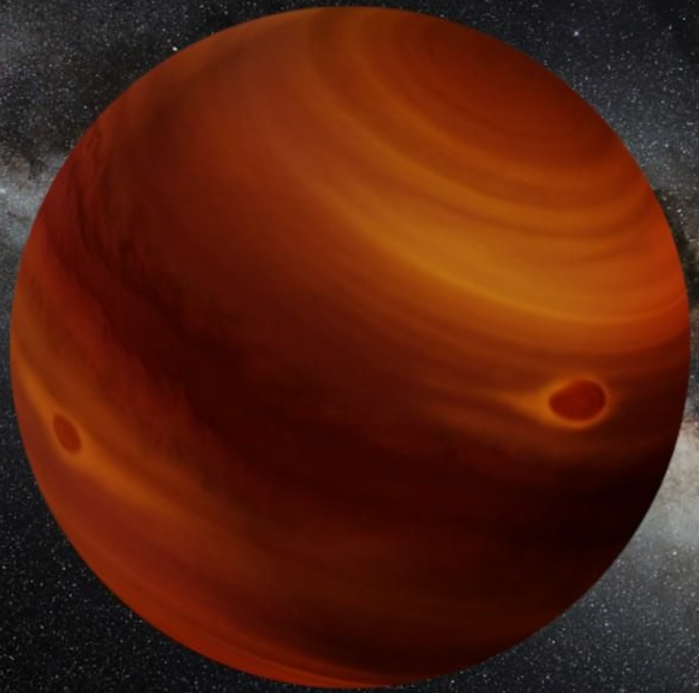
Extrasolar Worlds Exhibit Exotic Sandy Clouds at the Equator

