

Exoplanet Science with UVEX

Jessica Spake

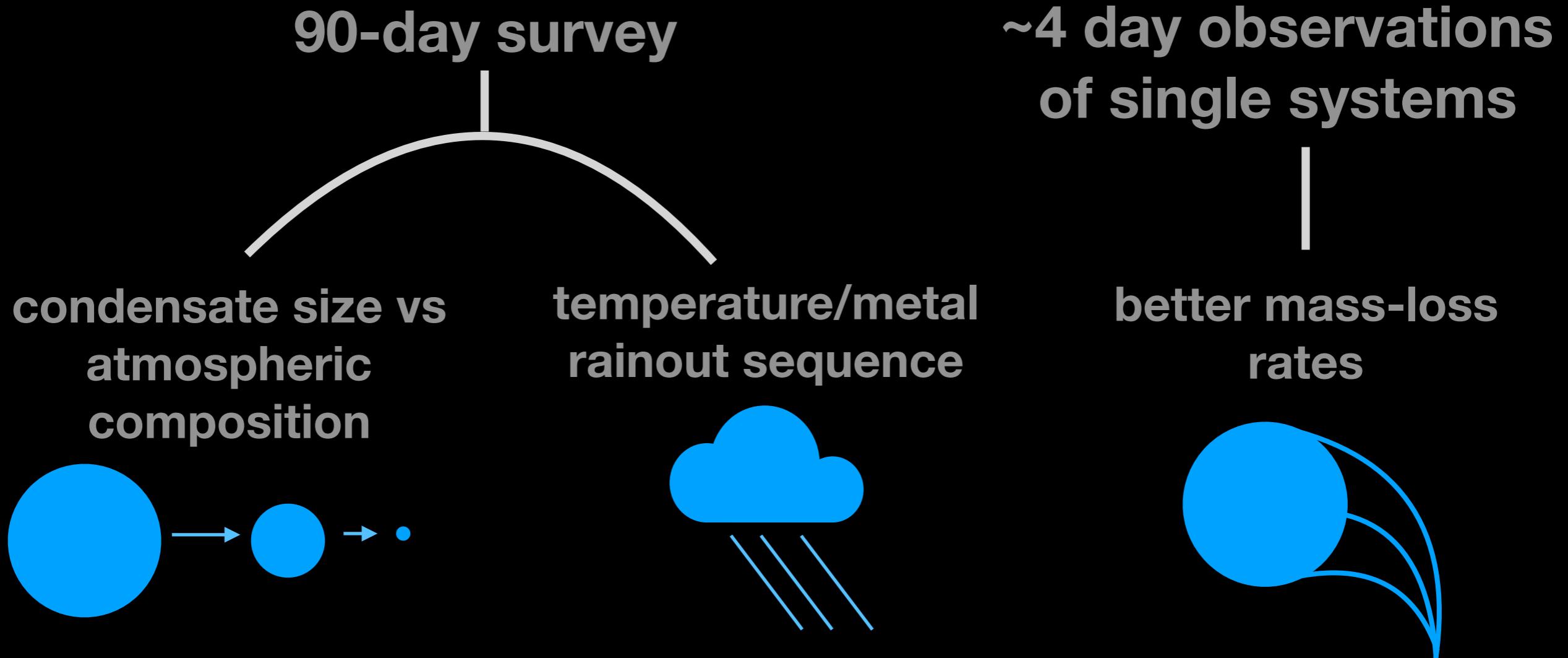
Jessie Christiansen, Heather Knuston



51 Pegasi b

Fellowship in Planetary Astronomy

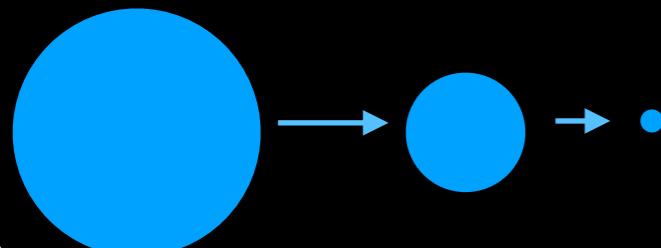
Exoplanets with UVEX



Exoplanets with UVEX

90-day survey

condensate size vs
atmospheric
composition

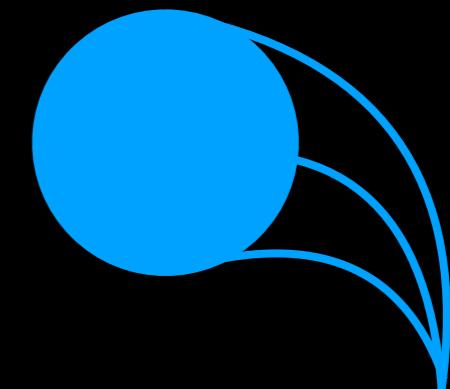


temperature/metal
rainout sequence

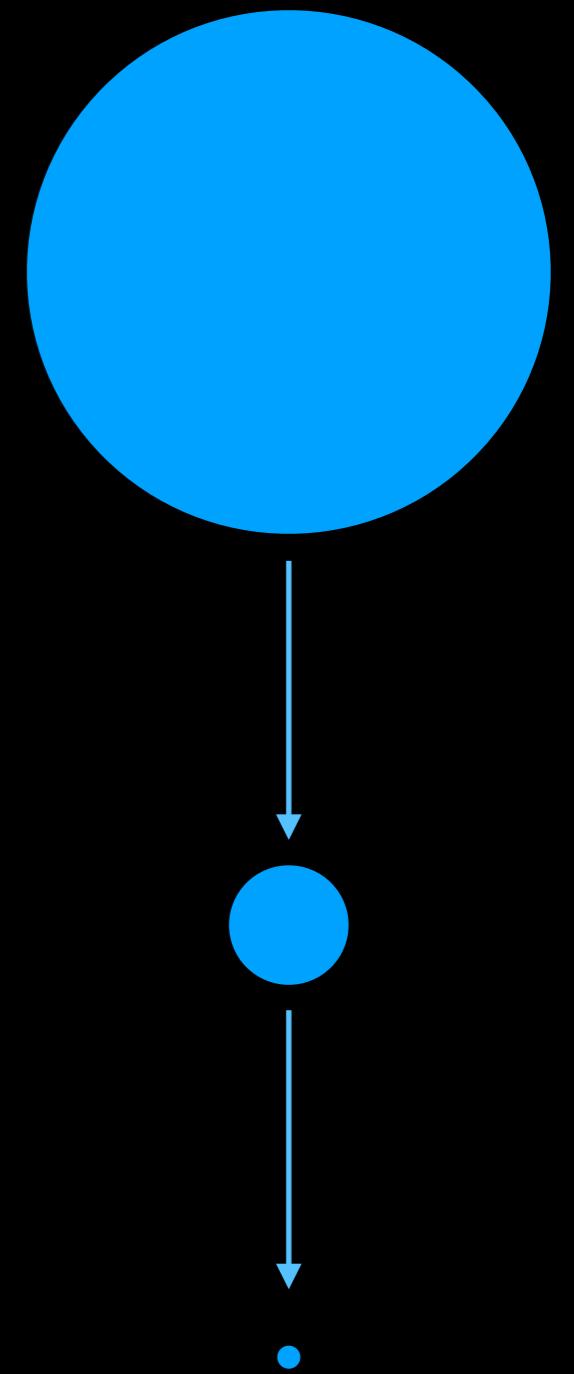
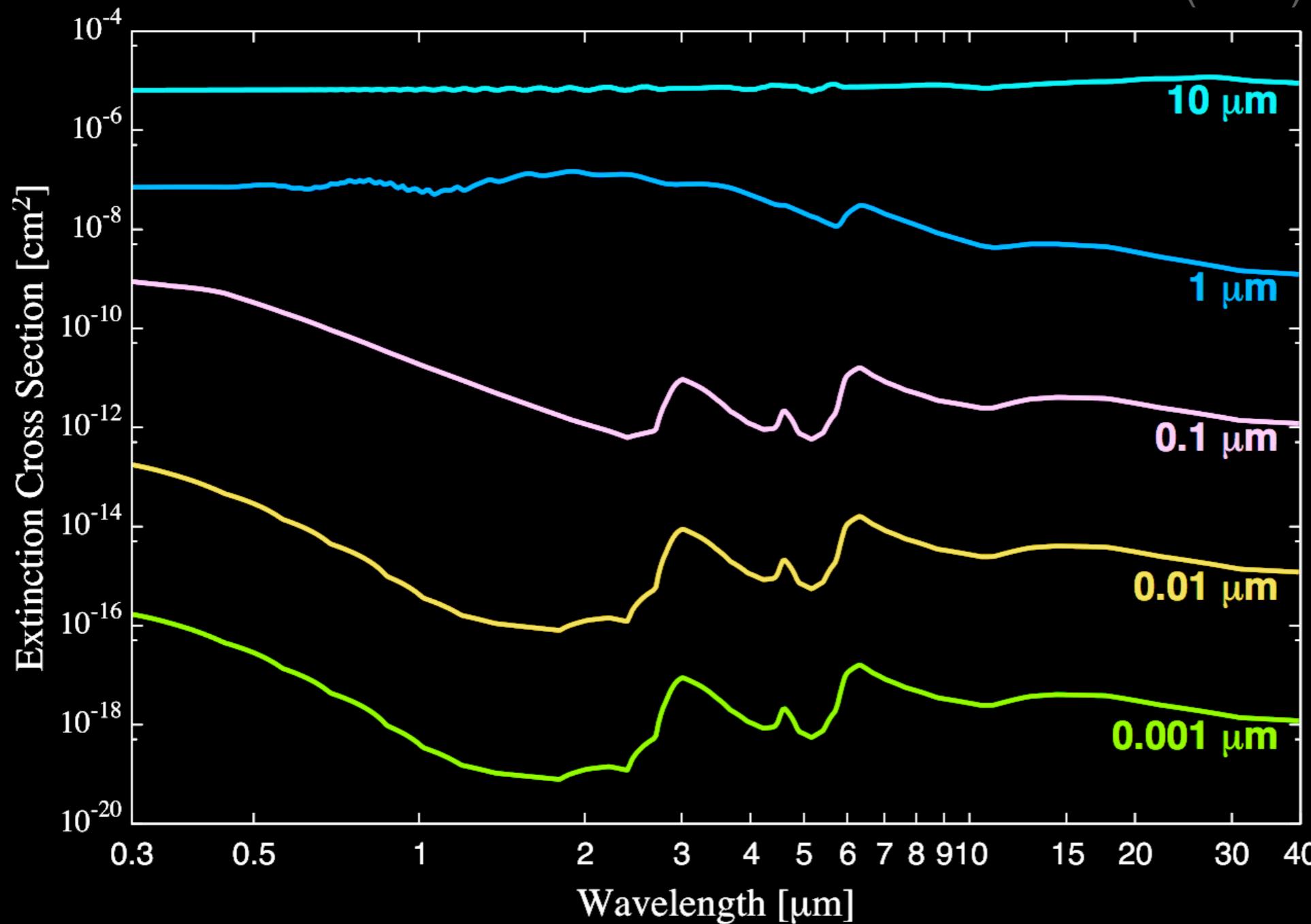


