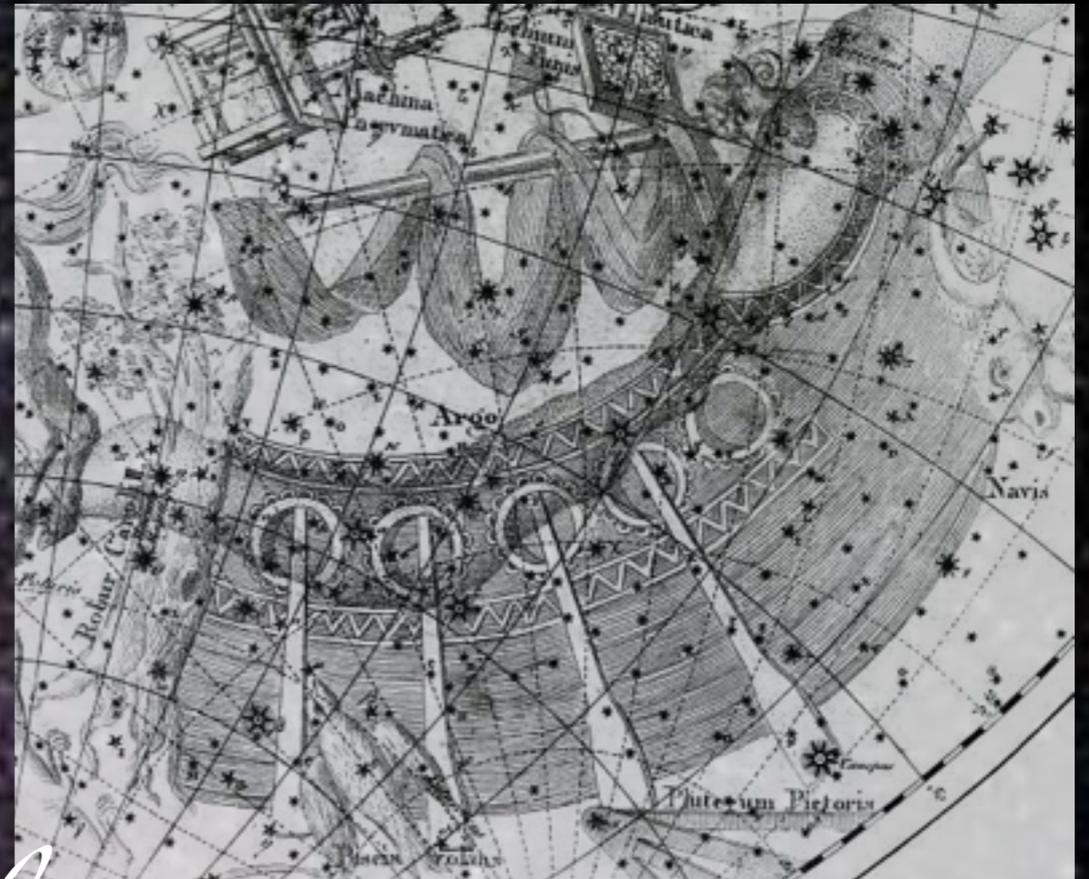
del nostro

cercare

*Le costellazioni danno un volto
all'ignoto*

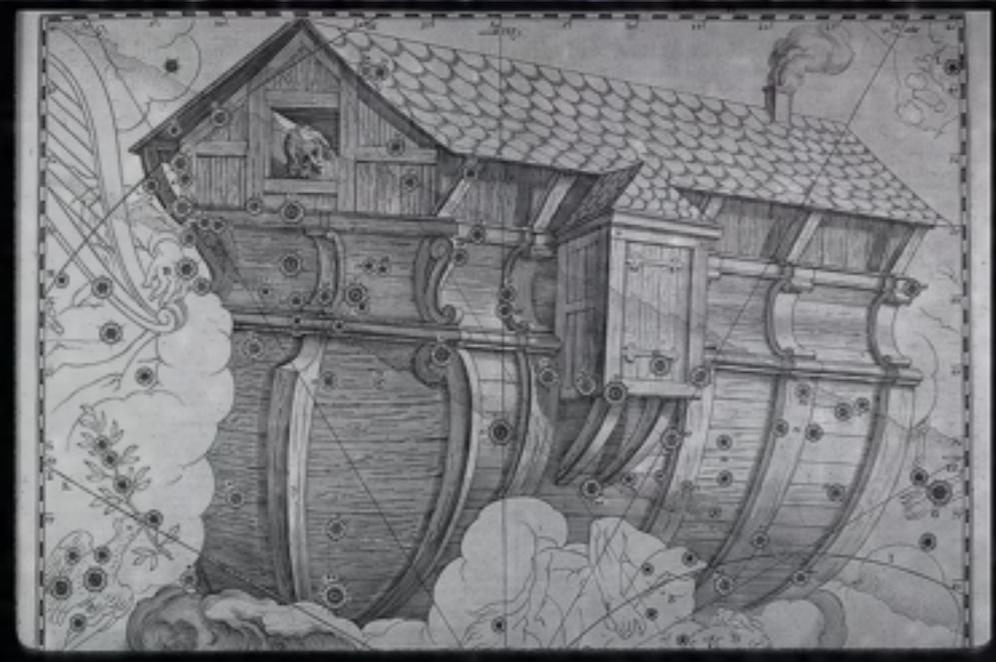
*scandiscono il tempo
orientano il viandante notturno*

Societa` Astronomica
G. V. Schiaparelli



*In viaggio tra le stelle,
cosi` vicine, cosi` lontane ...*

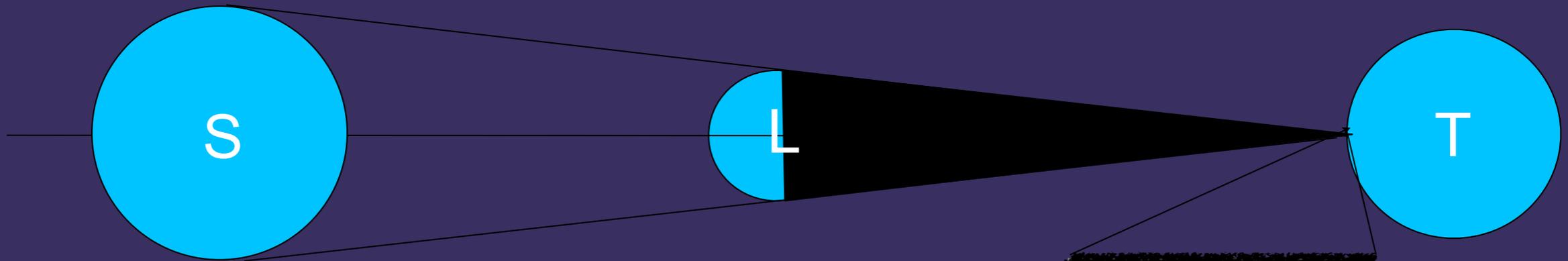
Luca G Molinari



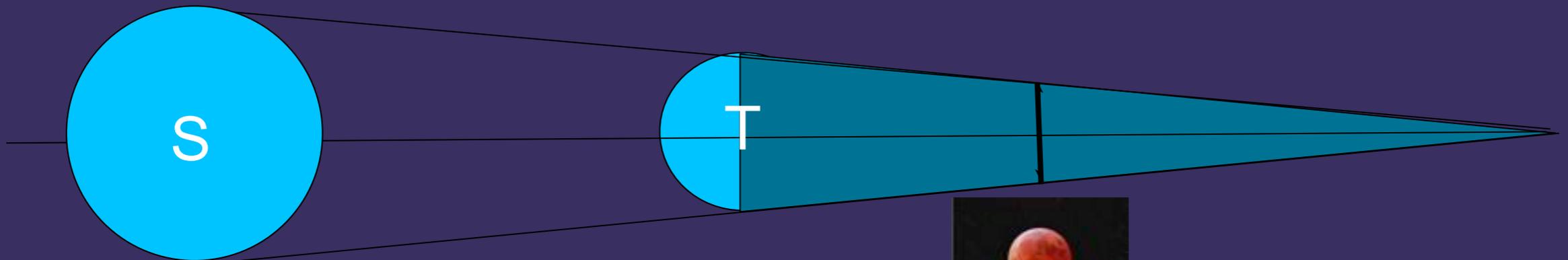
S. Monte, 11 aprile 2015



La distanza Terra - Luna (Ipparco, II sec a.C.)



