

Est-ce que le Système Solaire est commun ou rare?



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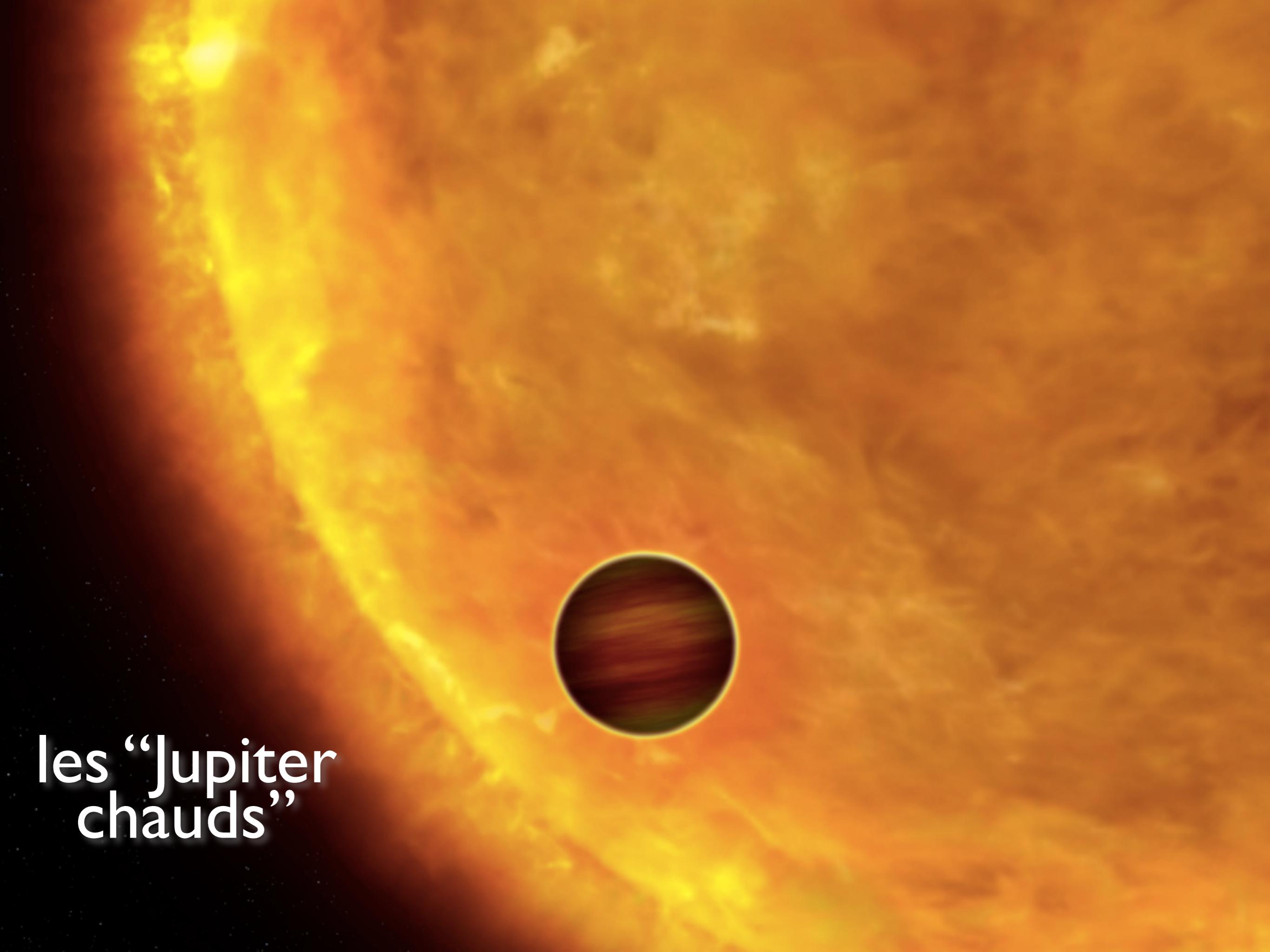
rayray.sean@gmail.com

planetplanet.net



Mes découvertes favorites



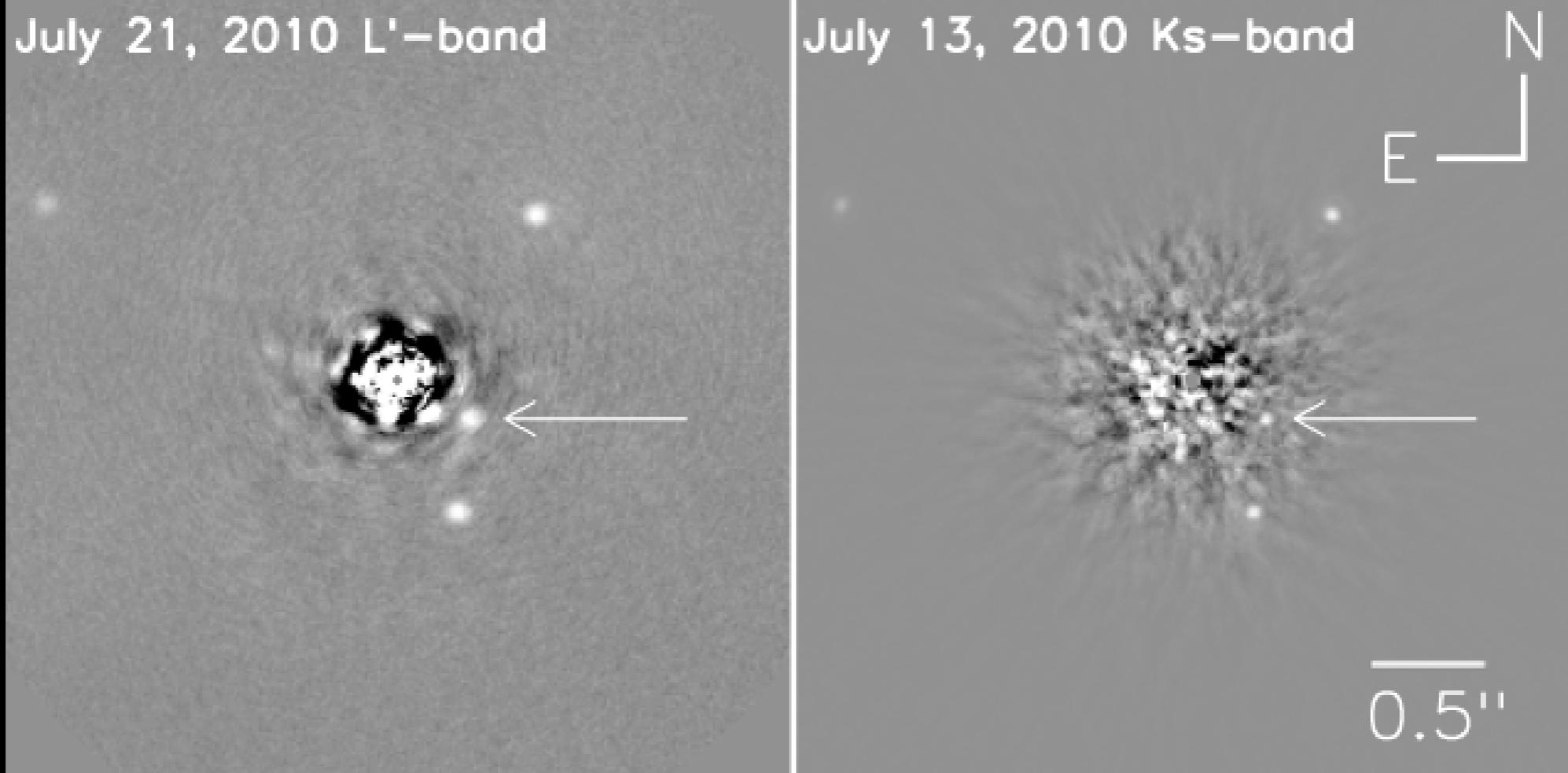


les “Jupiter
chauds”



Une planète autour de l'étoile la plus proche du soleil
(alpha centaure)