~4 day observations
of single systems

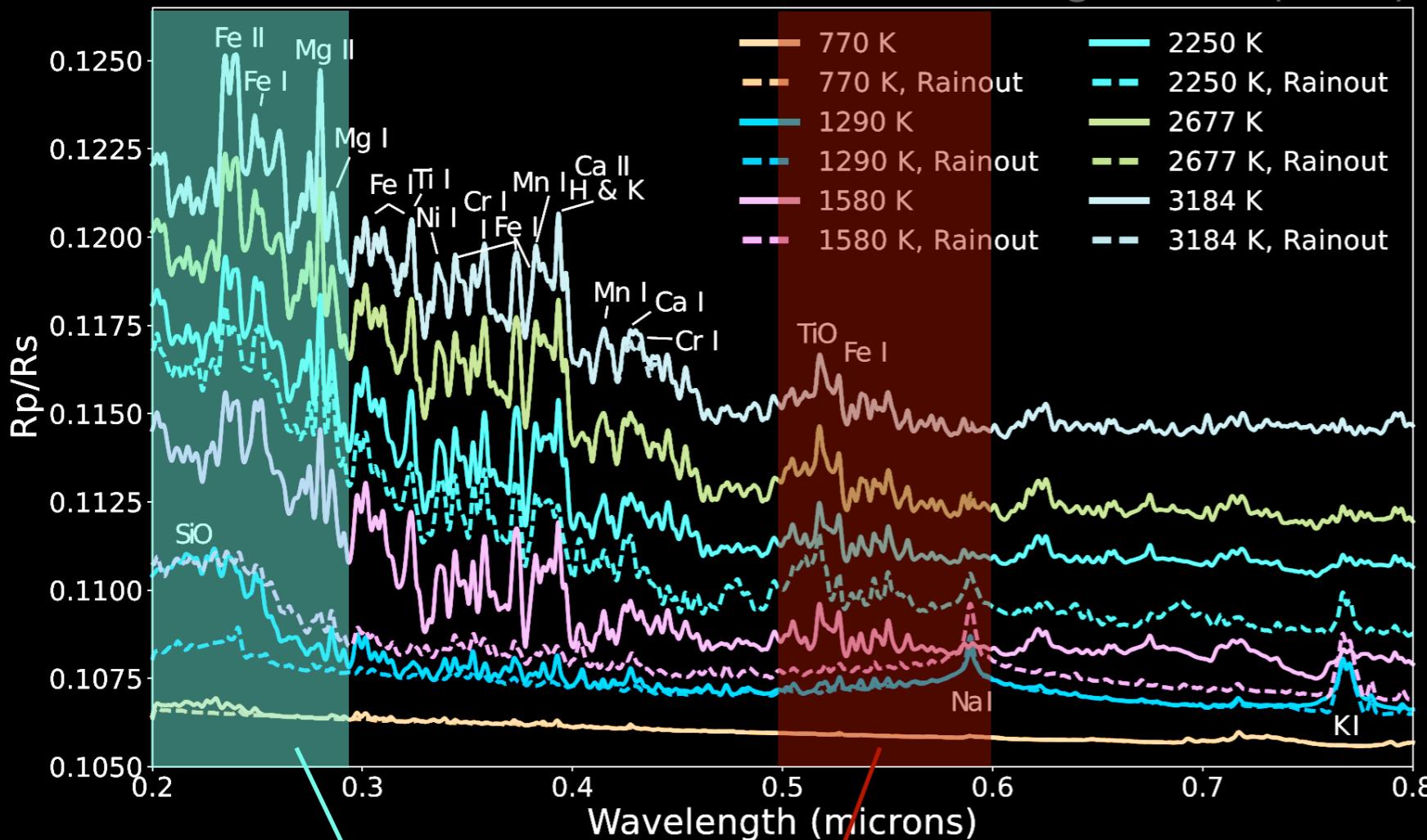
better mass-loss
rates



Kawashima & Ikoma (2019)



Lothringer et al (2020)