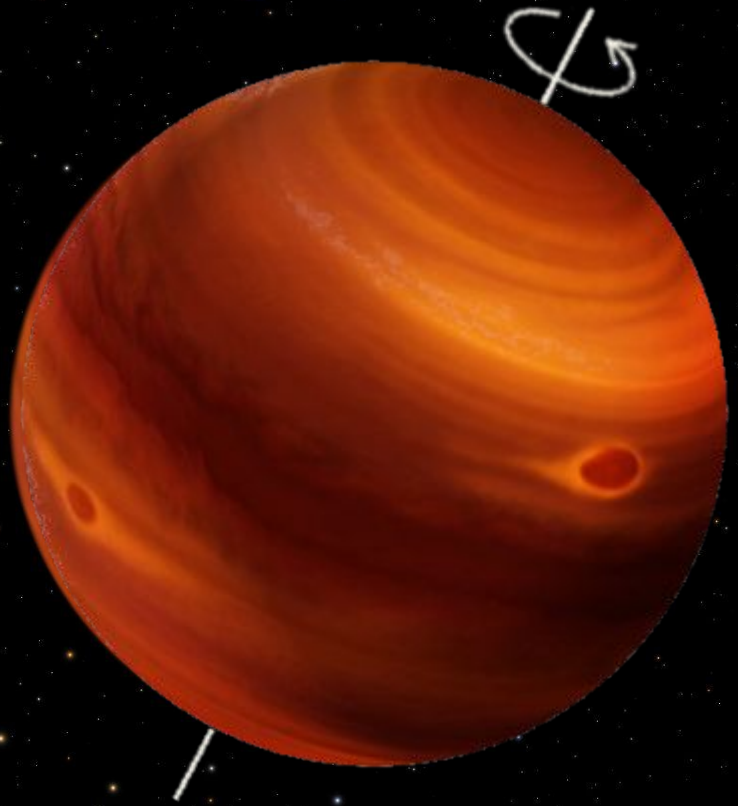


Genaro Suárez
American Museum of Natural History

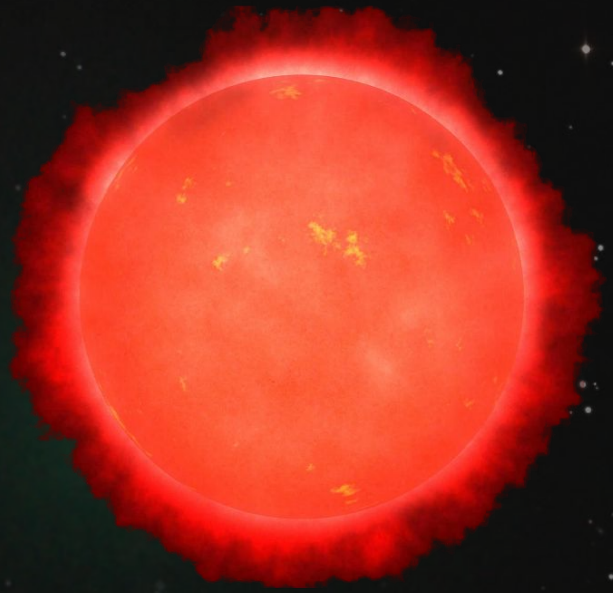
gsuarez@amnh.org 9175466420 Homepage

Result in a nutshell:

The equator of extrasolar worlds is cloudier than the poles



Brown Dwarfs: link between stars and planets



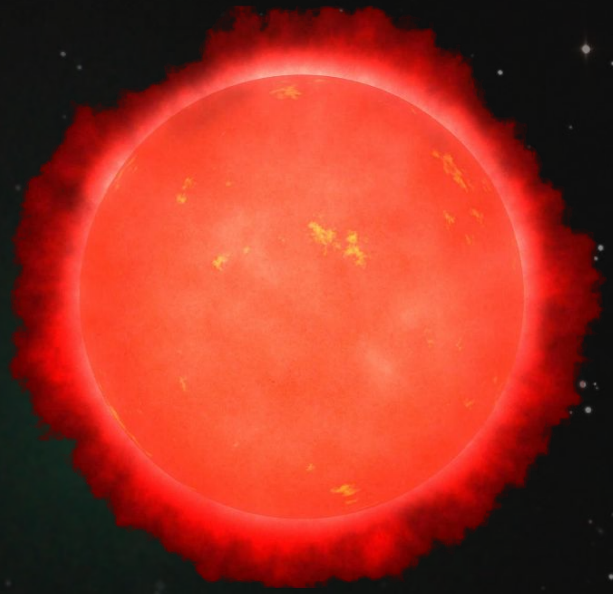
Low-mass Star

Brown Dwarfs

Giant Planet

Genaro Suárez (gsuarez@amnh.org) 9175466420 Homepage AMNH

Brown Dwarfs: link between stars and planets



Low-mass Star

Brown Dwarfs

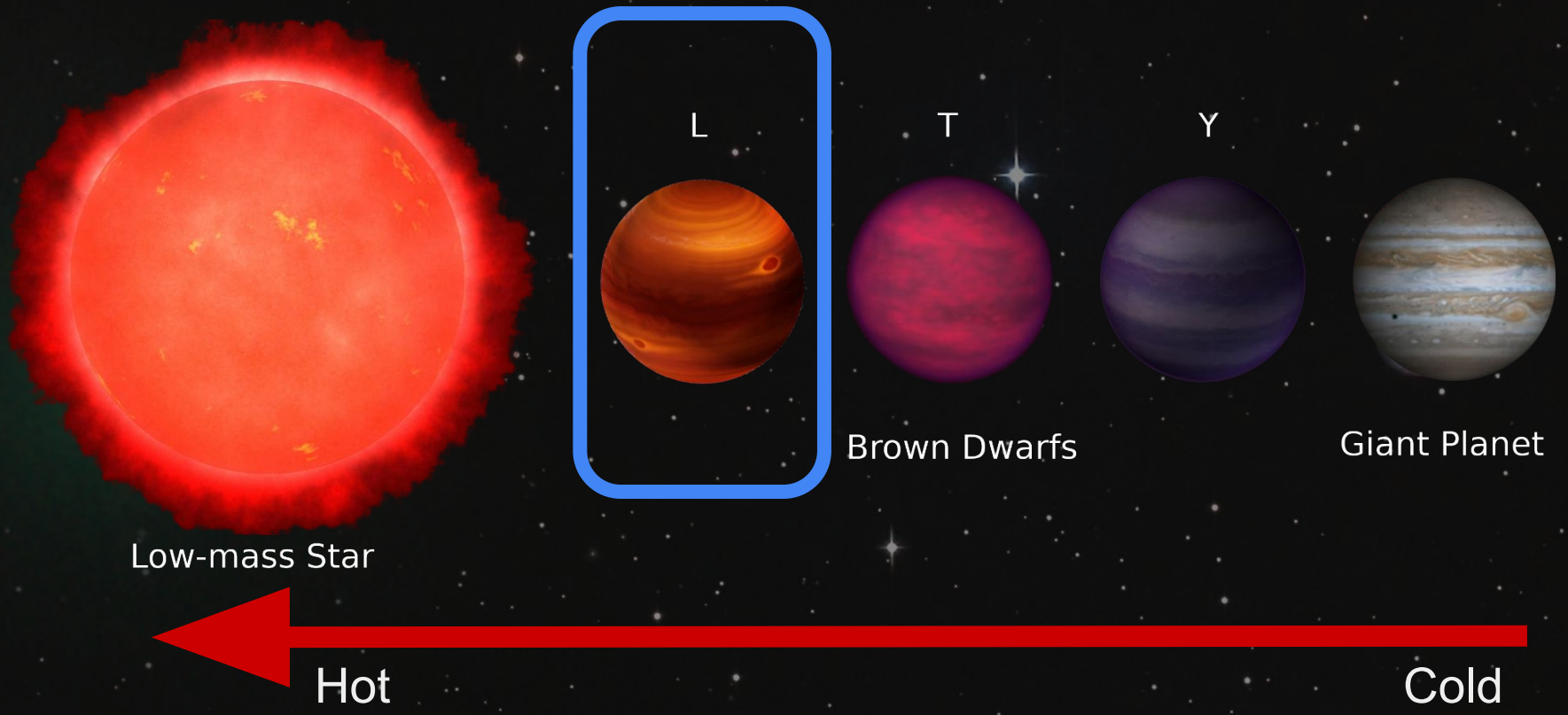
Giant Planet

Hot

Cold

Genaro Suárez (gsuarez@amnh.org) 9175466420 Homepage AMNH

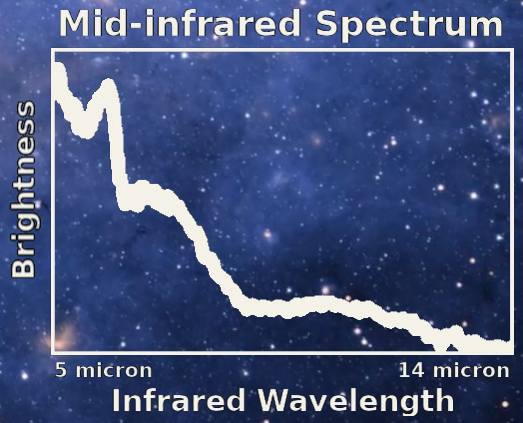
Brown Dwarfs: link between stars and planets



Genaro Suárez (gsuarez@amnh.org) 9175466420 Homepage AMNH

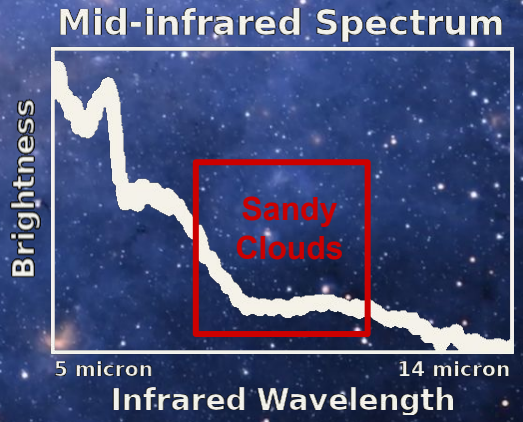
Genaro Suárez (gsuarez@amnh.org) 9175466420 Homepage AMNH