$$ST : D_{\text{sole}} = LT : D_{\text{luna}}$$



$$D_{\text{umbra}} = \frac{8}{3} D_{\text{luna}}$$

$$D_{\text{luna}}/D_{\text{terra}} = \frac{11}{3}$$

$$TL = 60 D_{\text{terra}}$$

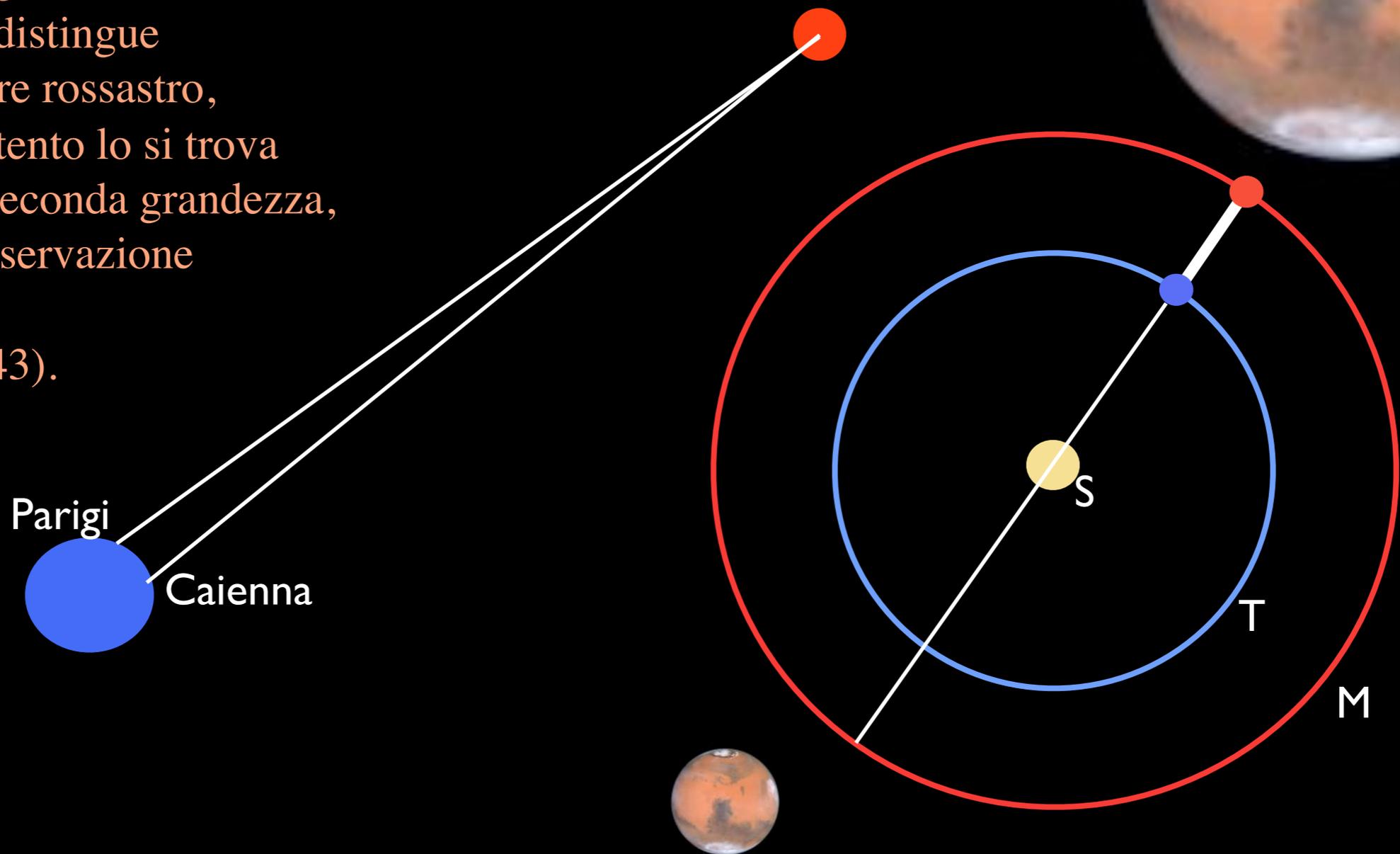


©JAXA/NHK

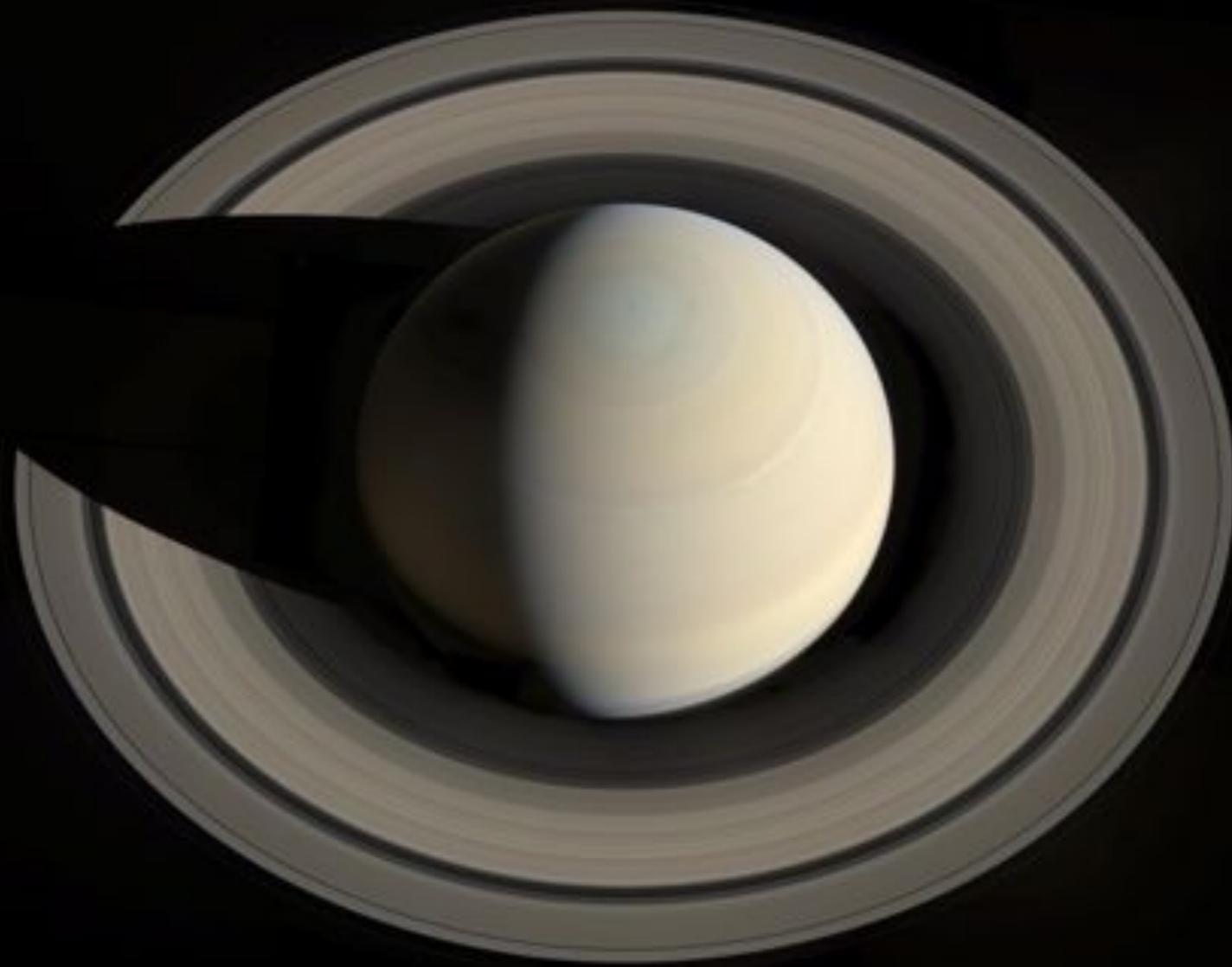


La distanza Terra - Marte Gian Domenico Cassini (1625-1712)

... Marte di notte sembra eguagliare per grandezza Giove, e se ne distingue solo per il colore rossastro, e invece la` a stento lo si trova tra le stelle di seconda grandezza, dopo attenta osservazione coi sestanti...
Copernico (1543).