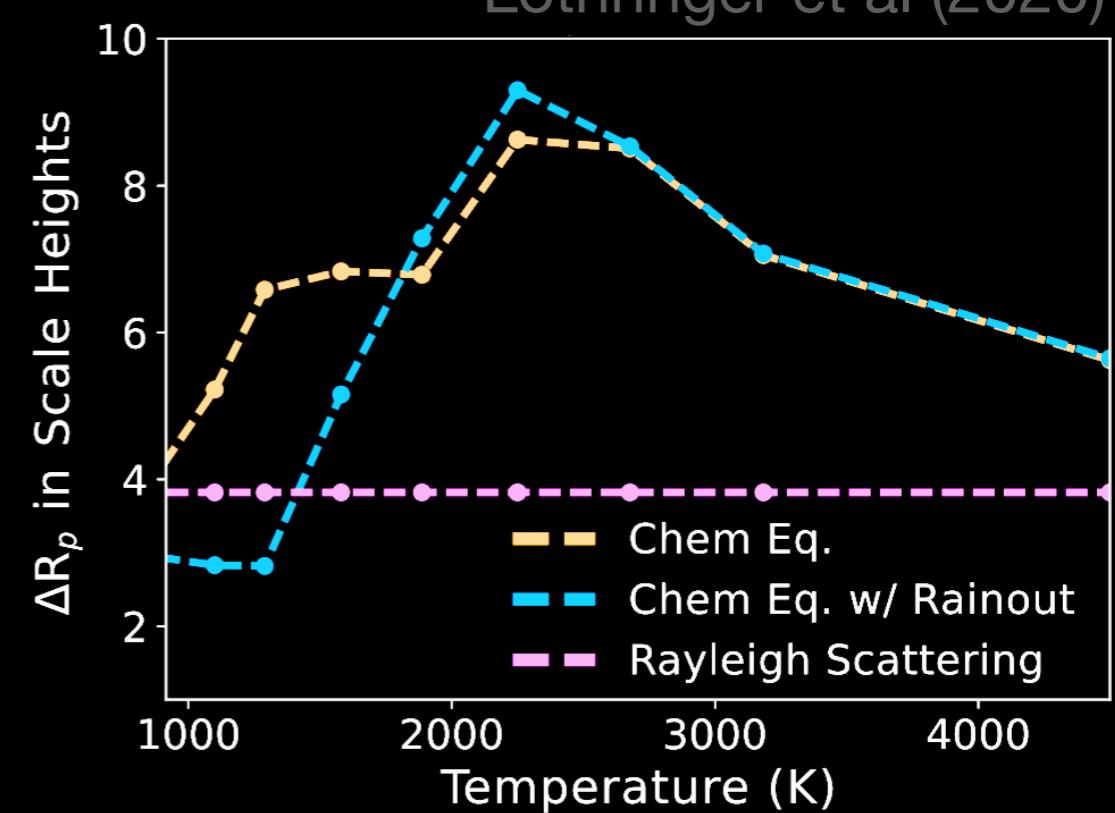
UVEX

$\Delta R_p, NUV-Red$

TESS



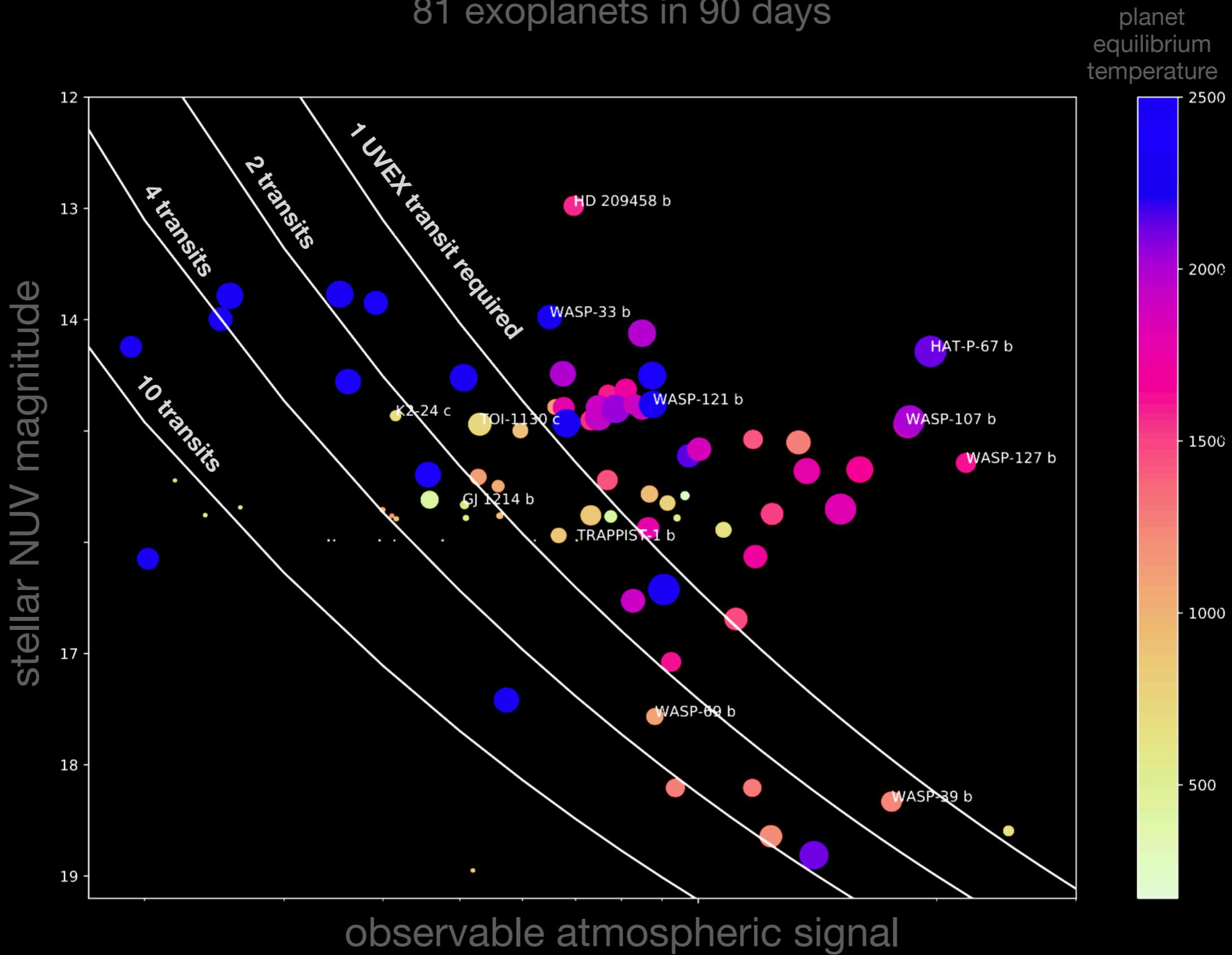
Lothringer et al (2020)



A diagram illustrating the Earth's atmosphere. A black wedge shape representing the landmass of South America is positioned on the left. To its right is a yellow circular area representing the atmosphere. A blue circle is centered within the yellow area, representing the Earth's surface. A thin blue ring surrounds the blue circle. An arrow points from the text "1 atmospheric scale height" to the top edge of this blue ring. The text is in a bold, black, sans-serif font.
**1 atmospheric
scale height**