July 21, 2010 L'-band



July 13, 2010 Ks-band

N

E

0.5''

b

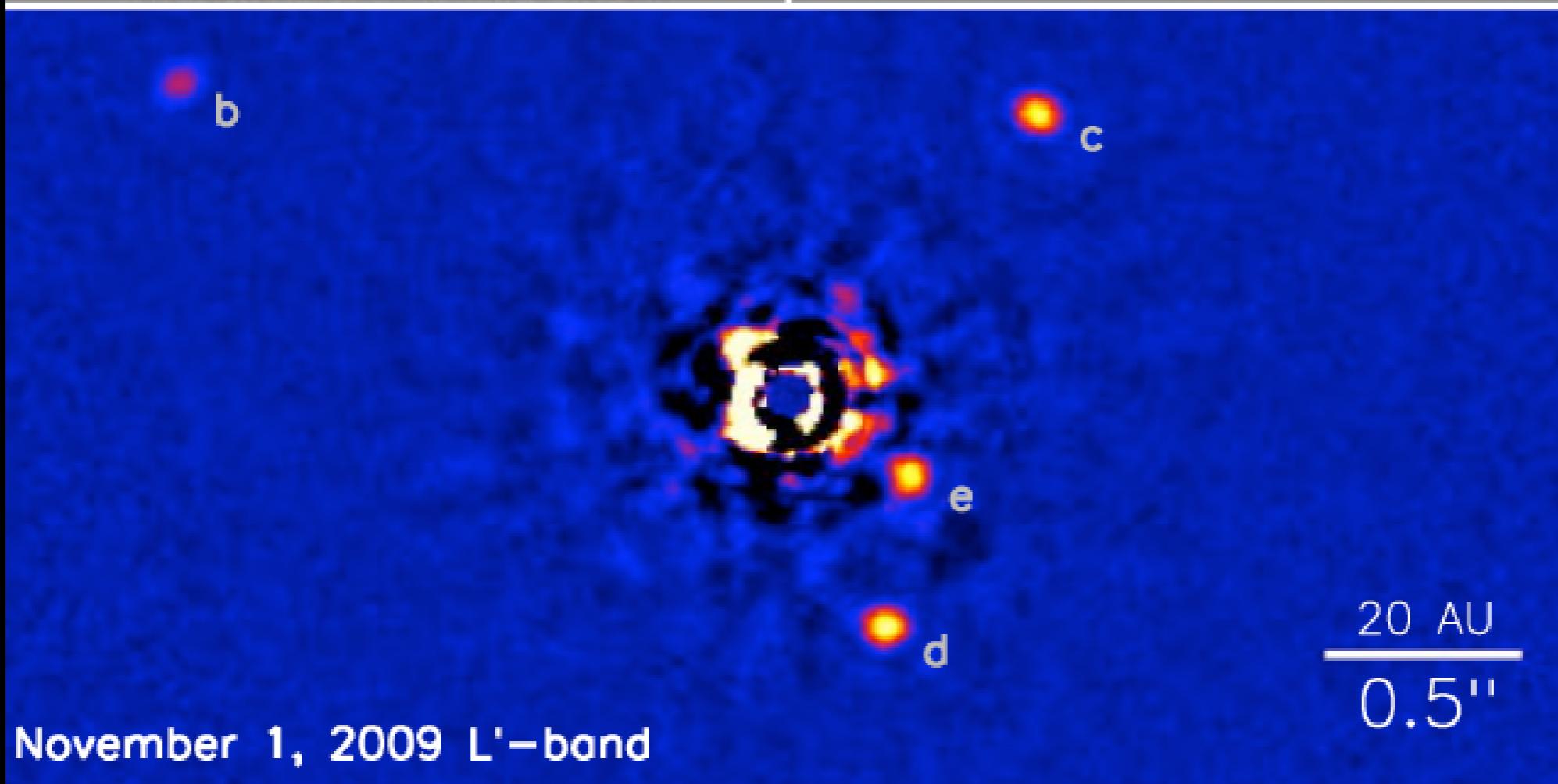
c

e

d

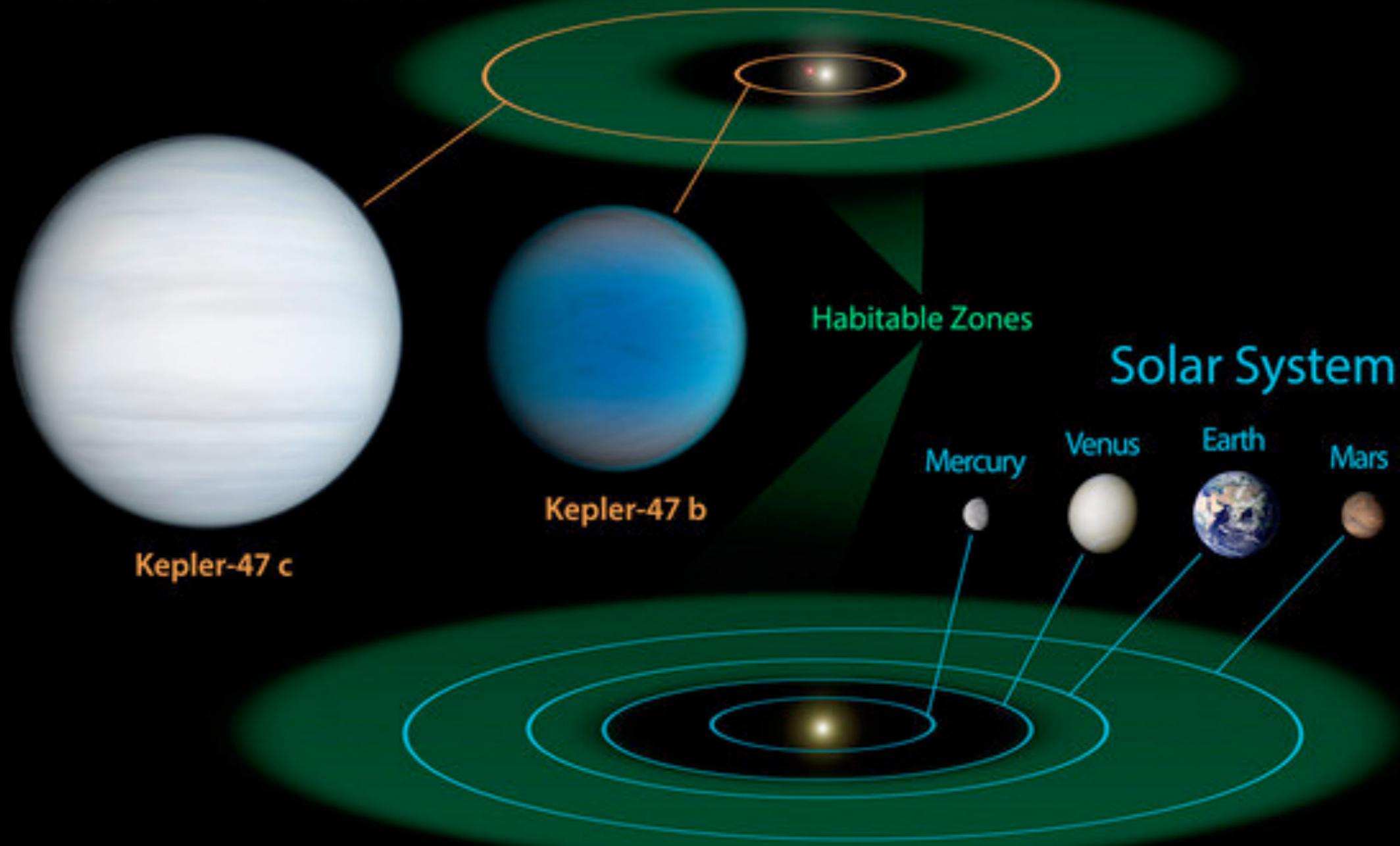
$\frac{20 \text{ AU}}{0.5''}$

November 1, 2009 L'-band



Planètes “Tatooine”

Kepler-47 System



Planets and orbits to scale

Planètes “Tatooine”