We used archival data from the Spitzer Space Telescope

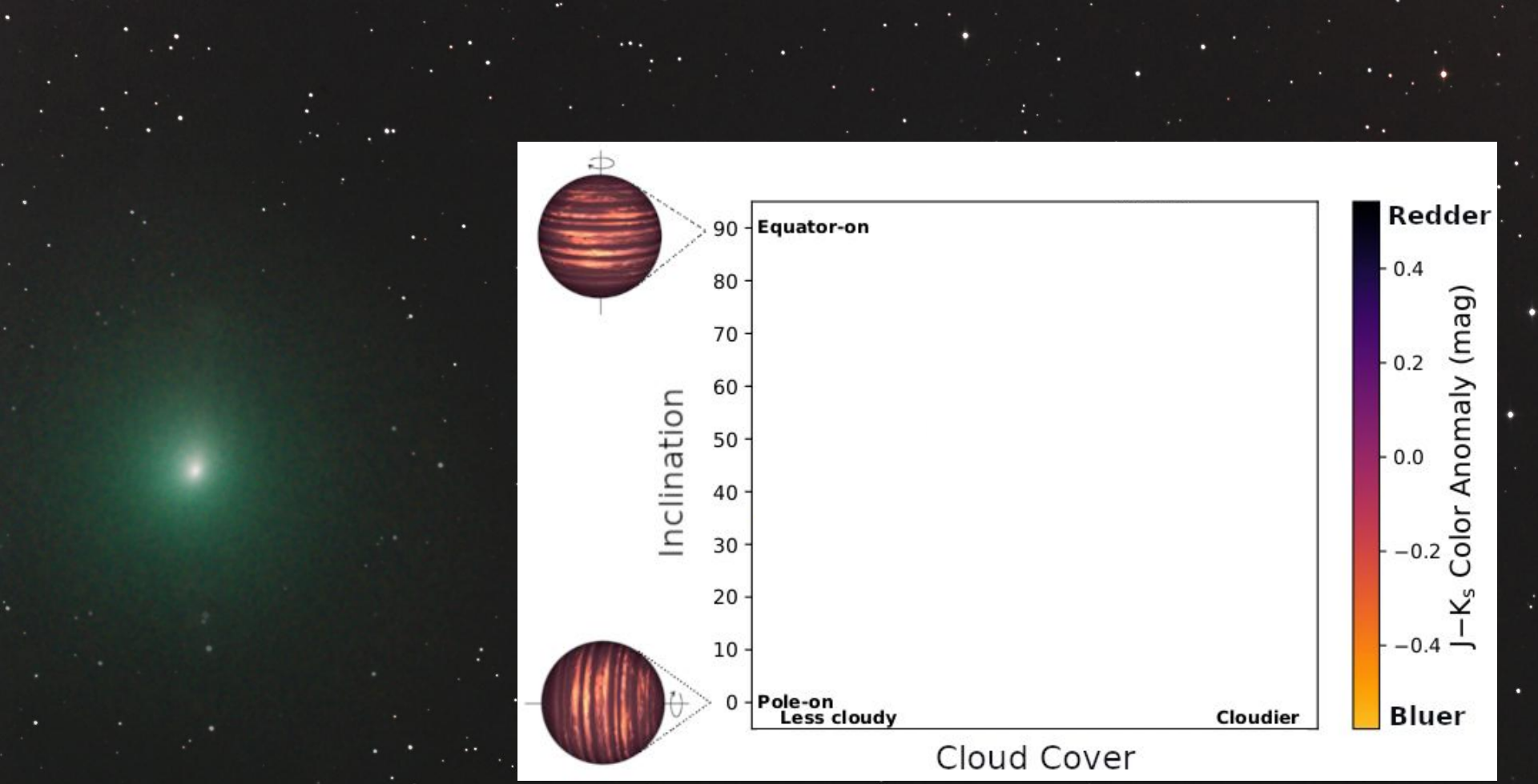


Genaro Suárez (gsuarez@amnh.org) 