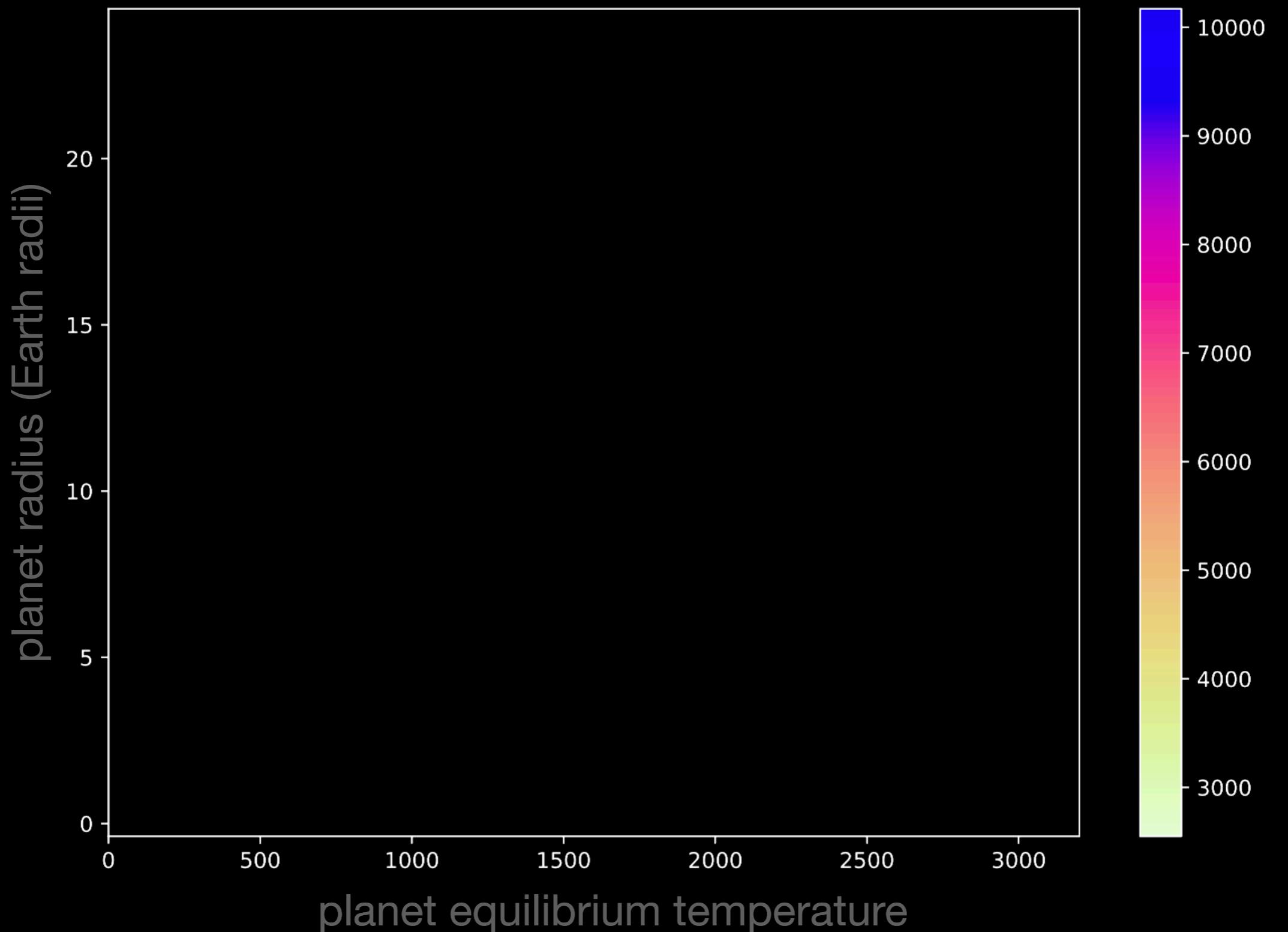
Exemplar NUV Exoplanet Survey

81 exoplanets in 90 days



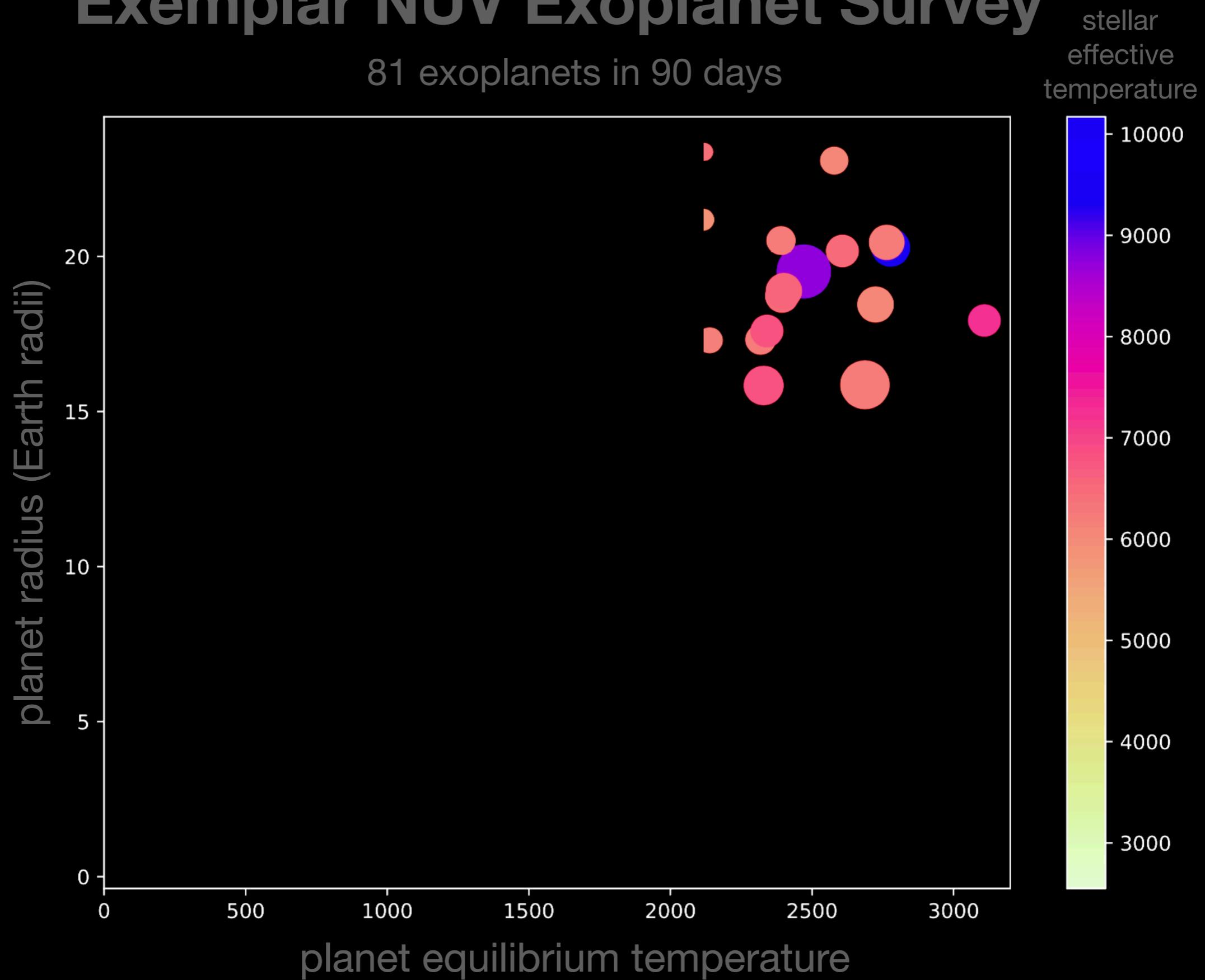
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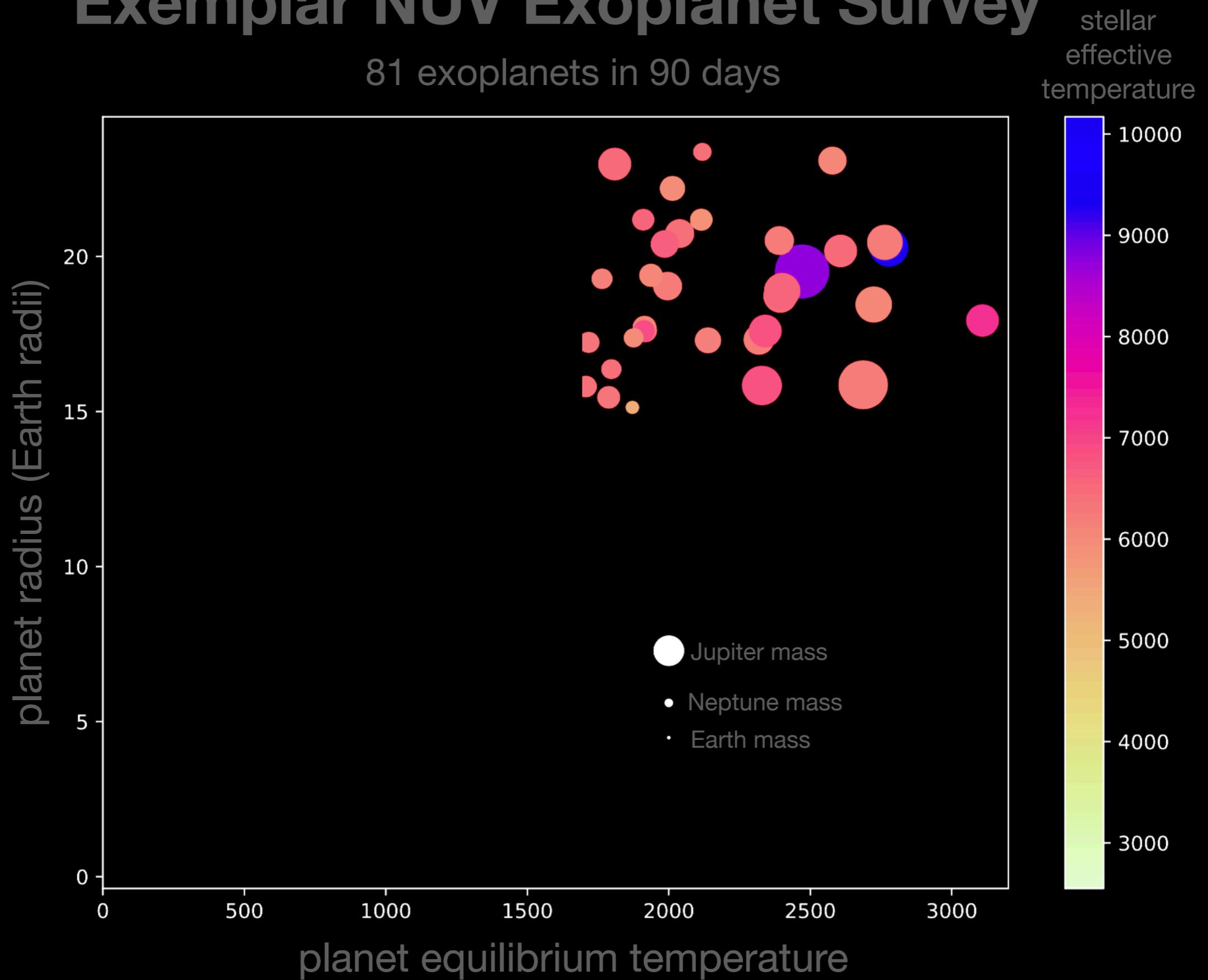