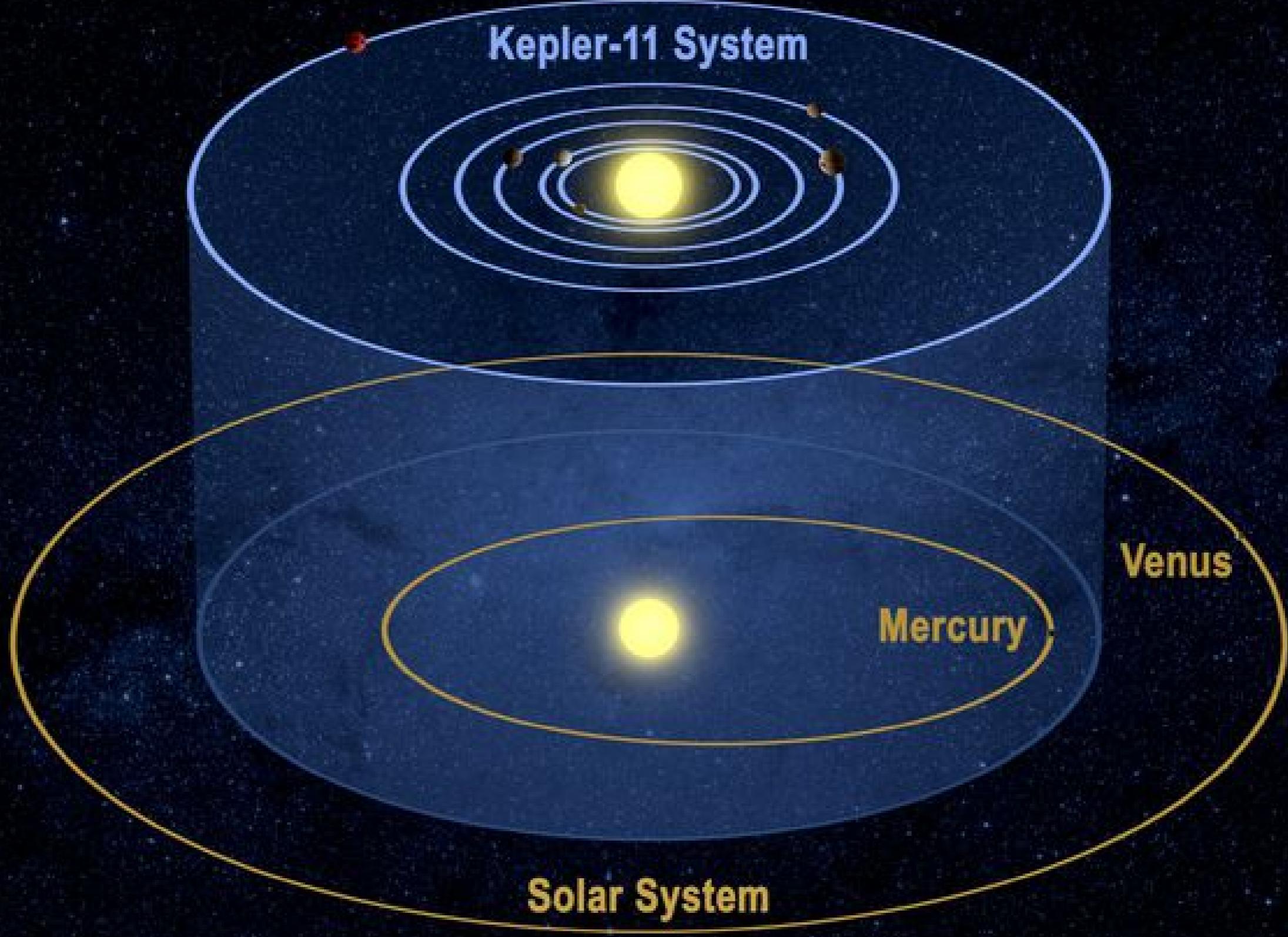
Kepler-47 System



Planets and orbits to scale



“Planètes flottantes”



“super-Terres”



Earth:

1 earth-mass
1 earth-radius

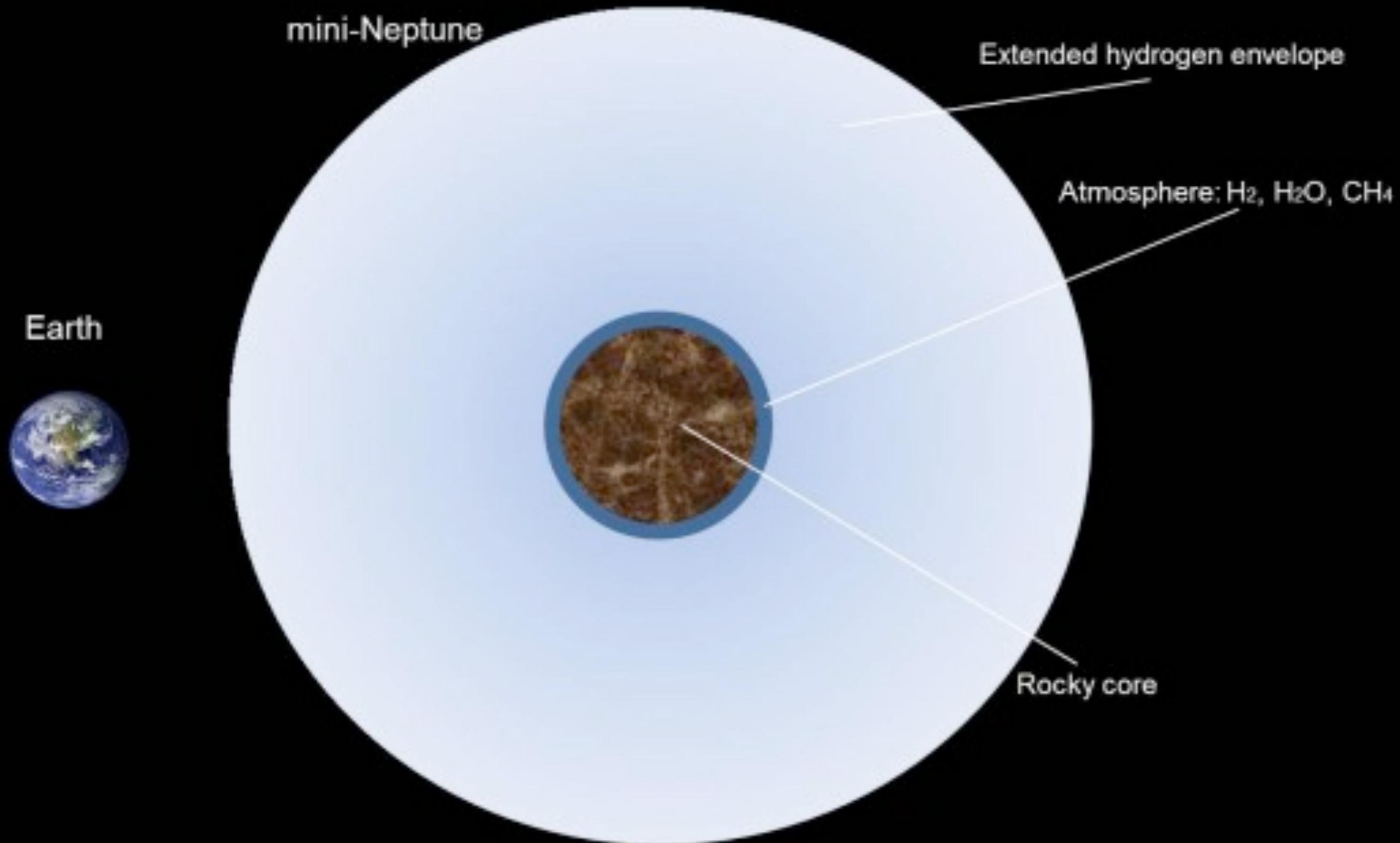
Year: 365.25 days

Kepler-78b:

