



# 5 pianeti allineati

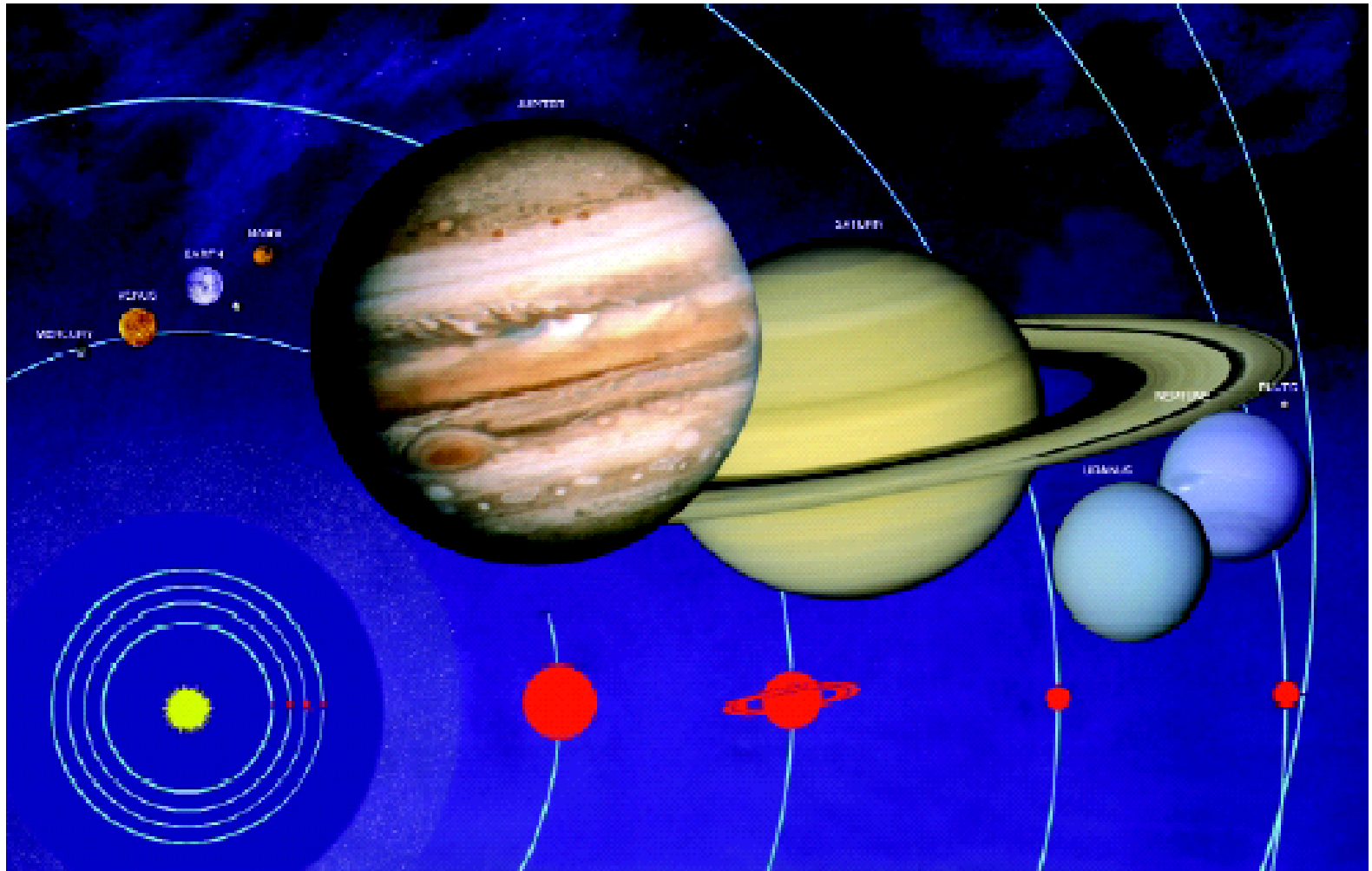
**Mercurio**

**Venere**

**Marte**

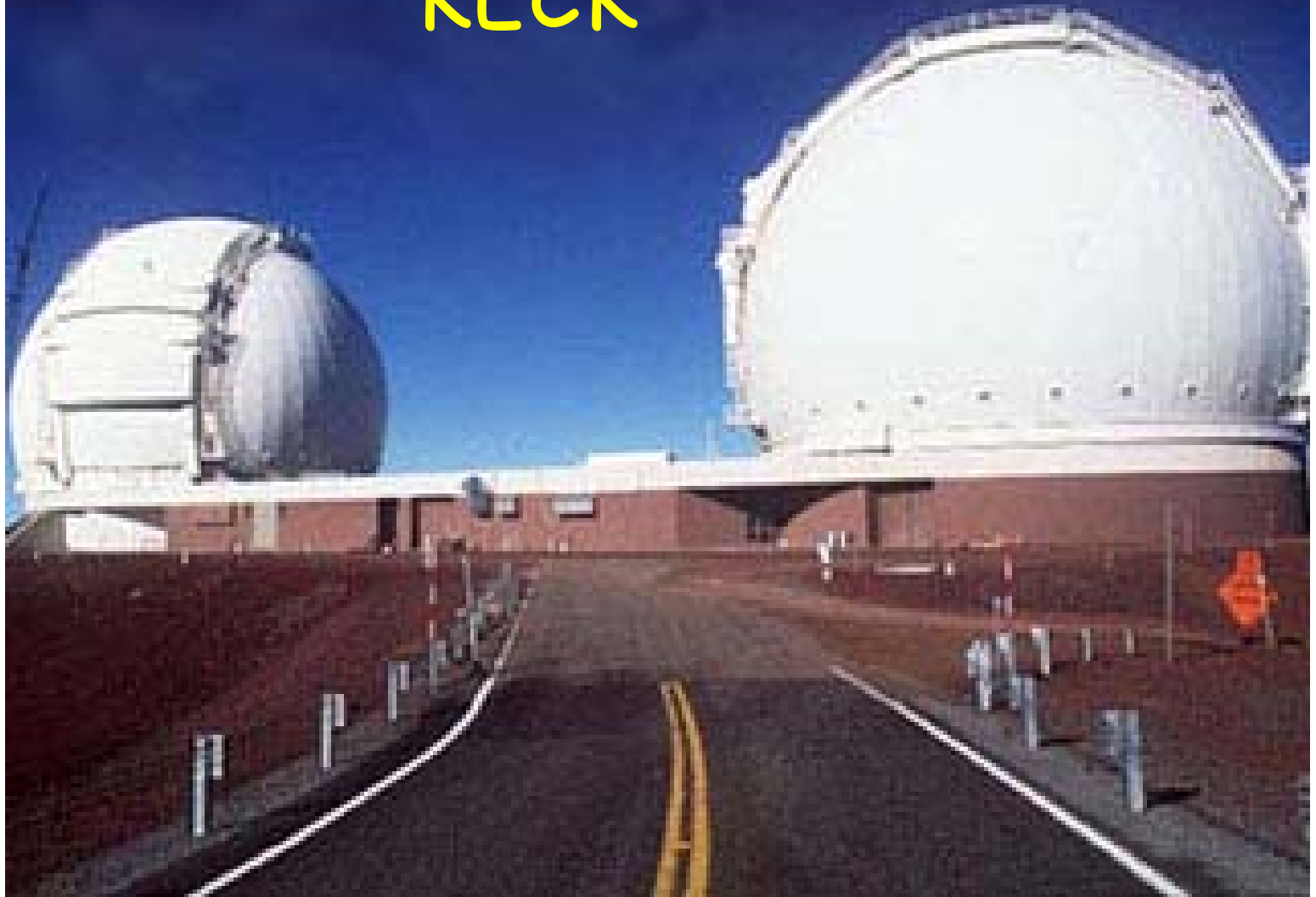
**Giove**

**Saturno**



	Distance (AU)	Radius (Earth's)	Mass (Earth's)	Rotation (Earth's)	# Moons	Orbital Inclination	Orbital Eccentricity	Density (g/cm <sup>3</sup> )
<u>Sun</u>	0	109	332,800	25-36*	9	---	---	1.410
<u>Mercury</u>	0.39	0.38	0.05	58.8	0	7	0.2056	5.43
<u>Venus</u>	0.72	0.95	0.89	244	0	3.394	0.0068	5.25
<u>Earth</u>	1.0	1.00	1.00	1.00	1	0.000	0.0167	5.52
<u>Mars</u>	1.5	0.53	0.11	1.029	2	1.850	0.0934	3.95
<u>Jupiter</u>	5.2	11	318	0.411	16	1.308	0.0483	1.33
<u>Saturn</u>	9.5	9	95	0.428	18	2.488	0.0560	0.69
<u>Uranus</u>	19.2	4	15	0.748	15	0.774	0.0461	1.29
<u>Neptune</u>	30.1	4	17	0.802	8	1.774	0.0097	1.64
<u>Pluto</u>	39.5	0.18	0.002	0.267	1	17.15	0.2482	2.03