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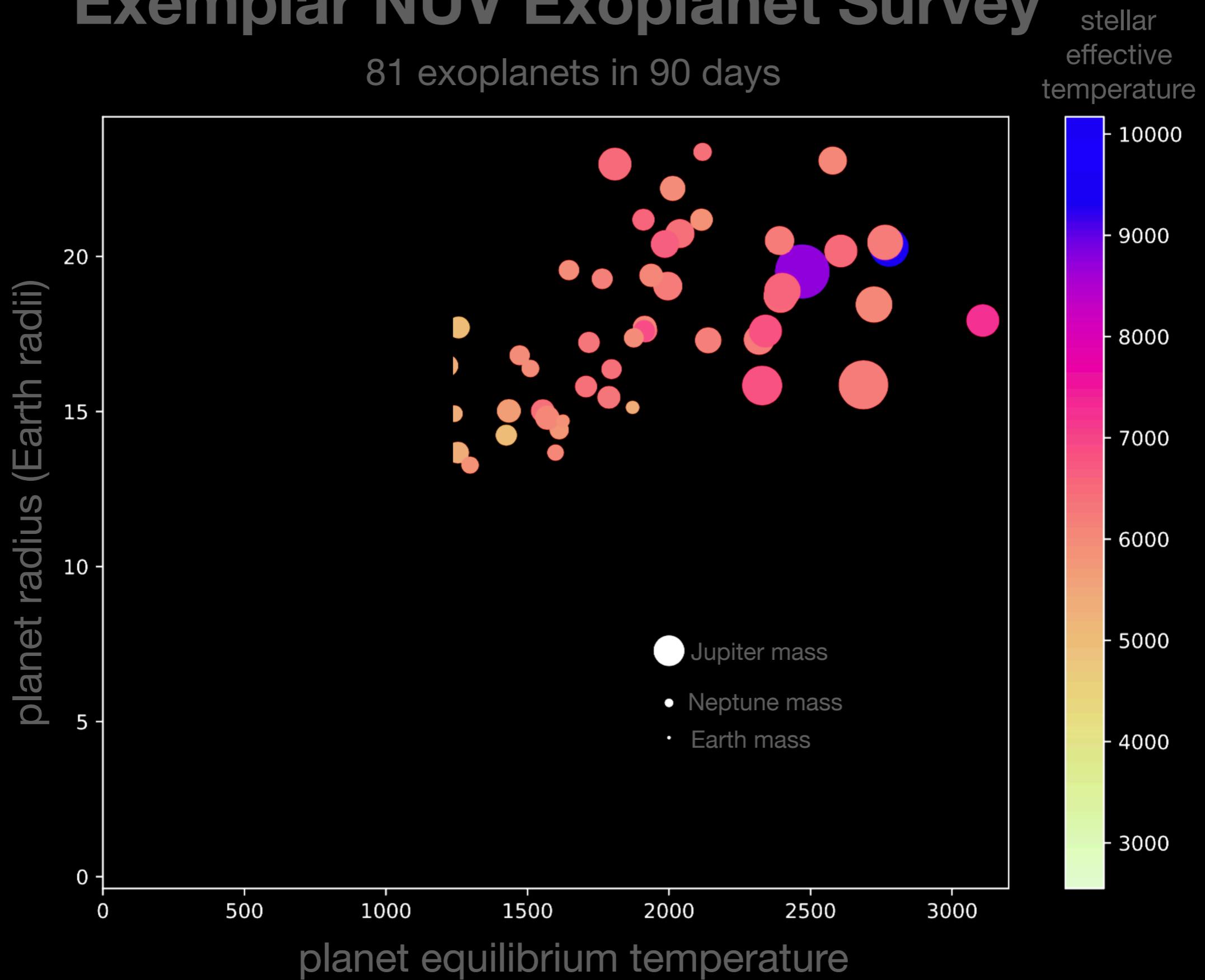
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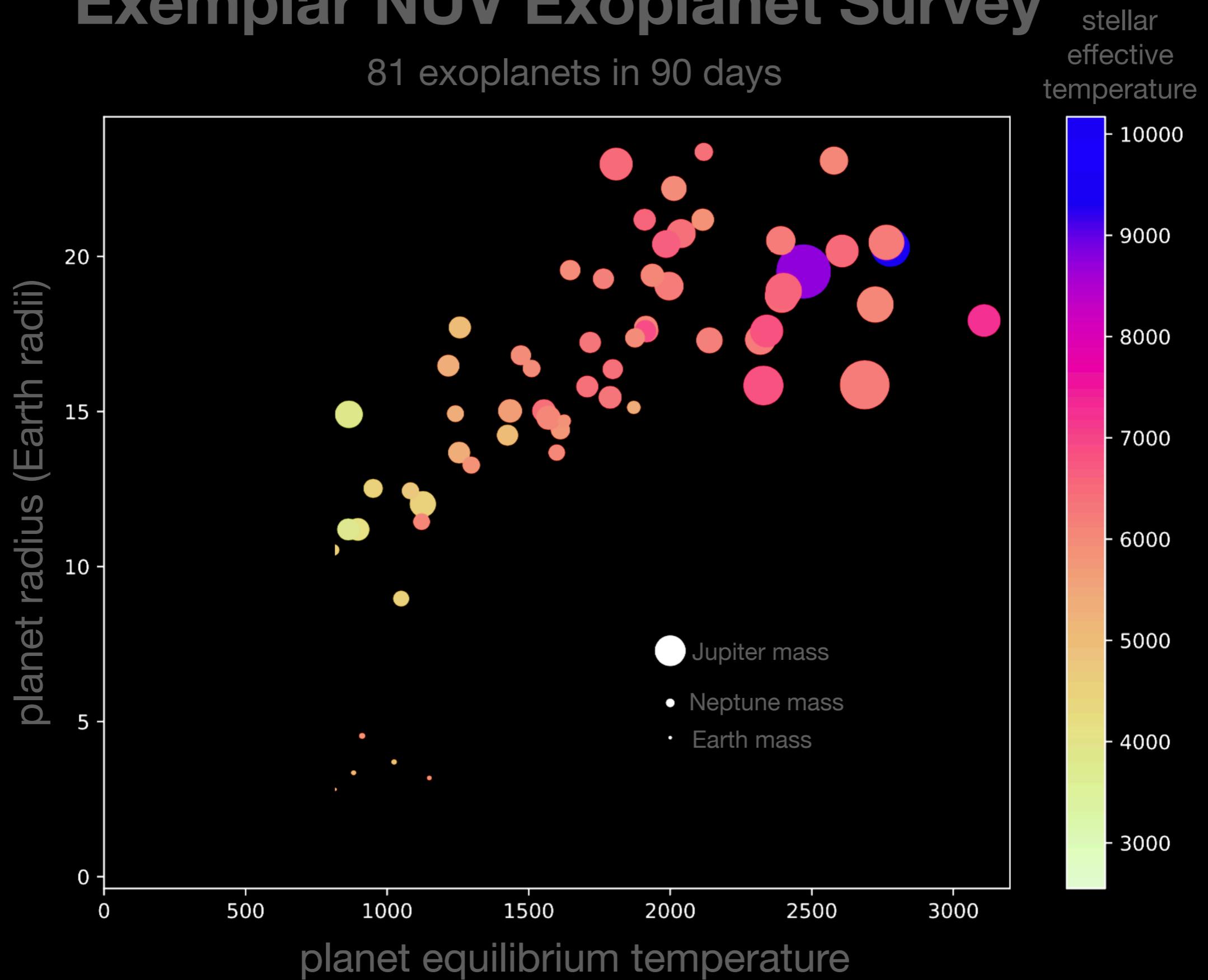