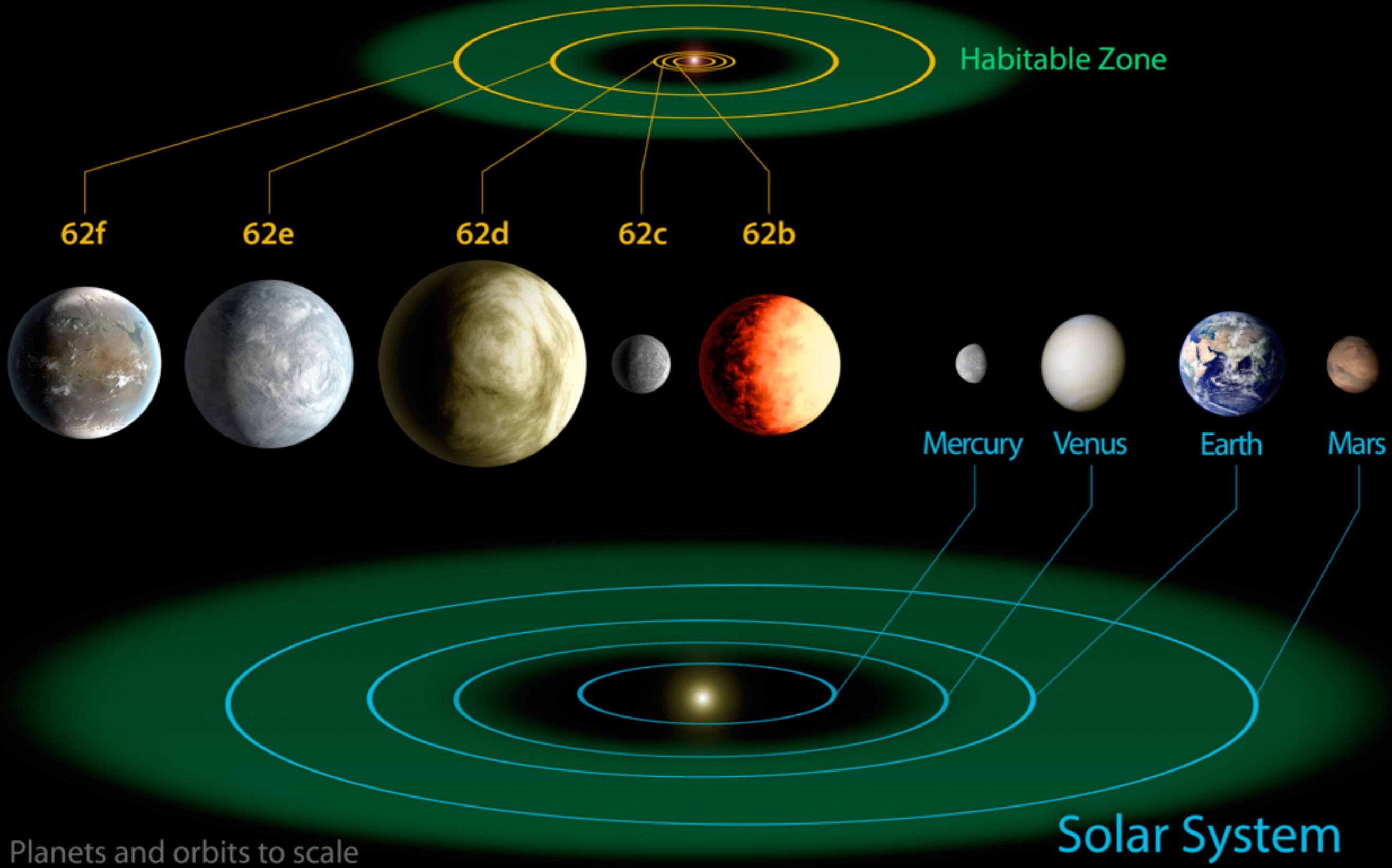
1.7 earth-mass
1.2 earth-radius

Year: 8.5 hours

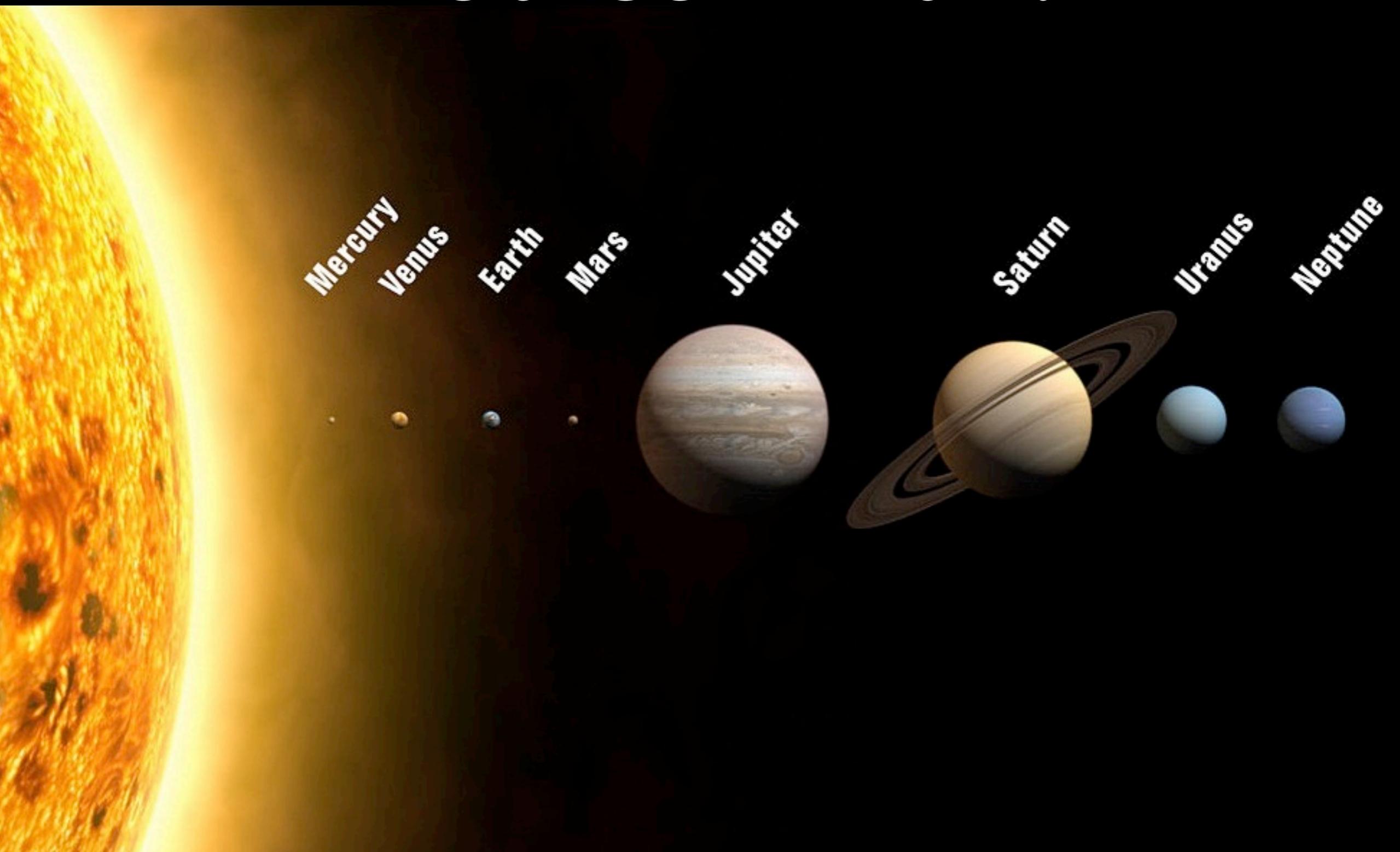
“mini-Neptunes”