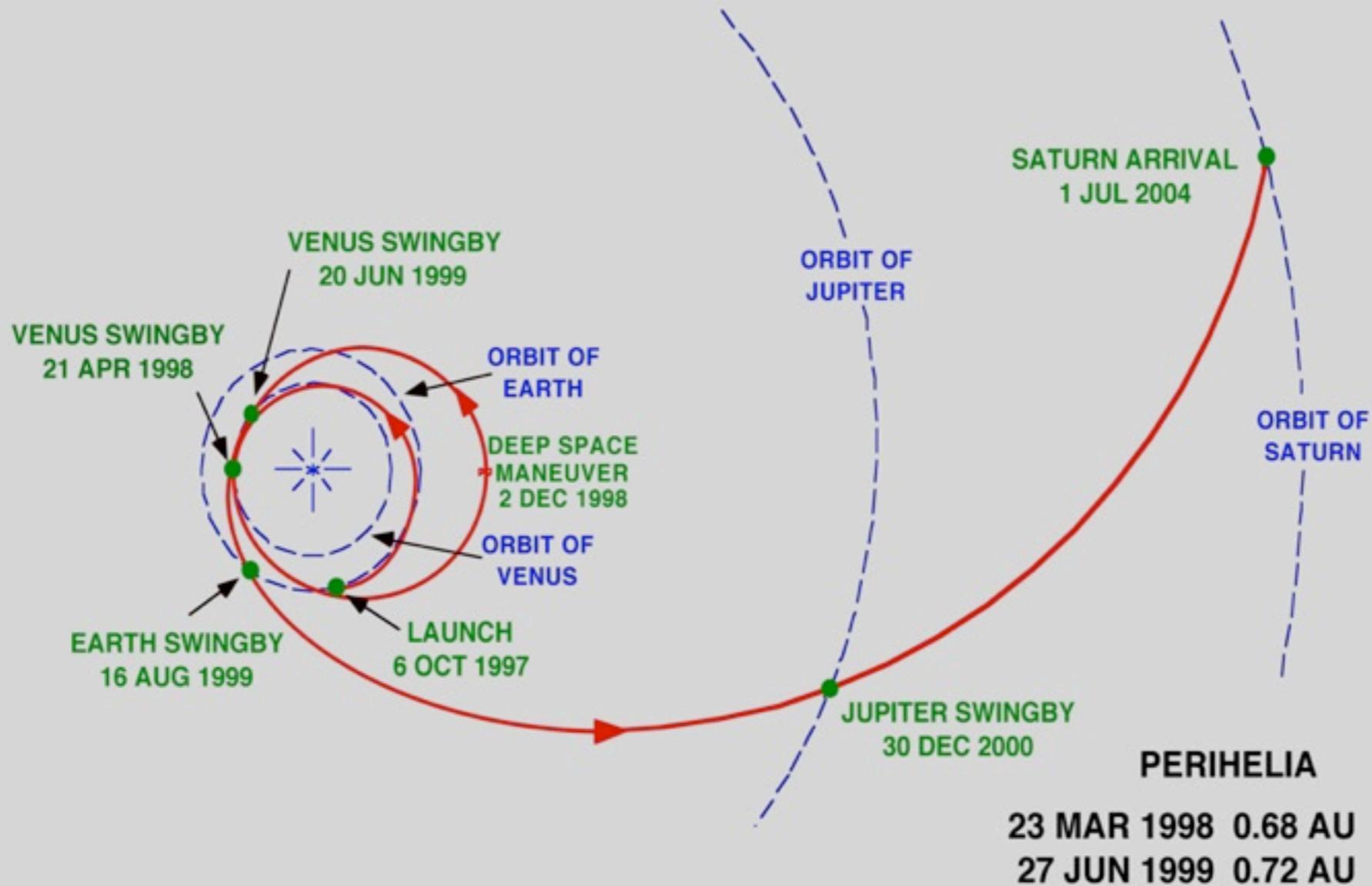


Opposizioni di Marte



Sonda Cassini, 1997-2005

CASSINI - VVEJGA OCT 1997 INTERPLANETARY TRAJECTORY





Cassini, 2006



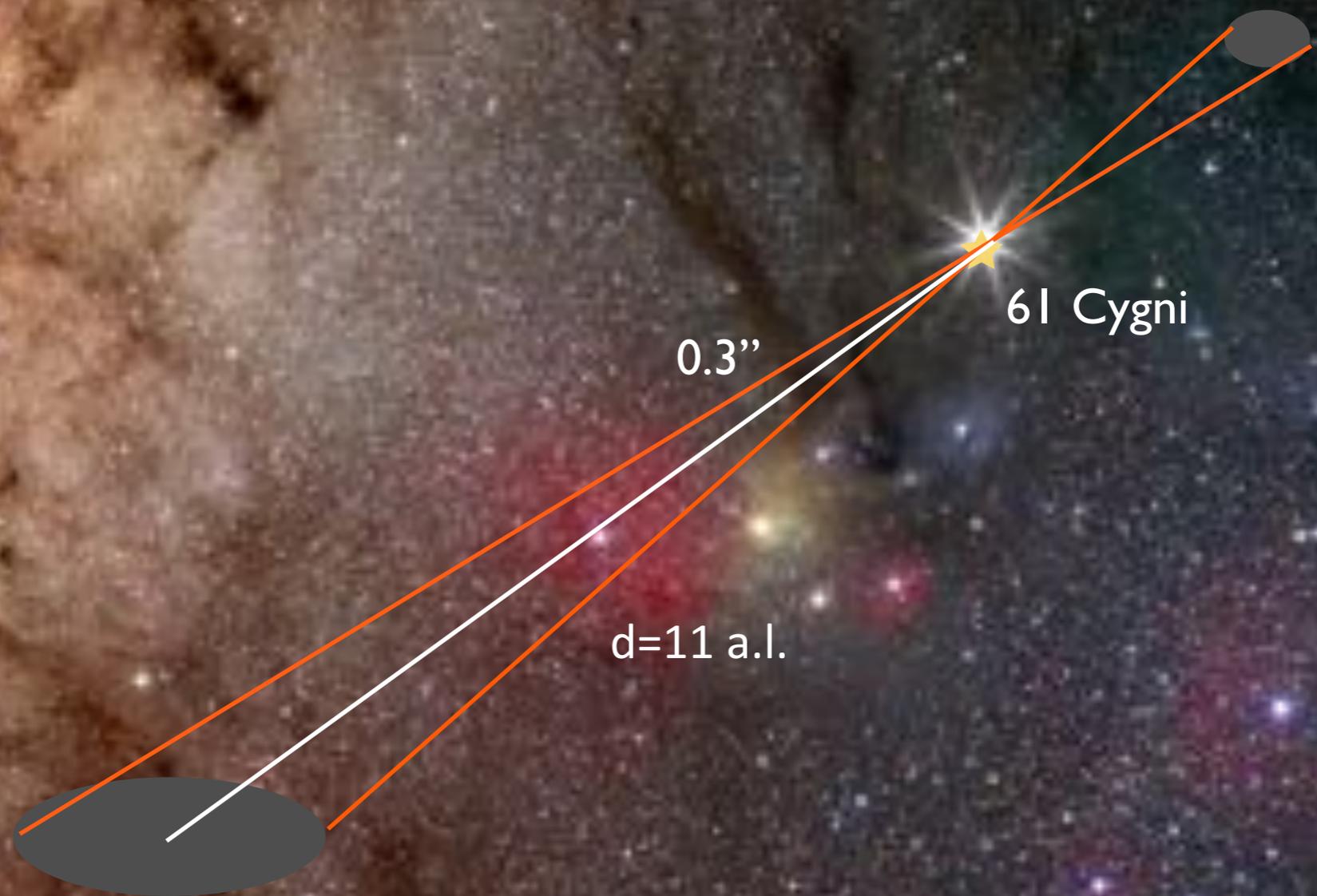
La Terra (d=1,45 miliardi km, Sonda Cassini, 2013)



La Terra dal Voyager 1, $d=6$ miliardi di Km (1990)



