

Exoplanet Science with UVEX

Jessica Spake

Jessie Christiansen, Heather Knuston



51 Pegasi b

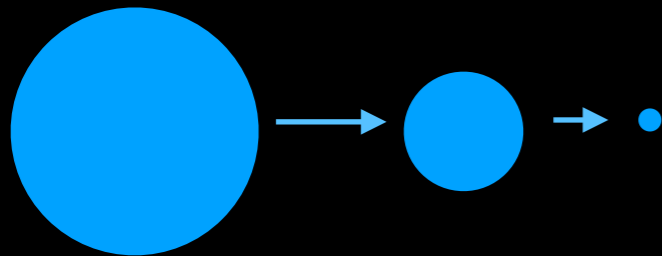
Fellowship in Planetary Astronomy

Exoplanets with UVEX

90-day survey

~4 day observations
of single systems

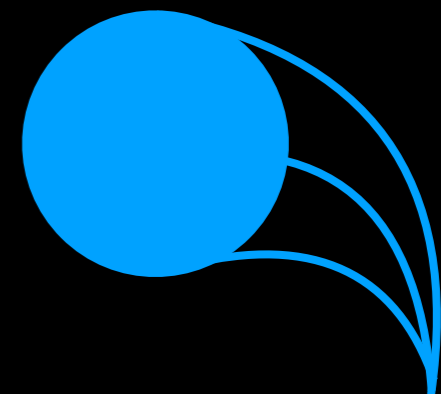
condensate size vs
atmospheric
composition



temperature/metal
rainout sequence



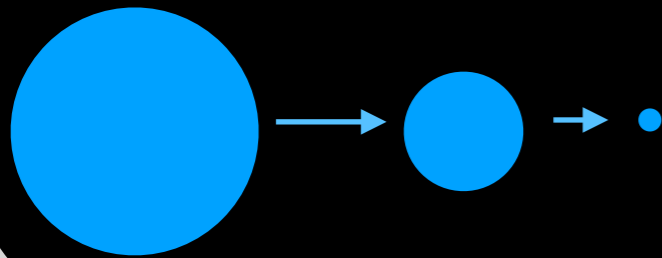
better mass-loss
rates



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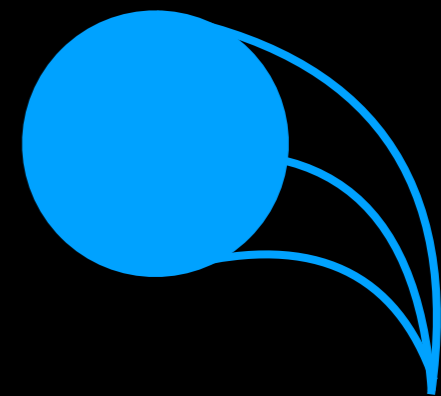


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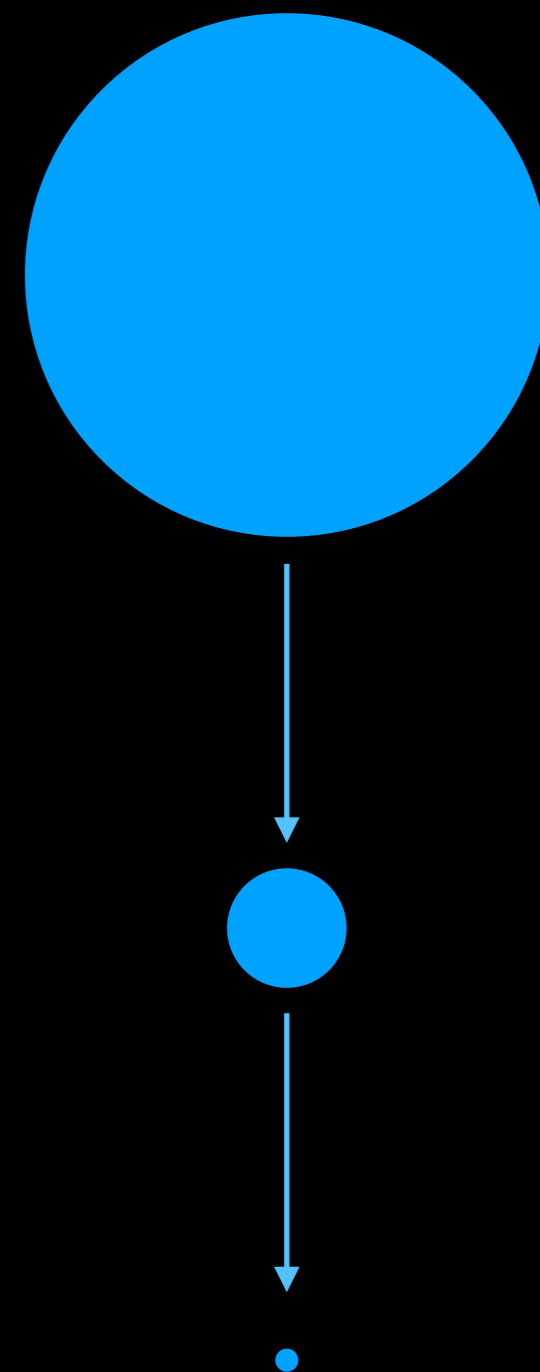
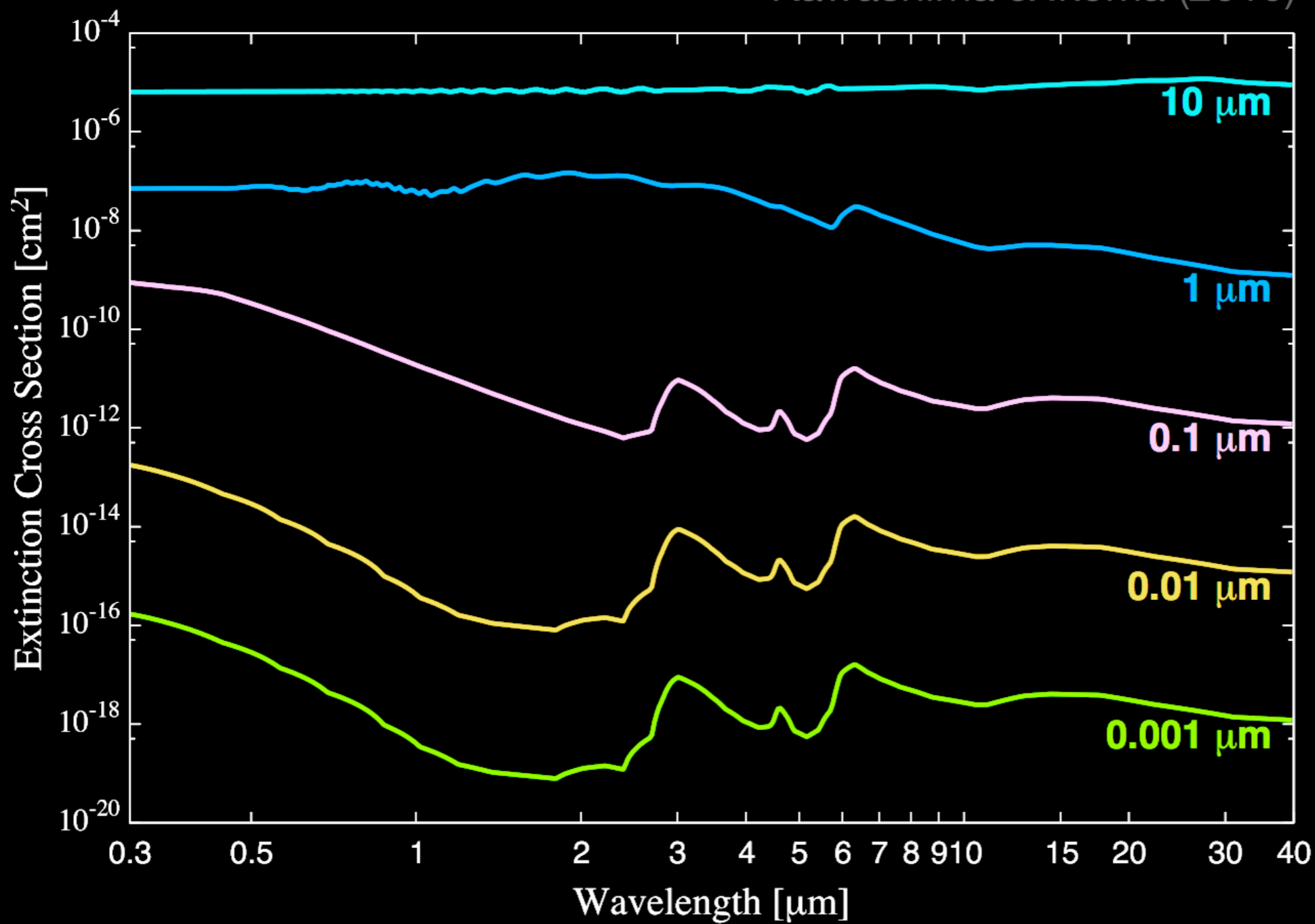


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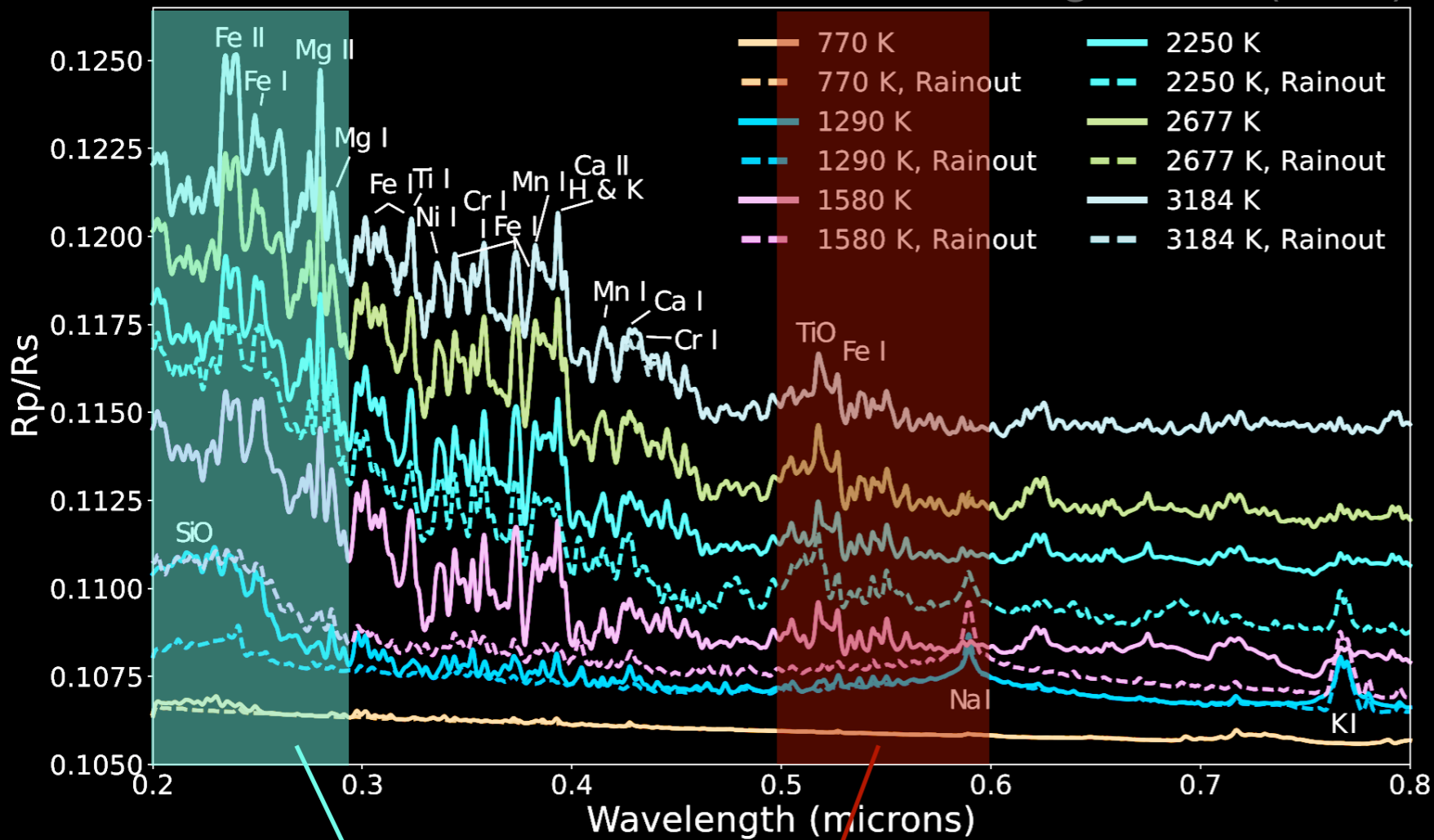
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Kawashima & Ikoma (2019)