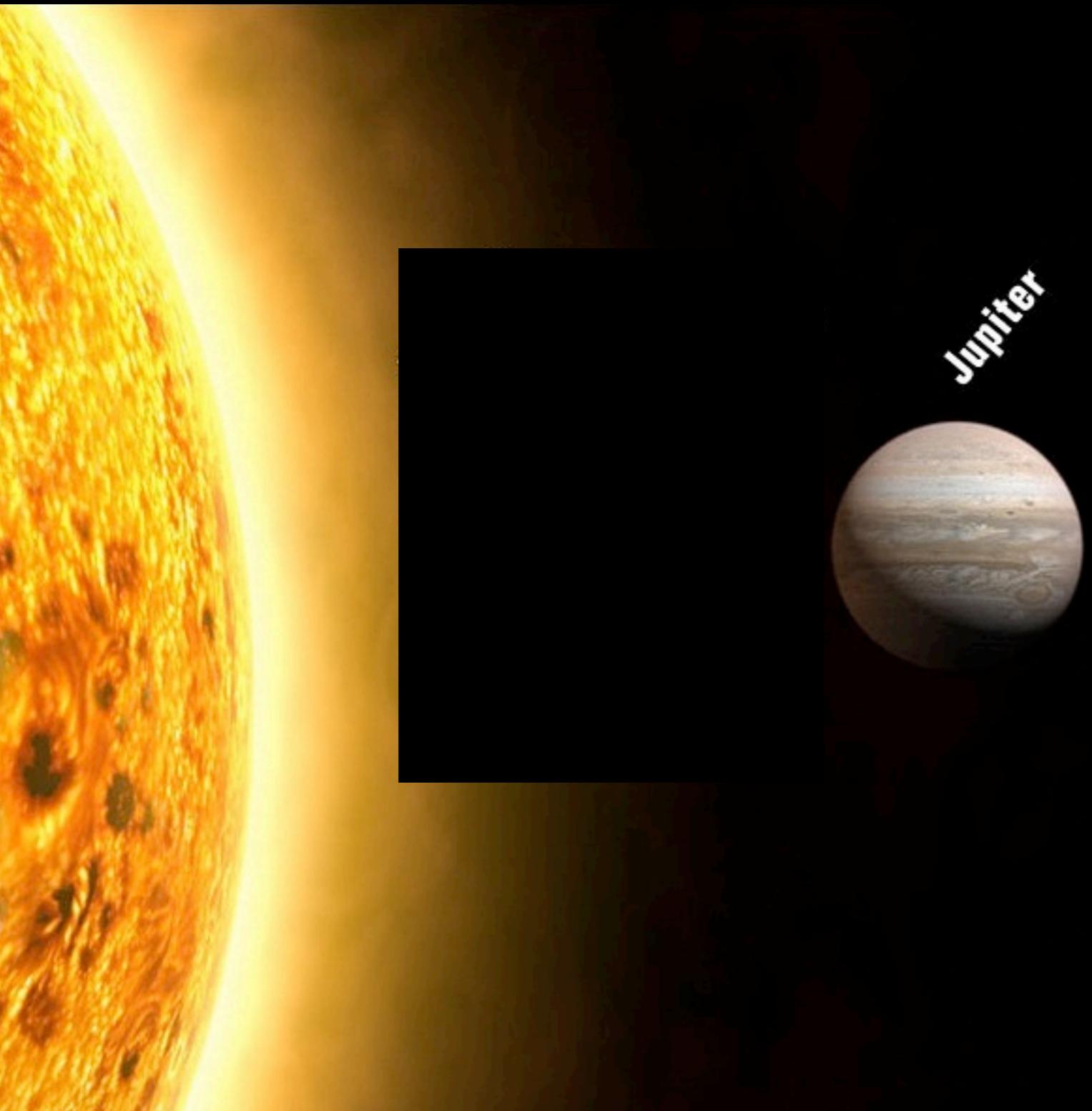
Kepler-62 System



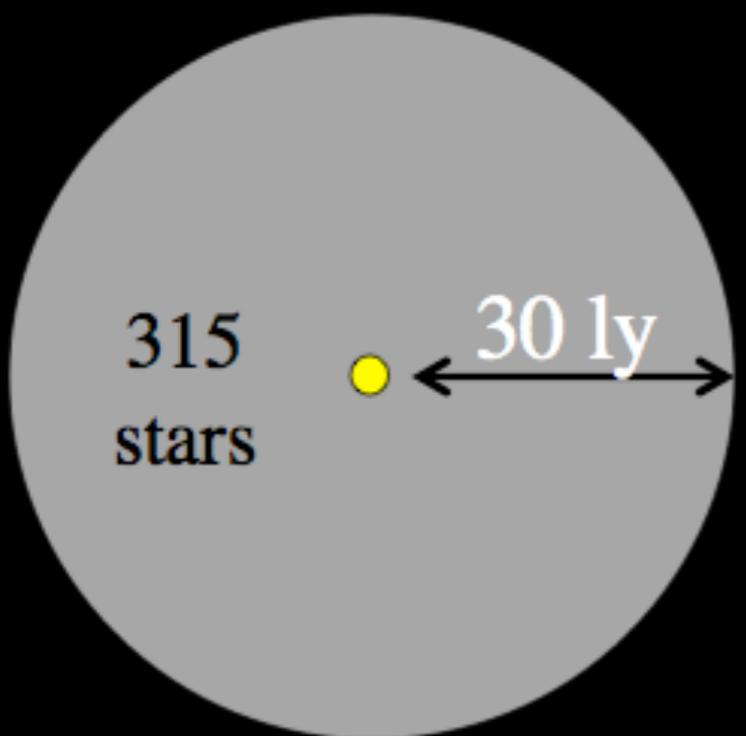
Le Systeme solaire: rare ou commun?