La distanza delle stelle W.Bessel, 1829

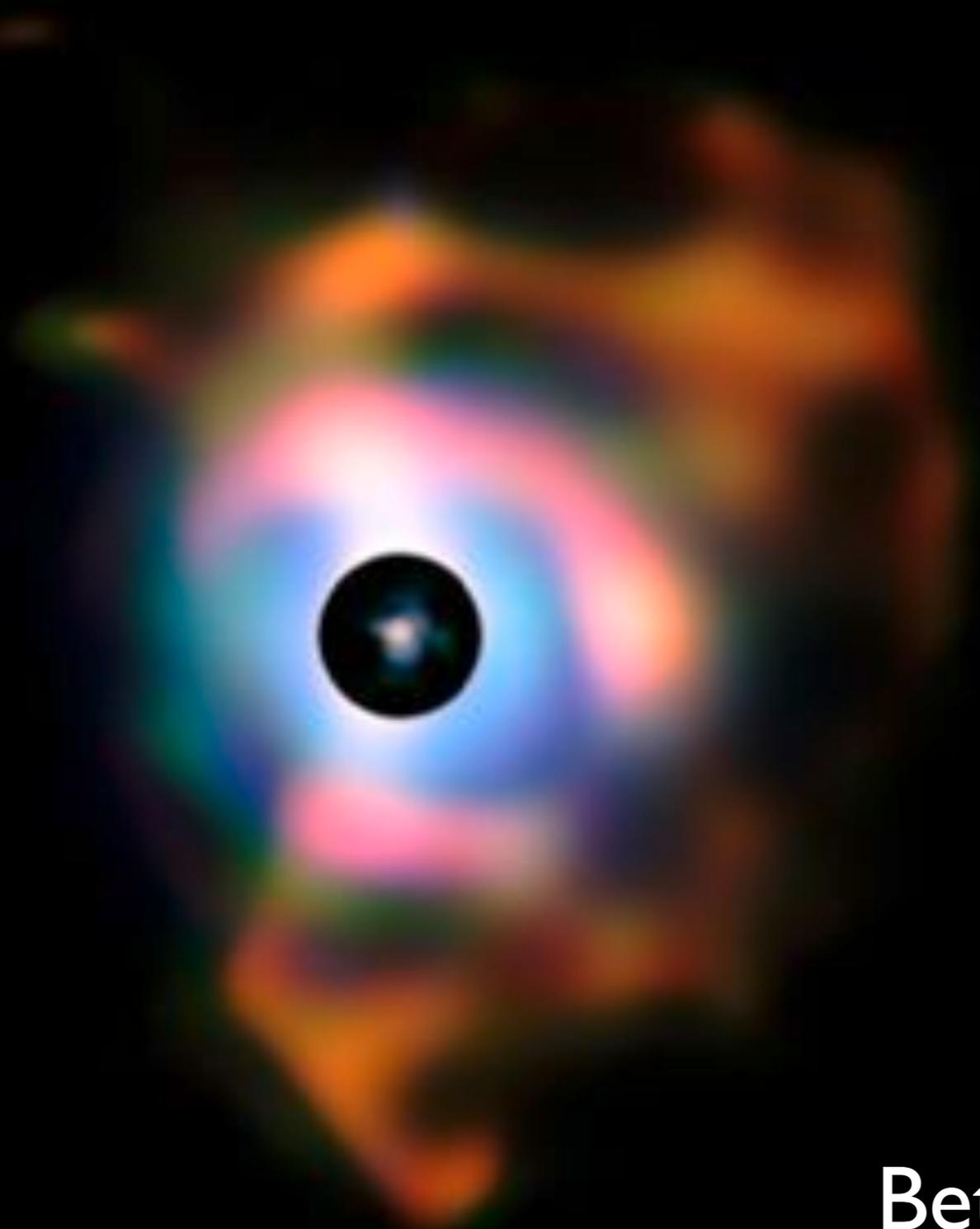




Orione



H II



Betelgeuse

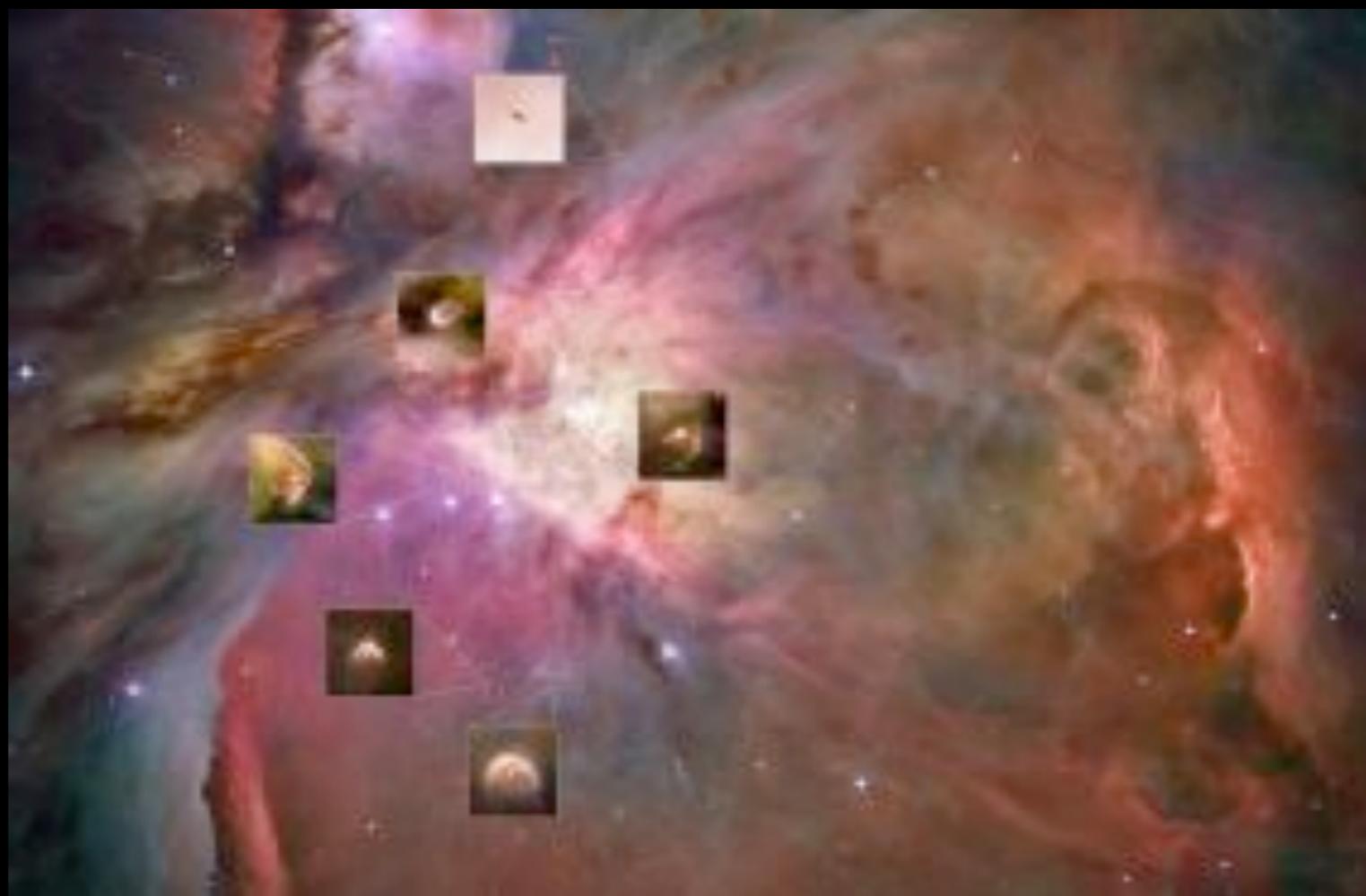
la stella e' nascosta dal disco nero,
ha diametro 450 volte quello del Sole





M 42 (Orione, d=1300 a.l., diam=40 a.l.)