Lothringer et al (2020)



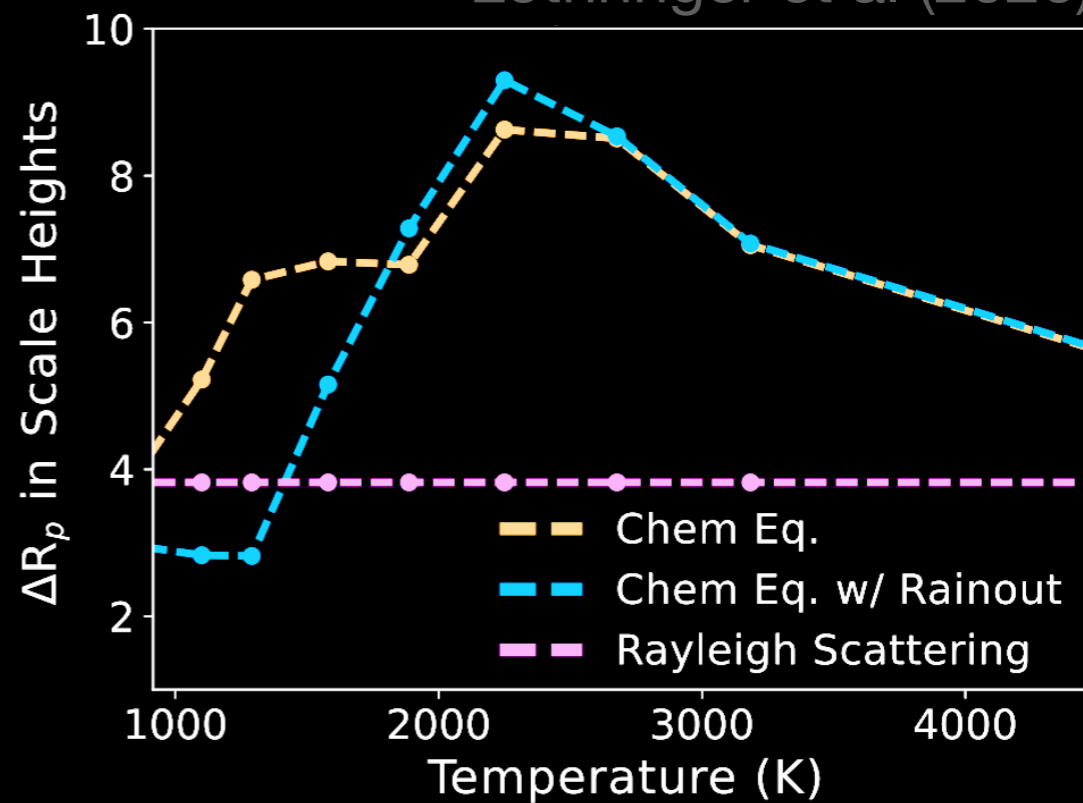
UVEX

TESS

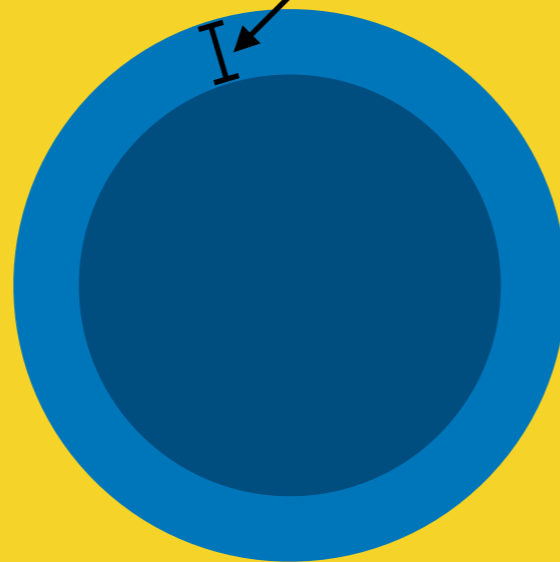
$\Delta R_p, NUV-Red$



Lothringer et al (2020)