KECK







# La Silla

Evening Start-up at the La Silla Observatory

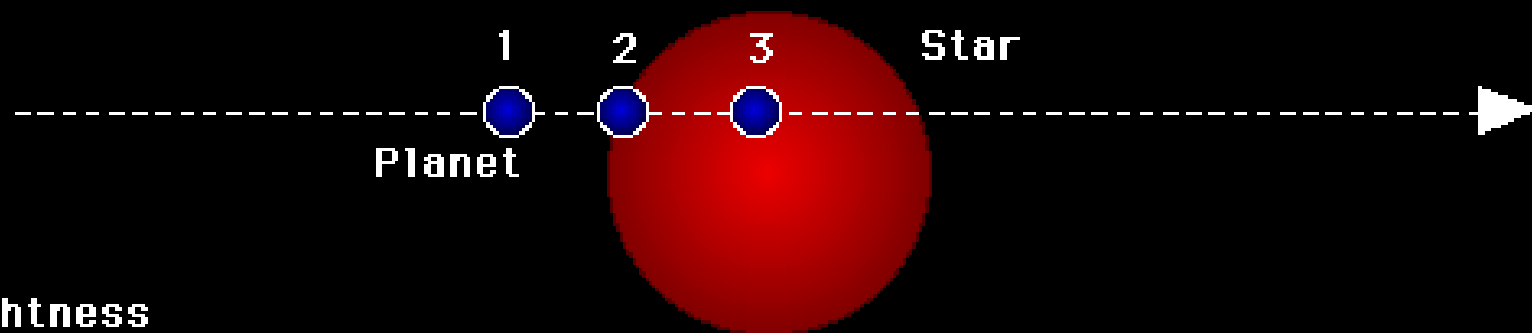


**Total  
eclipse**

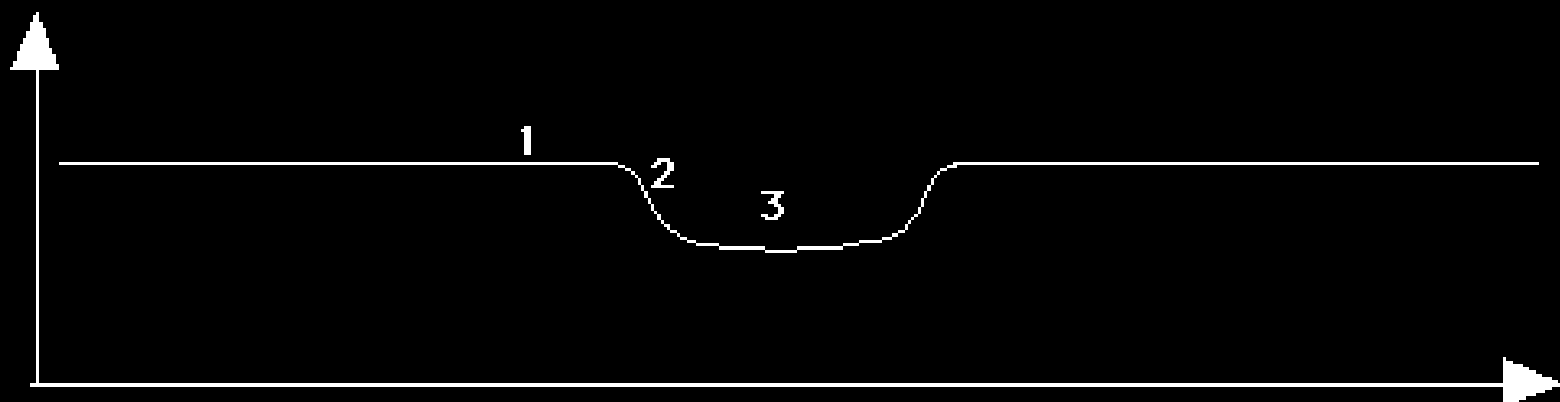


# Transit of Venus





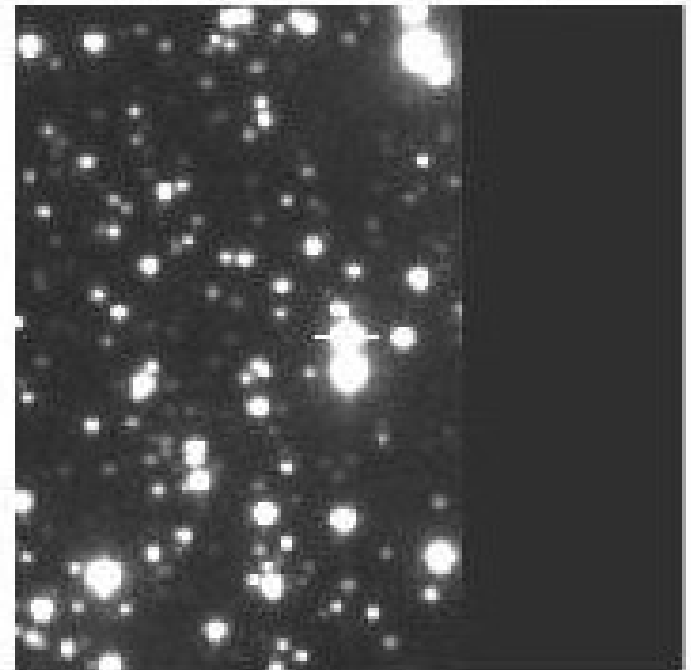