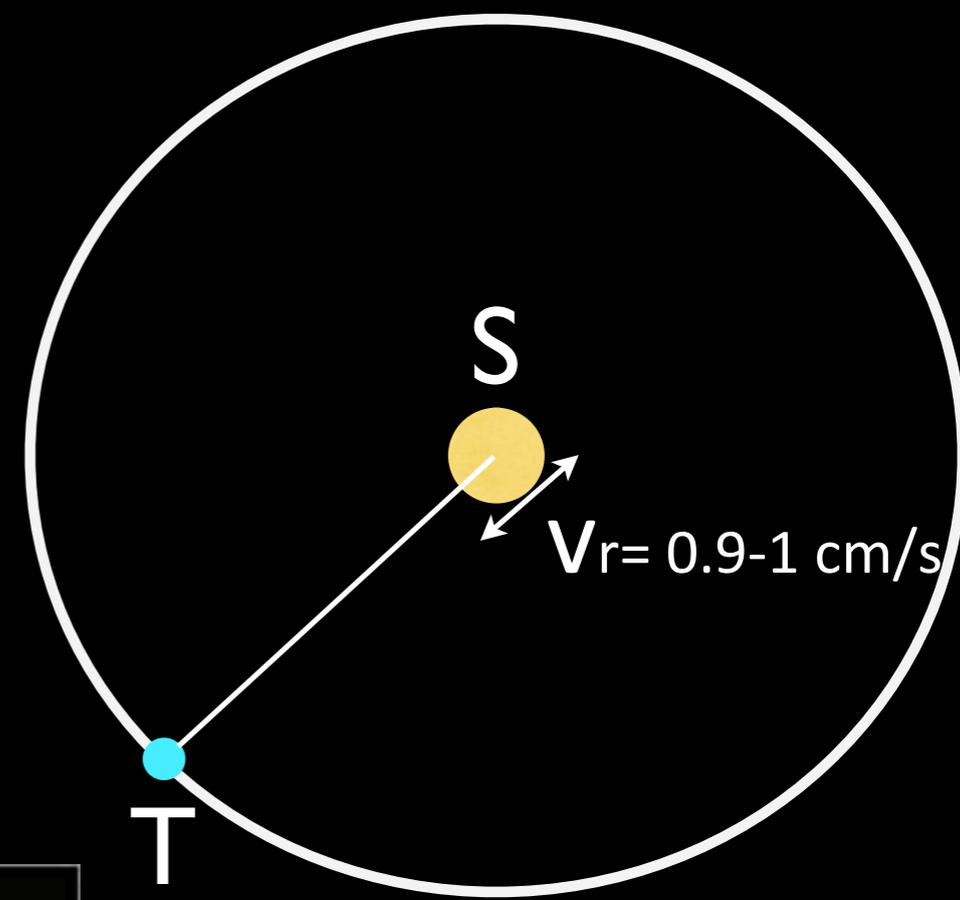
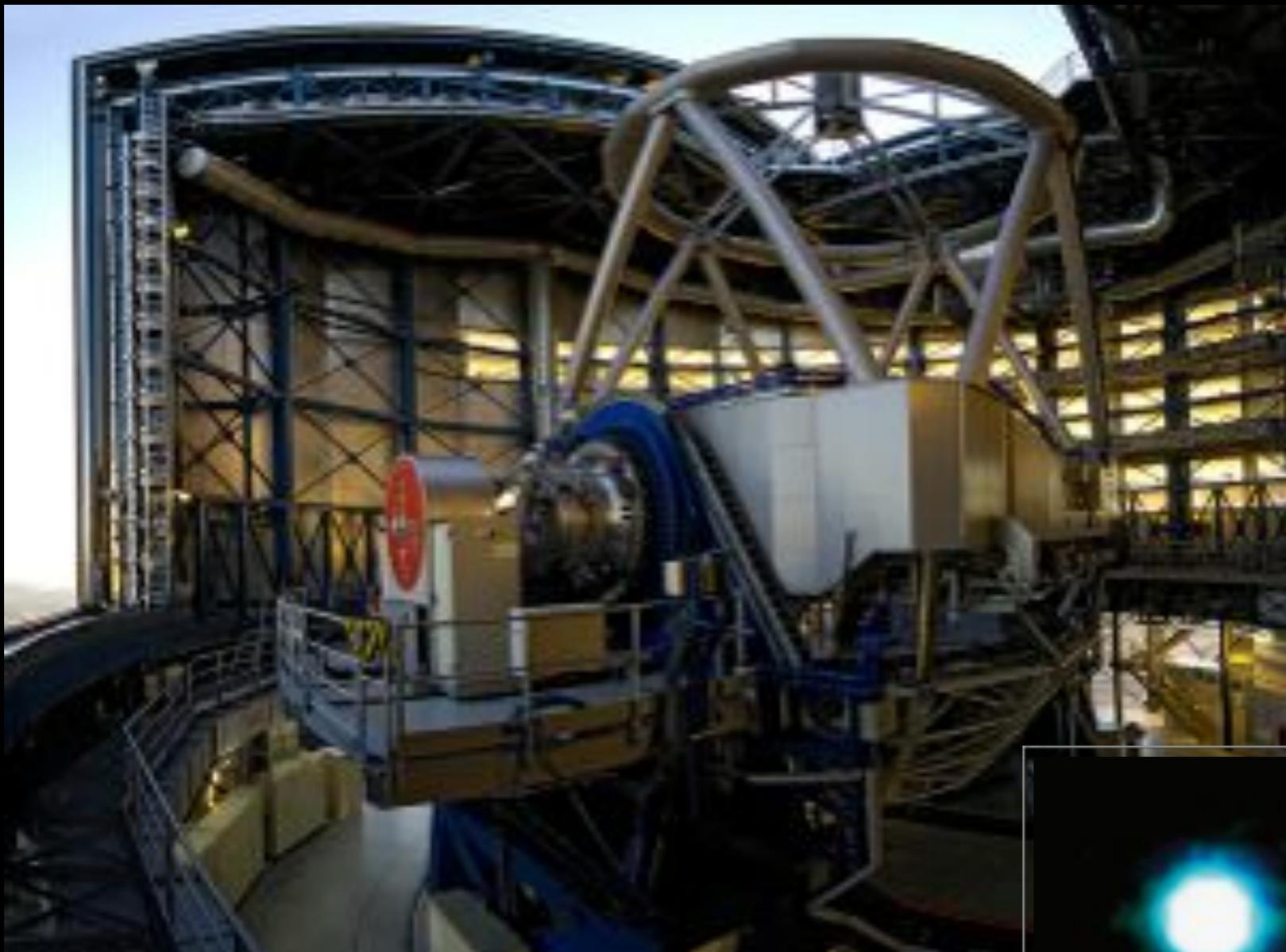






Hubble Space Telescope

dal 1990, $h=600$ km, specchio 2,5 metri



primo esopianeta
in Centauro, 172 a.l.
 $d=40$ U.A., $3-10 M_{jup}$

Very Large
Telescope



I pianeti extrasolari

Telescopio Kepler



NASA Kepler's Hall of Fame: Small Habitable Zone Planets As of January 2015



Su 1000 confermati,
8 sono simili alla Terra per
posizione e dimensione





Star HD 441479 e Rettangolo rosso

(Monoceros, d=2200 a.l. Proto-planetary Neb)



NGC 7000



NGC 6334

Sco, d=5500 a.l.

diam=50 a.l.

VISTA, in IR, campo 60'

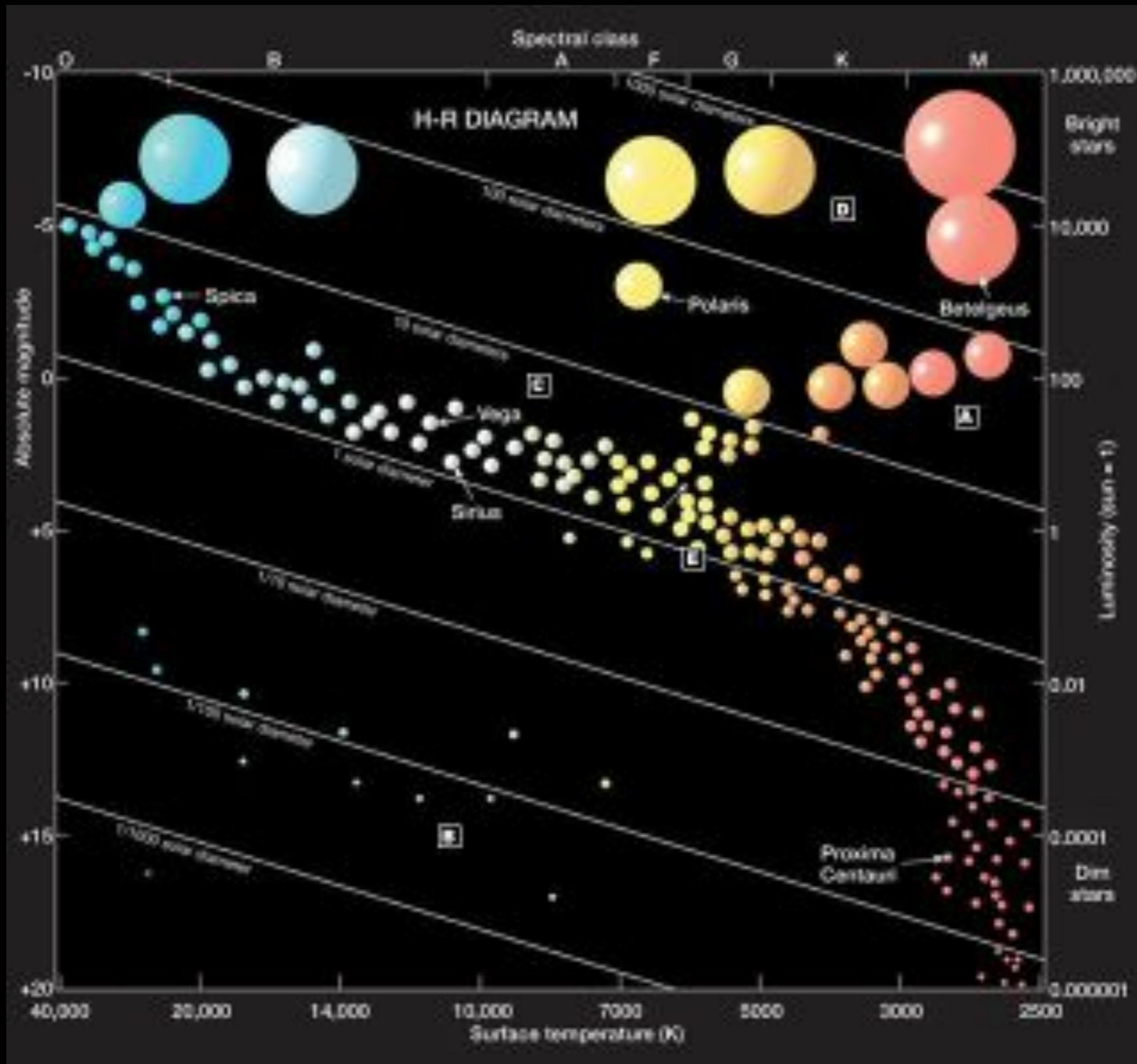


NGC 290

(nella Piccola Nube di Magellano, 200 mila a.l.)