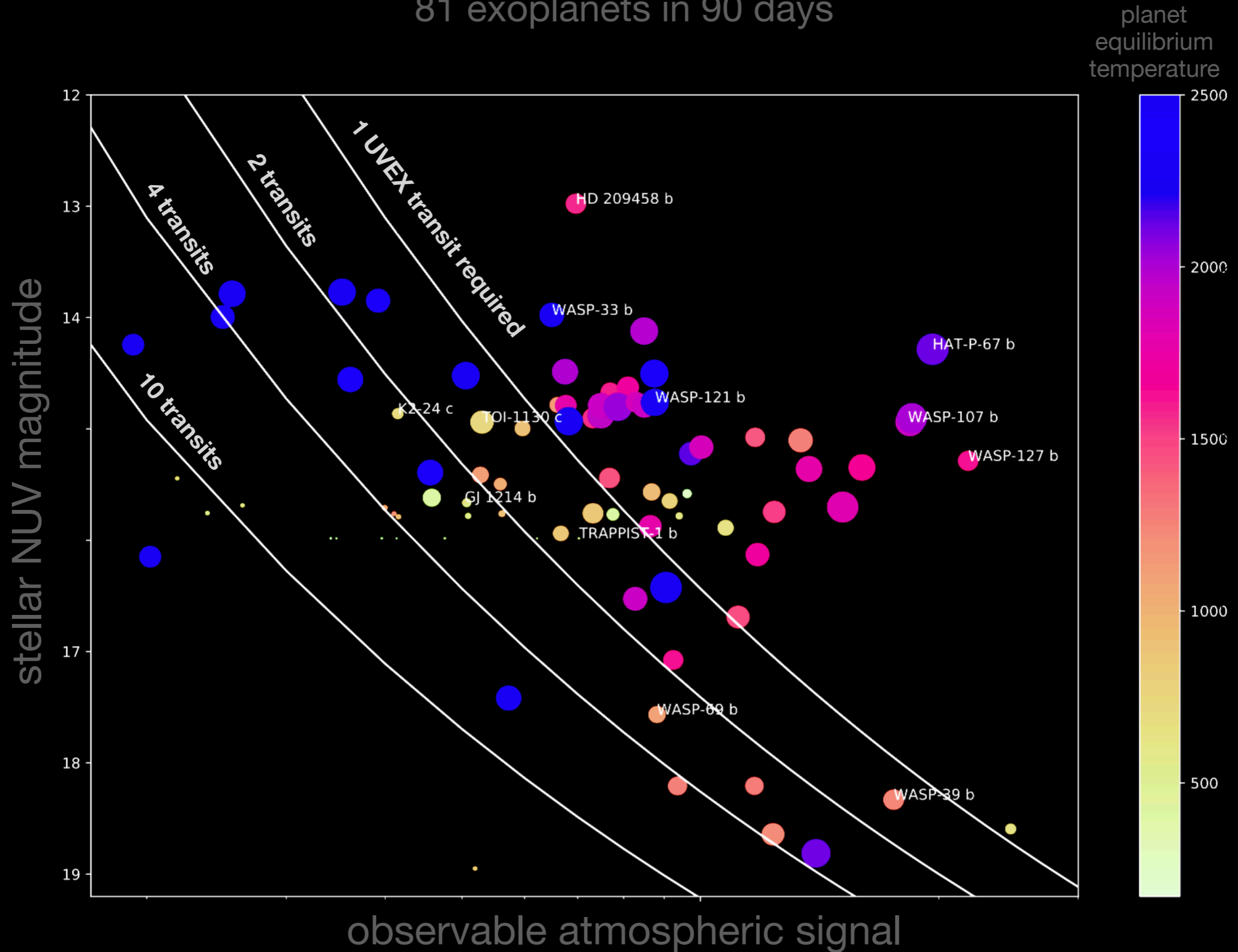


**1 atmospheric
scale height**



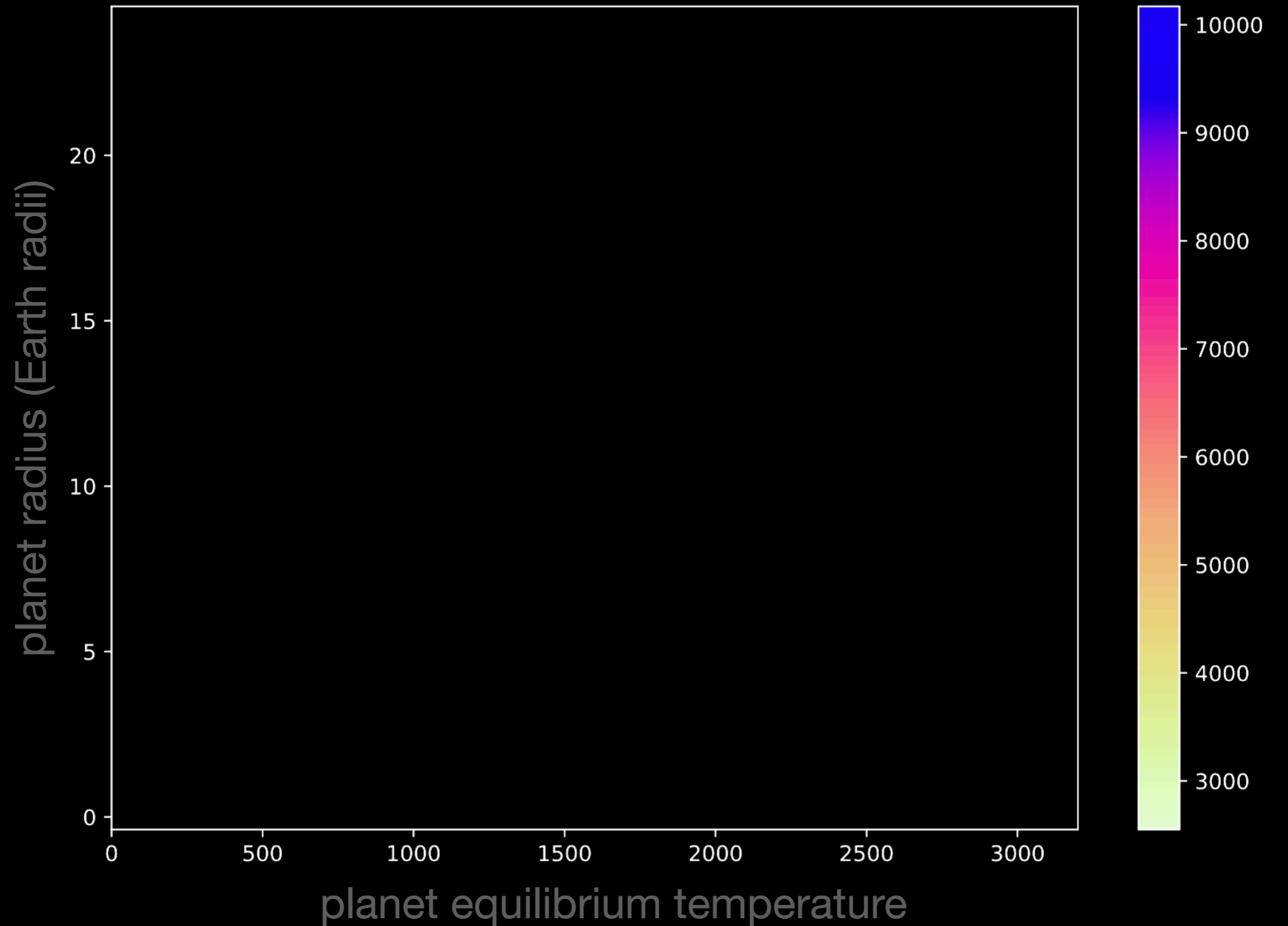
Exemplar NUV Exoplanet Survey

81 exoplanets in 90 days



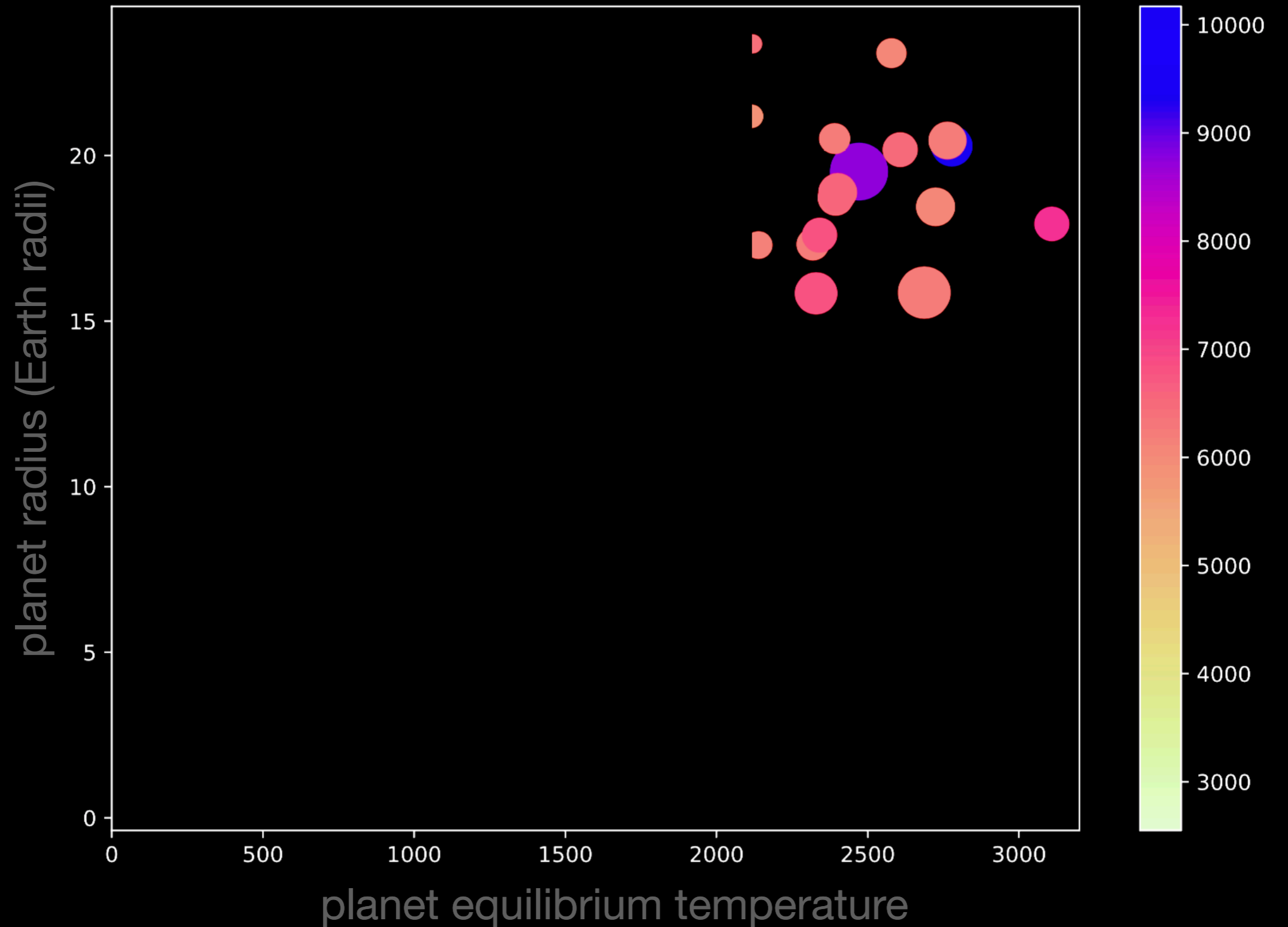
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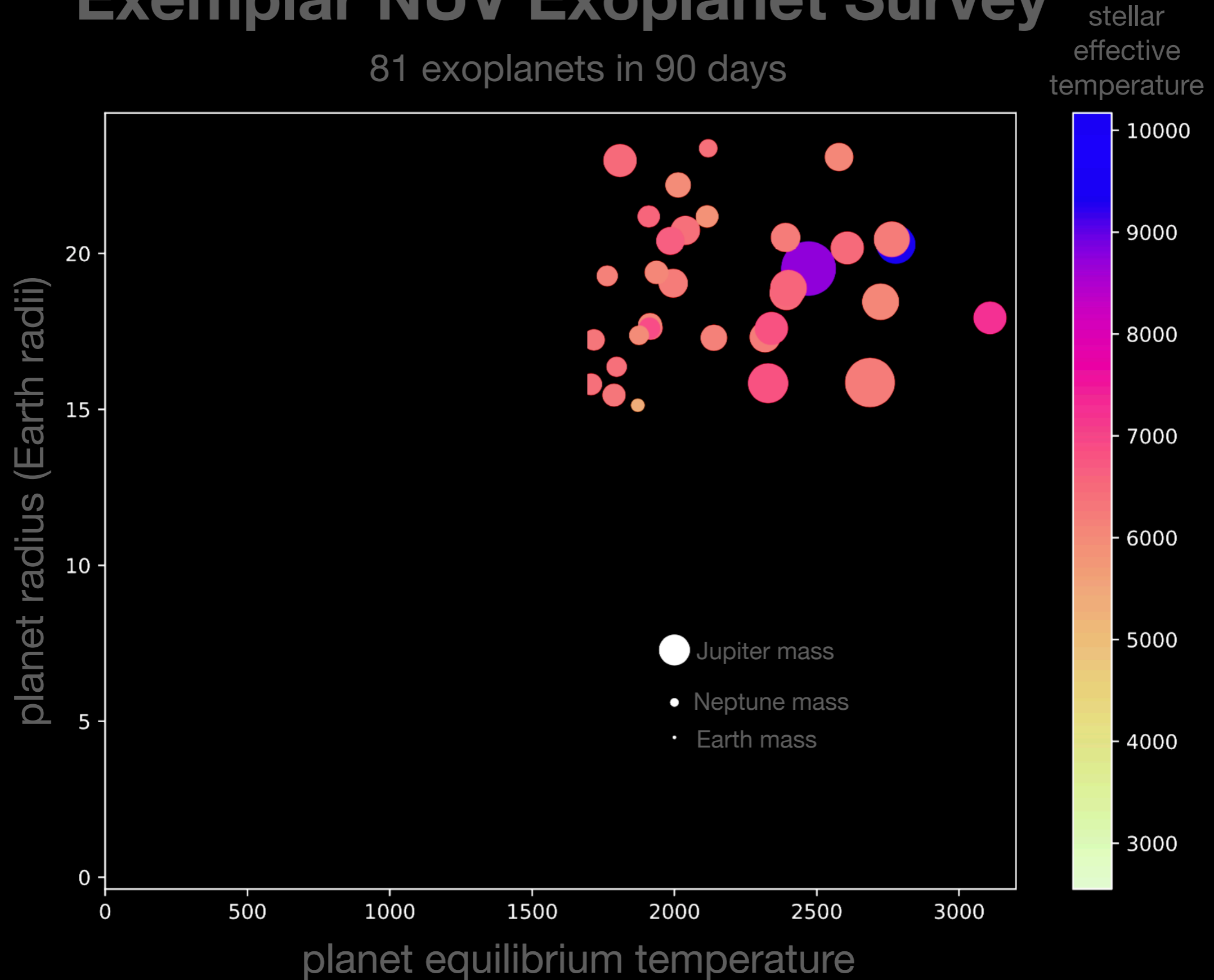
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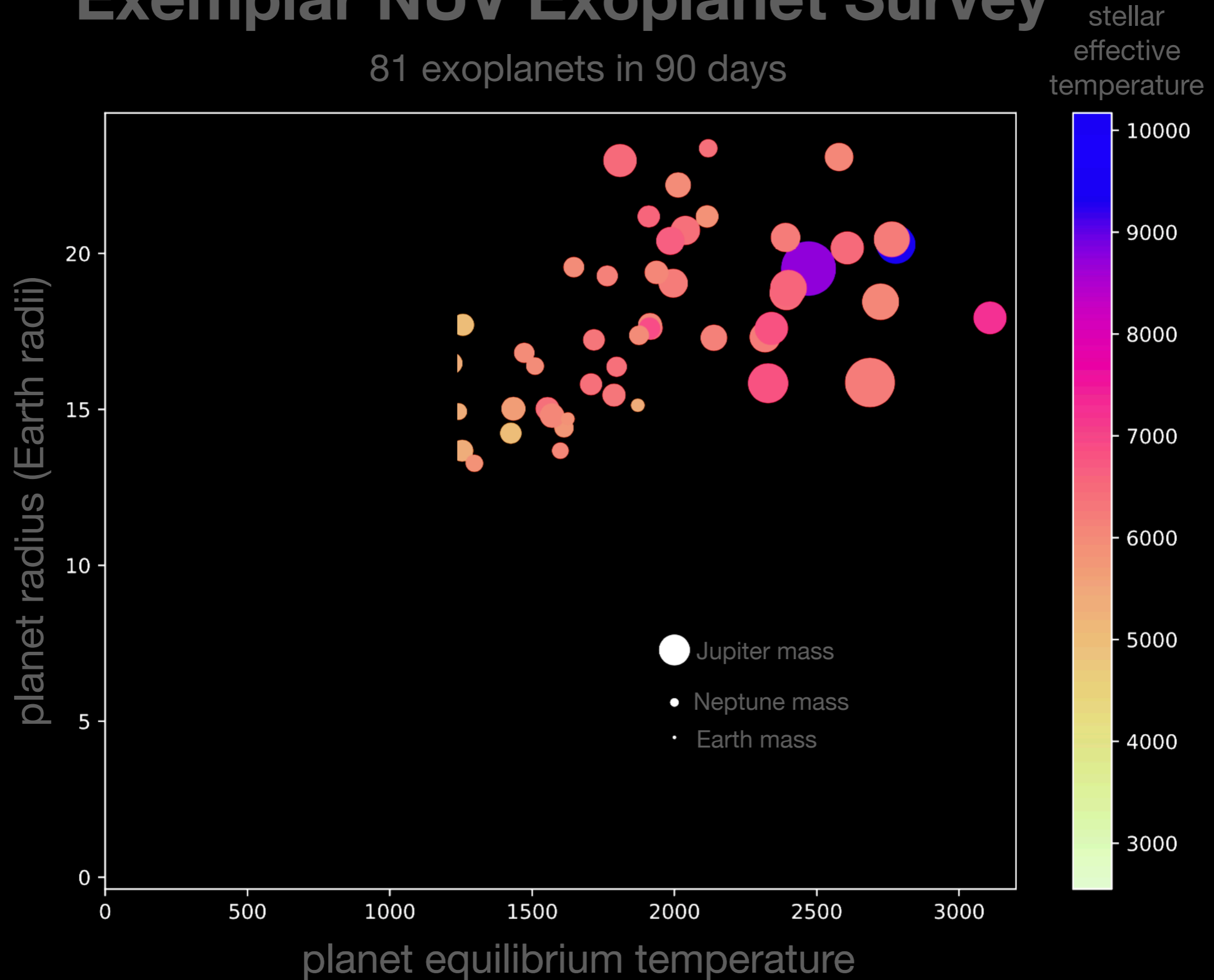
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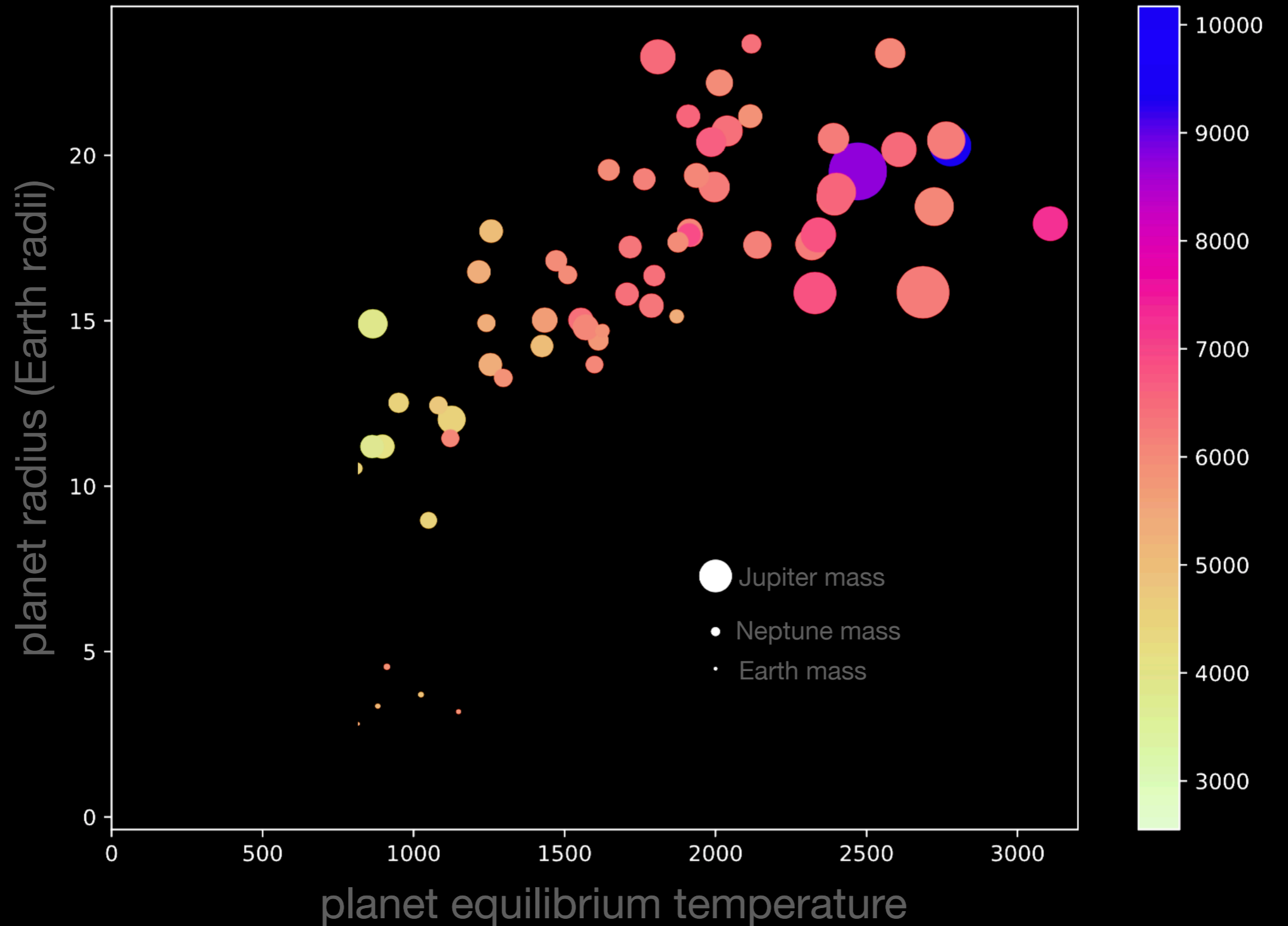
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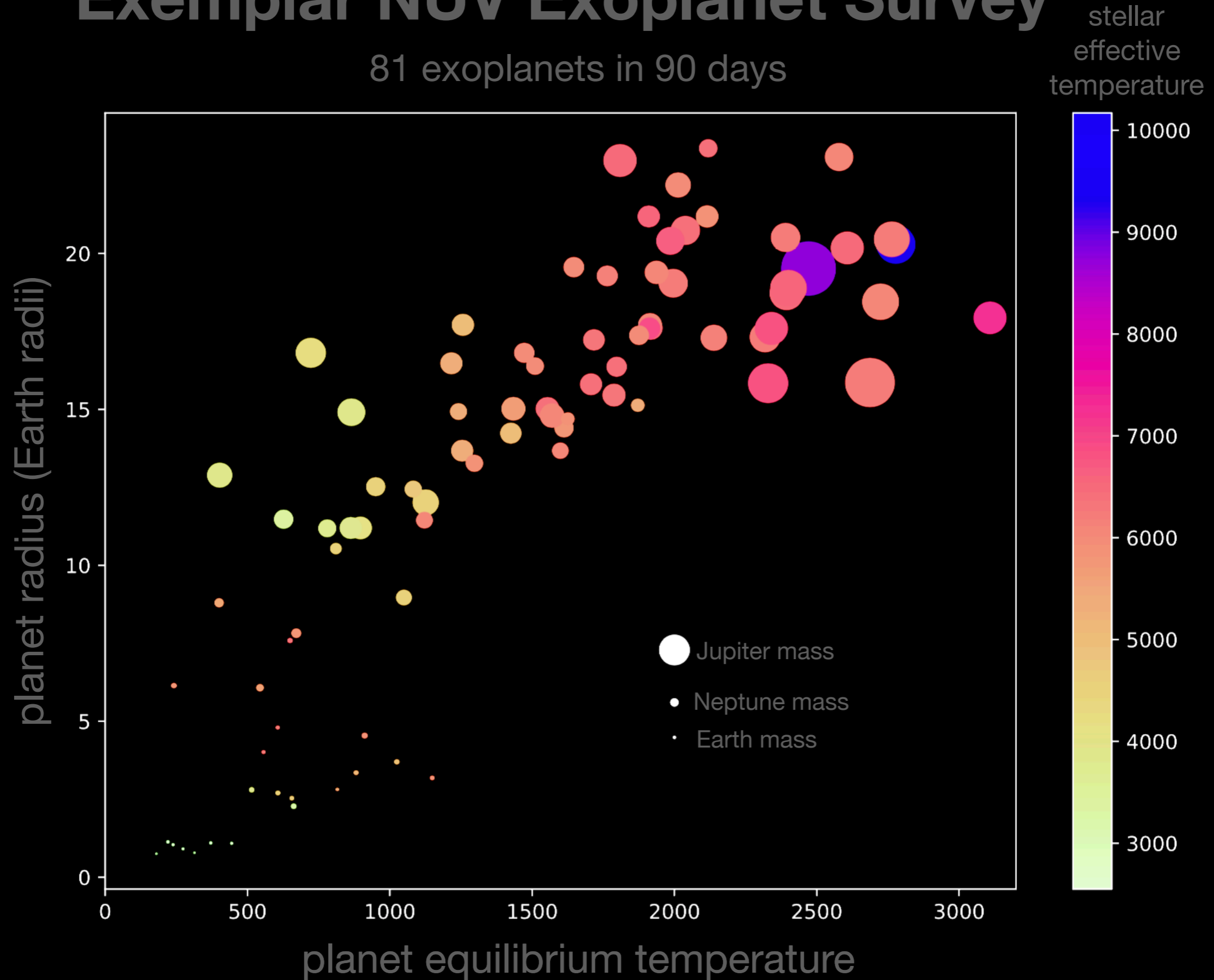
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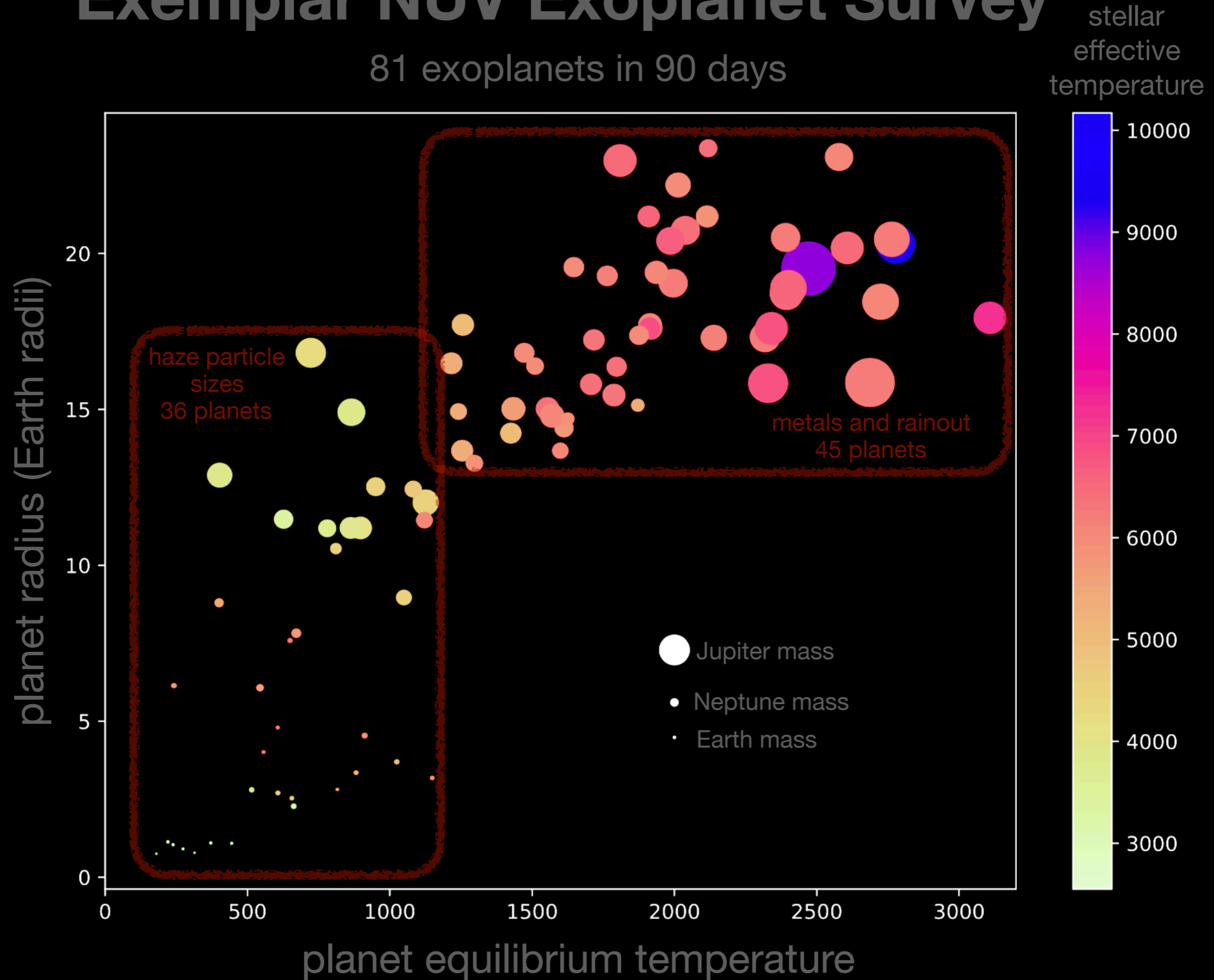
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Exemplar NUV Exoplanet Survey