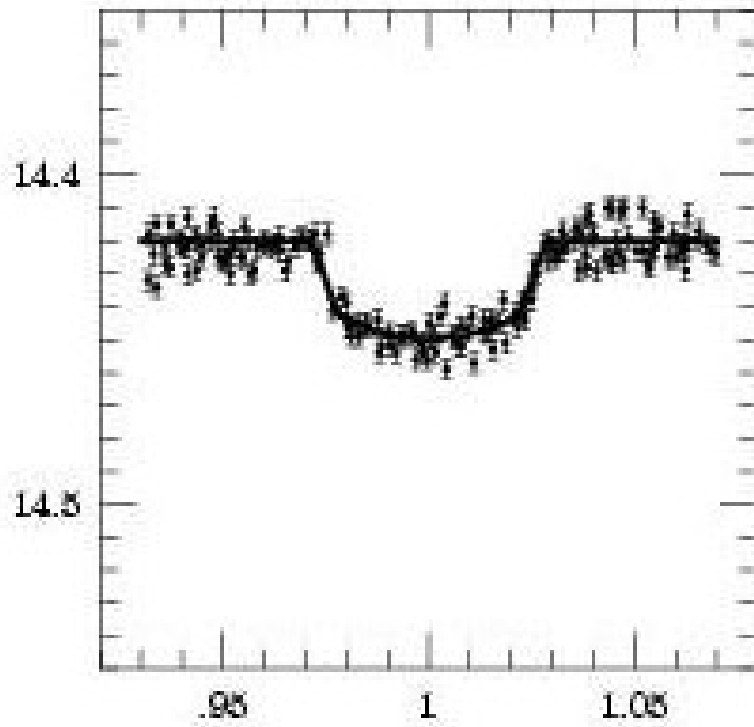
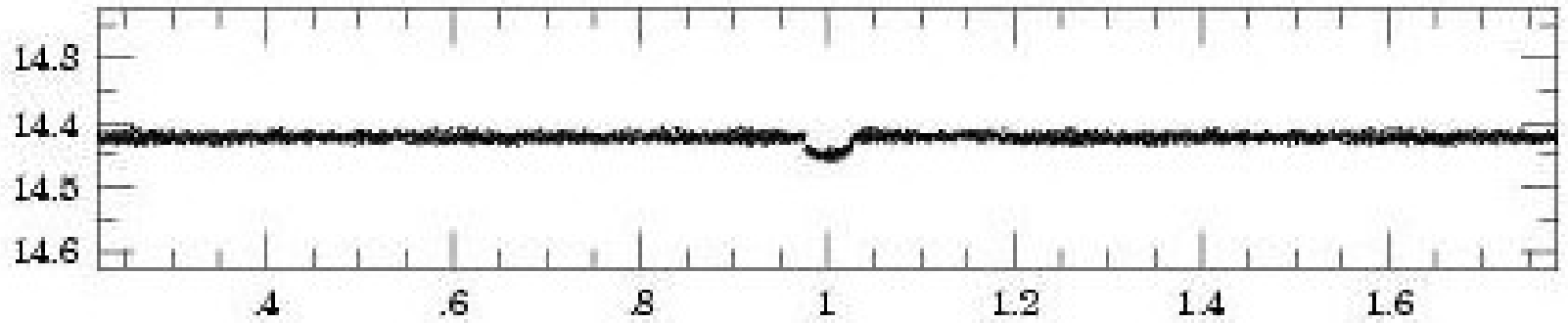
Brightness

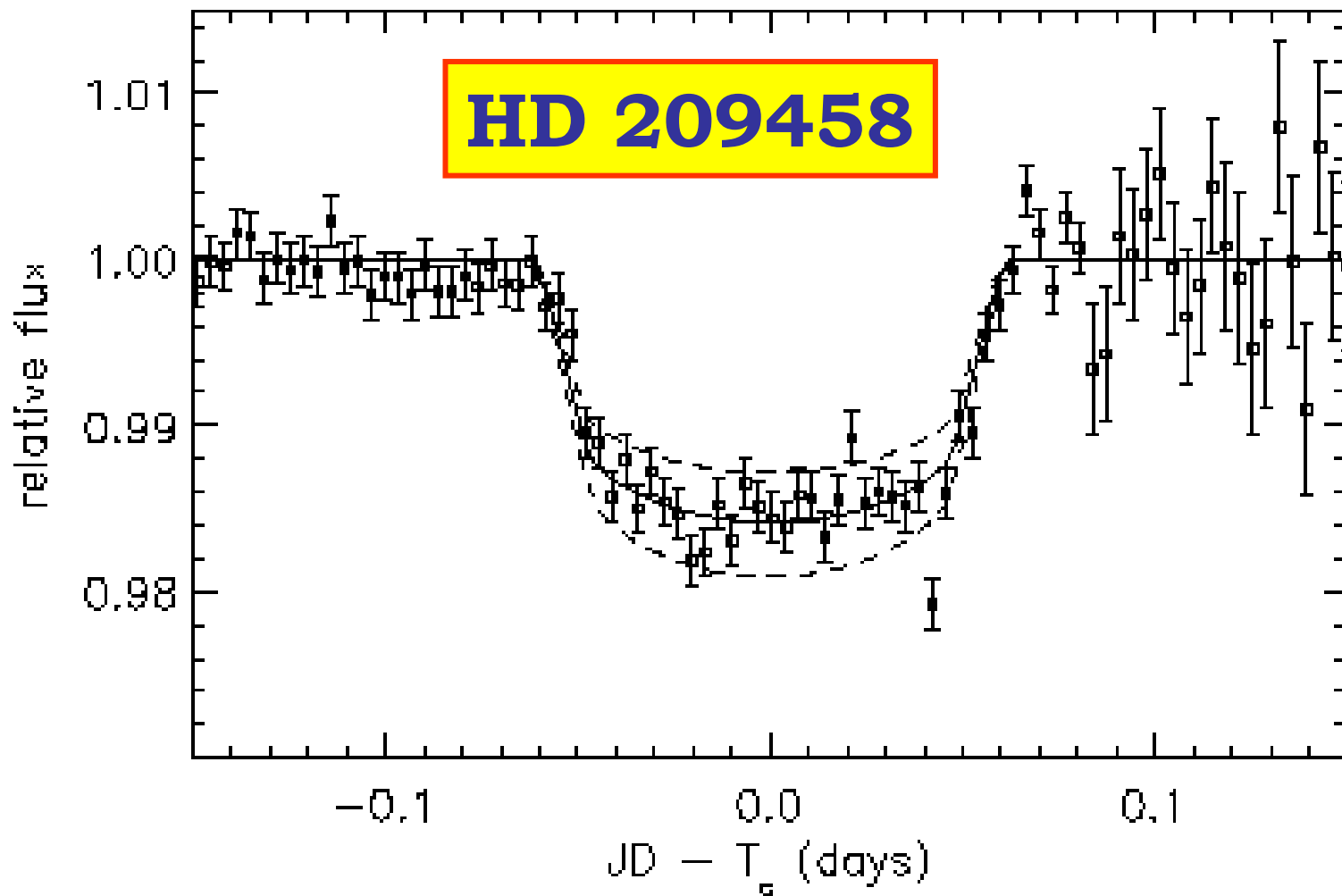


Time

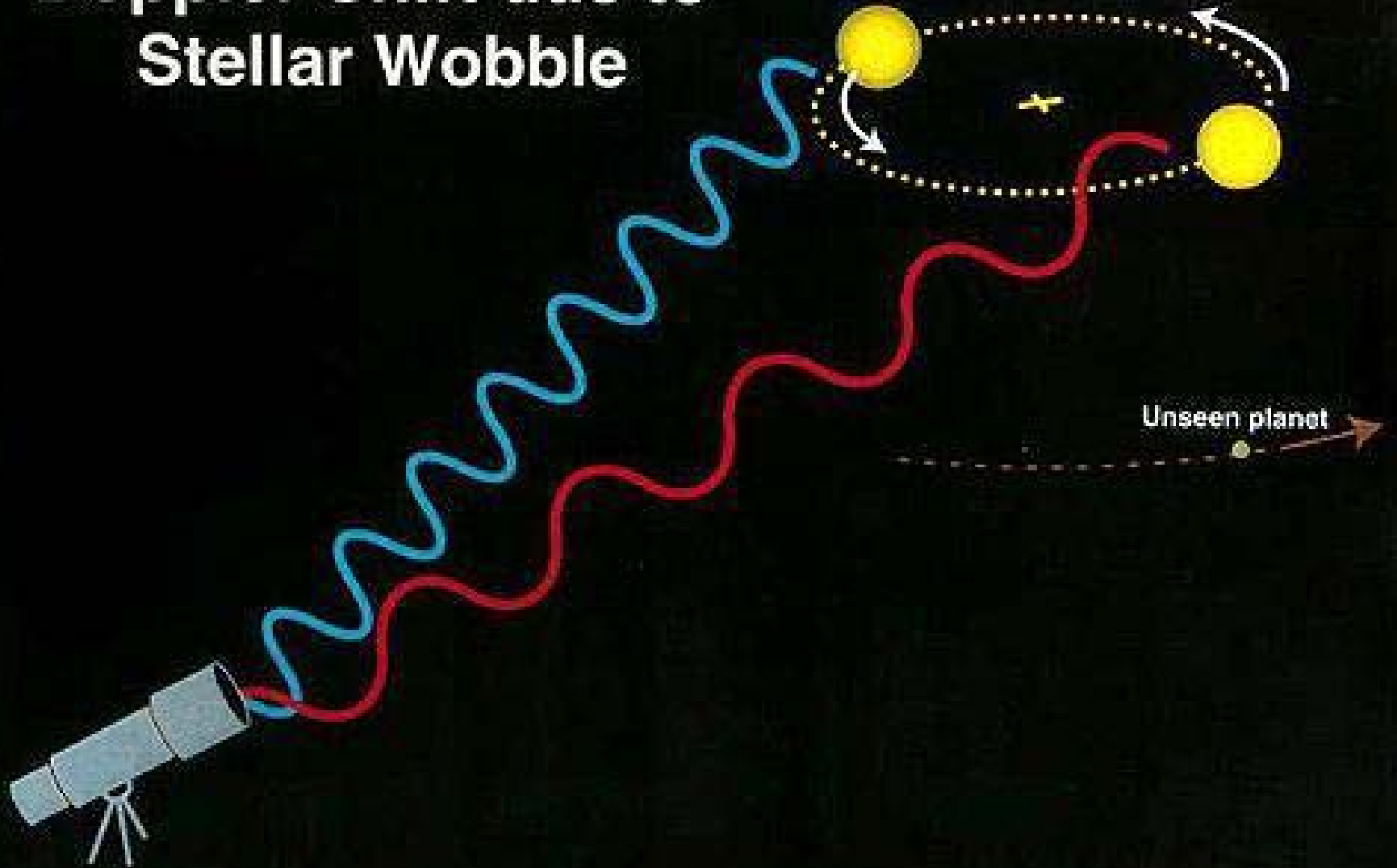
© Hans Deeg

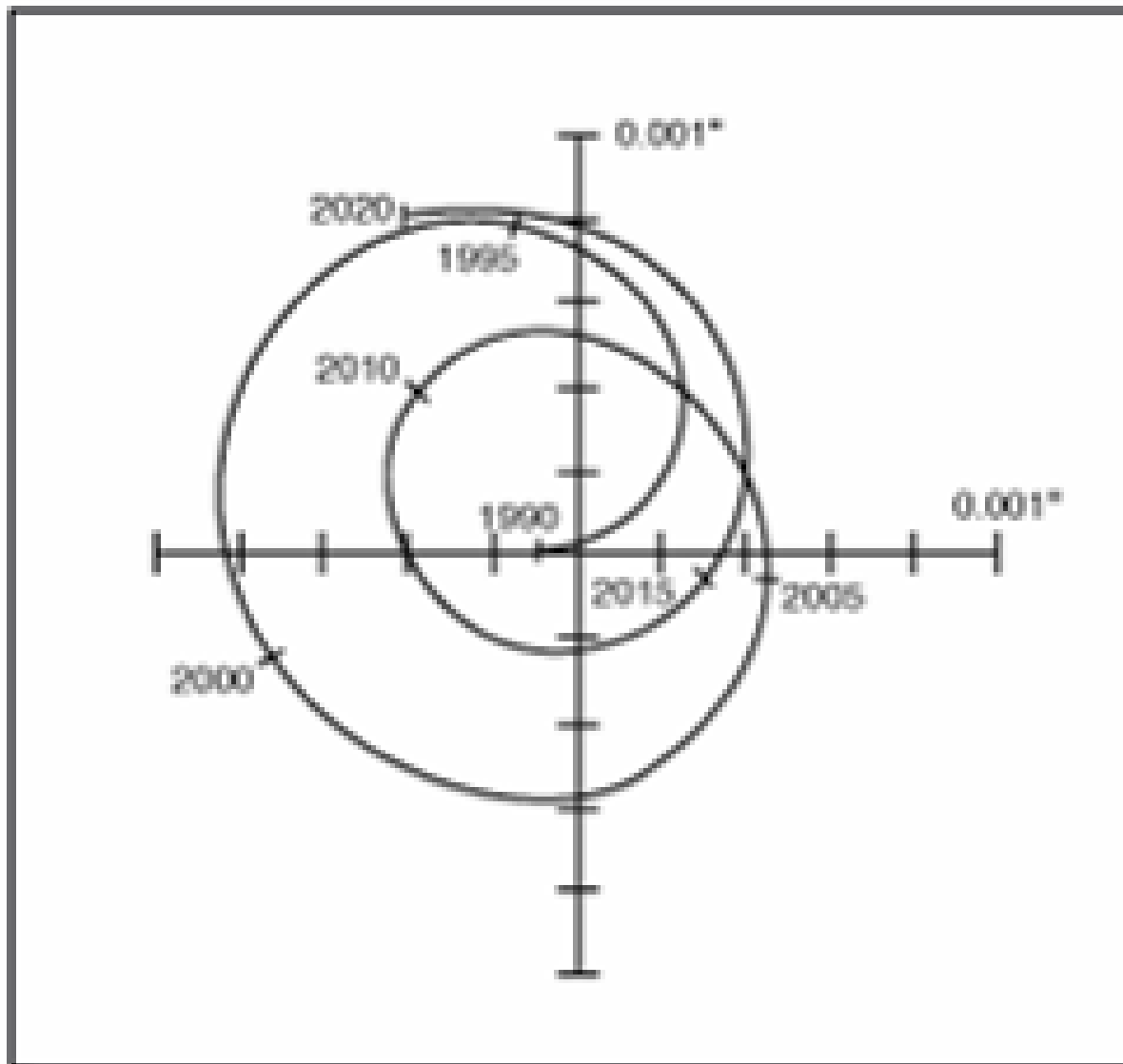
OGLE-TR-113 P=1.43250 (days)