9175466420 Homepage AMNH

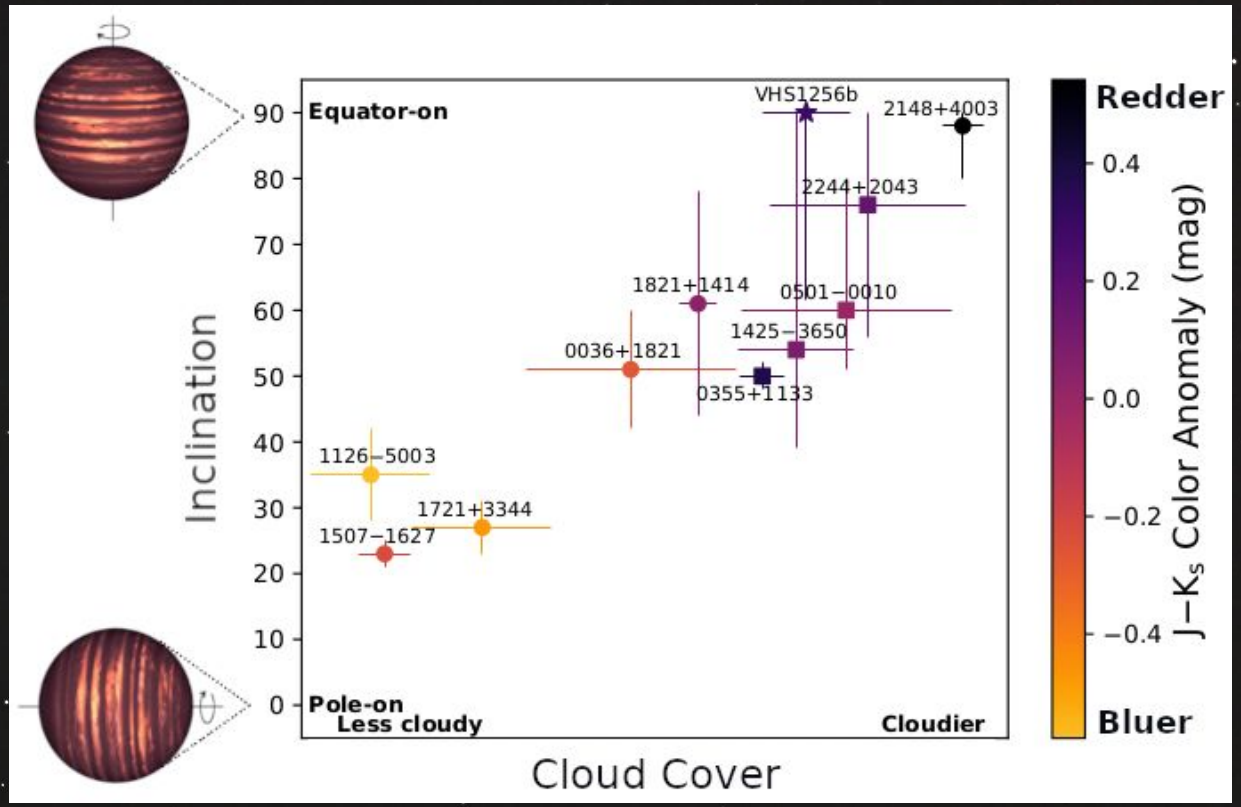
We used archival data from the Spitzer Space Telescope