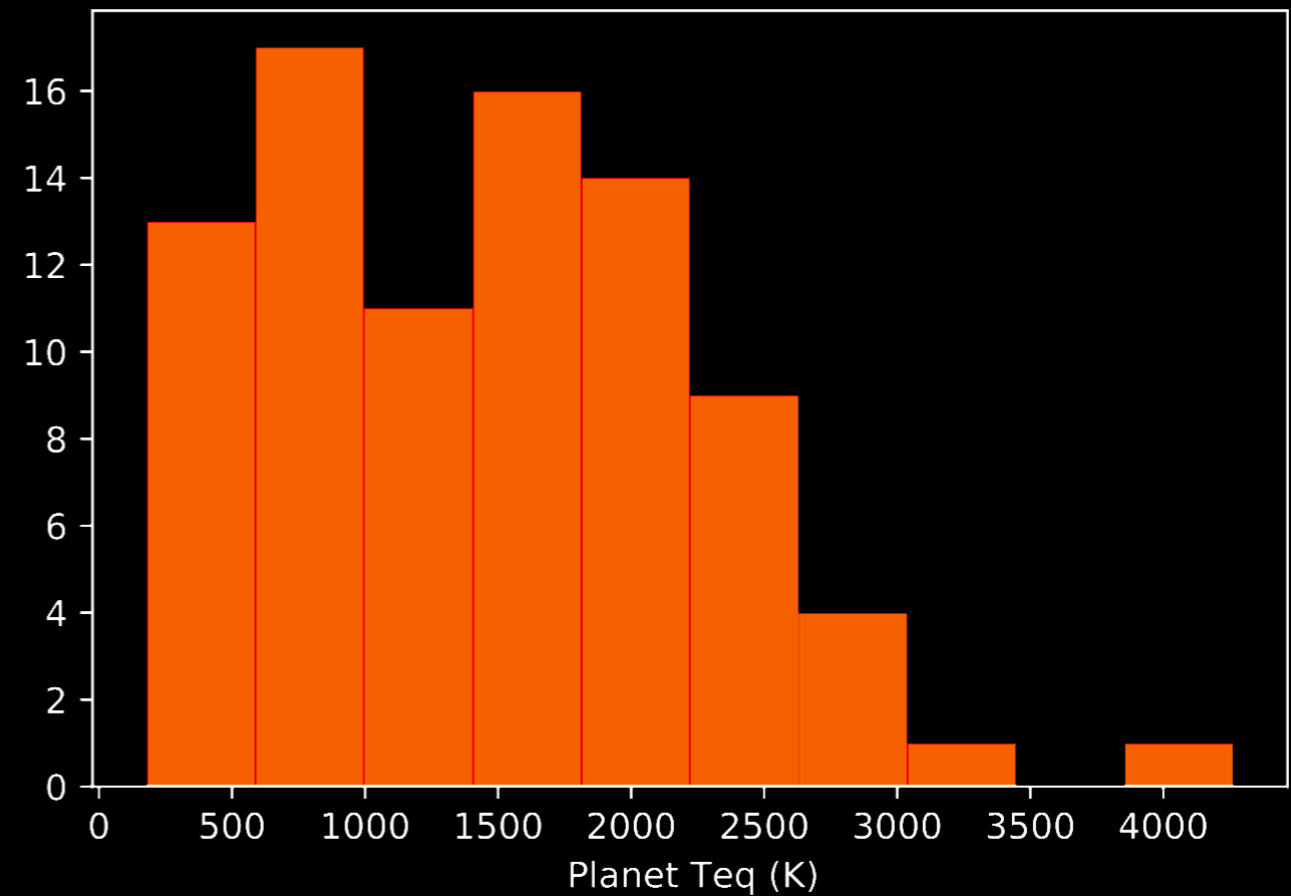
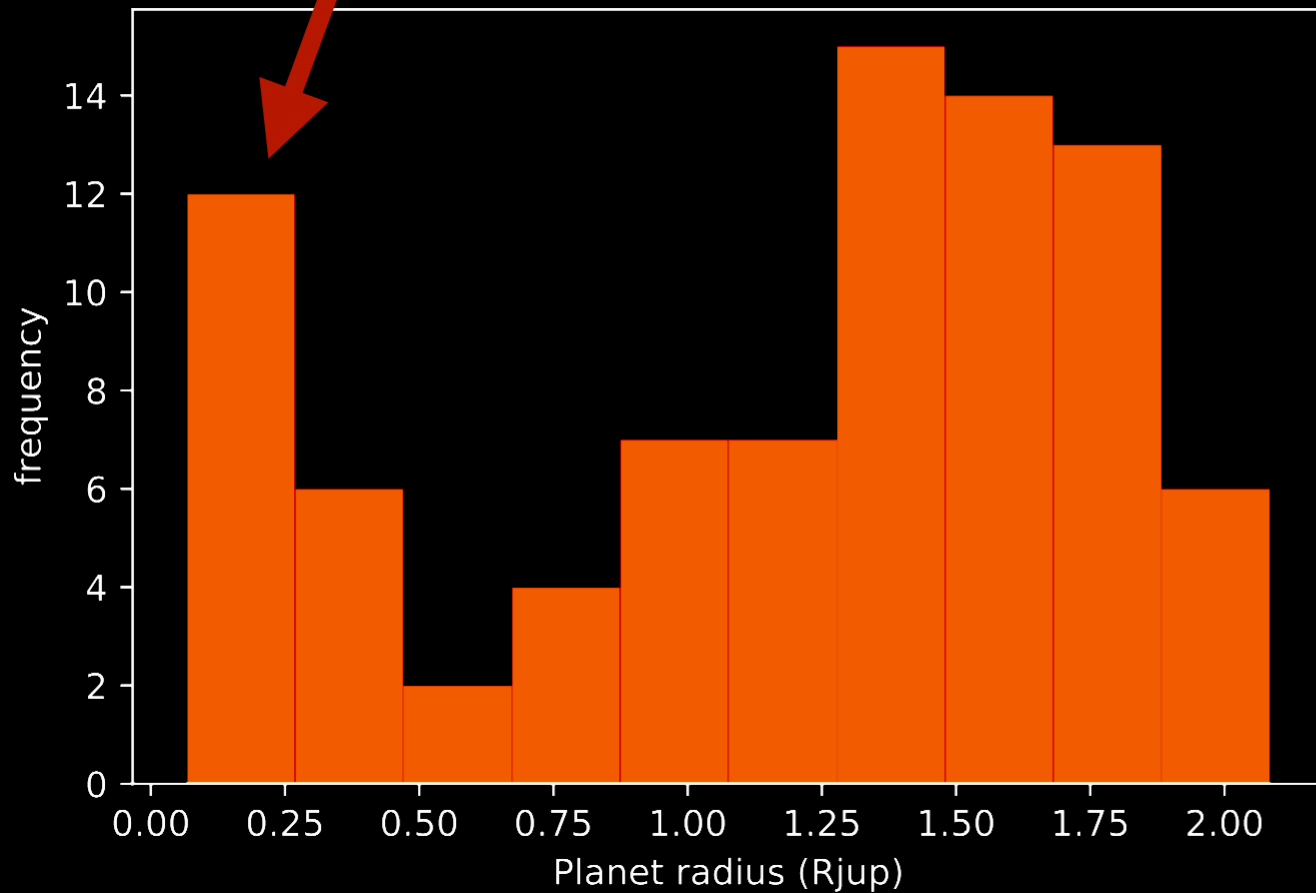
81 exoplanets in 90 days