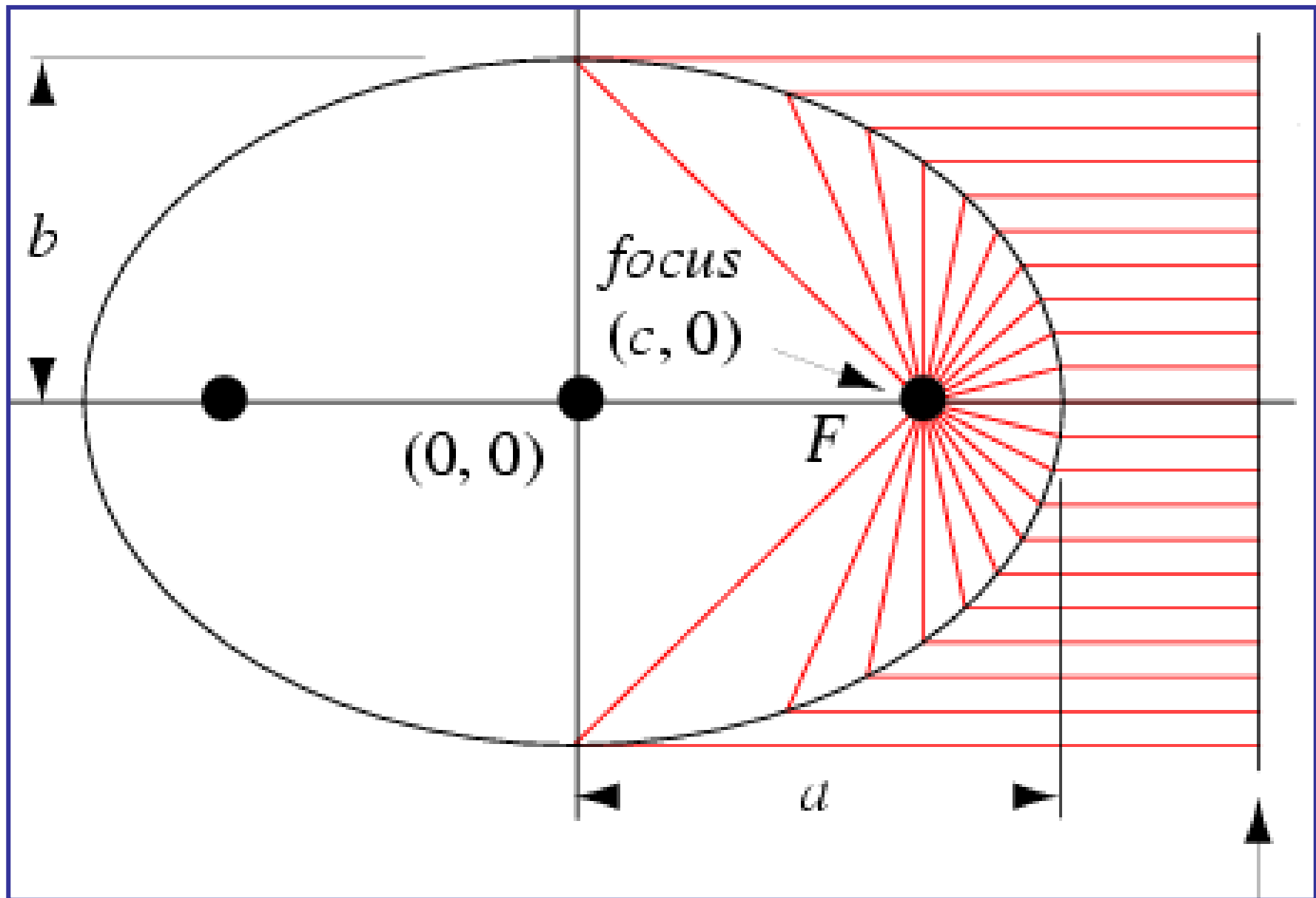
# Doppler Shift due to Stellar Wobble



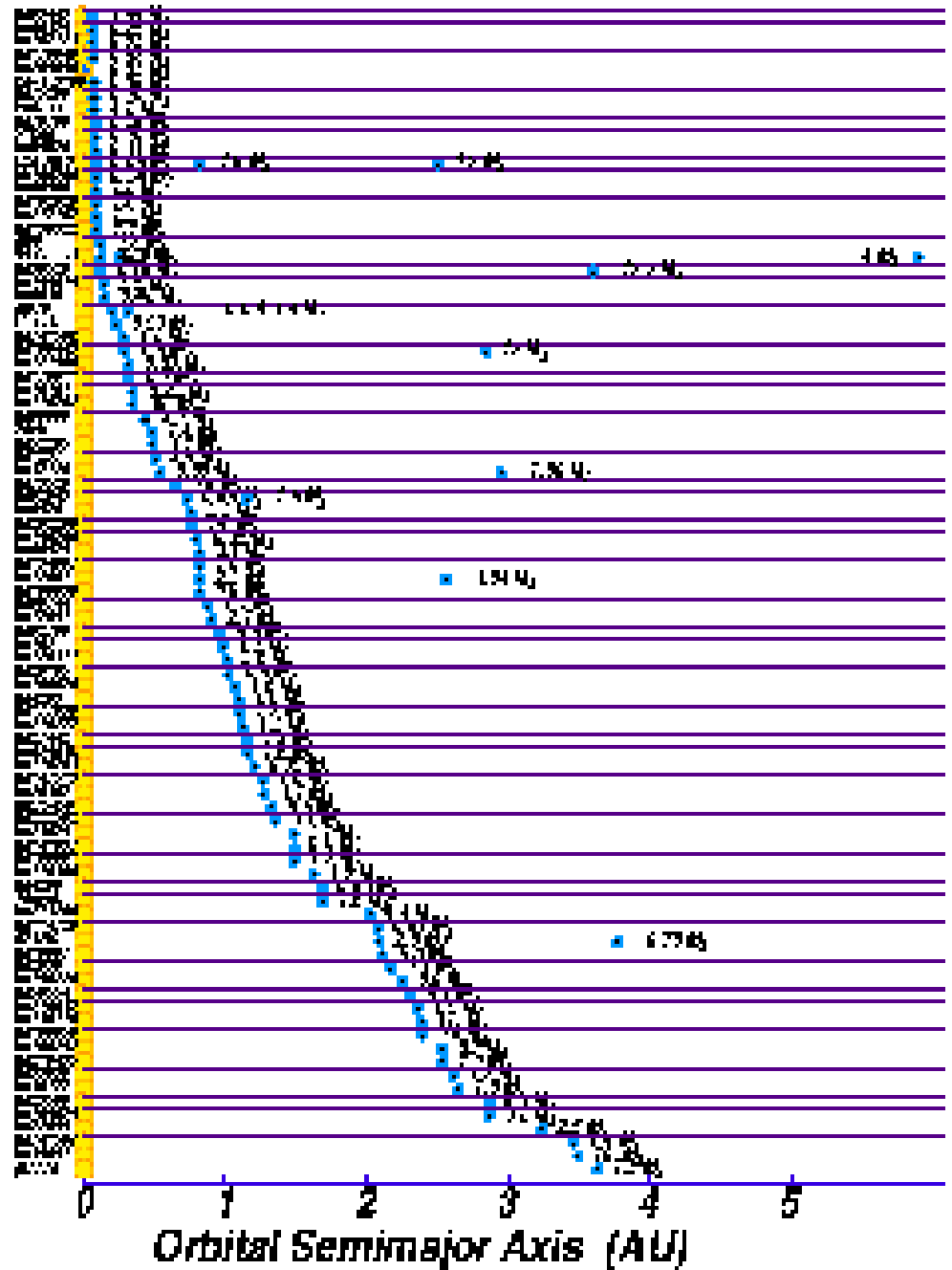


**Astrometric displacement of the Sun due to Jupiter  
as seen from 10 parsecs.**

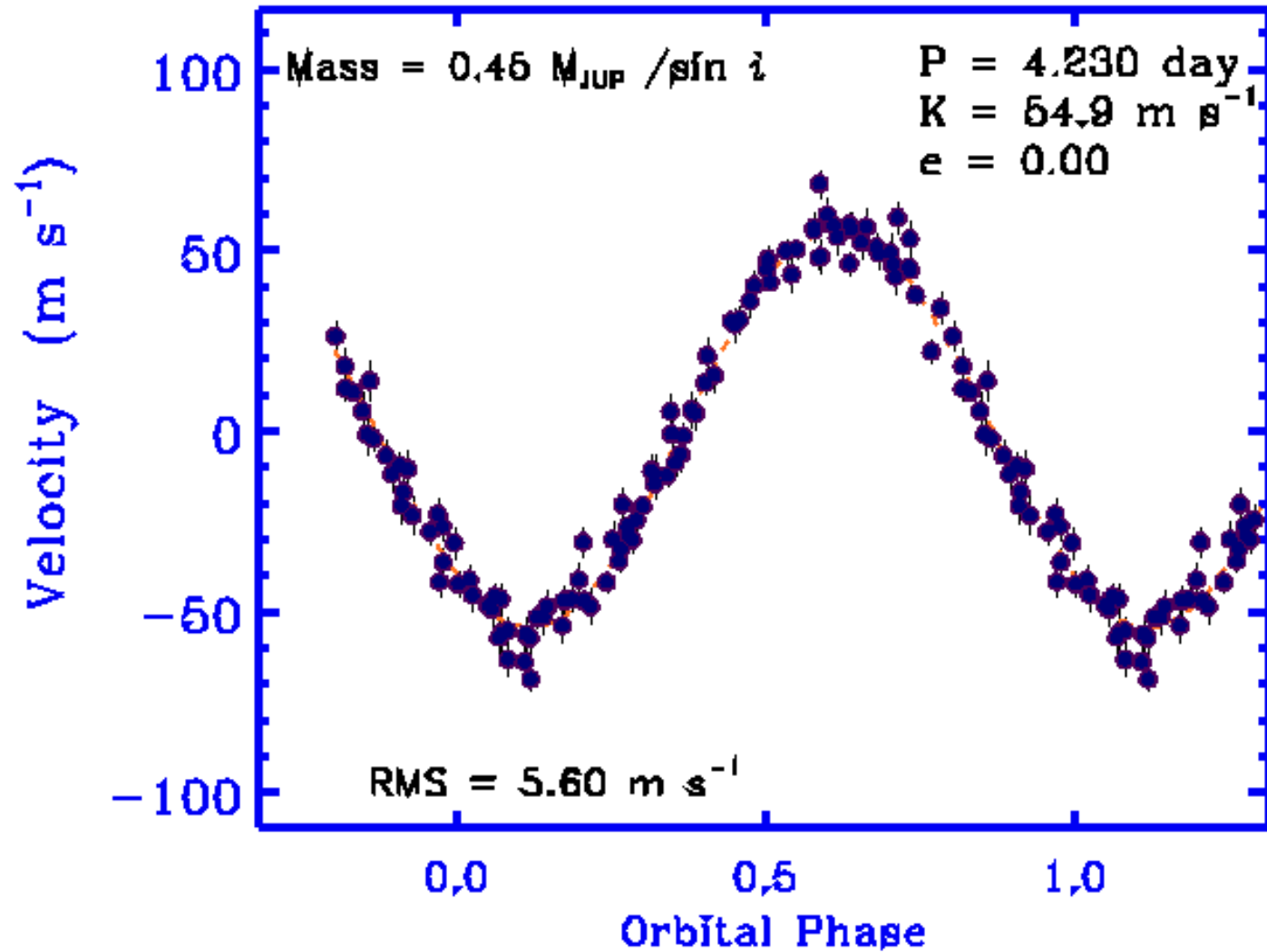




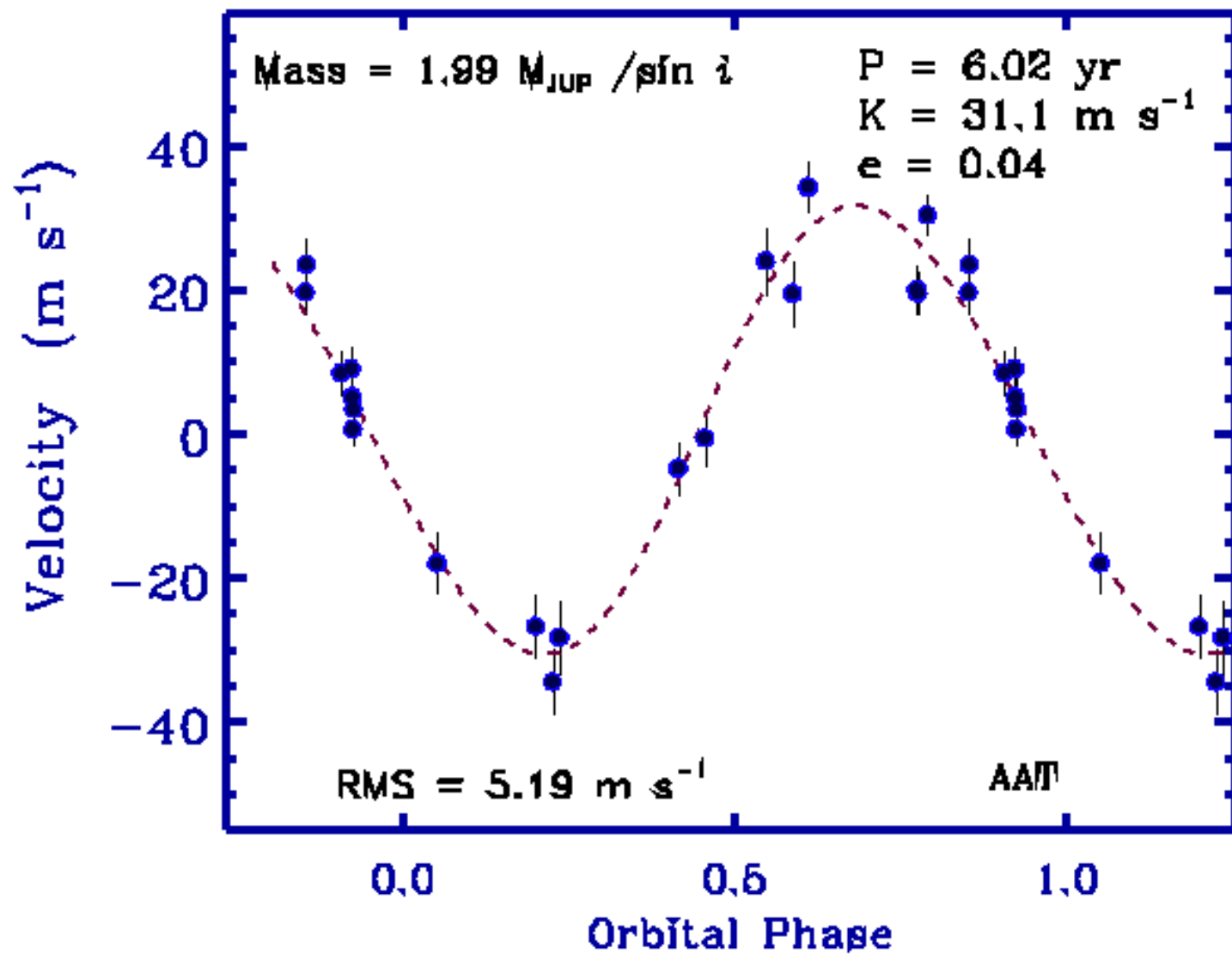
Il primo pianeta extrasolare venne scoperto nel 1995 da Mayor e Queloz, all'Osservatorio di Ginevra, intorno alla stella 51 Pegasi. Ora sono oltre 300 i sistemi planetari extrasolari scoperti (in media se ne scopre 1 al mese).