NGC884



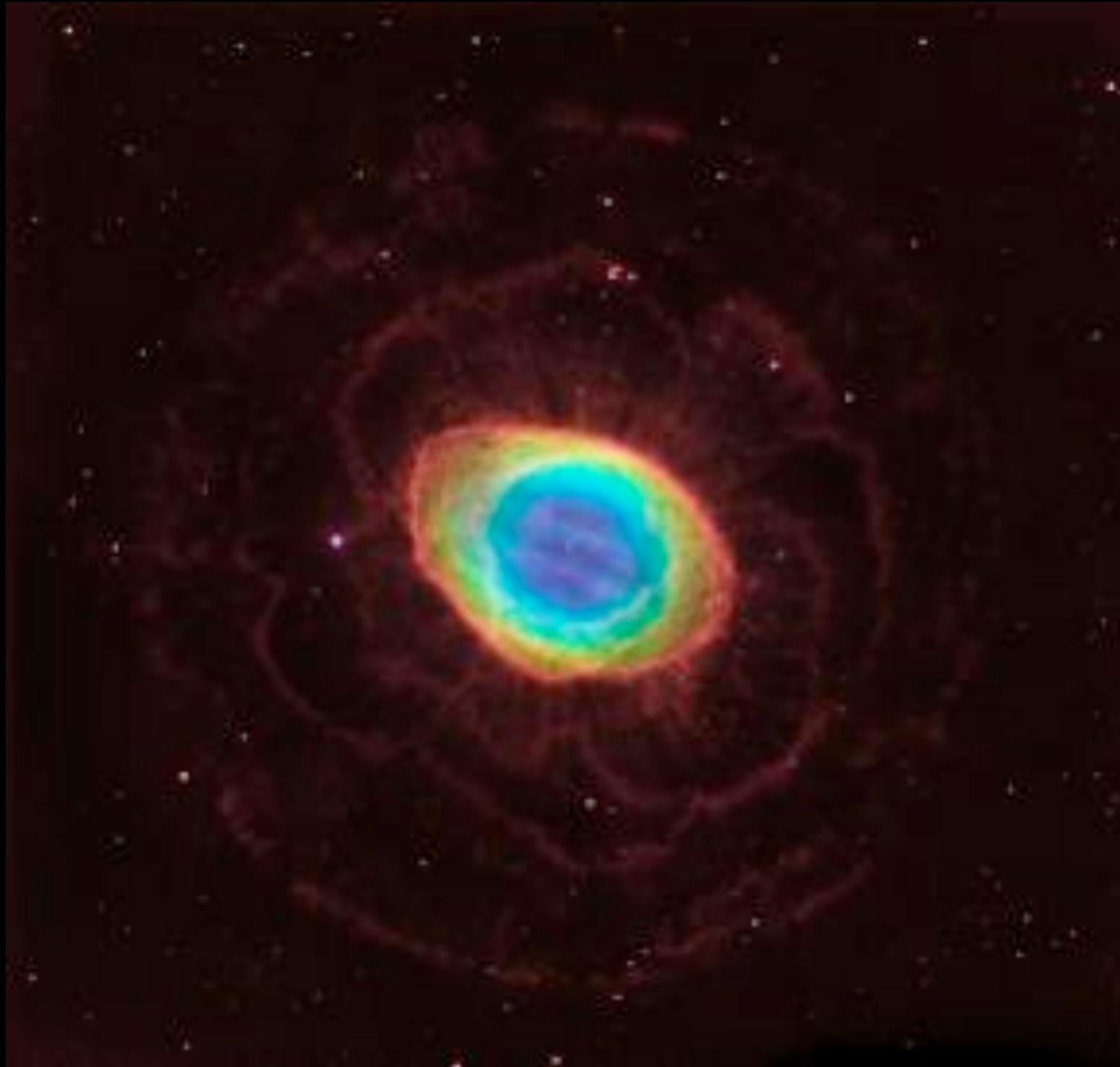
Il diagramma di Herzprung e Russell



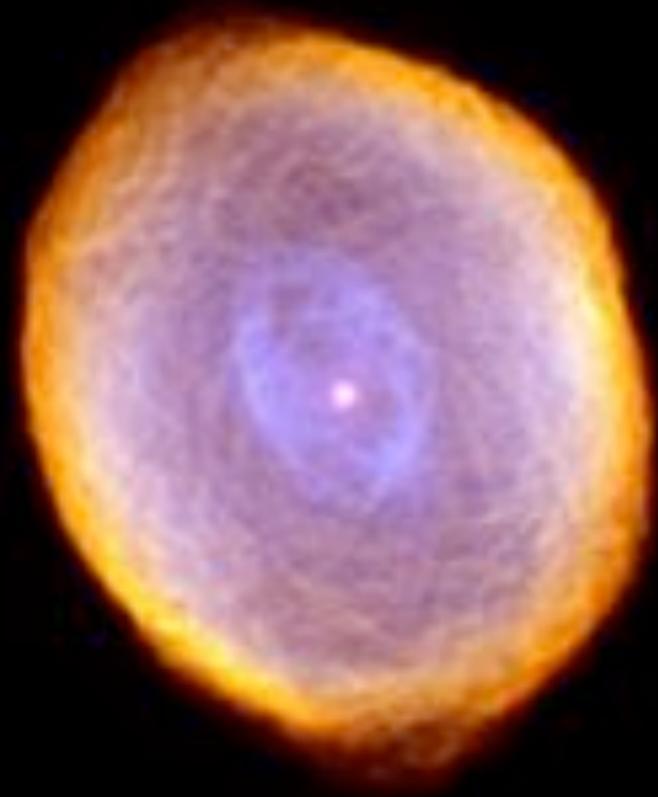
Albireo



Mizar e Alcor



M 57 (Lyra, diam=1.3 a.l. - dist=2300 a.l.)



IC 418 Spirograph Neb. (Lepus, $d=1100$ a.l., $diam=0.3$ a.l.)



NGC 6543 Cat's Eye (Draco, d=3000 a.l.)
W. Herschel, W. Huggins (nebulium)



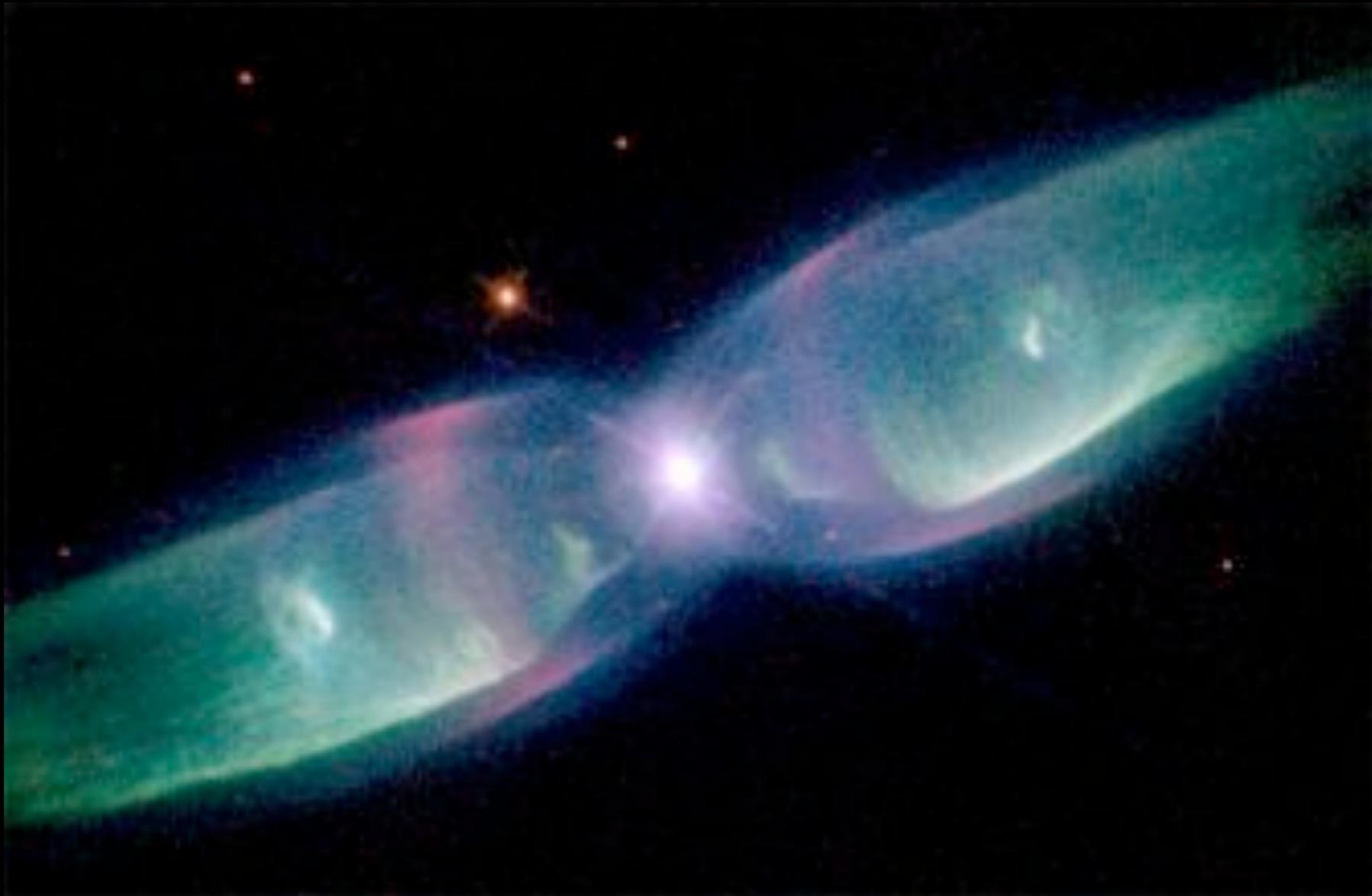
NGC 6302 (Scorpione, d=3800 a.l.)