Exemplar NUV Exoplanet Survey

81 exoplanets in 90 days

plenty of small
planets are observable



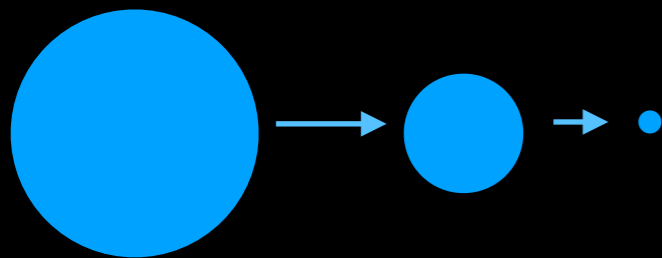
well-sampled 2500K range

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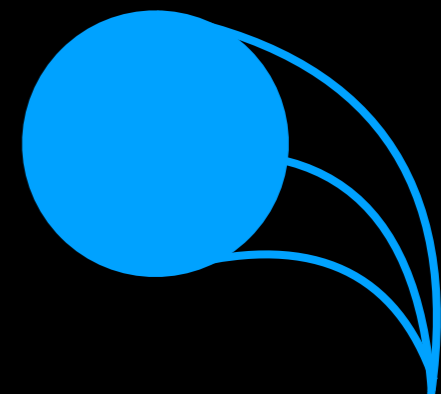
condensate size vs
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temperature/metal
rainout sequence



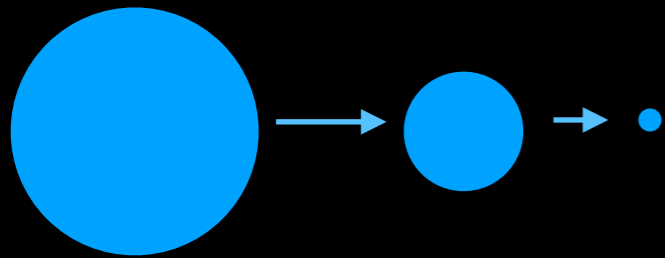
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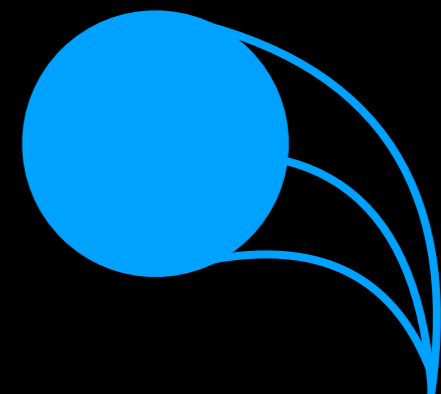