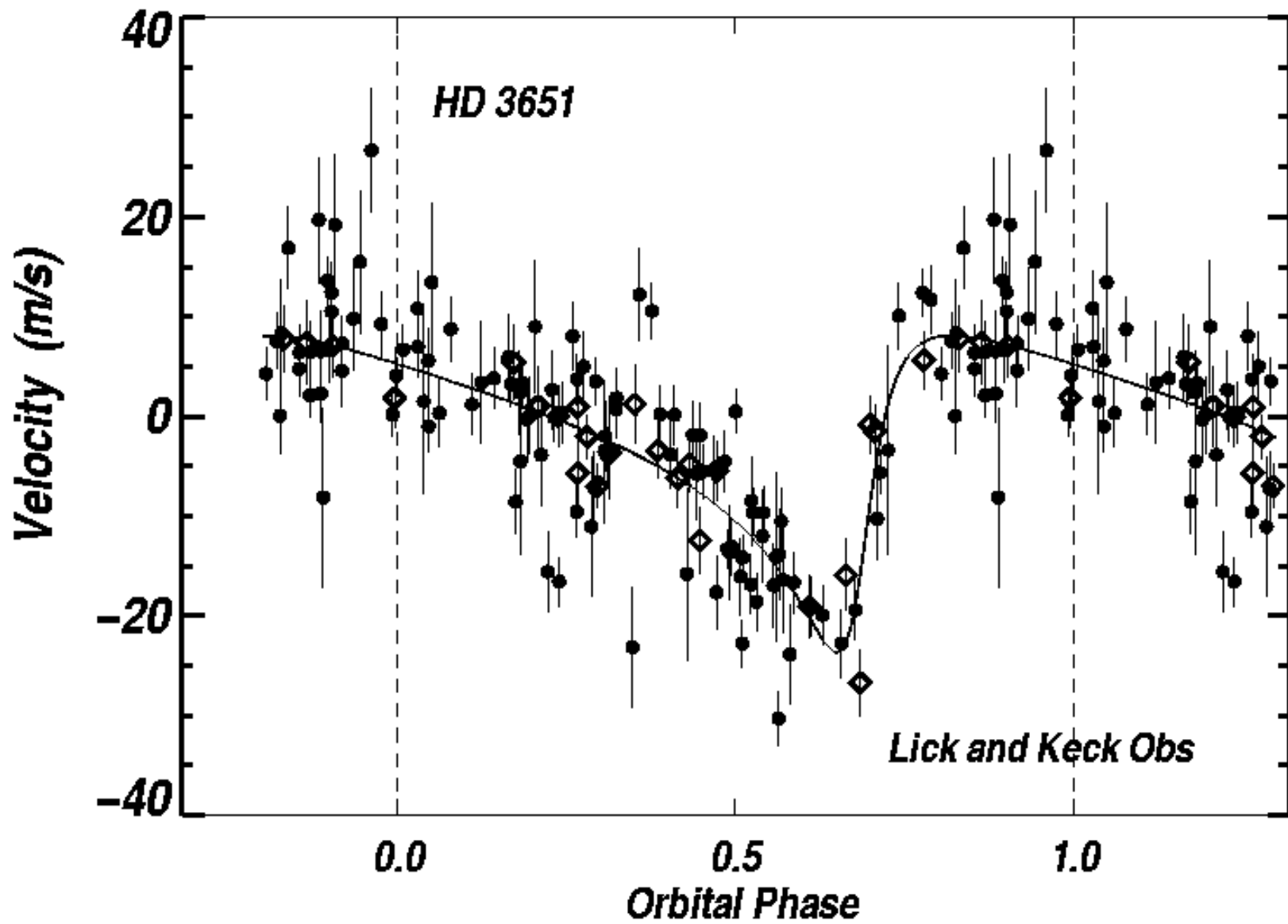


# 51 Pegasi

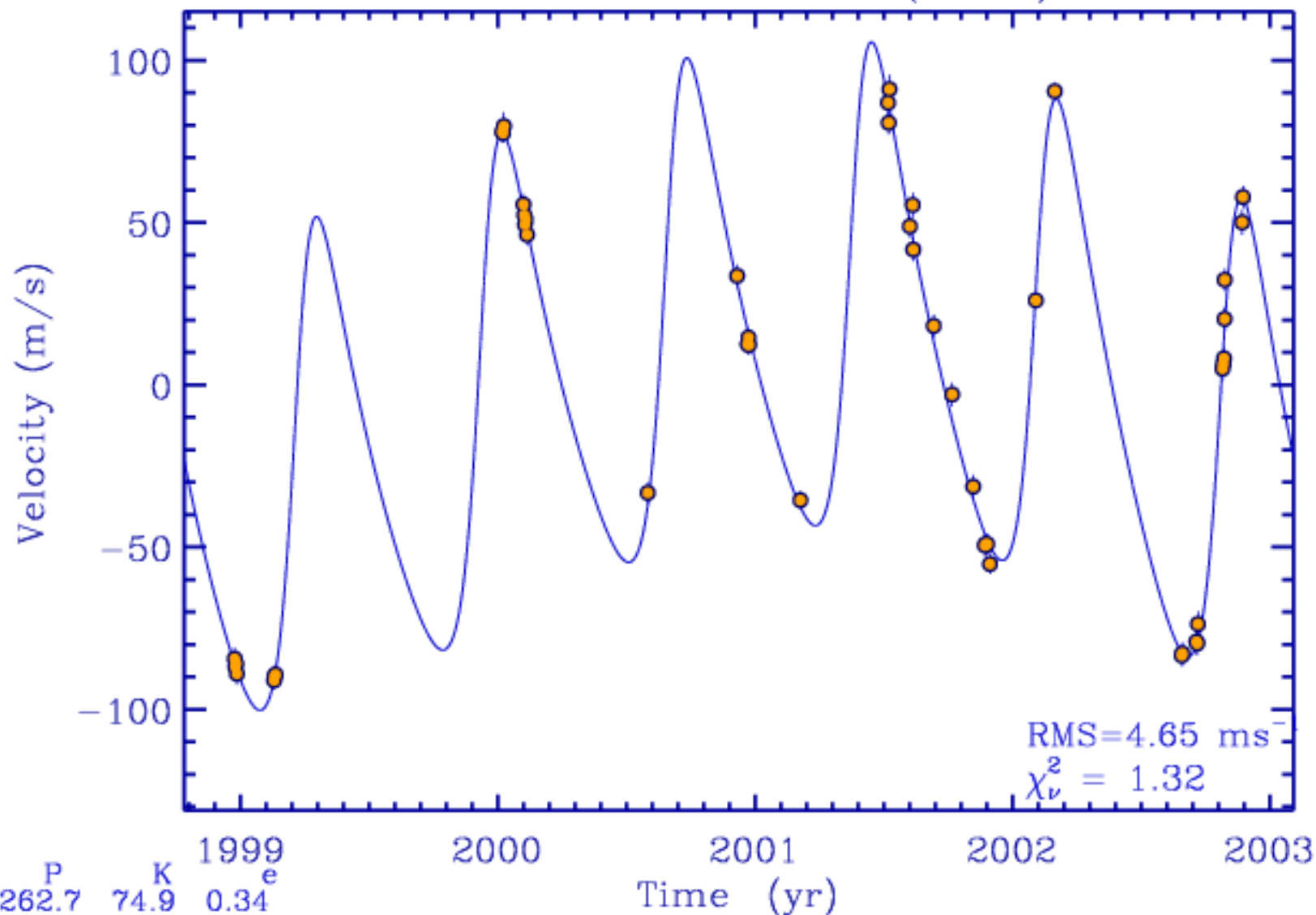


# HD 70642



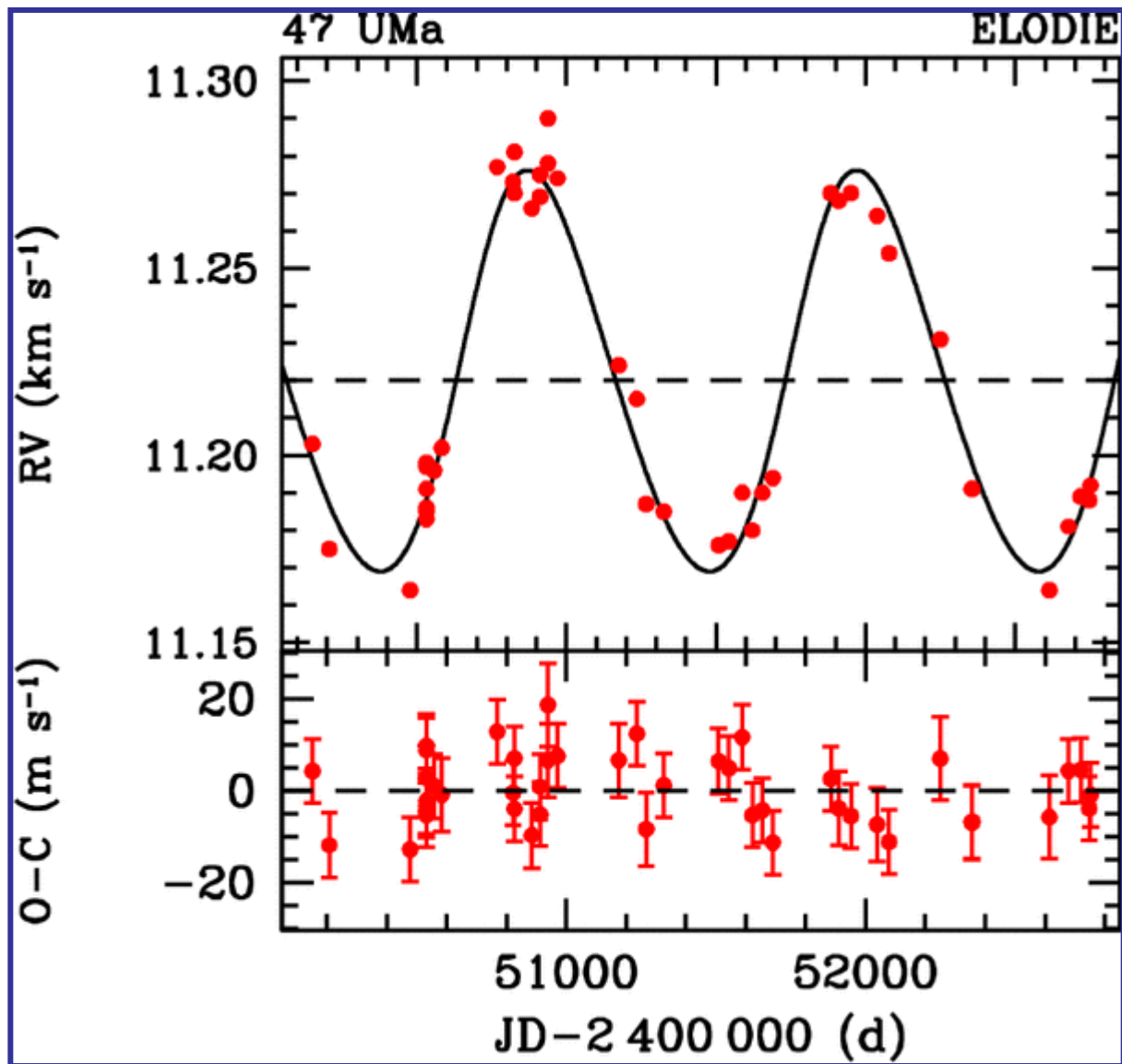


# HD 12661 (Keck)

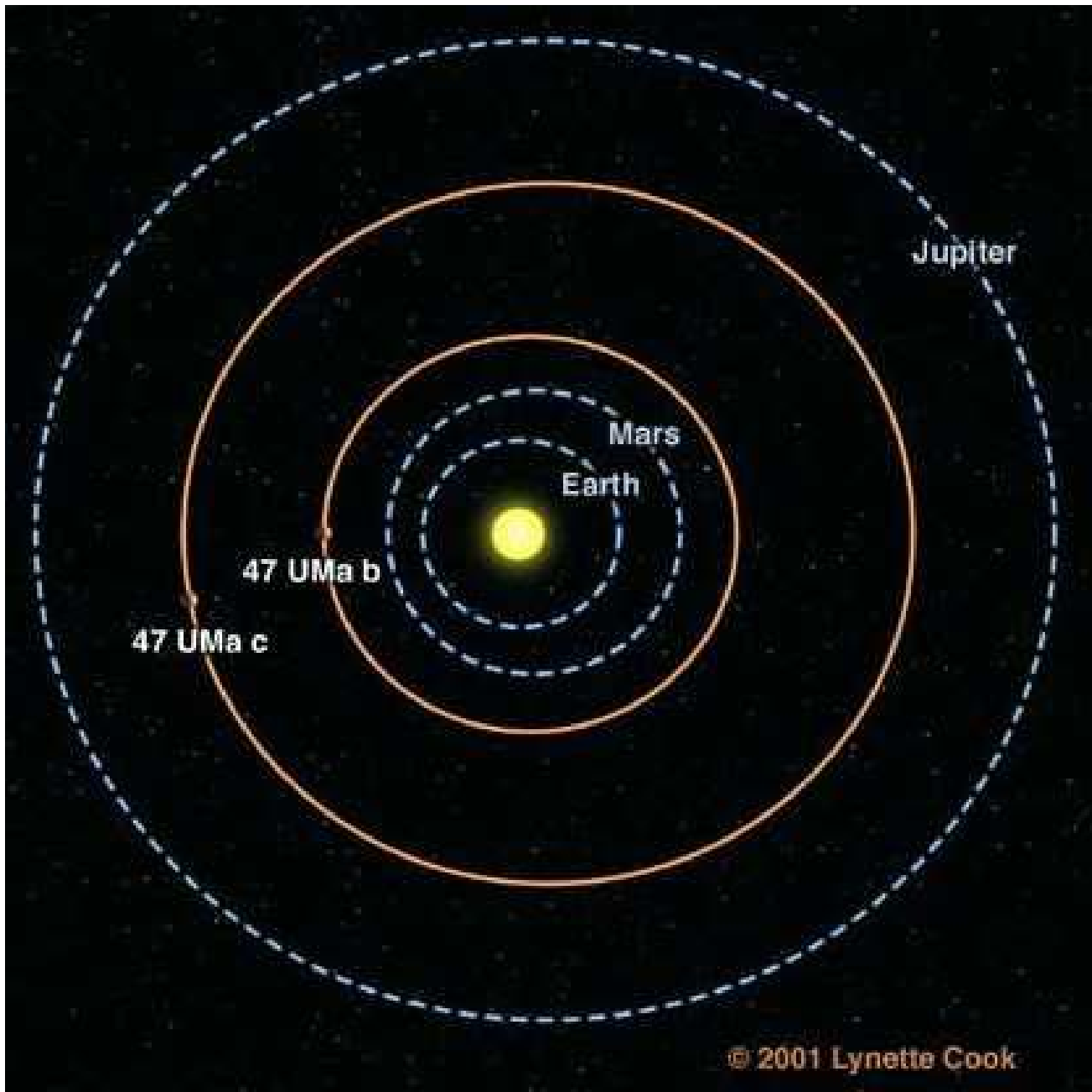


P	K	$e$
262.7	74.9	0.34
1557.0	28.4	0.09

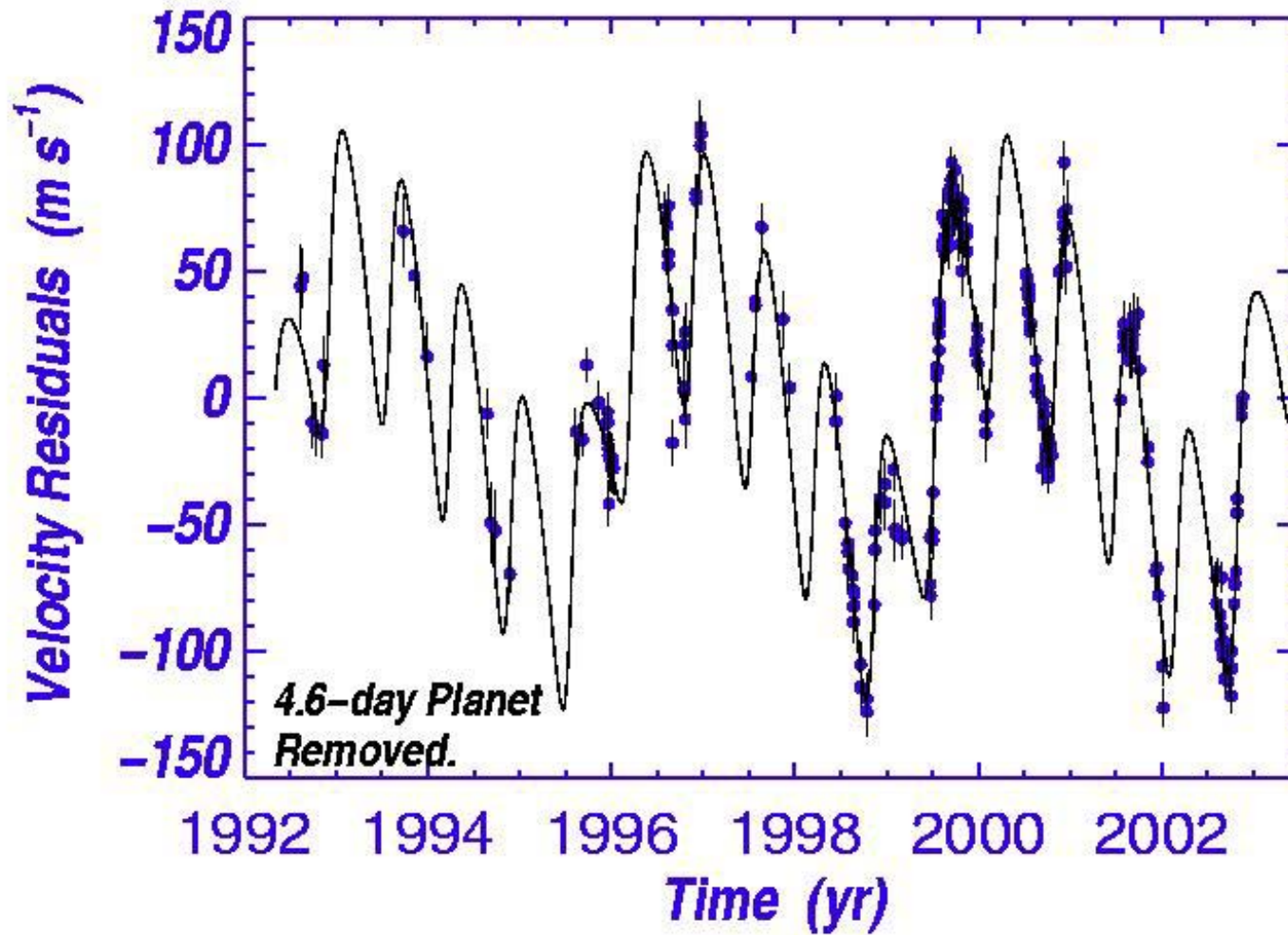
RMS=4.65 ms<sup>-1</sup>  
 $\chi^2_{\nu} = 1.32$