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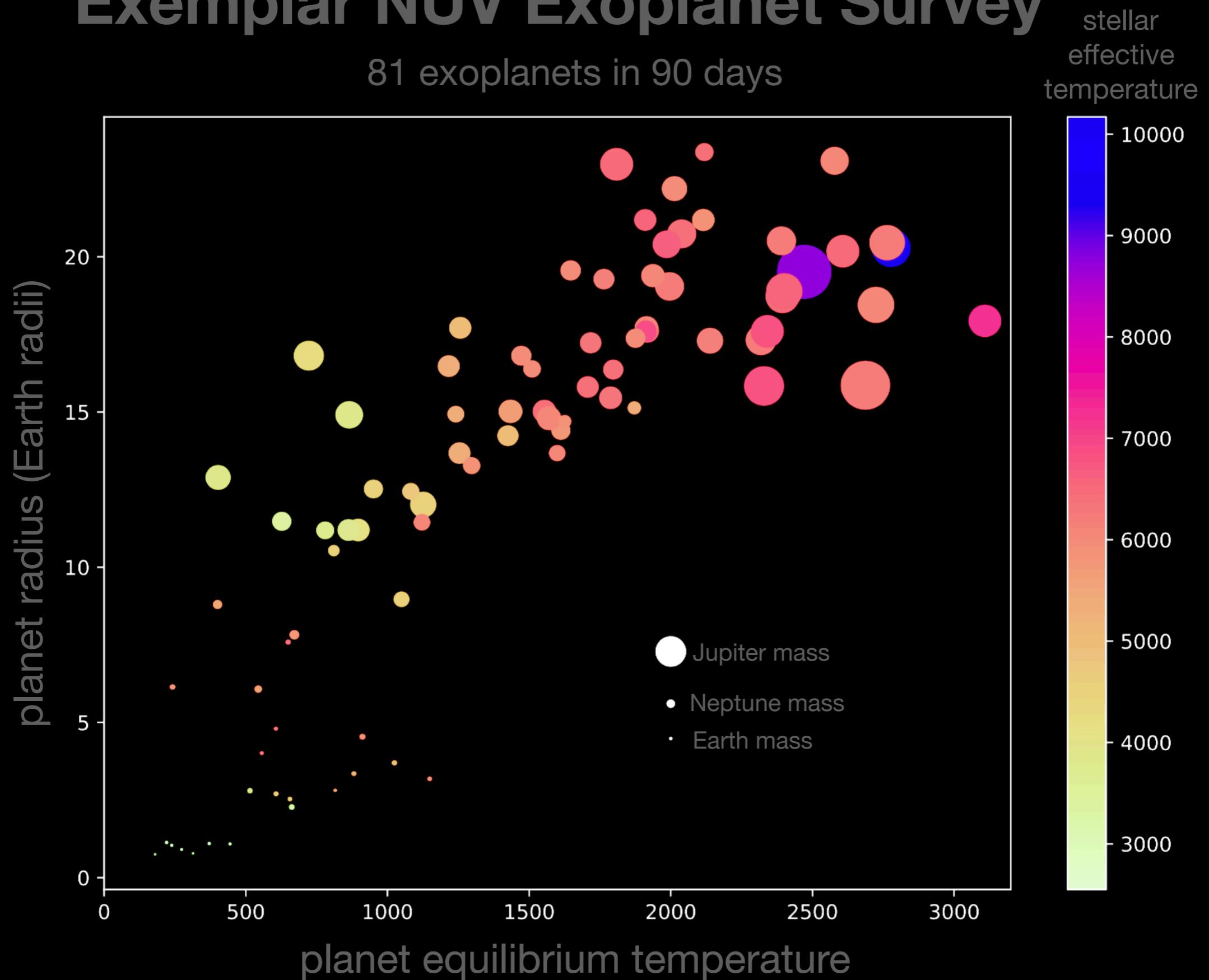
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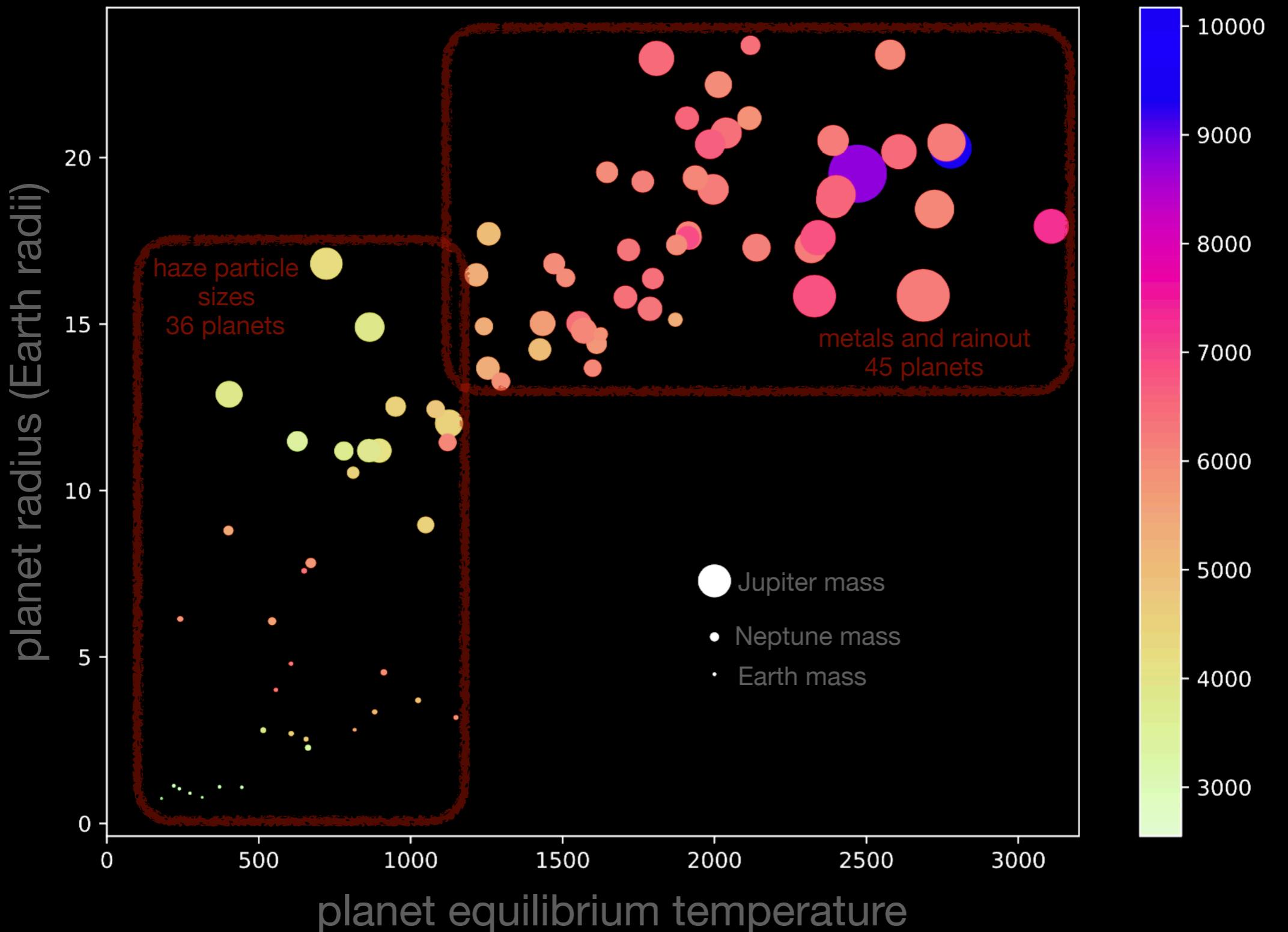
Exemplar NUV Exoplanet Survey