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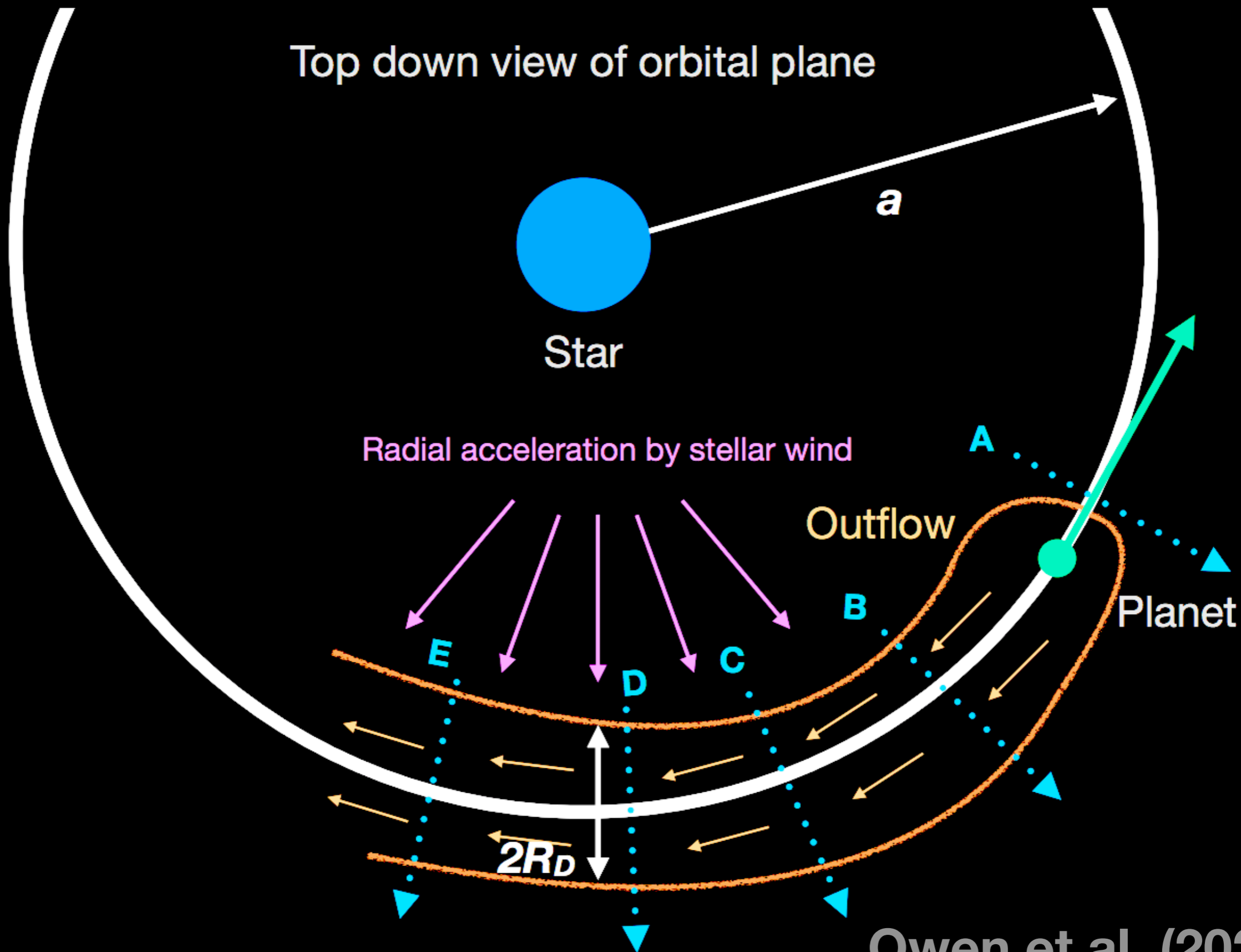
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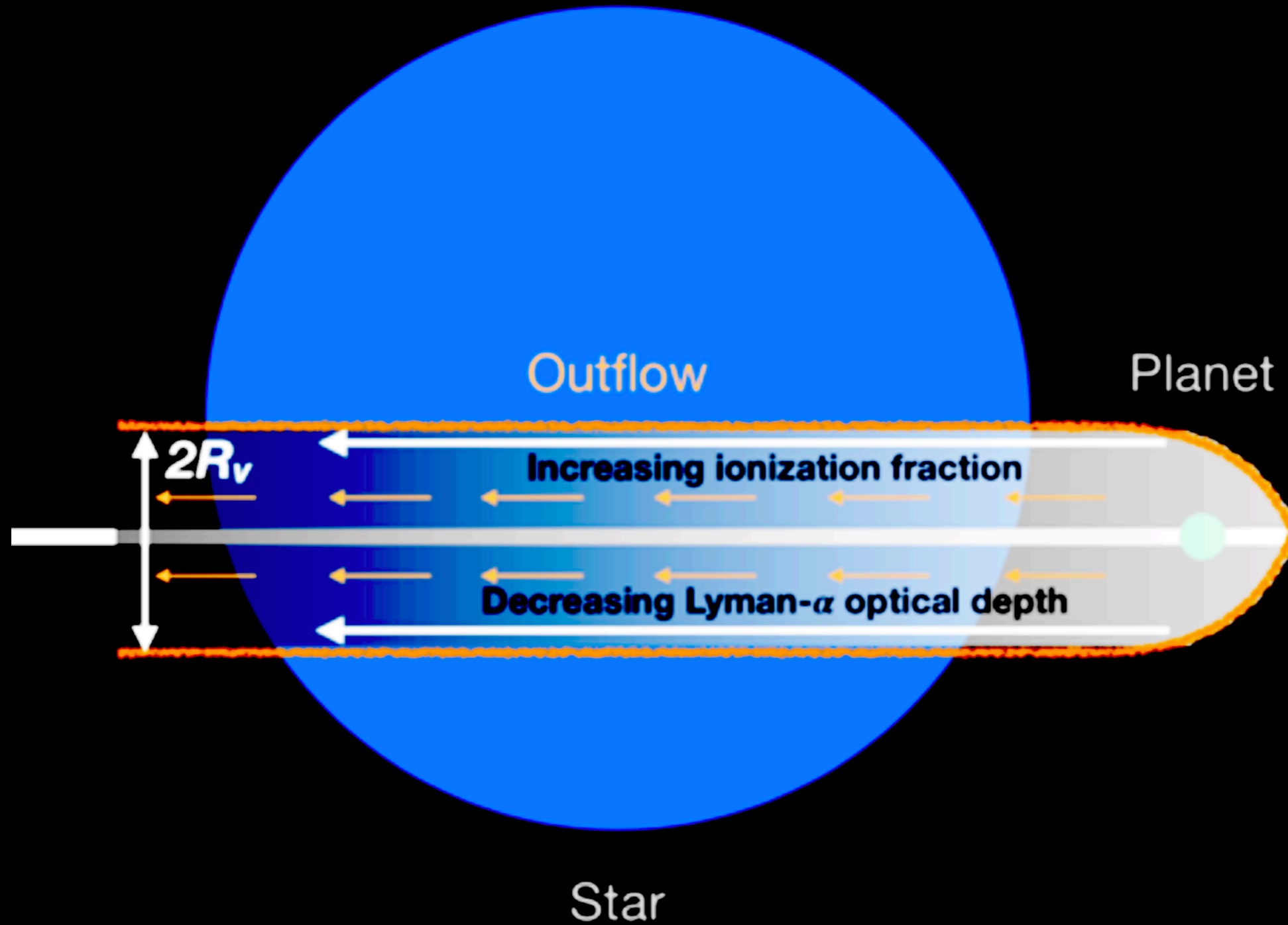


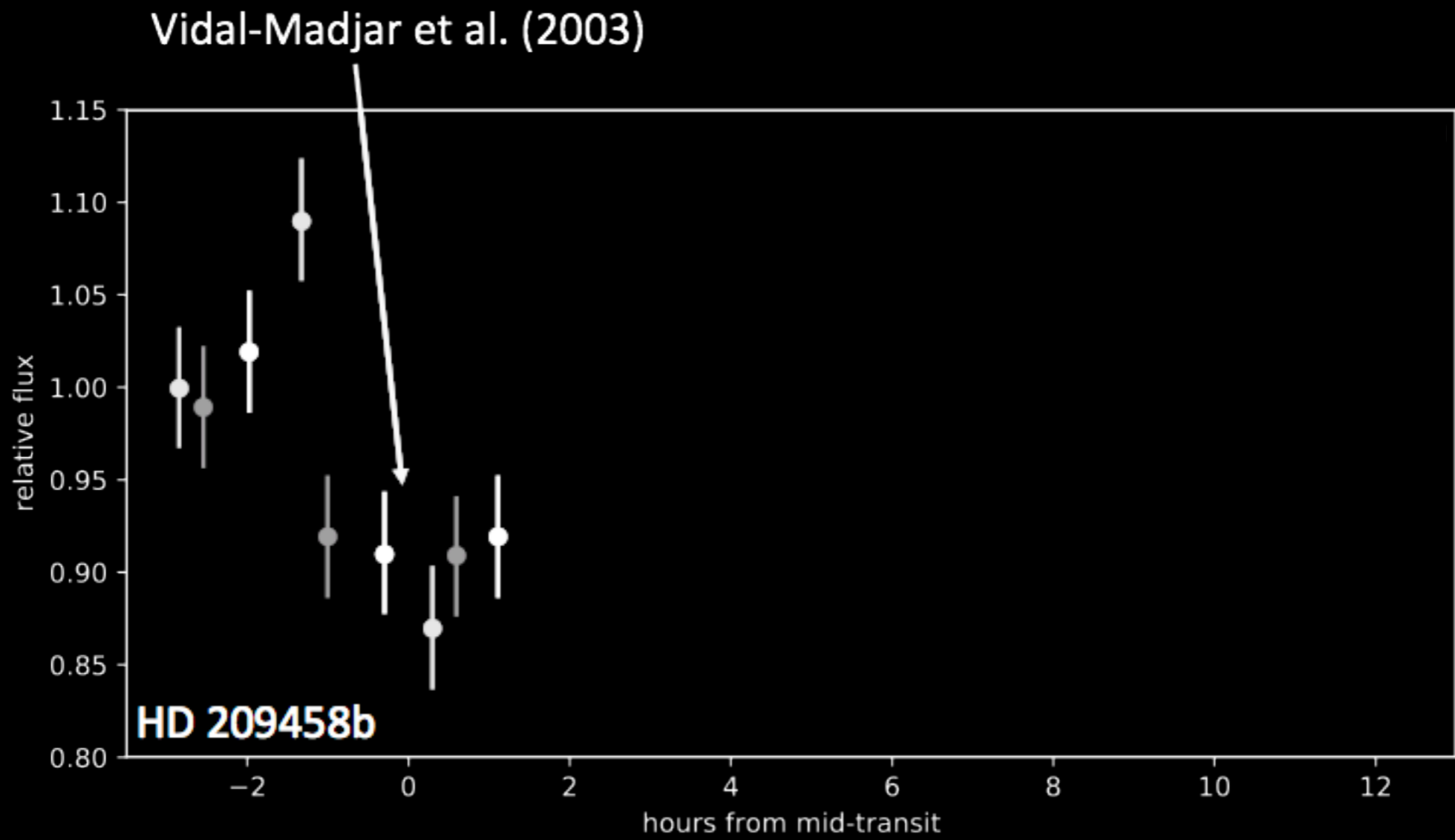
NASA's Solar Dynamics Explorer



Owen et al. (2022)

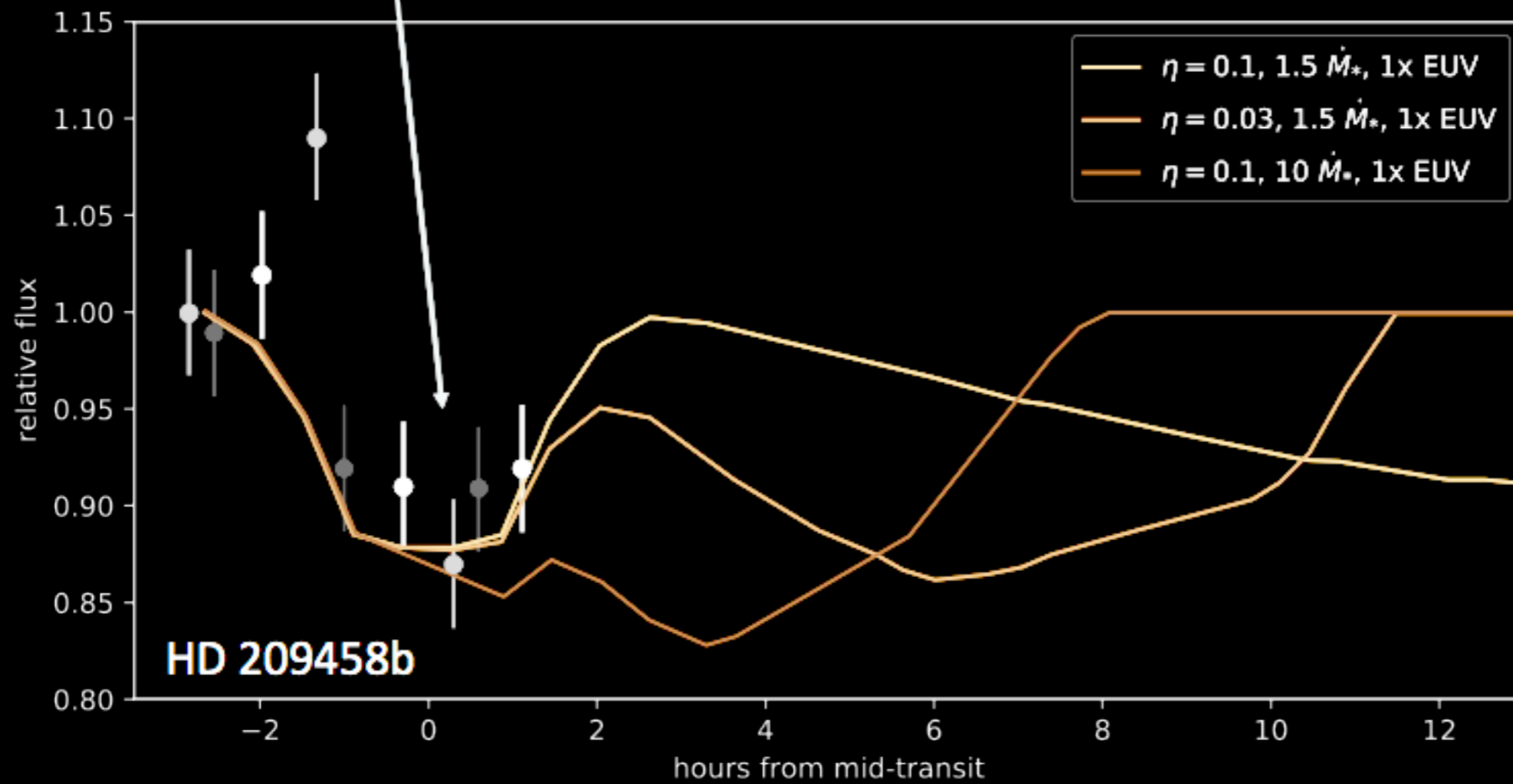
Side on view of orbital plane
(Transit view)