SN 1987 A, in LMC, diam: 1a.l. (2007)



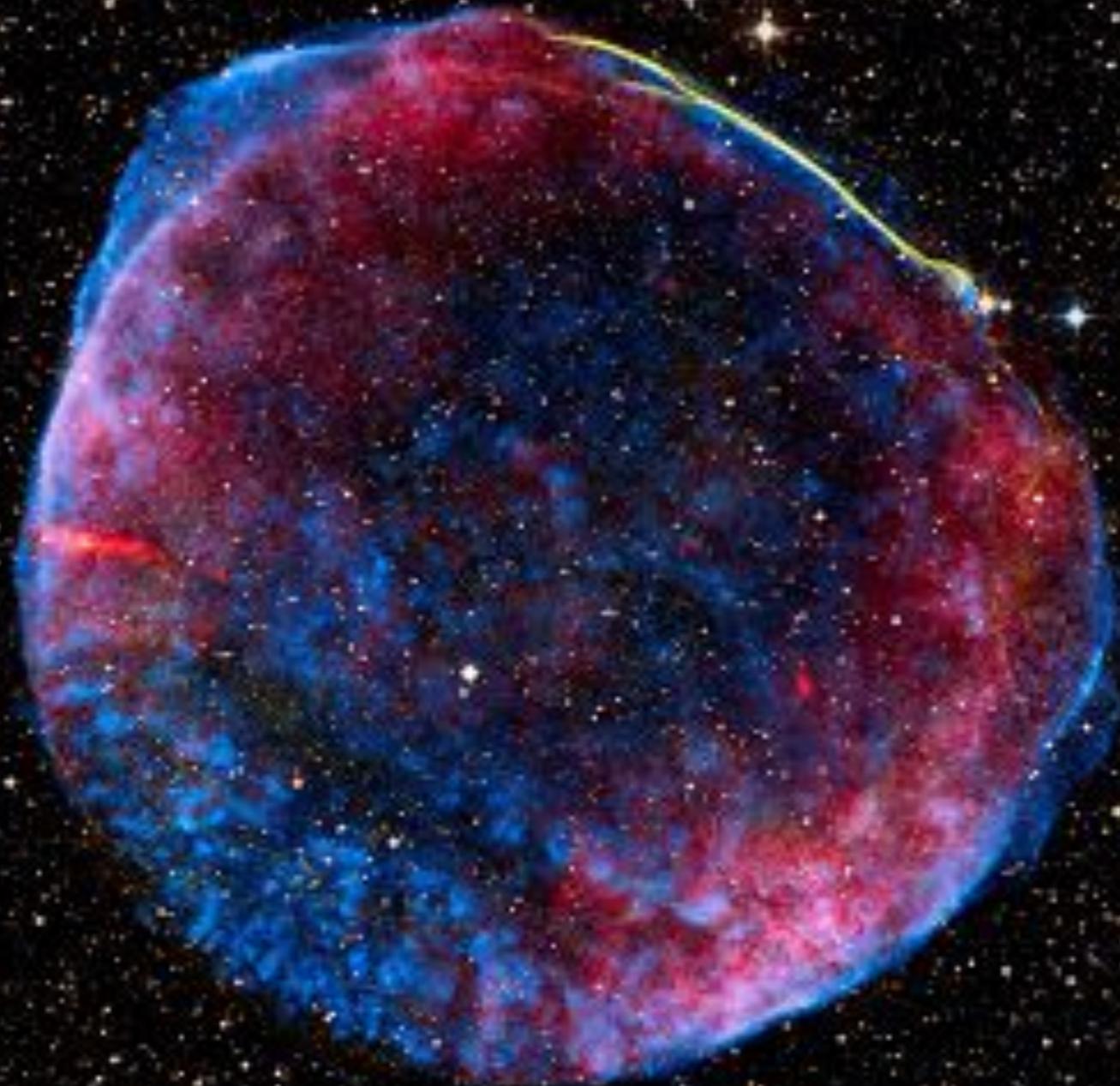
M 1 (1054 d.C. d=6500 a.l.)



M2-9 (d=2000 a.l., 1200 anni fa)



SNR0509 (type IA)
in LMC, T=1600 a.C., diam = 23 a.l.
espansione 18M km/h



SN 1006c, (1006 d.C. in Lupo, $d=7200$ a.l., max $m=-7.5$)



SNR 0519-69



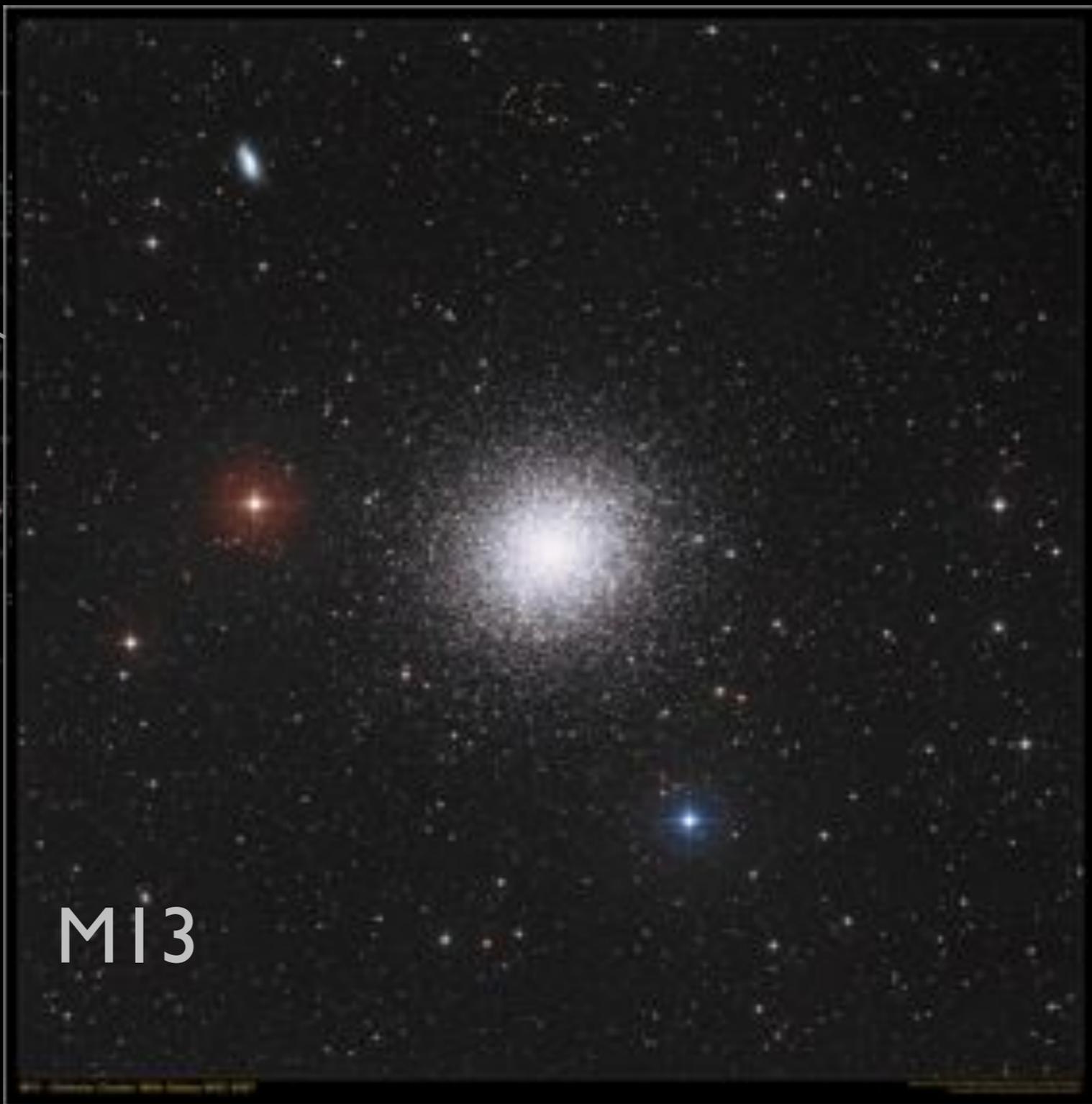
Gum nebula, Vela



Le stelle Cefeidi sono pietre miliari nel cielo



Ercole



M13



M 80 (Scorpione, dist=32600 a.l. - diam=95 a.l.)