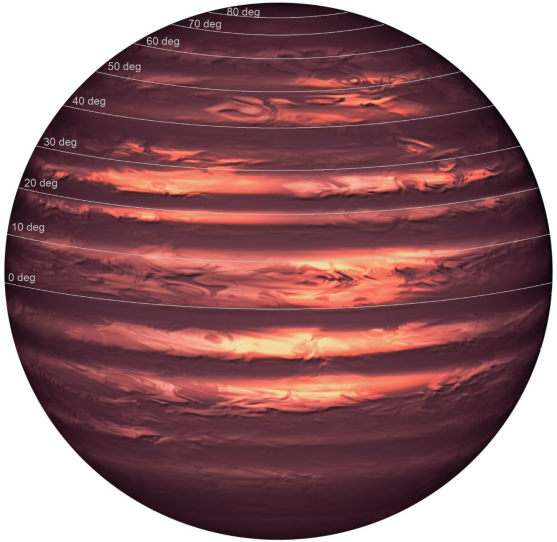


Genaro Suárez (gsuarez@amnh.org) 9175466420 Homepage AMNH

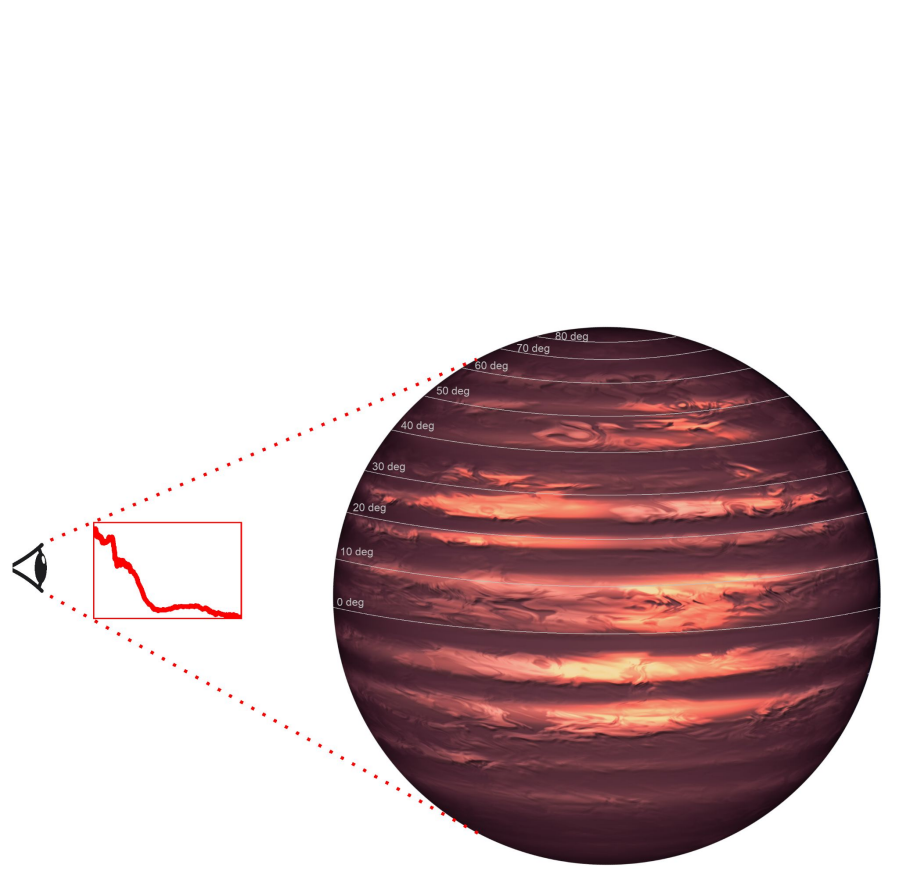

Equator-on
Pole-on
Less cloudy
Cloudier
Inclination
90
80
70
60
50
40
30
20
10
0
Cloud Cover
Redder
Bluer
0.4
0.2
0.0
−0.2
−0.4
J−Ks Color Anomaly (mag)