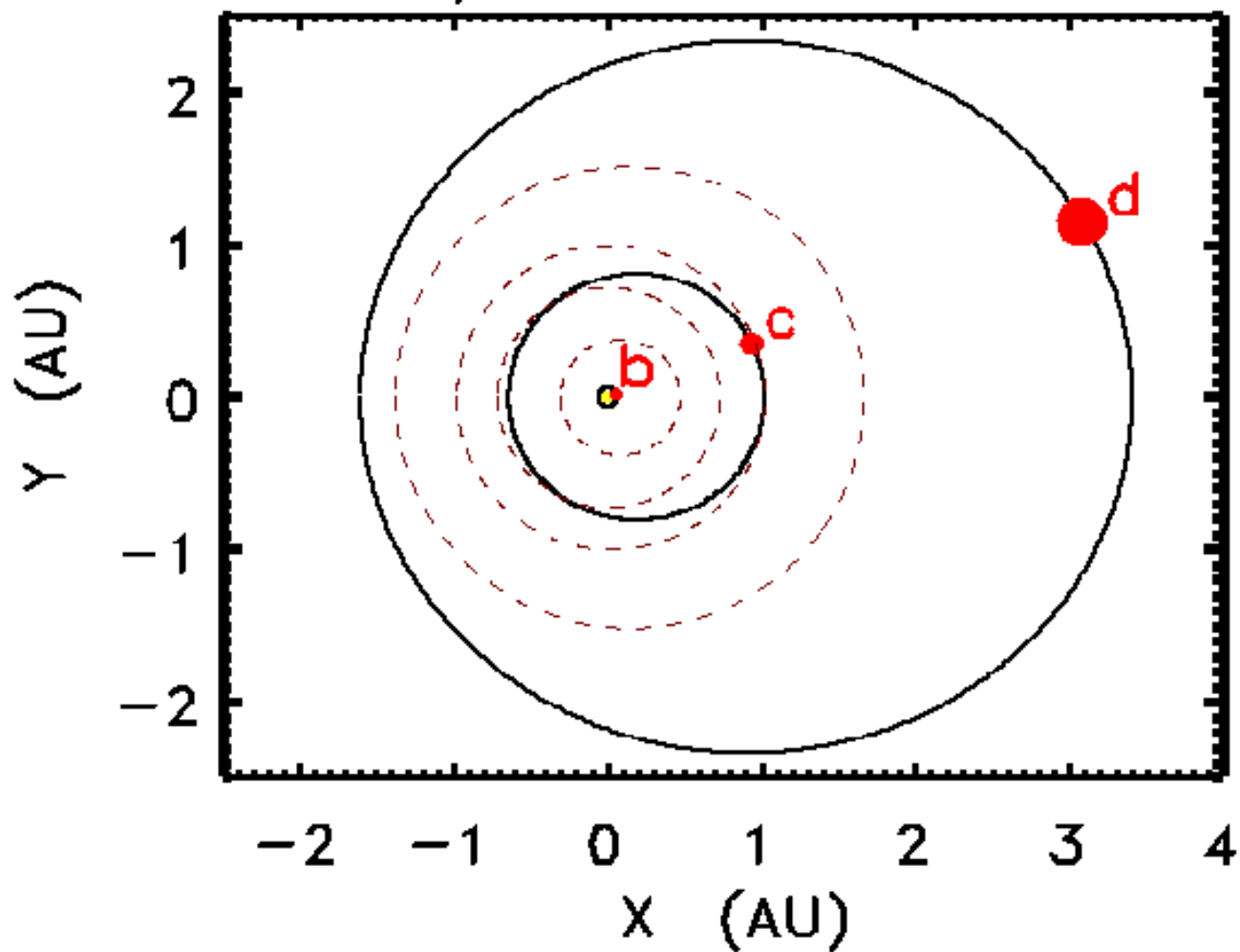




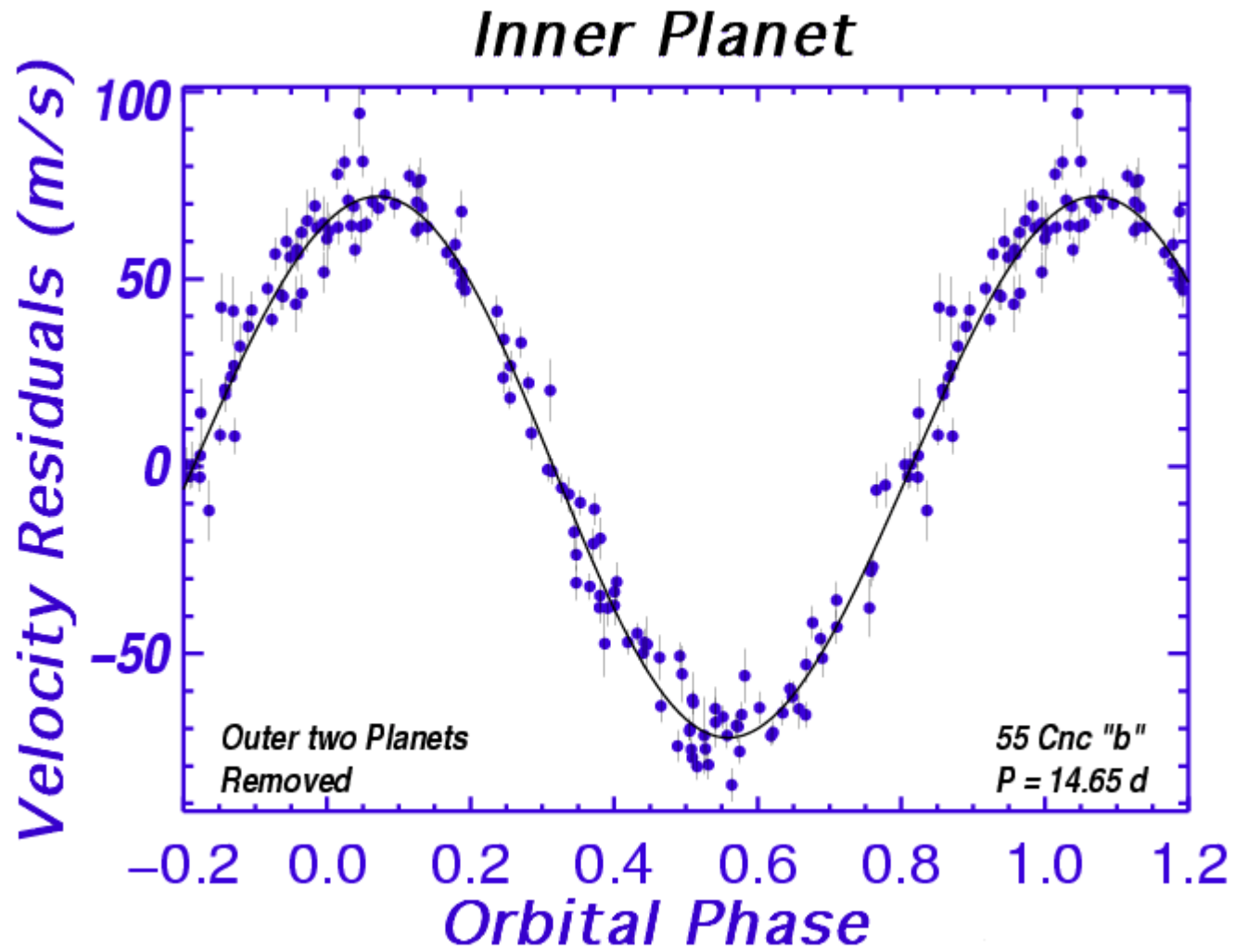
# Upsilon Andromedae



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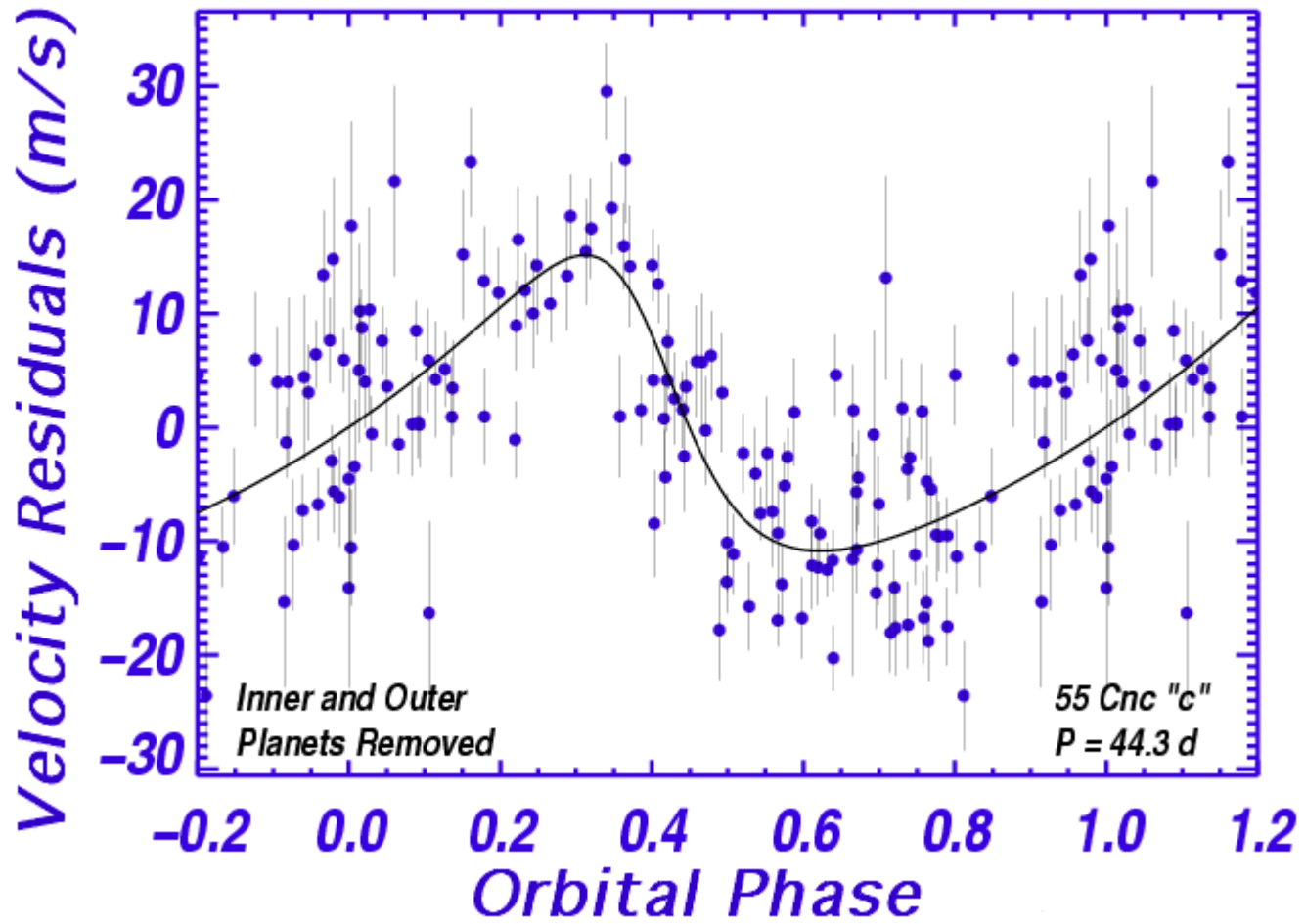


# 55 Cnc



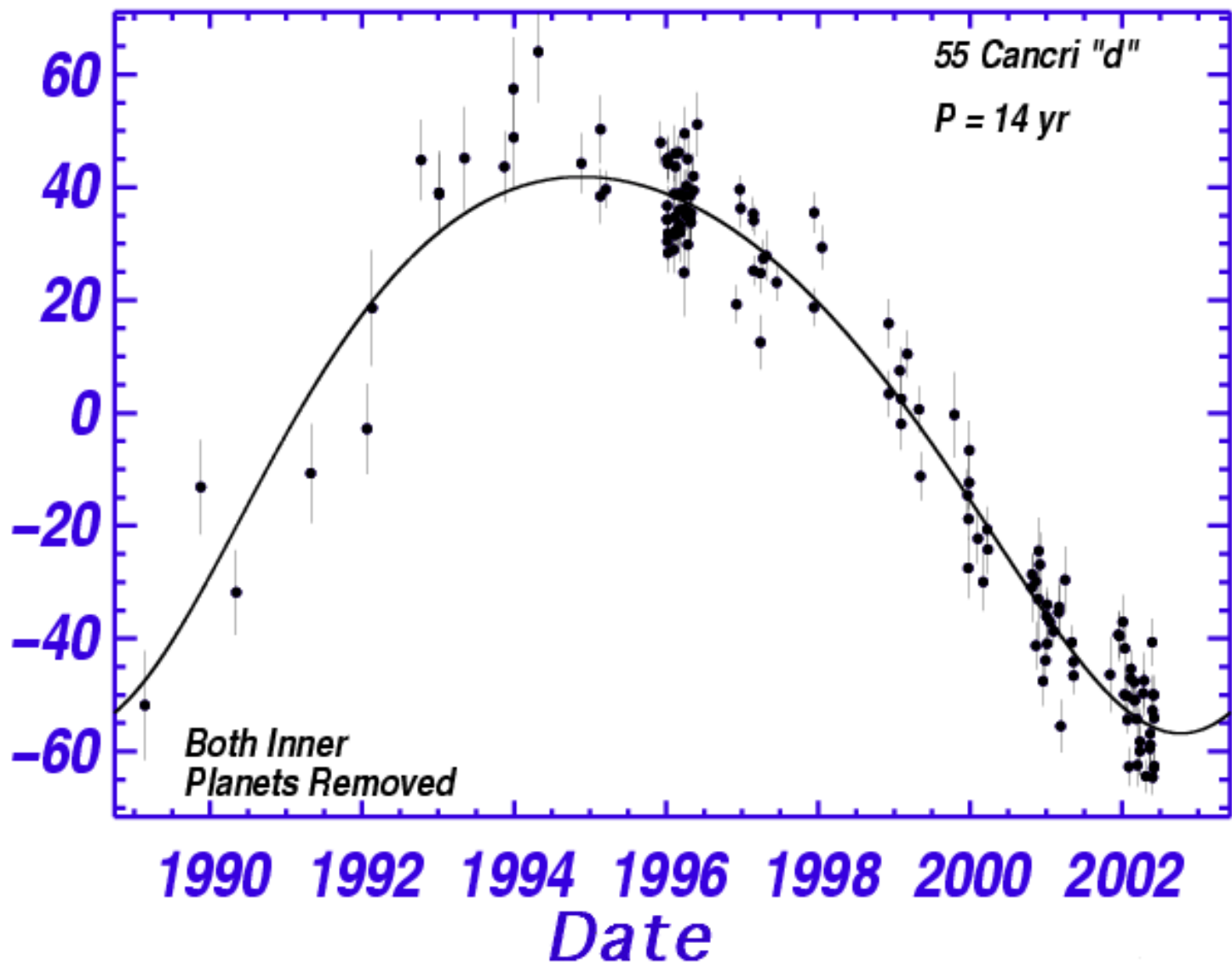
# 55 Cnc

## Middle Planet

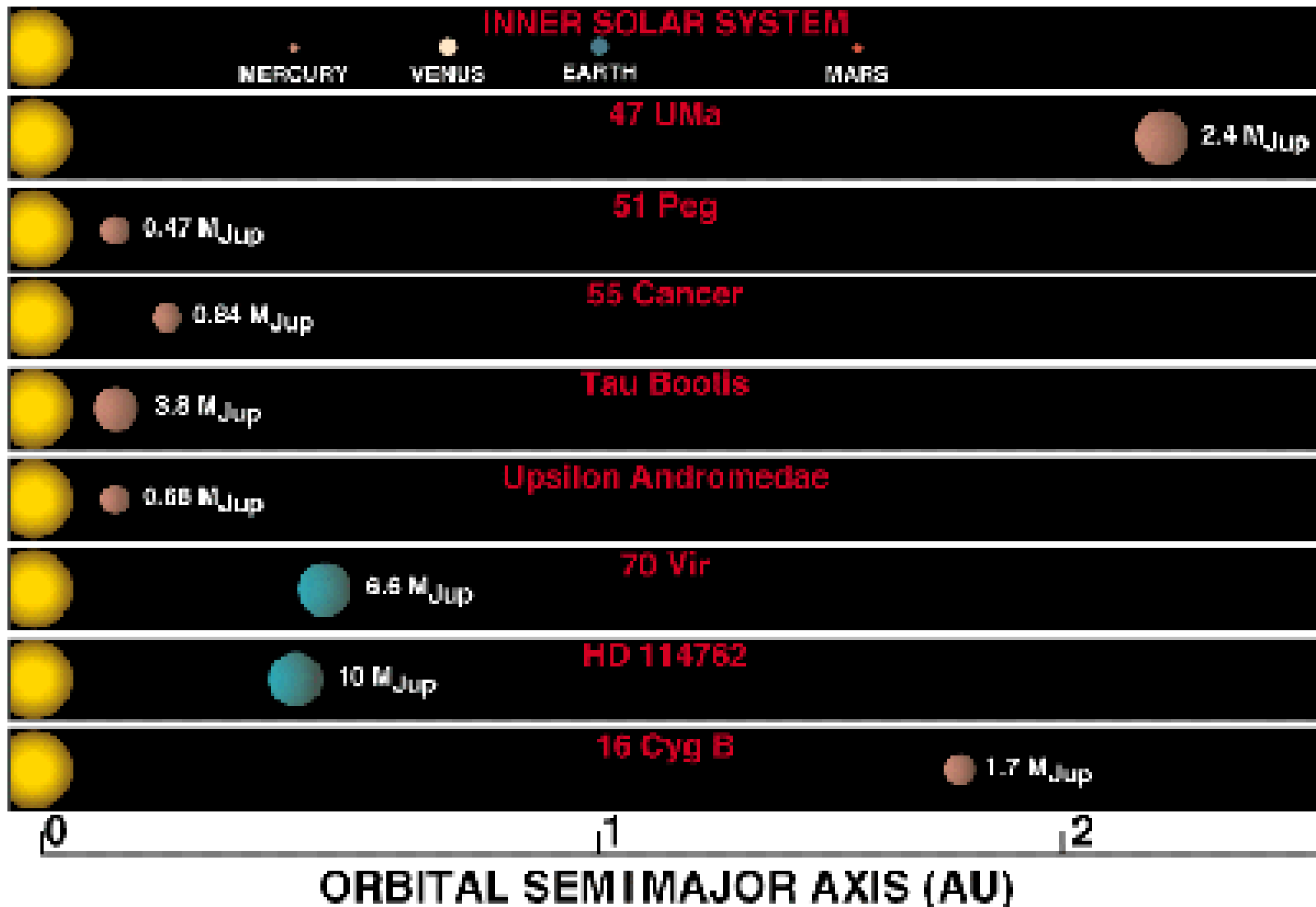


# Outer Planet

Velocity Residuals (m/s)