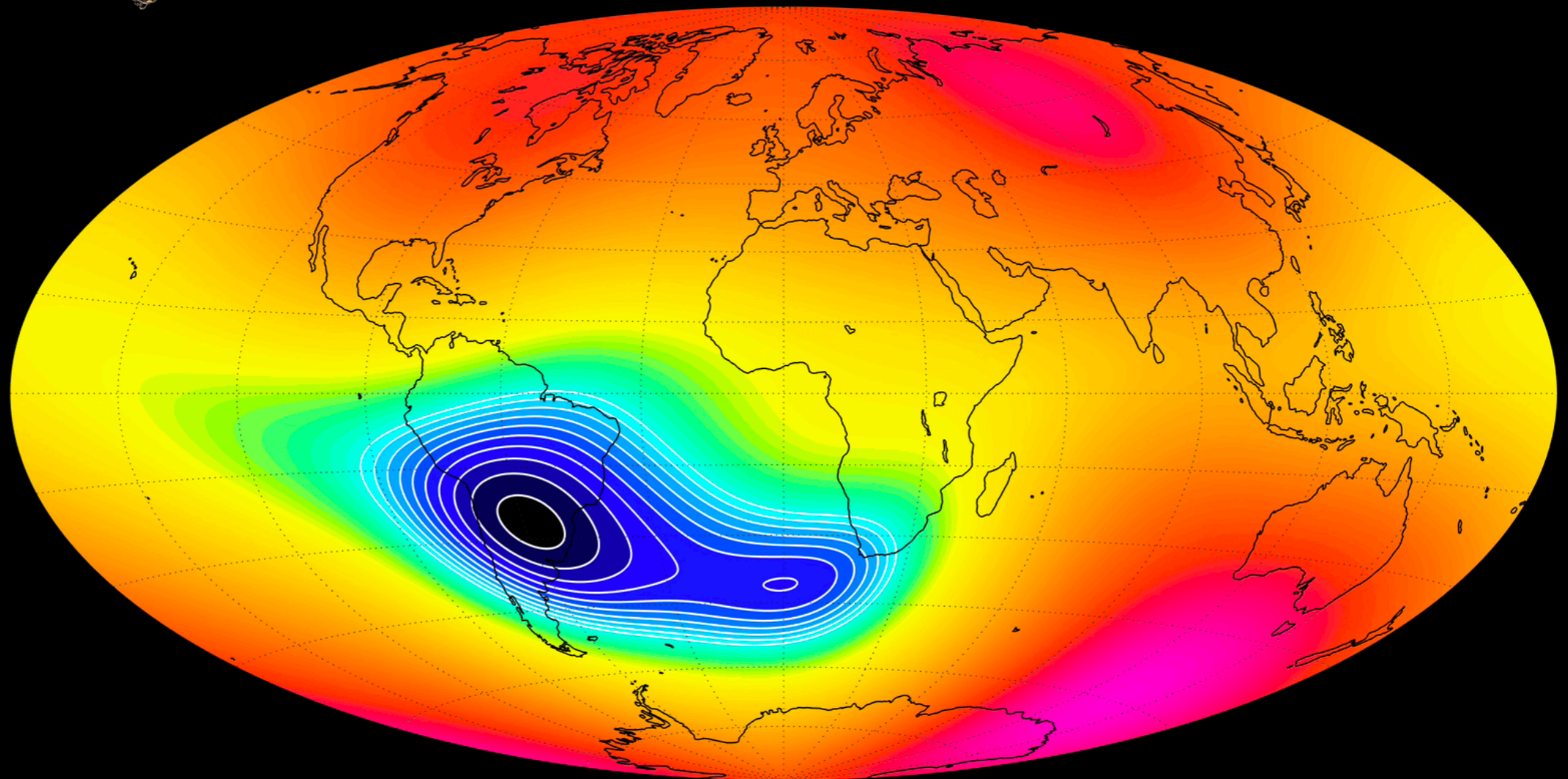
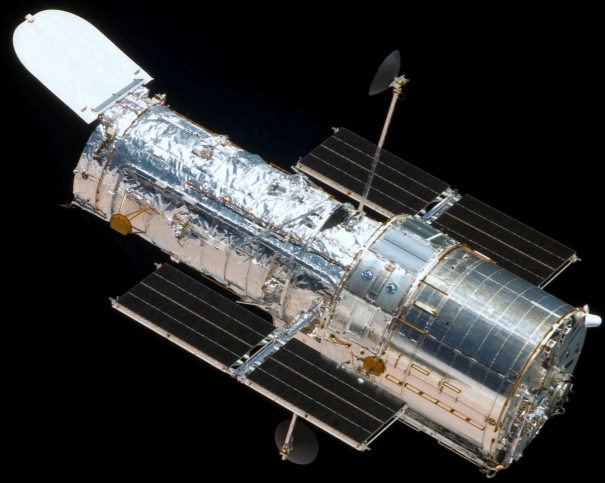
Spake et al. (in prep)

Vidal-Madjar et al. (2003)

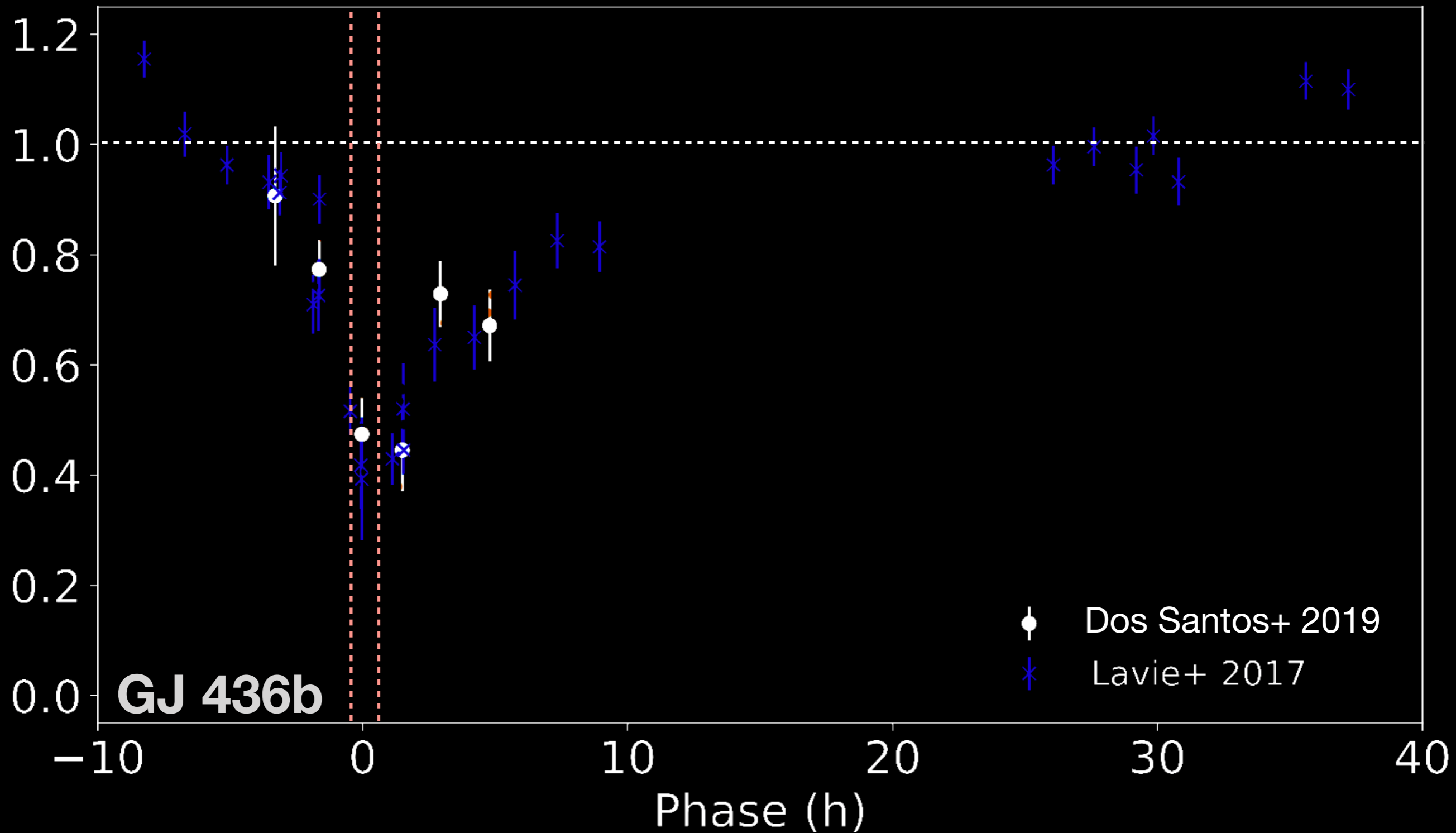


Spake et al. (in prep)