Worlds viewed equator-on are cloudier and, therefore, redder

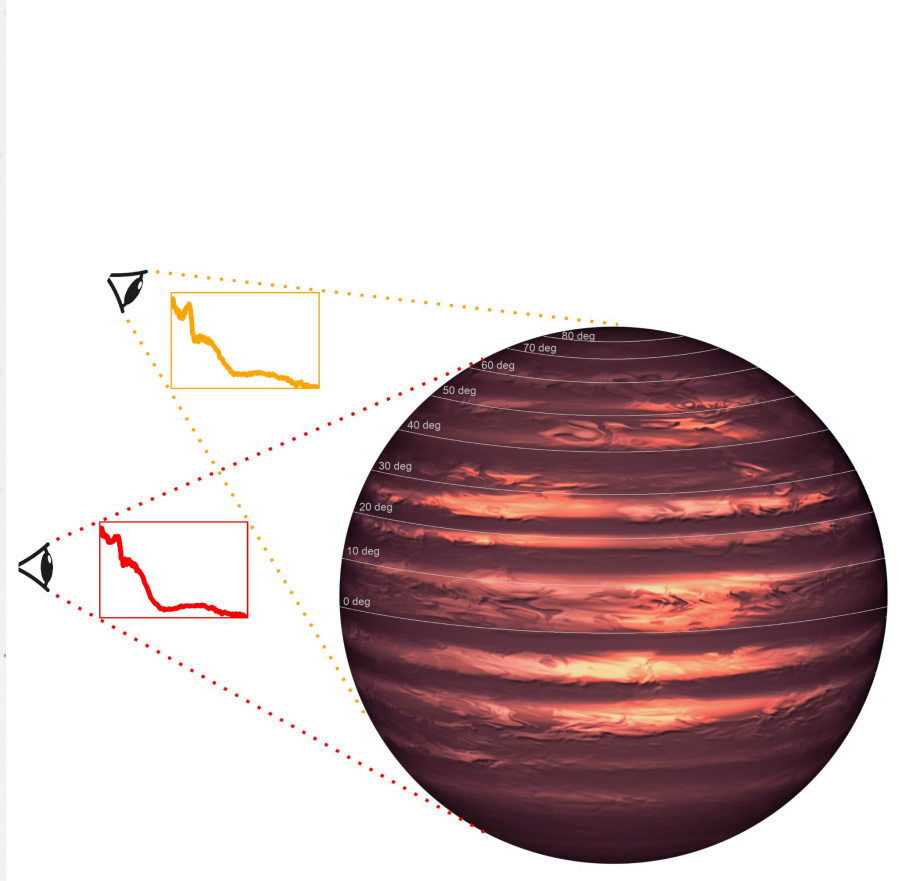




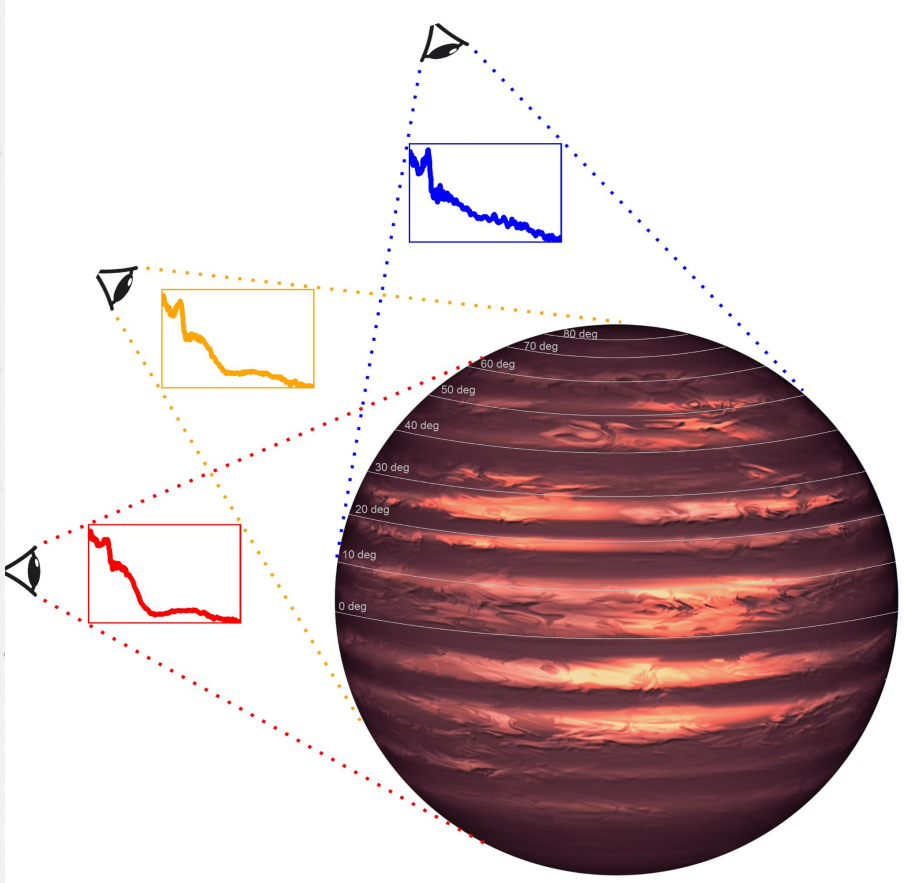
Genaro Suárez (gsuarez@amnh.org) 9175466420 Homepage AMNH