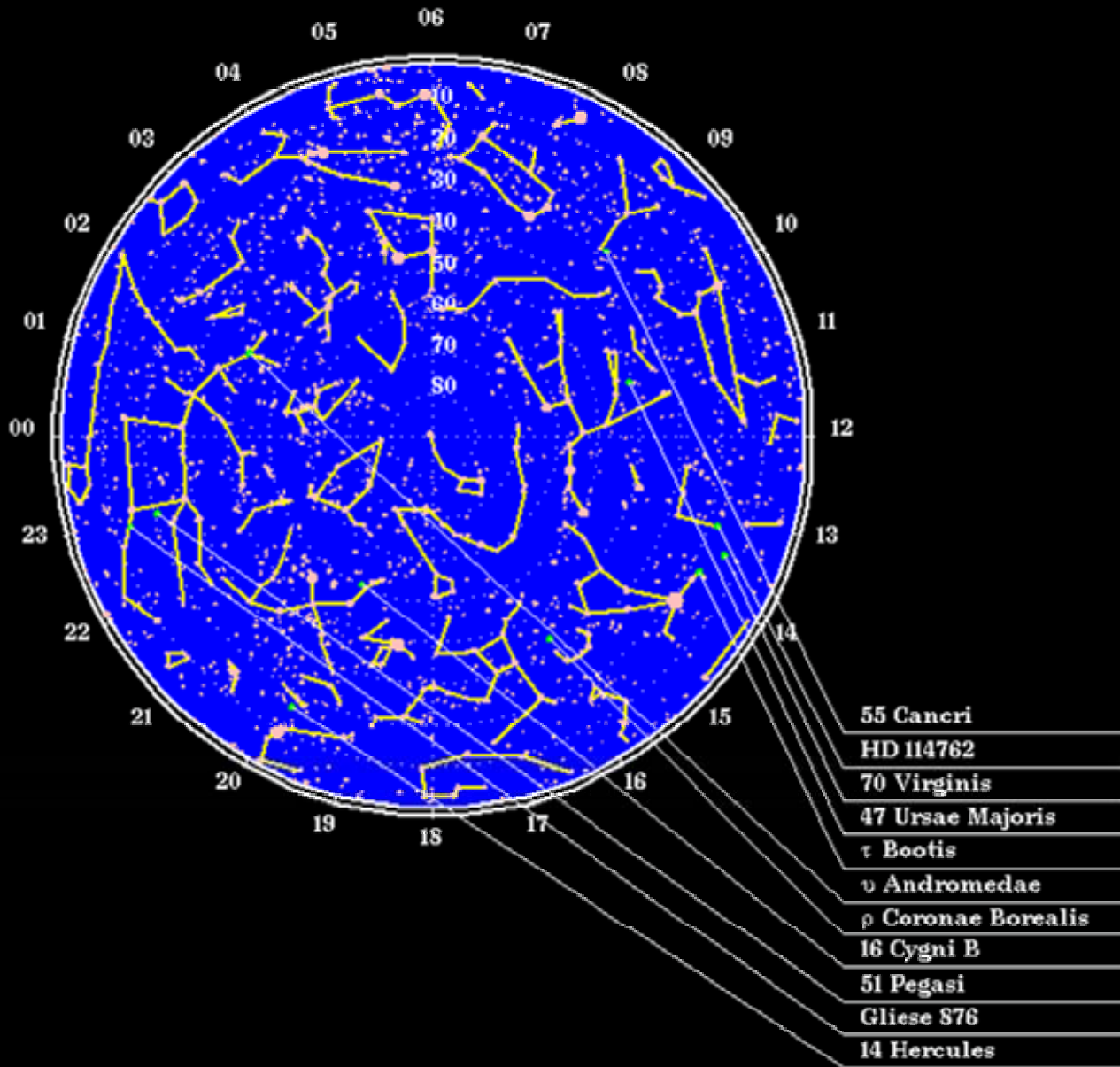


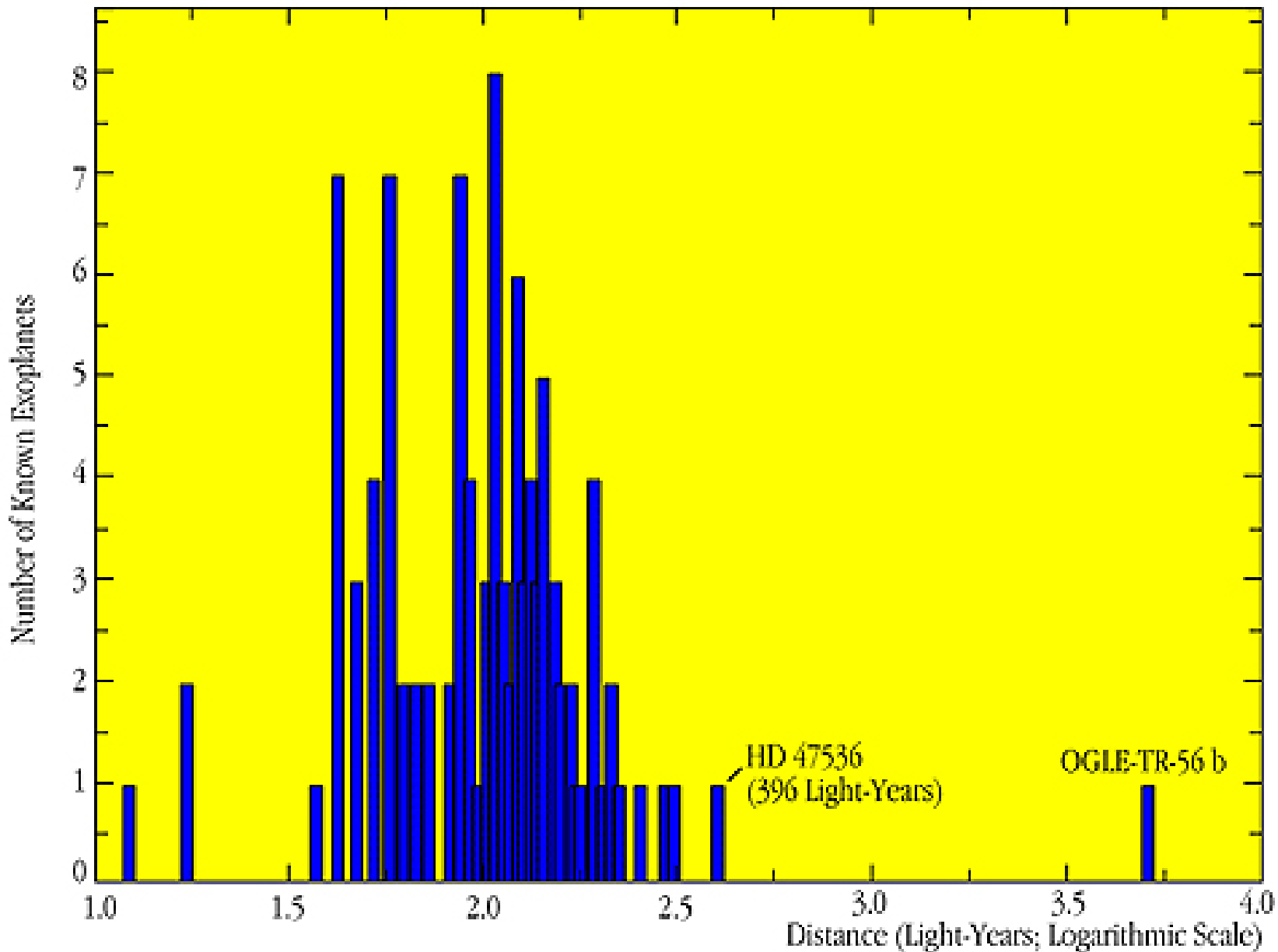
# PLANETS AROUND NORMAL STARS





# They are everywhere!

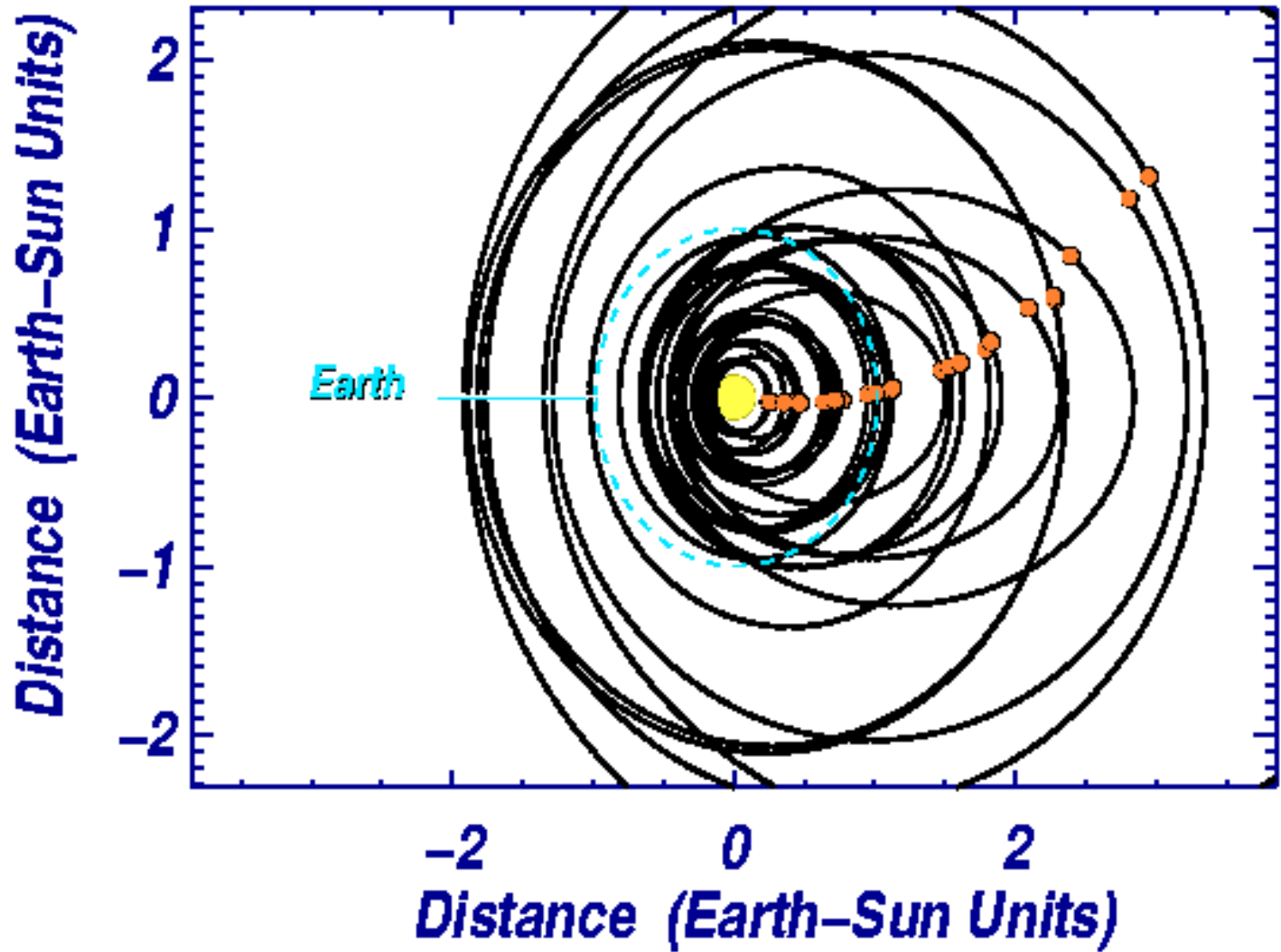




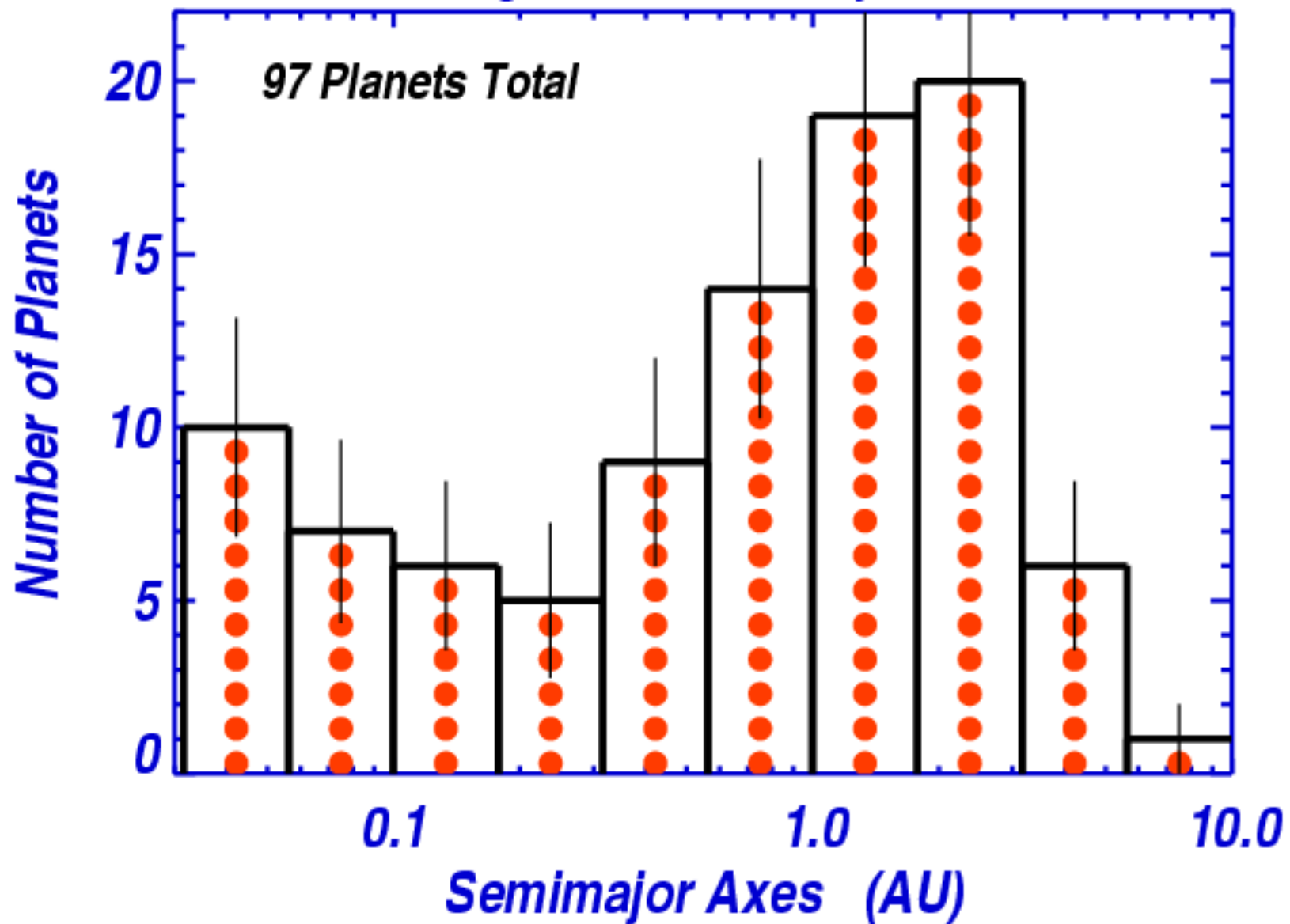
Distribution of Exoplanet Distances



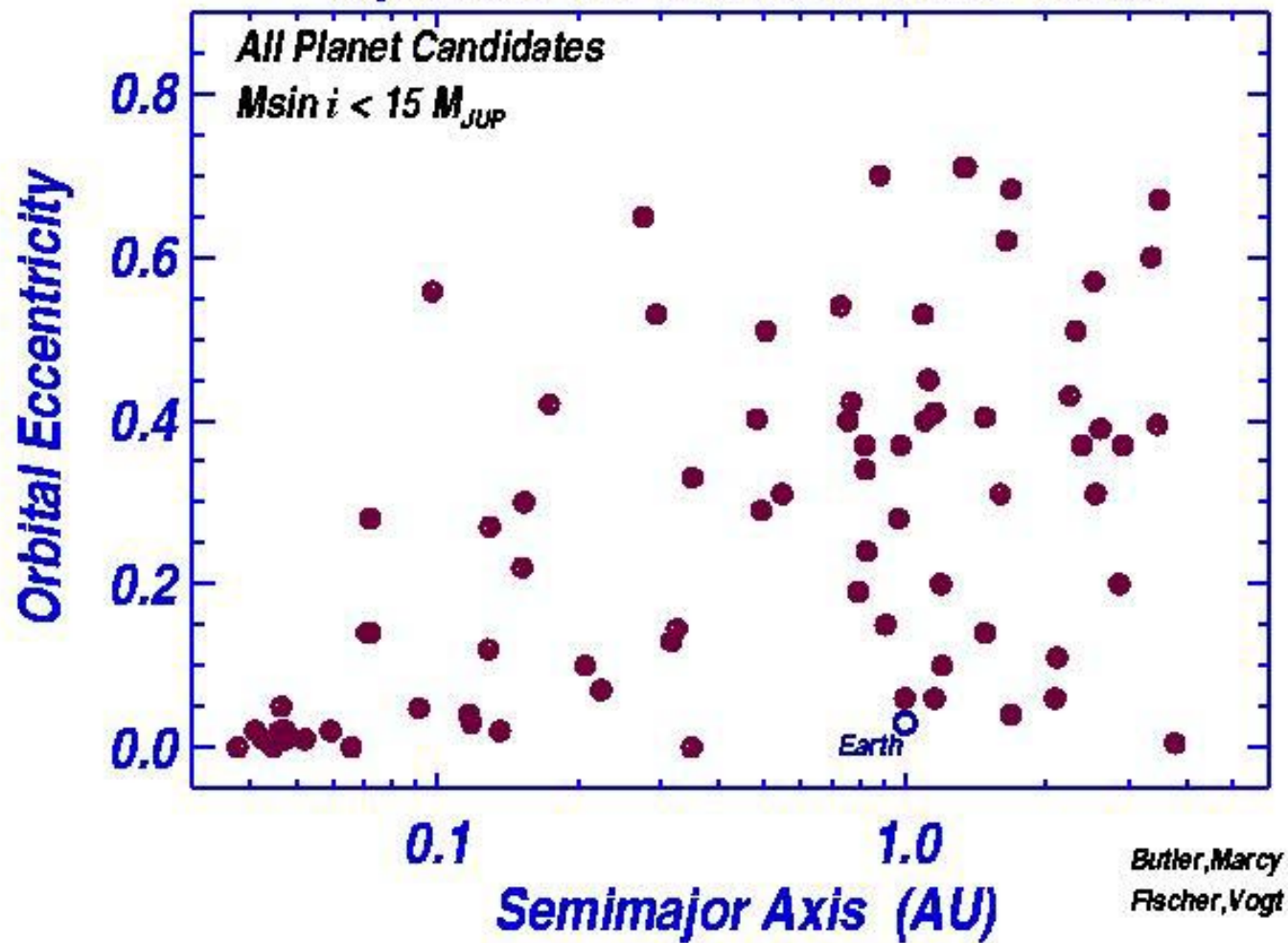