Le Systeme solaire vu de loin

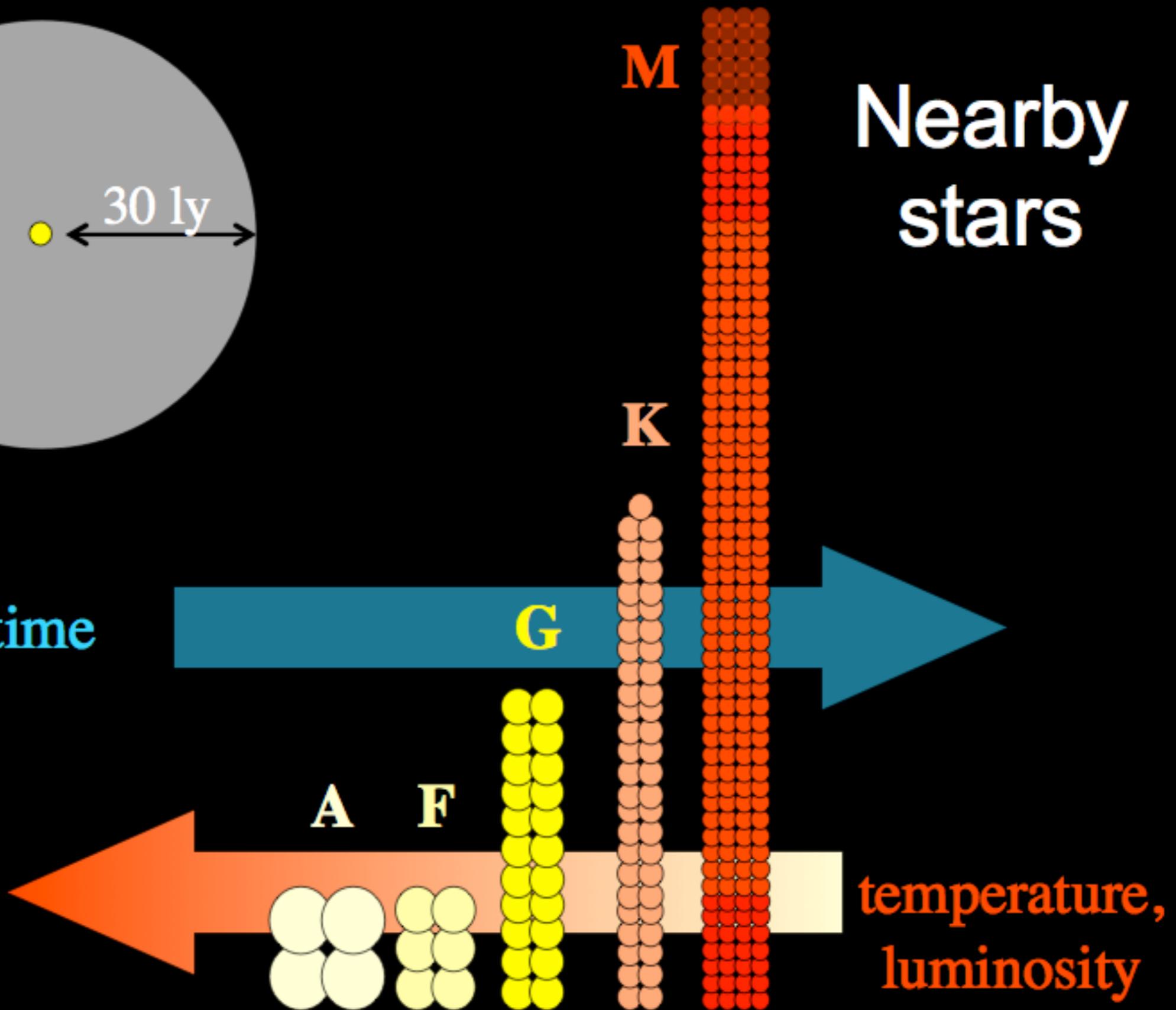


Jupiter



315
stars

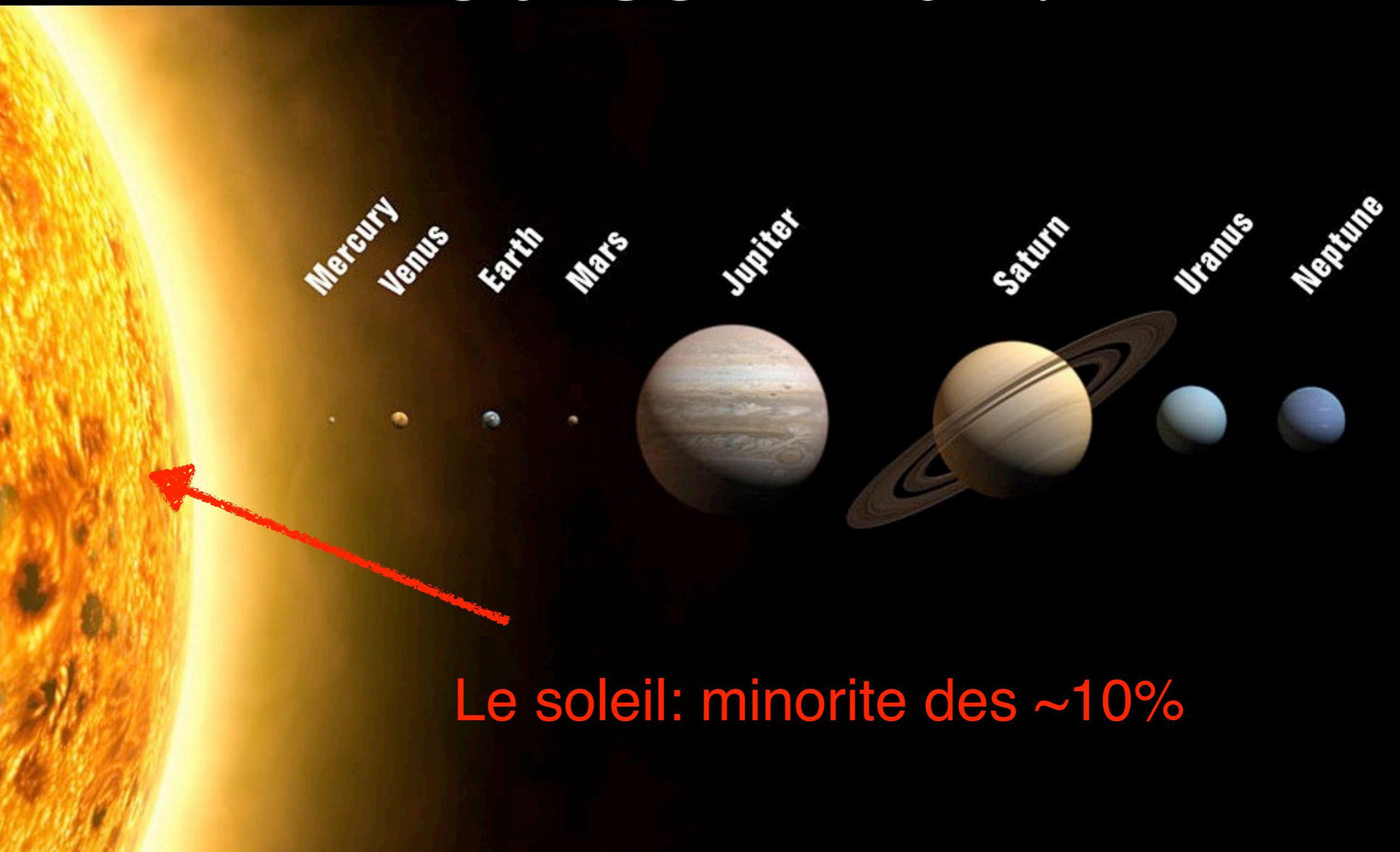
lifetime



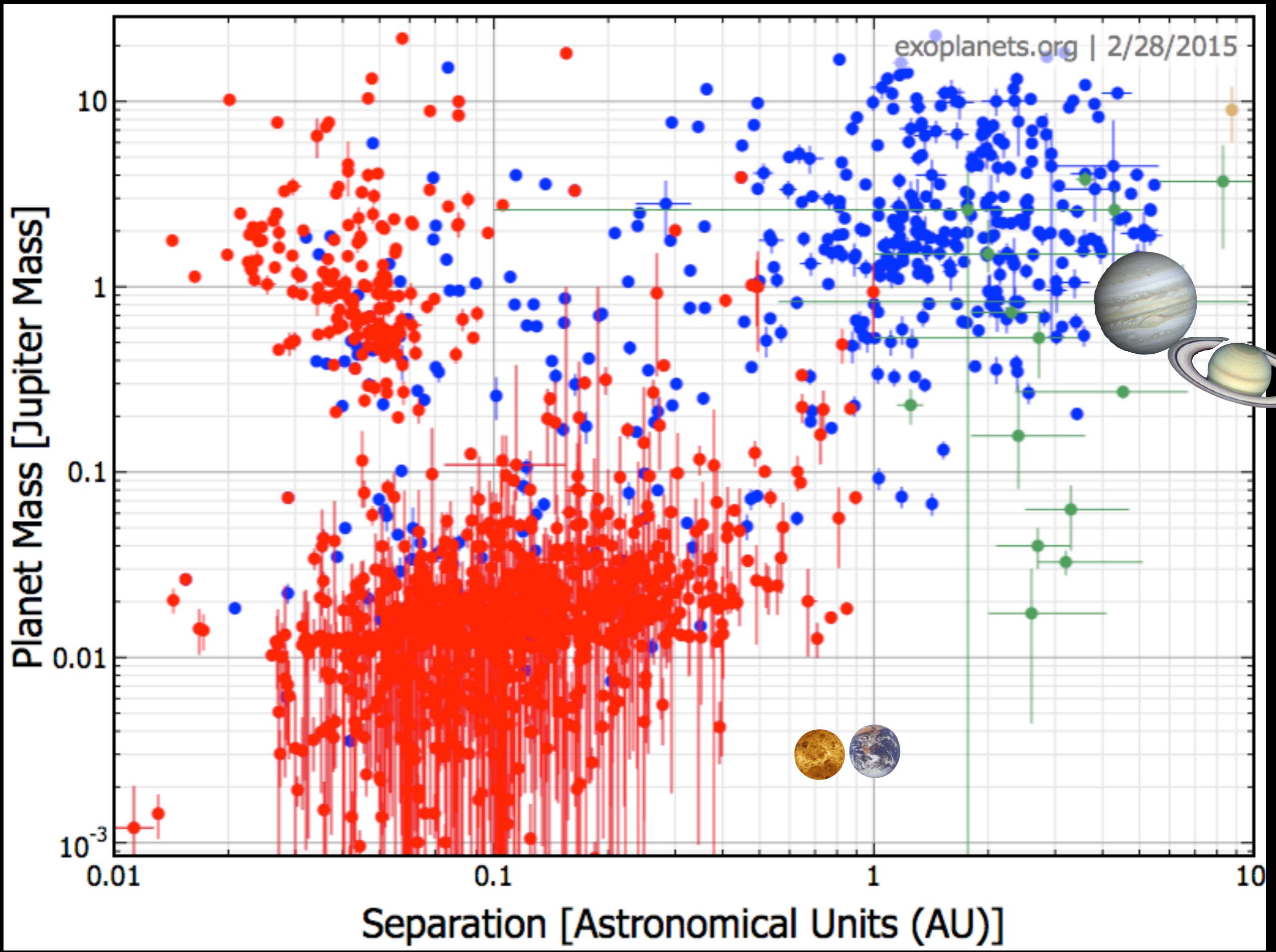
Nearby
stars

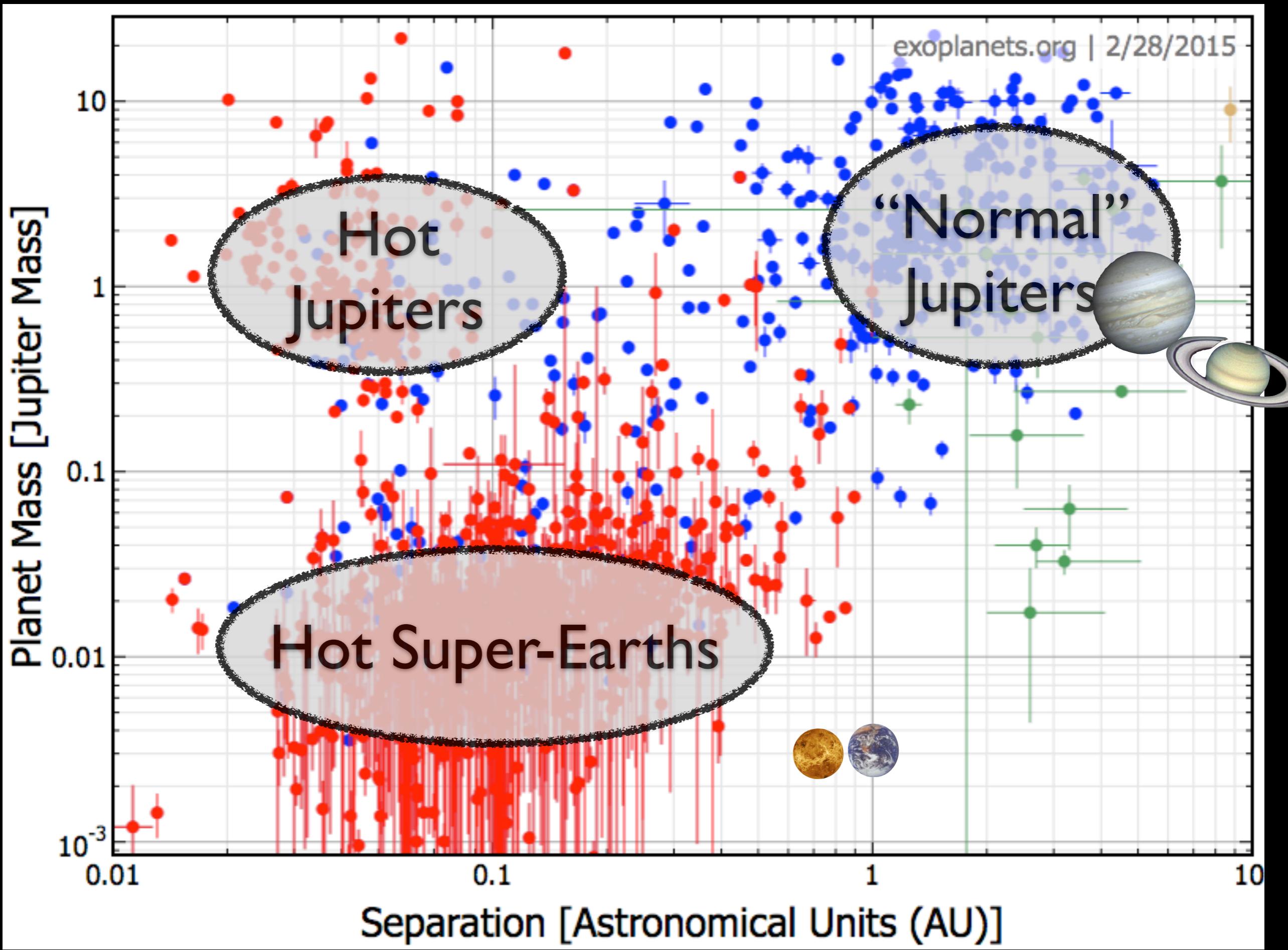