100mila anni-luce

Shapley misuro' la Via Lattea
con le Cefeidi e gli ammassi globulari



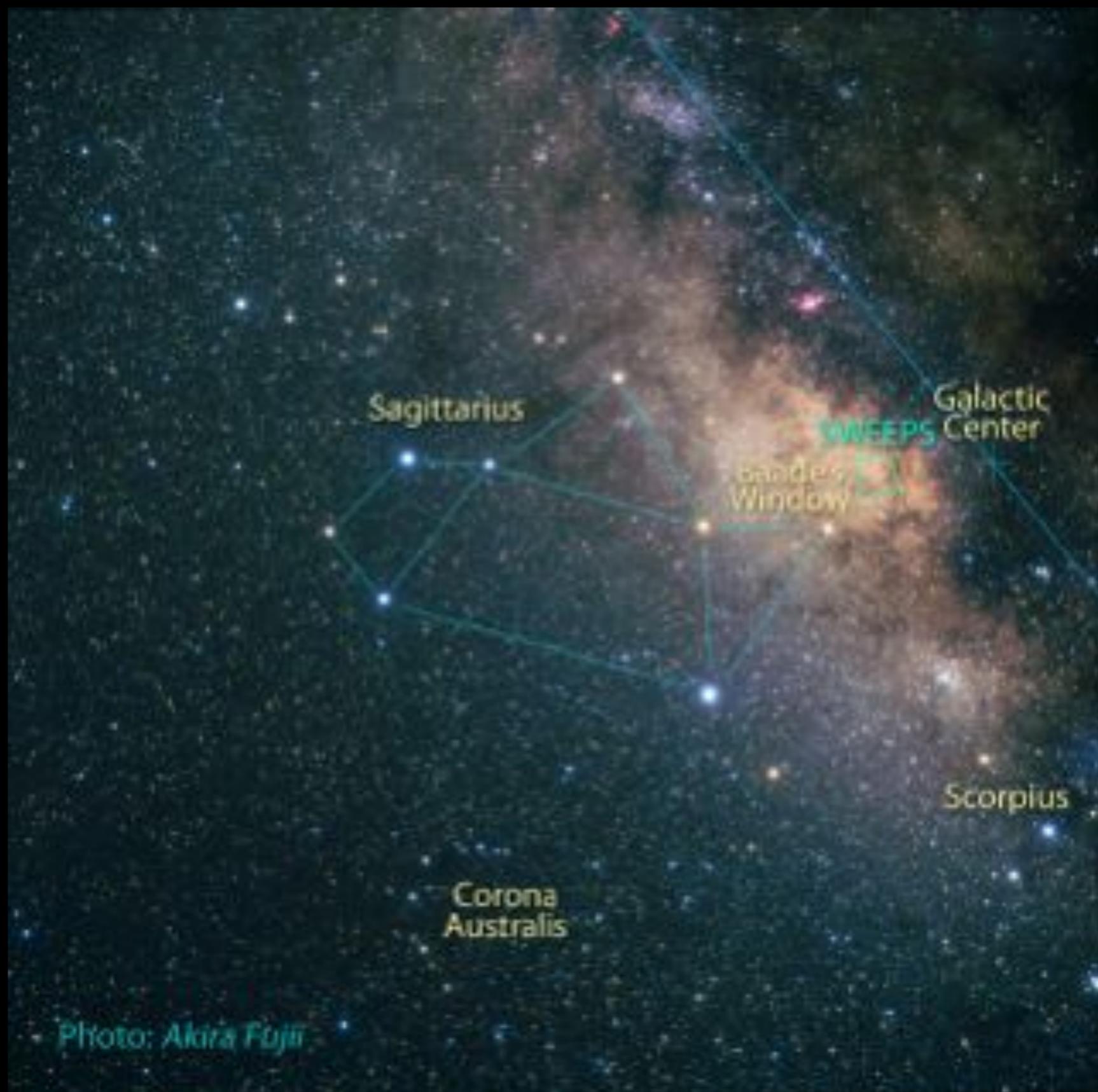


Photo: Akira Fujii





SagA

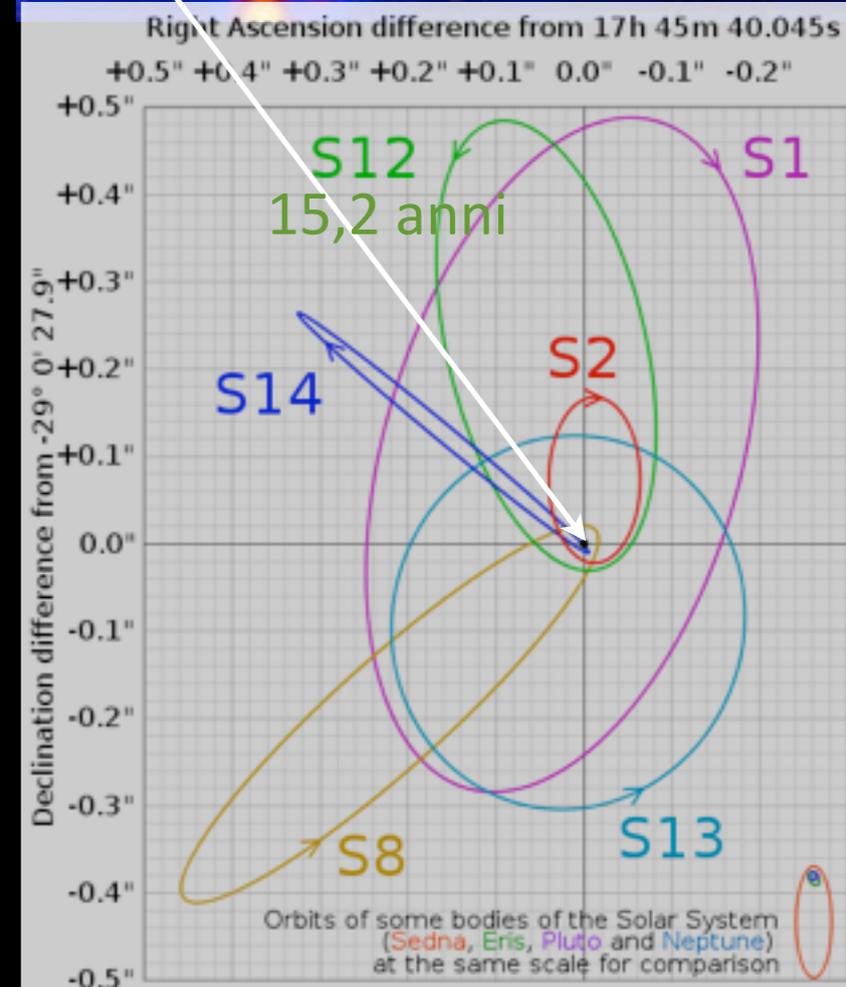
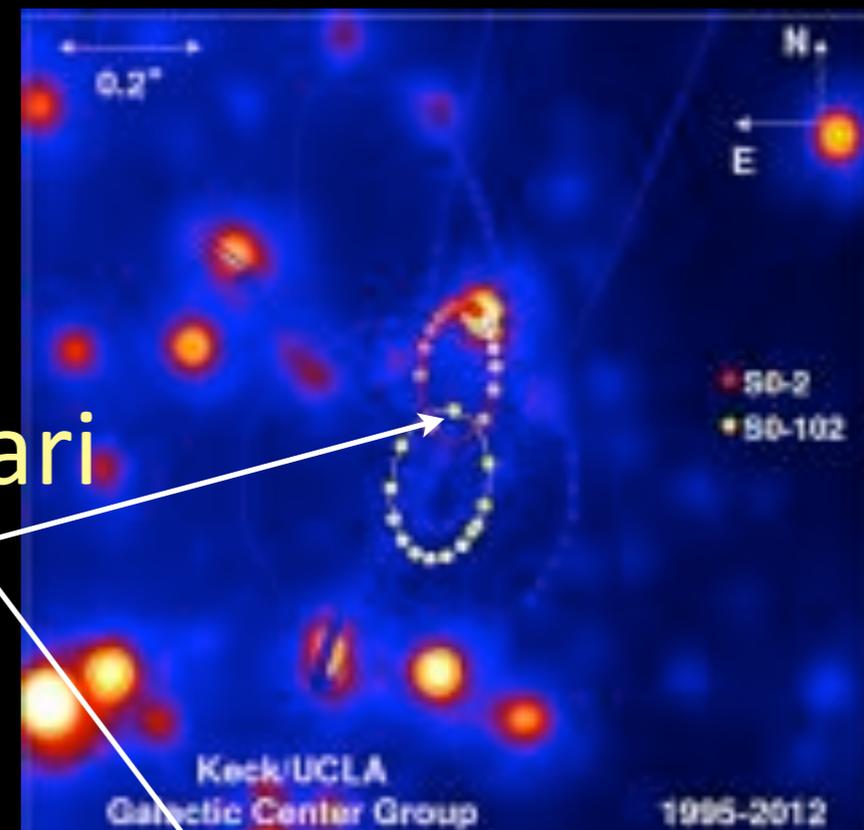


galactic center

Hubble (near IR) Spitzer (IR) Chandra (X)



4,1 milioni di masse solari
nel raggio di 4'' luce



<http://www.eso.org/public/news/eso0841/>

<https://www.youtube.com/watch?v=KCADH3x56eE>



ISS - International Space Station

abitata dal 2000 da 2 a 6 persone
altezza 400 km - 15,5 orbite/giorno