No Hubble Ly- α observations during SAA crossings

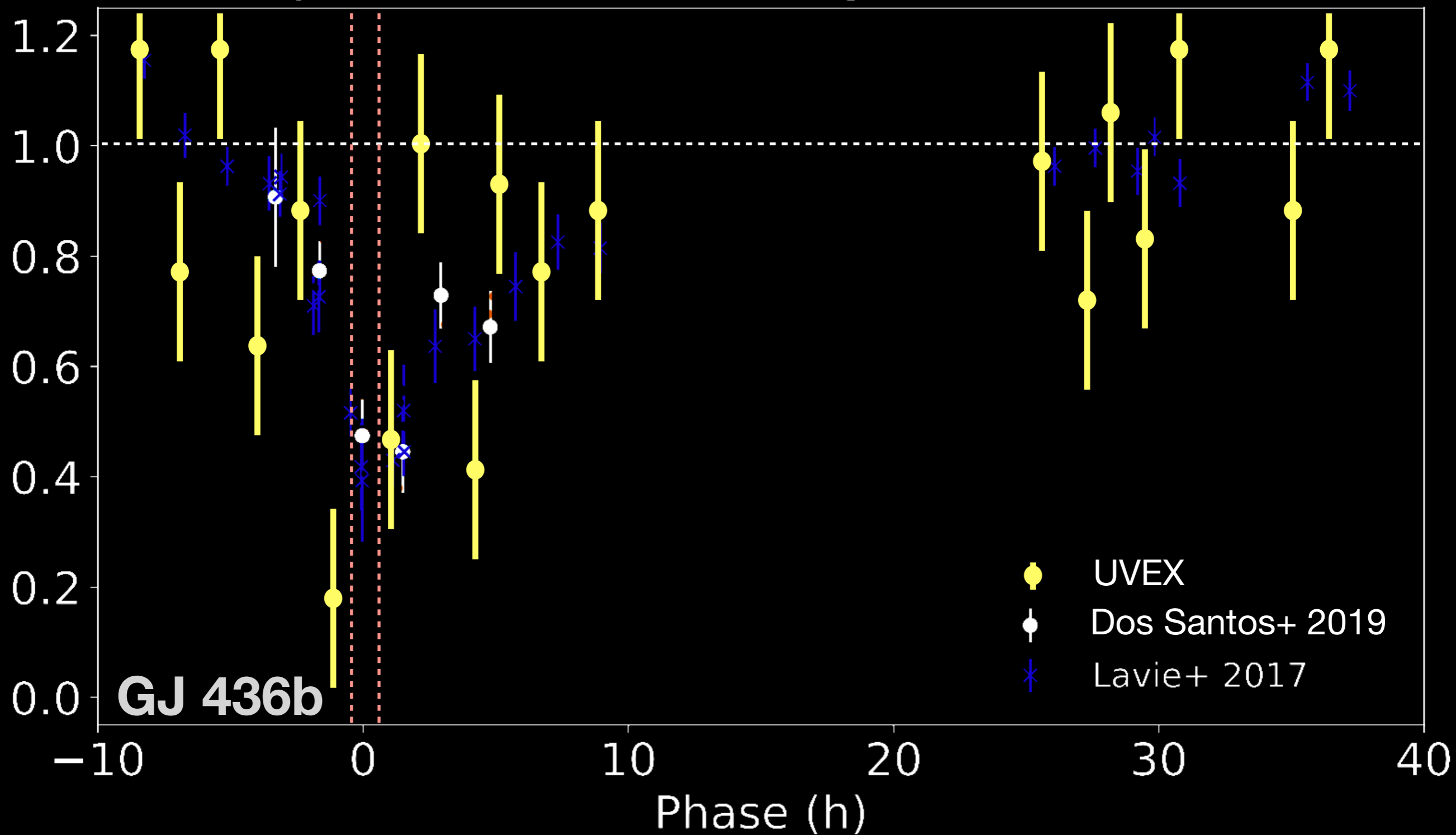


Lyman- α absorbed blue wing $[-120, -40]$ km s $^{-1}$



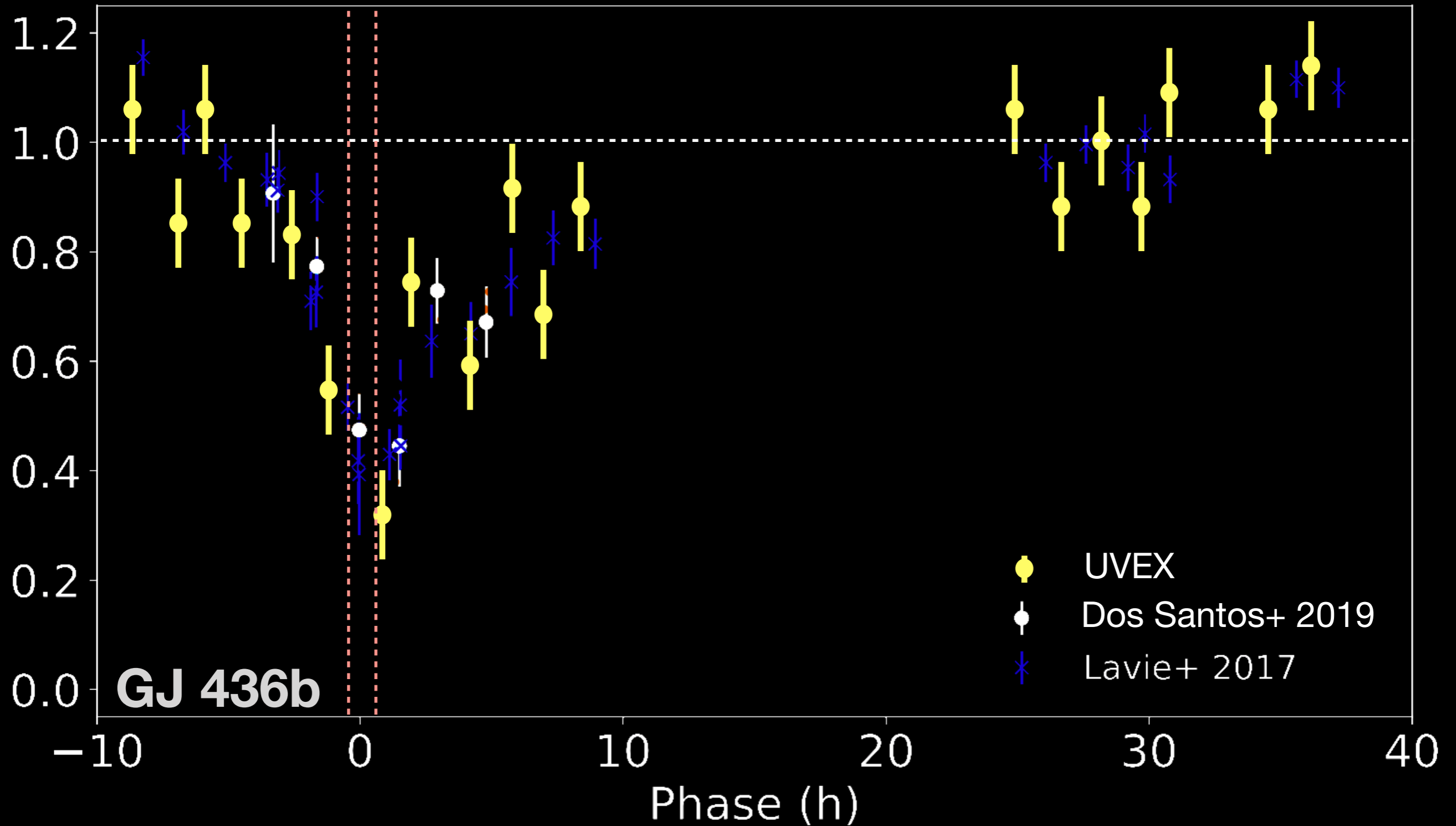
1 UVEX VISIT

Lyman- α absorbed blue wing $[-120, -40]$ km s $^{-1}$



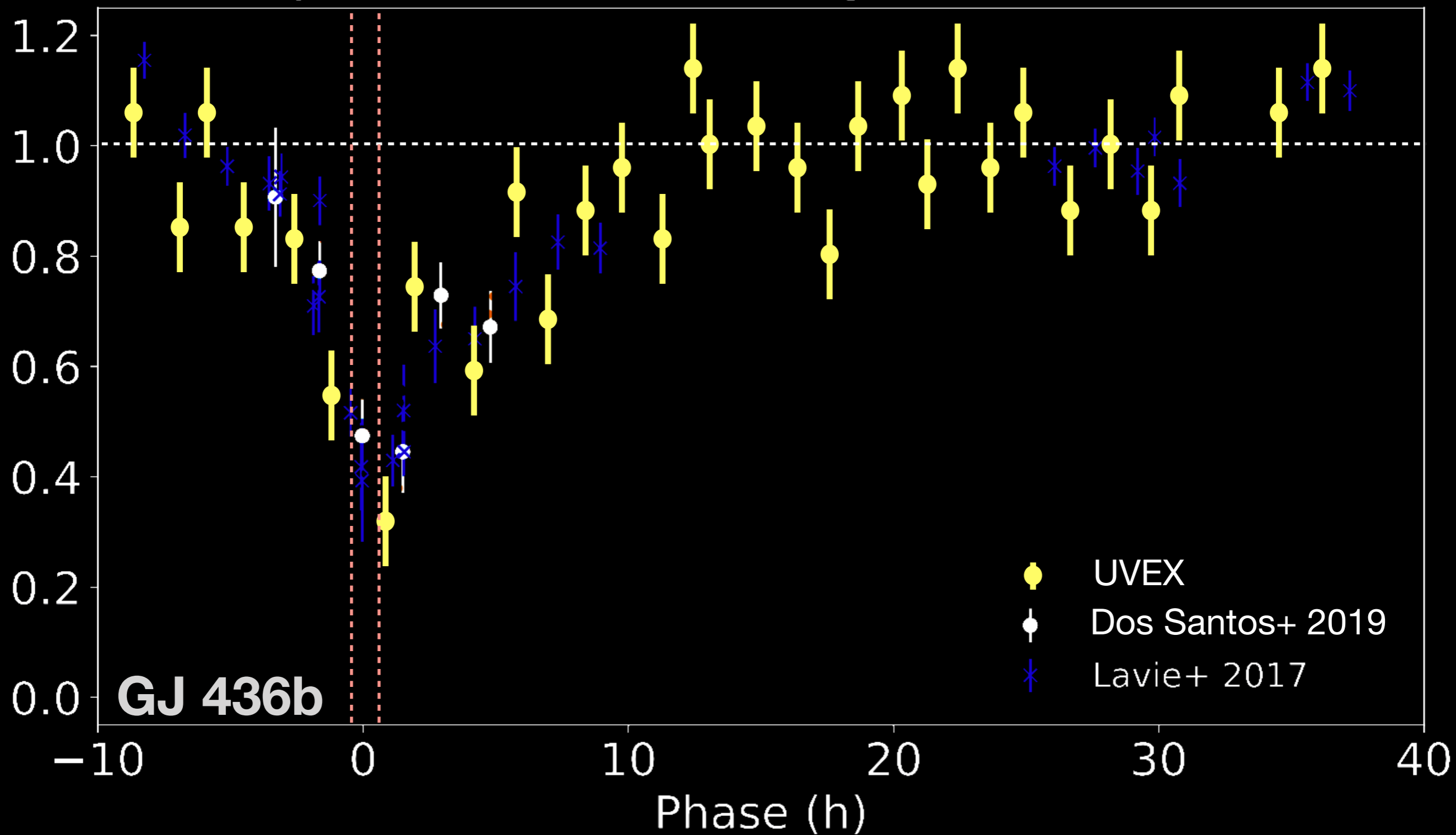
4 UVEX VISITS

Lyman- α absorbed blue wing $[-120, -40]$ km s $^{-1}$



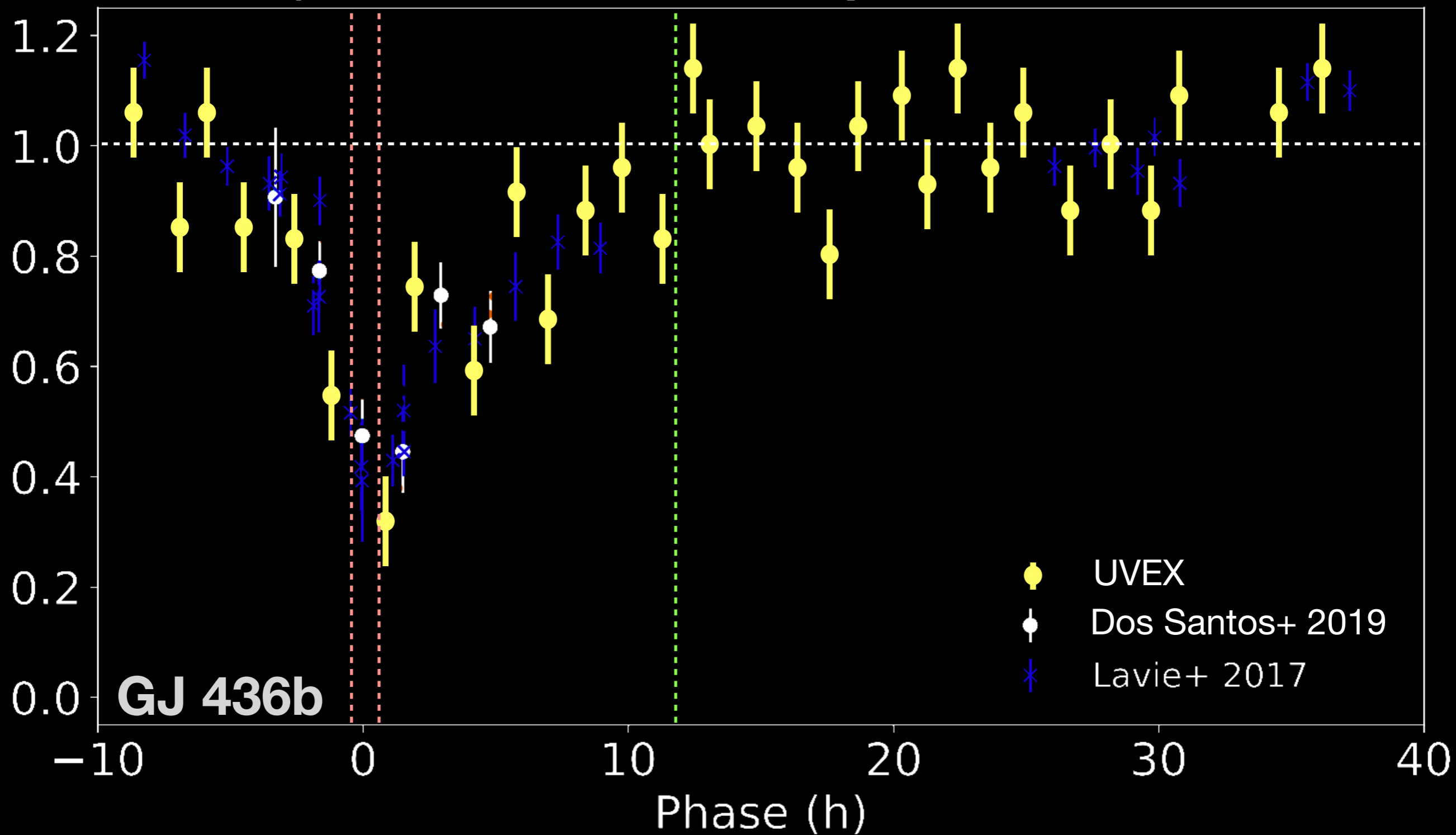
4 UVEX VISITS

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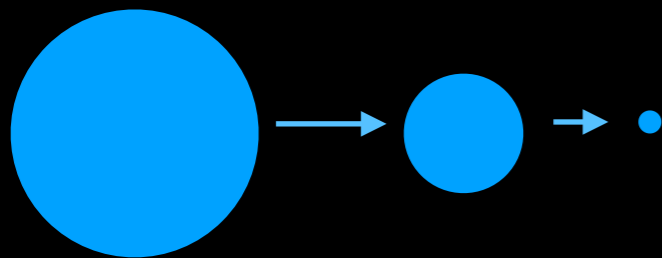


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