Genaro Suárez (gsuarez@amnh.org) 9175466420 Homepage AMNH

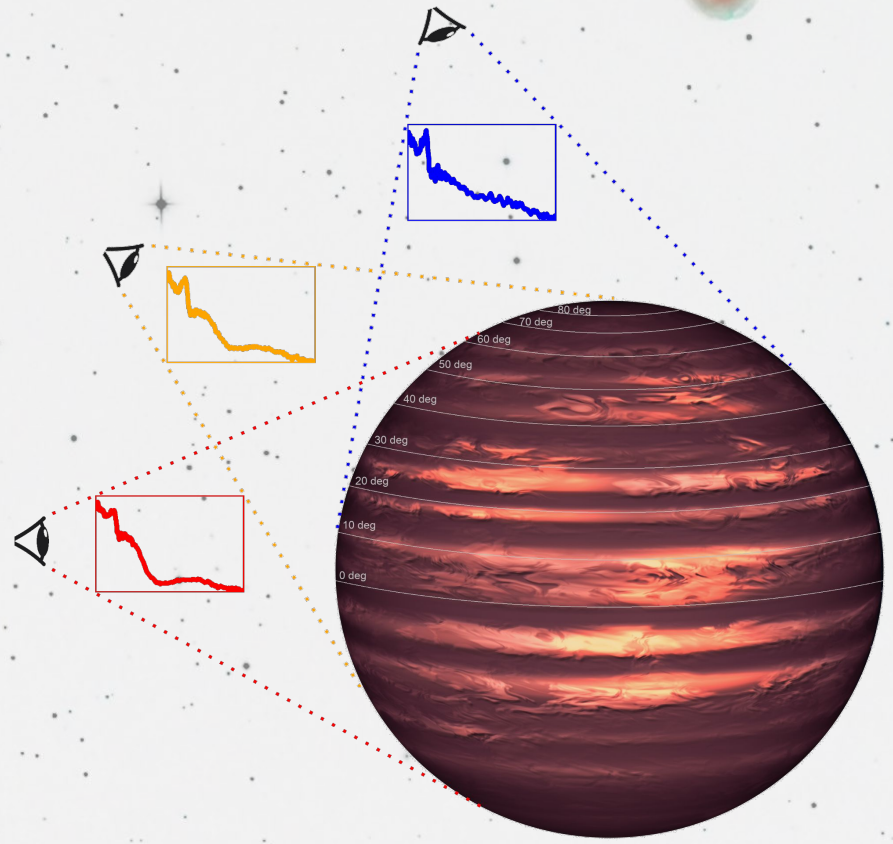


Genaro Suárez (gsuarez@amnh.org) 9175466420 Homepage AMNH

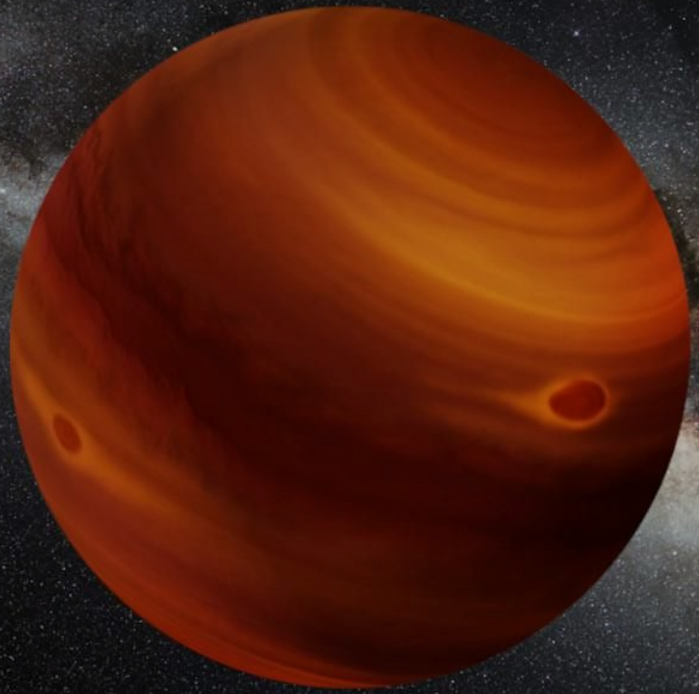


Genaro Suárez (gsuarez@amnh.org) 9175466420 Homepage AMNH

The appearance of the extrasolar worlds is highly influenced by their viewing inclination



Genaro Suárez (gsuarez@amnh.org) 9175466420 Homepage AMNH

Acknowledgements

Johanna Vos (DIAS)
Stanimir Metchev (UWO)
Jacqueline K. Faherty (AMNH)
Kelle Cruz (CUNY)