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Exemplar NUV Exoplanet Survey

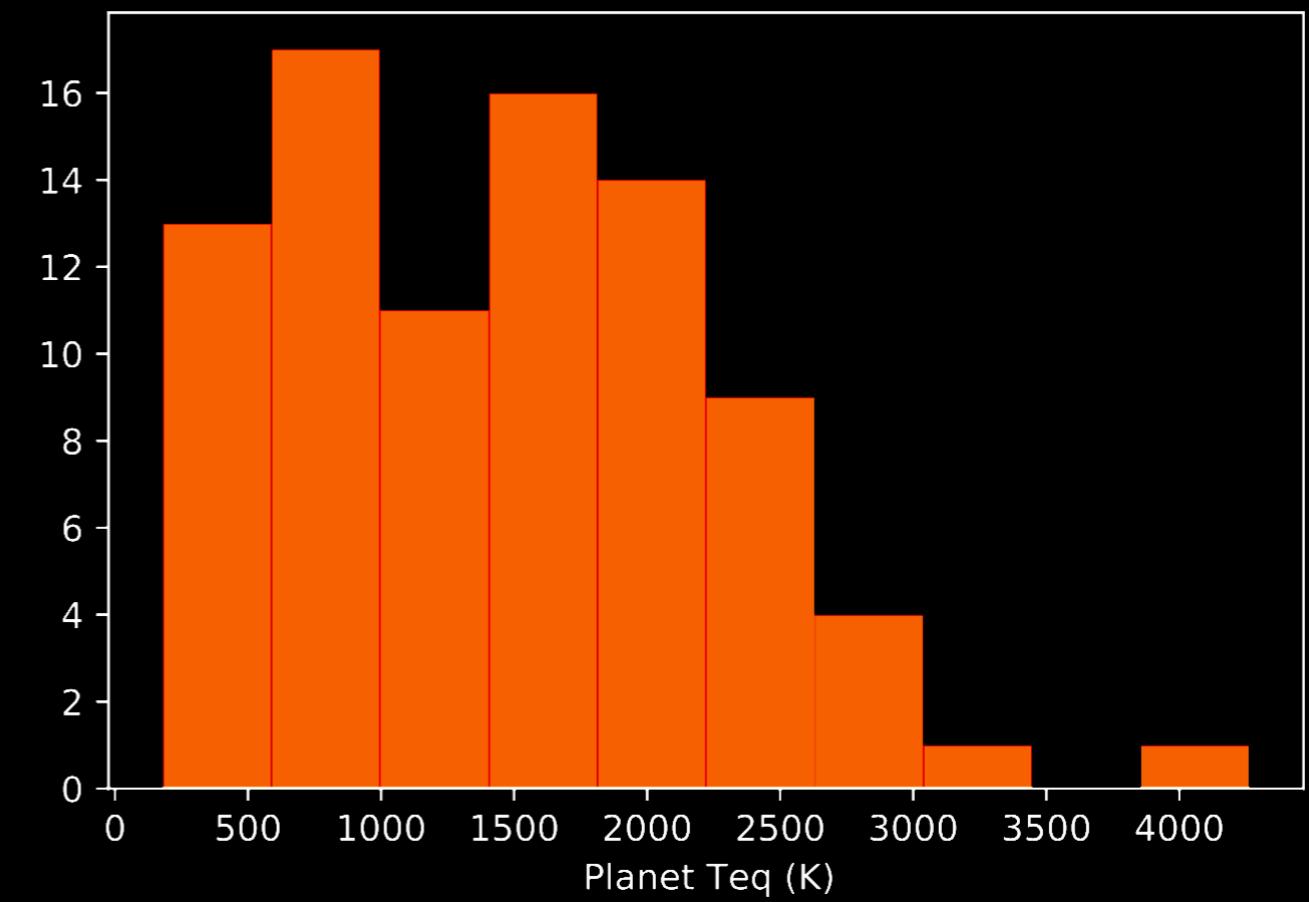
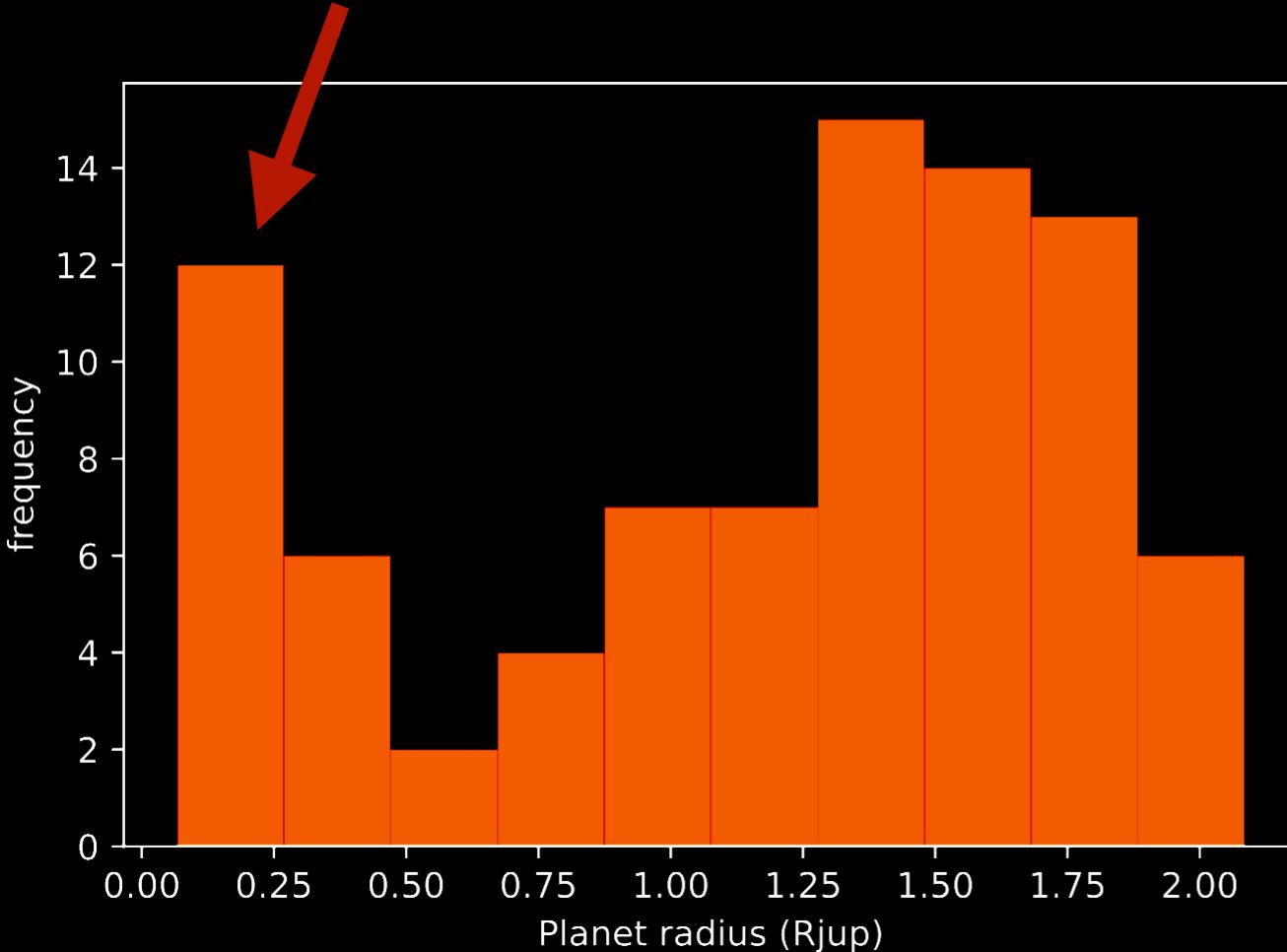
81 exoplanets in 90 days