temperature,
luminosity

Le Systeme solaire: rare ou commun?

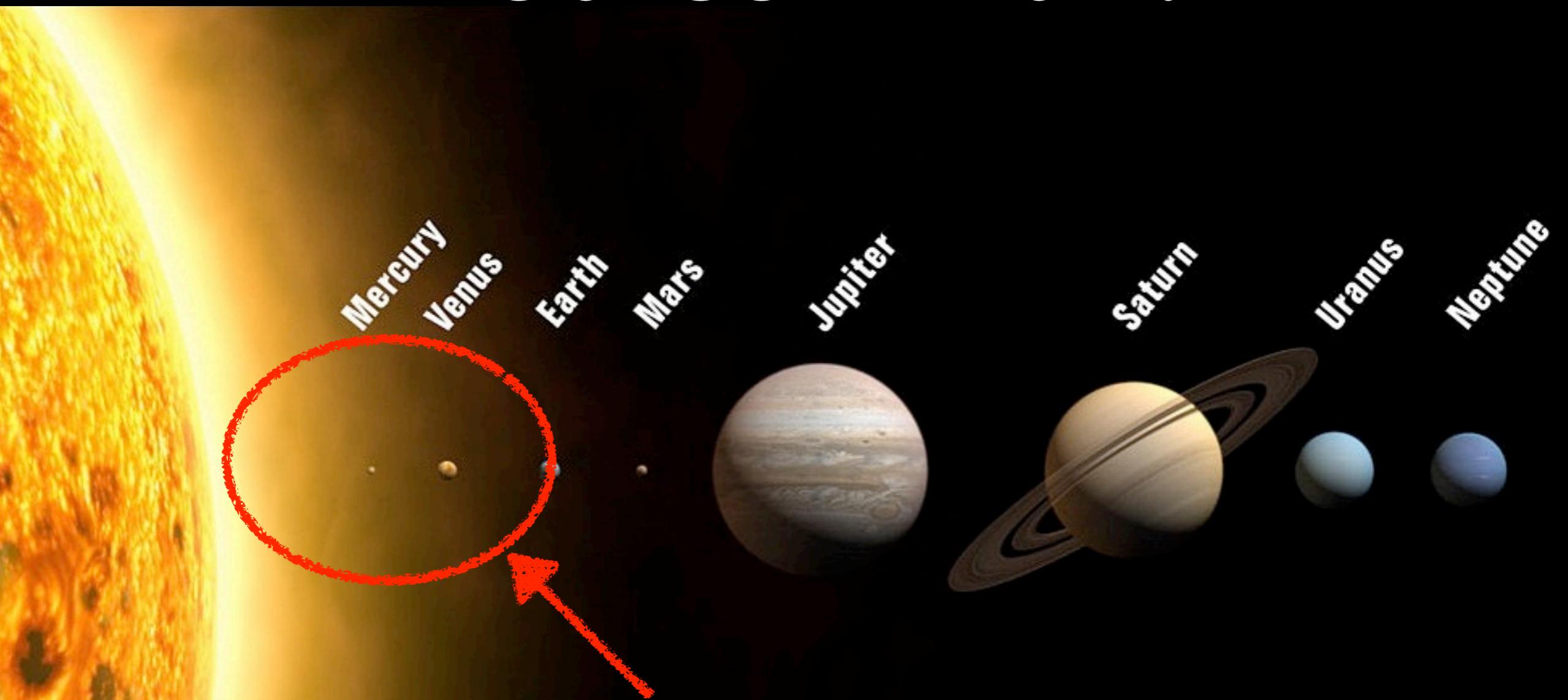


Le soleil: minorite des ~10%



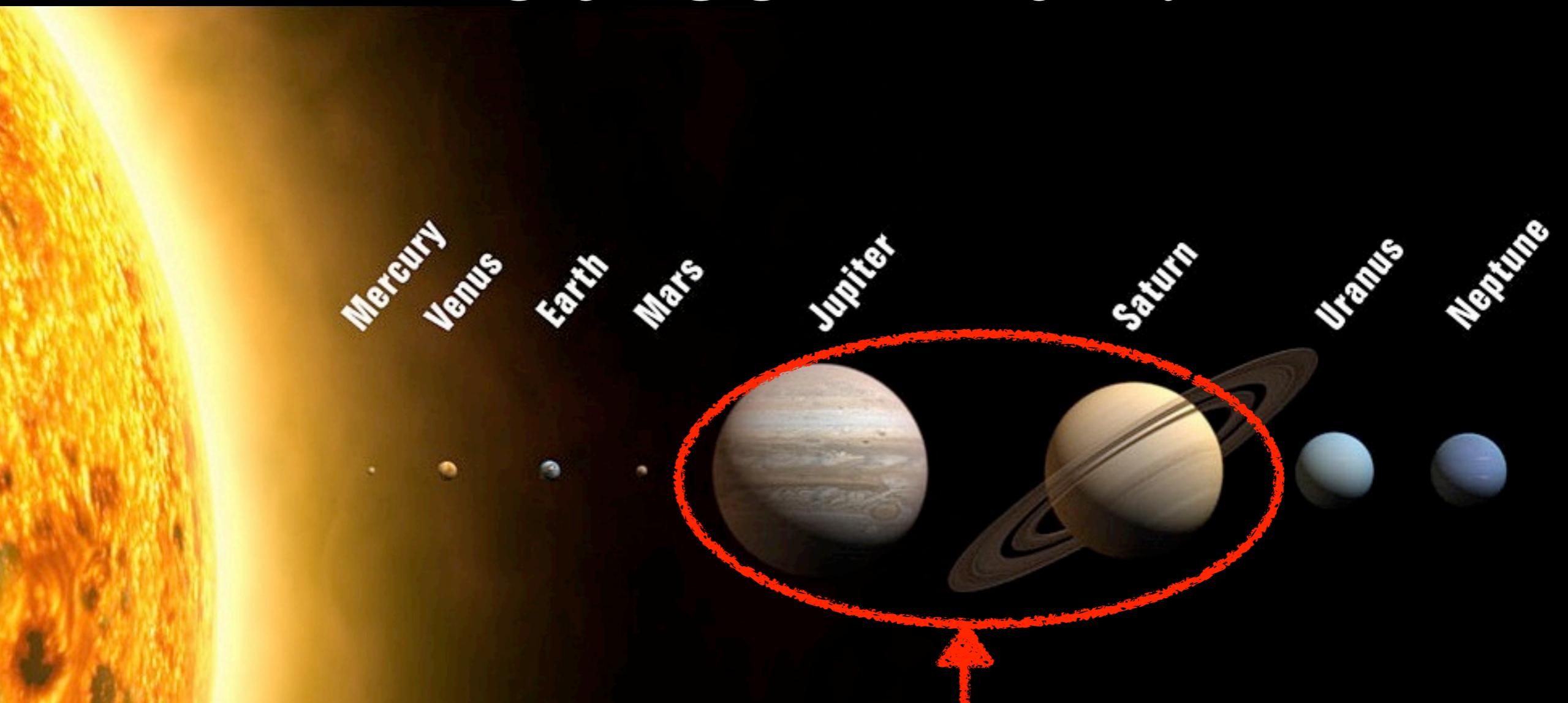


Le Systeme solaire: rare ou commun?