# Orbits of Extrasolar Planets



## Histogram of Semimajor Axes

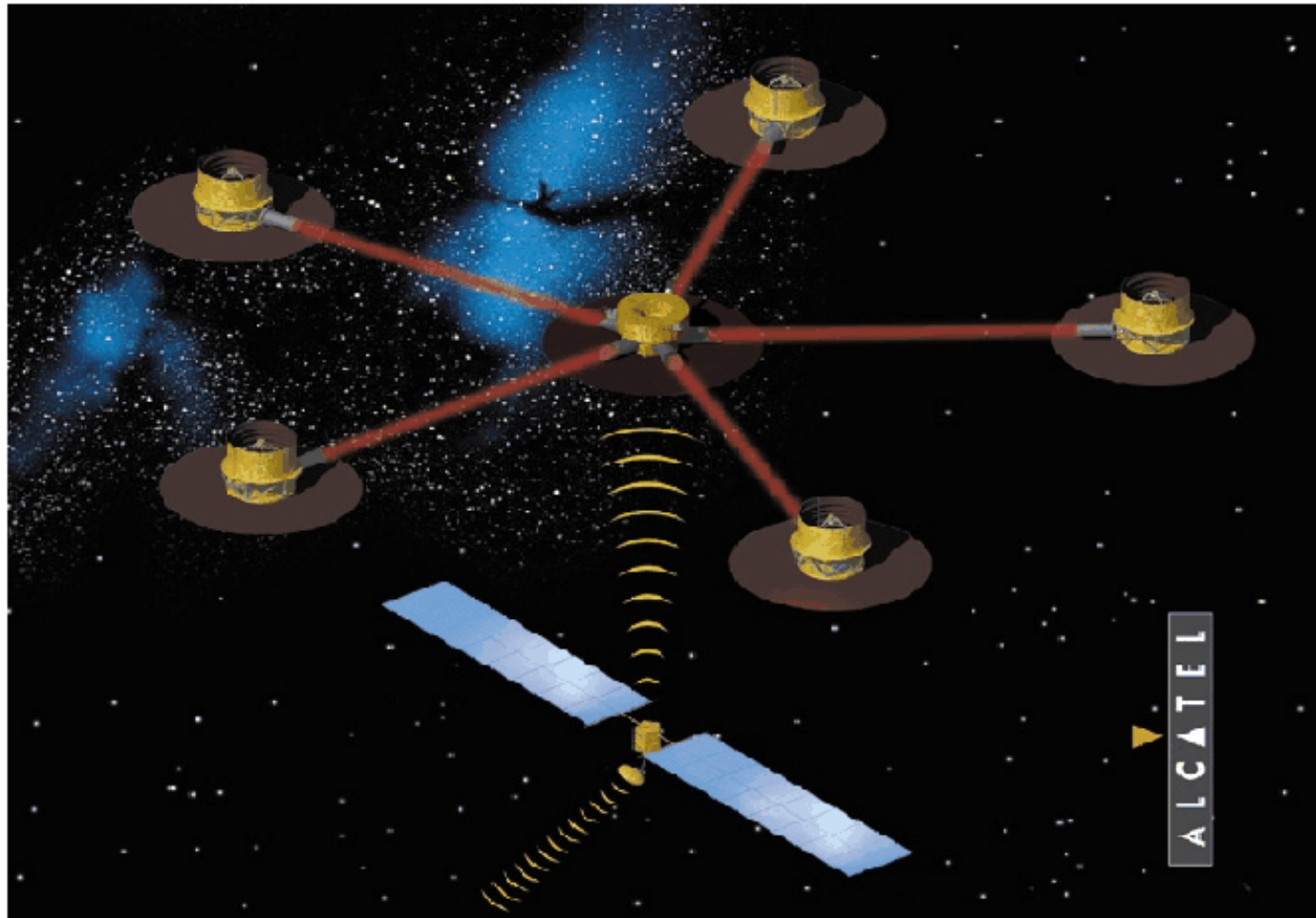


## Ellipticities of Extrasolar Planet Orbits

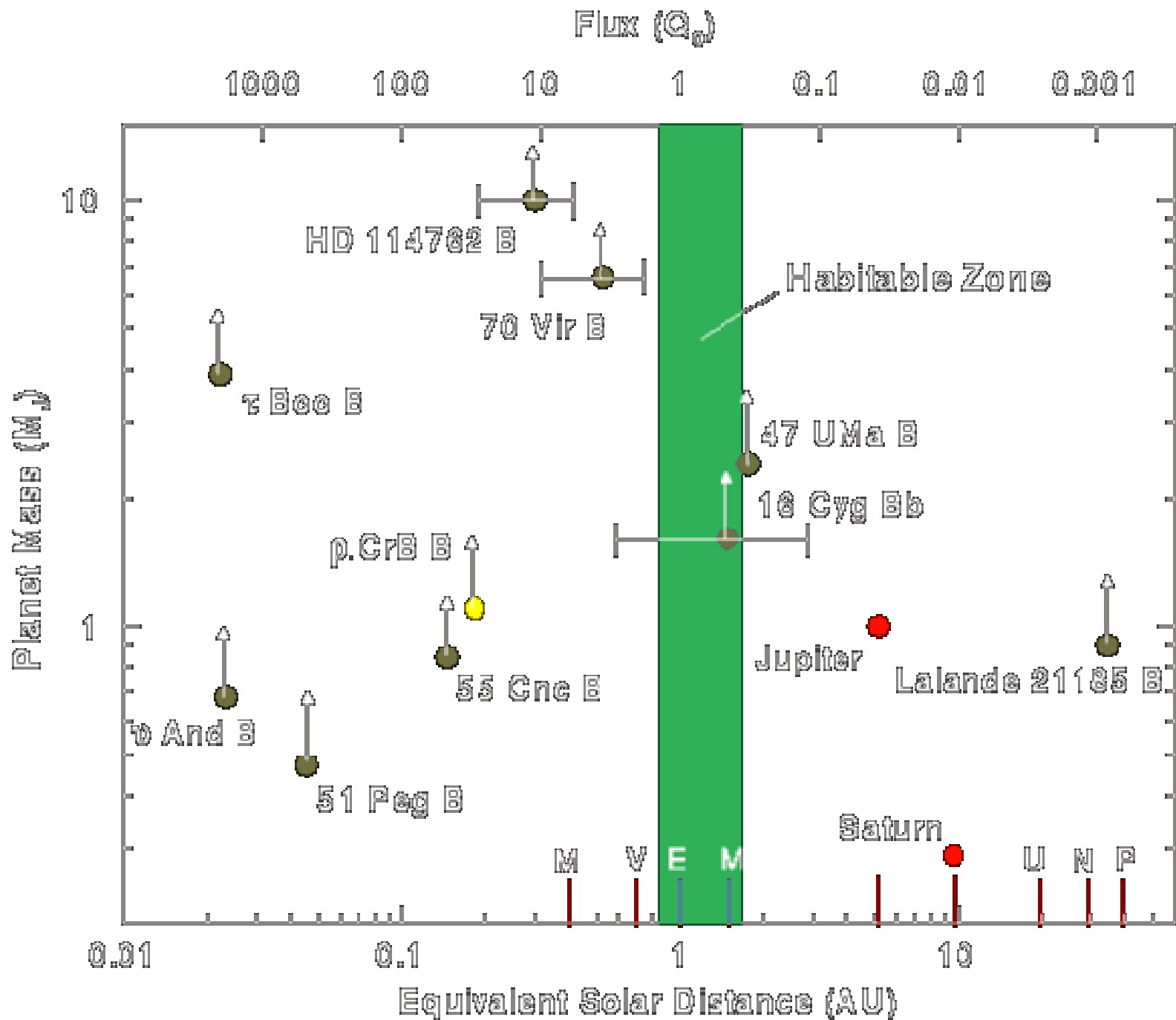




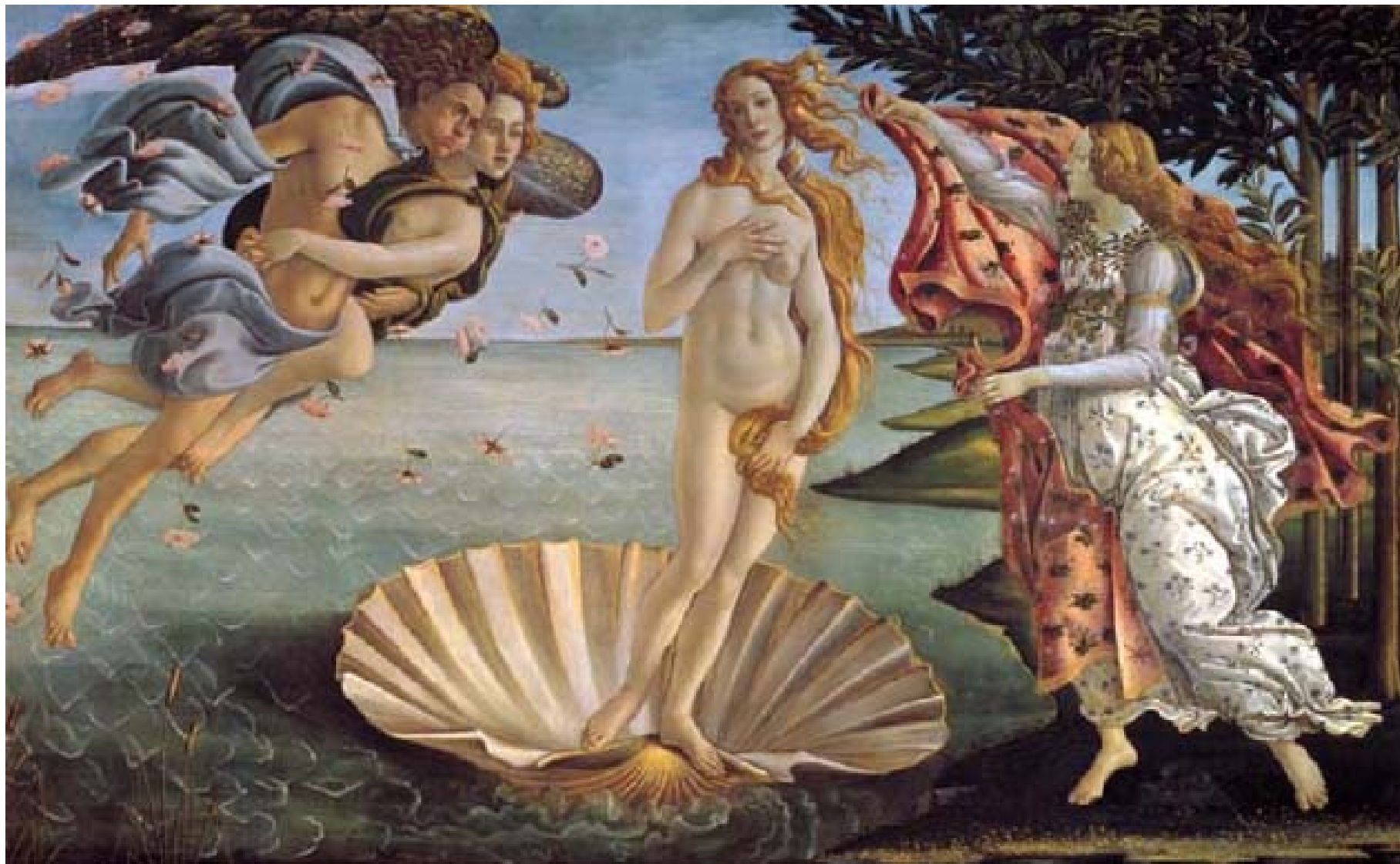
# Alcatel IRSI Free-flyer concept



ALCATEL







*Botticelli, 1484 - La nascita di Venere*