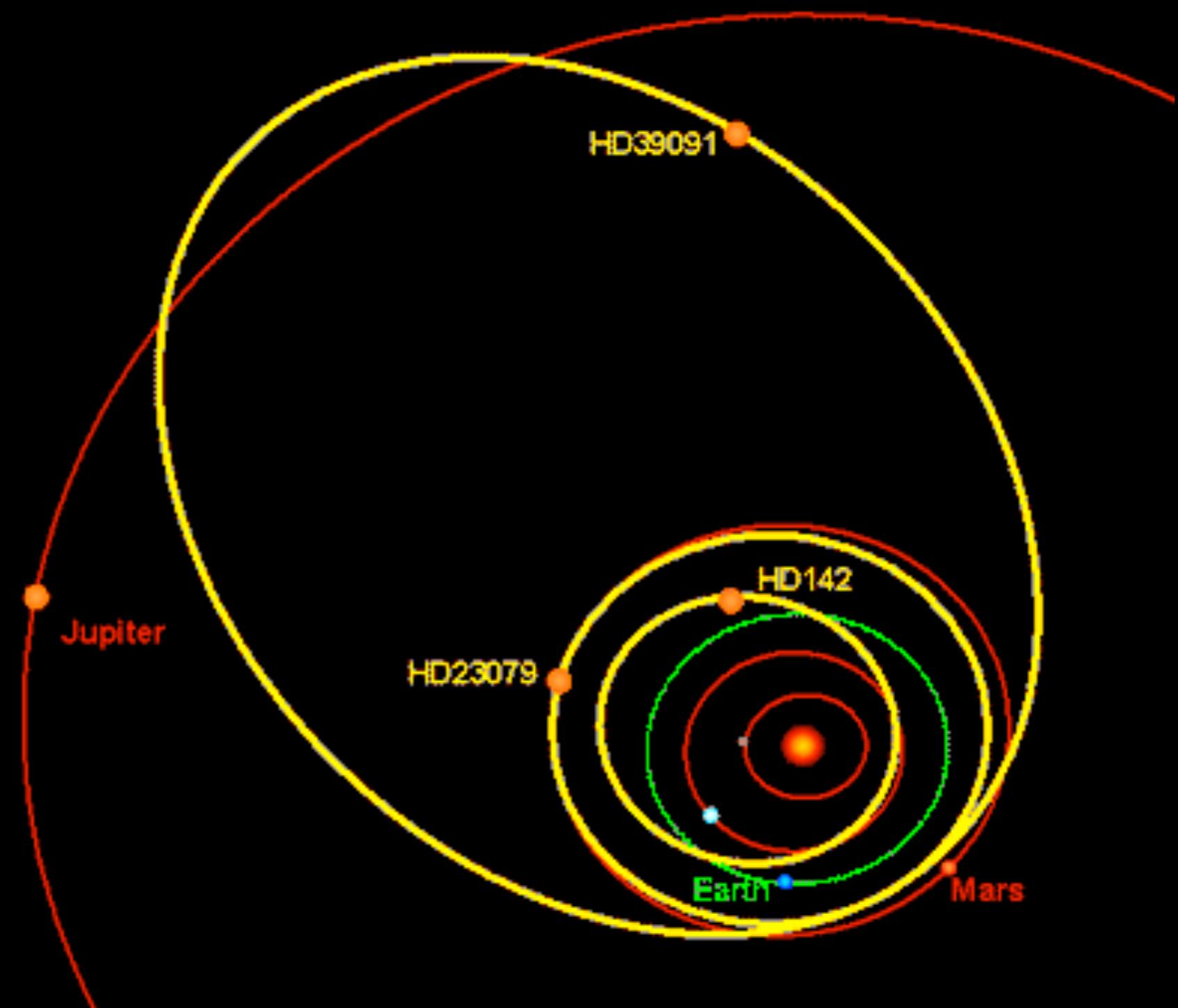
Pas de “super Terres chaudes”: minorité des ~50%

Le Systeme solaire: rare ou commun?

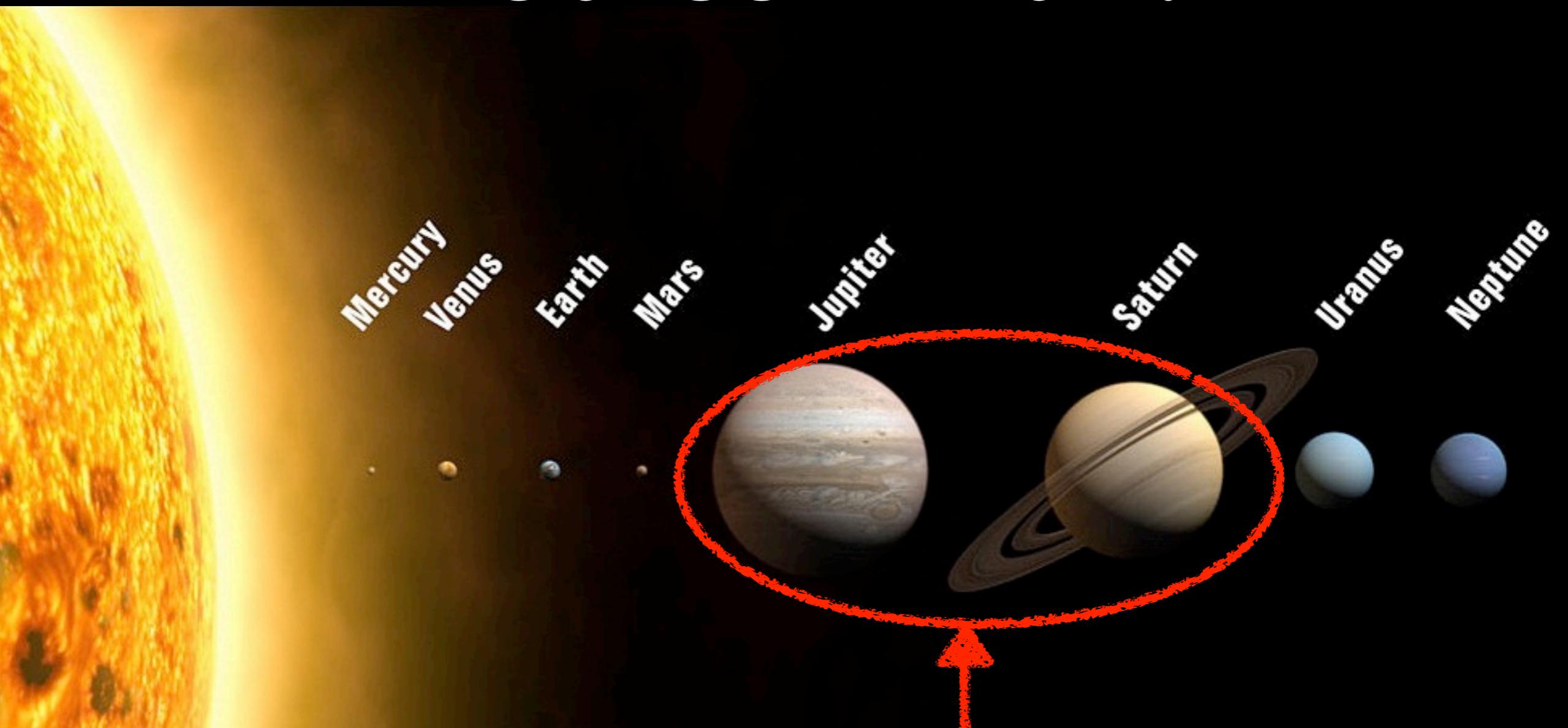


Existence de Jupiter (et Saturne):
minorité des ~10%

Les orbites des exoplanètes géantes



Le Système solaire: rare ou commun?



Orbite quasi-circulaire de Jupiter:
minorité des ~10%



10% (soleil) x
50% (pas de super-Terres
chaudes) x
10% (existence de Jupiter) x
10% (orbite de Jupiter)



10% (soleil) x
50% (pas de super-Terres
chaudes) x
10% (existence de Jupiter) x
10% (orbite de Jupiter)

= 0.05% (1 sur 2000)





500,000,000,000
(etoiles dans la voie lactee) ×
0.05%



500,000,000,000
(etoiles dans la voie lactee) ×
0.05%
= beaucoup!
(~250,000,000)

A wide-angle photograph of a dark blue night sky filled with numerous stars of varying brightness. In the foreground, there are dark silhouettes of snow-covered mountain peaks and ridges. The base of the mountains is covered in a layer of snow, with some dark evergreen trees scattered across it. The overall scene is a serene and majestic view of a winter landscape under a starry sky.

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