Exemplar NUV Exoplanet Survey

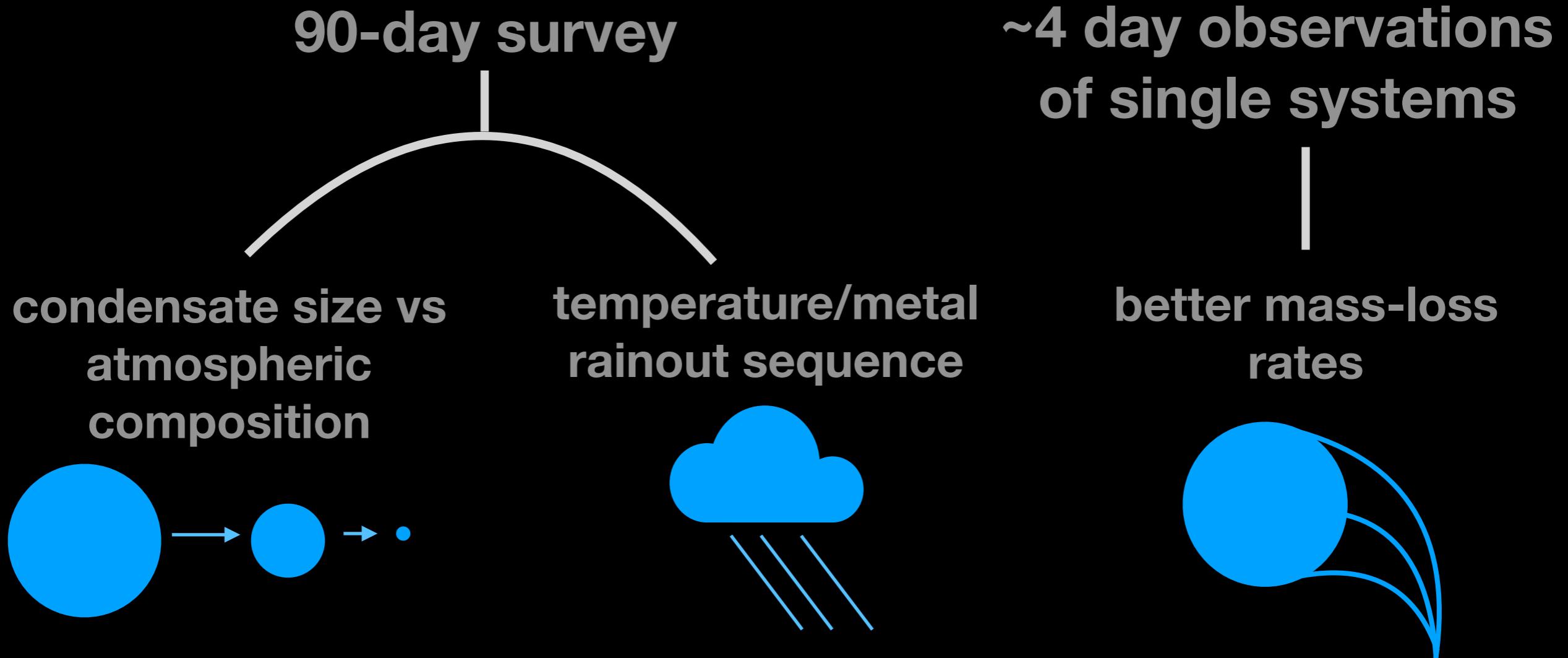
81 exoplanets in 90 days

plenty of small
planets are observable

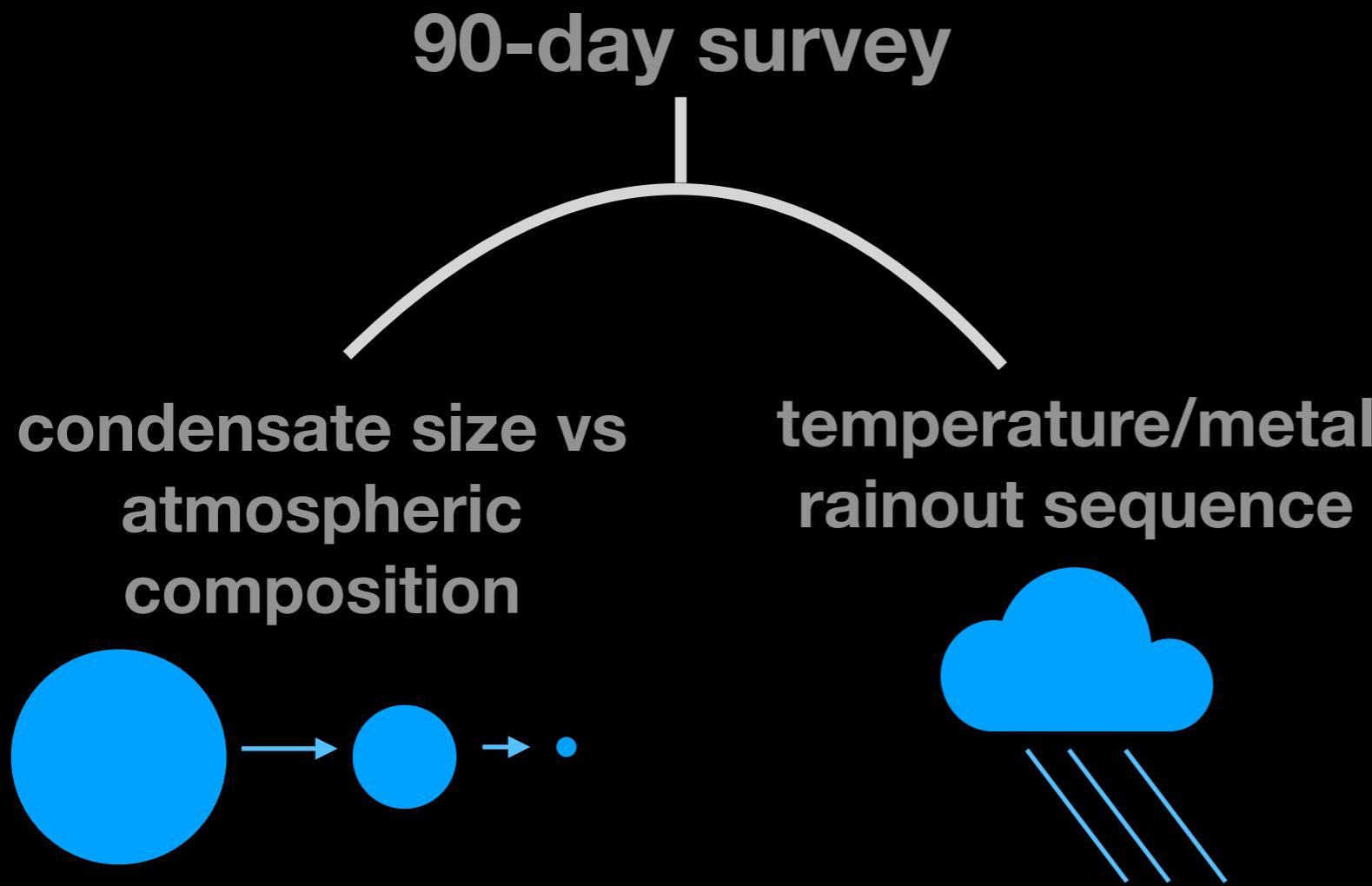


well-sampled 2500K range

Exoplanets with UVEX

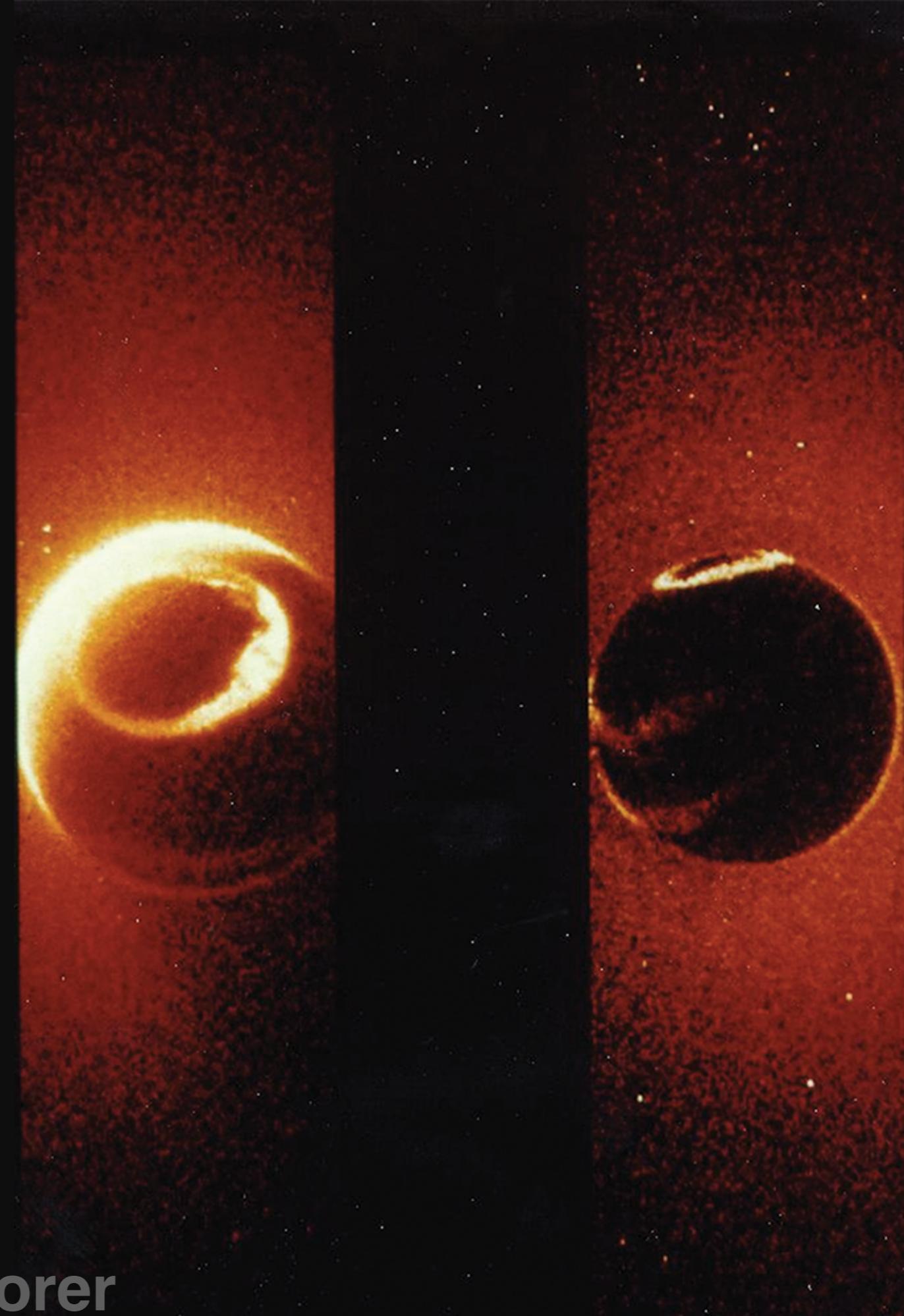


Exoplanets with UVEX

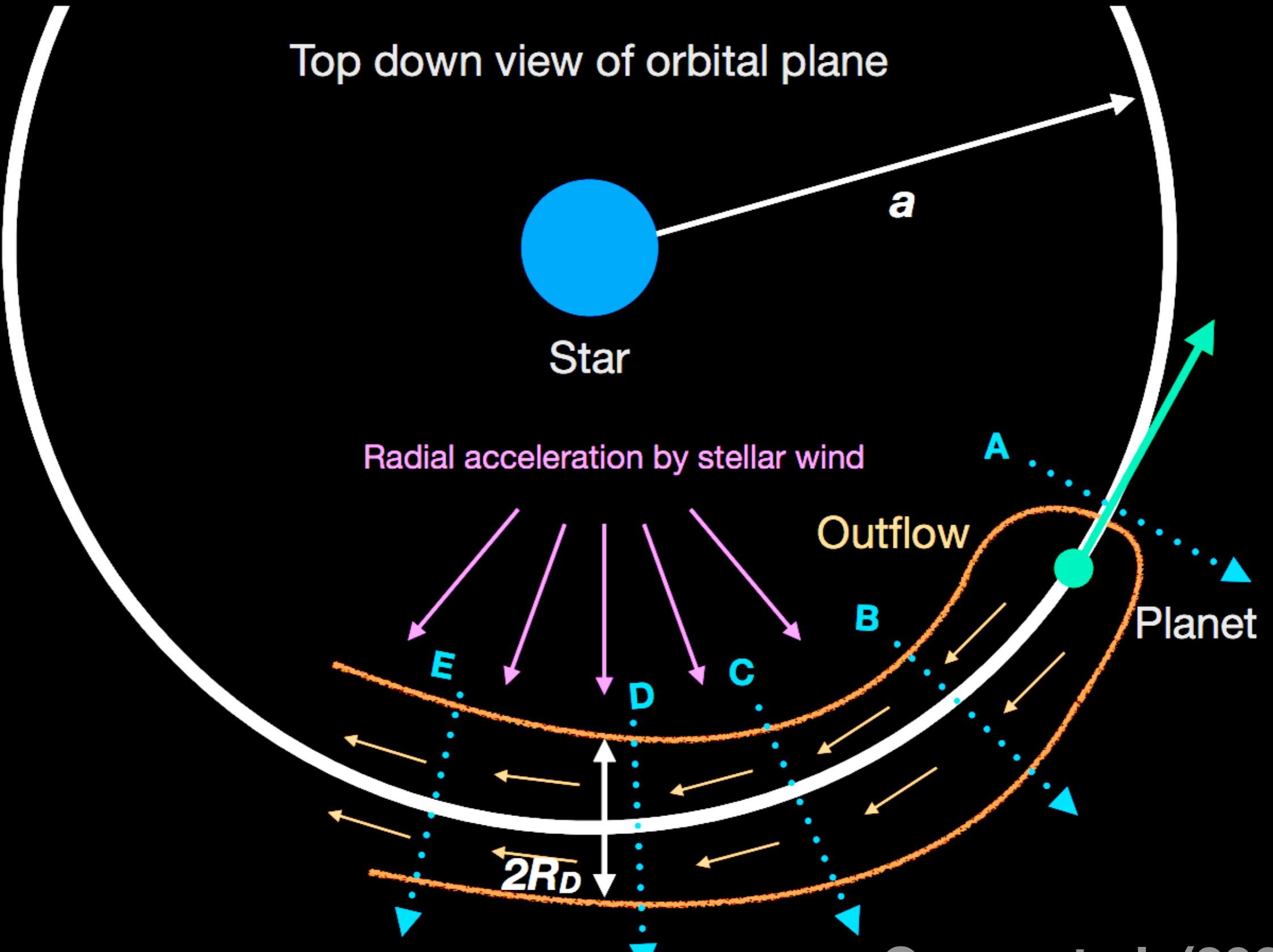


~4 day observations of single systems

better mass-loss rates

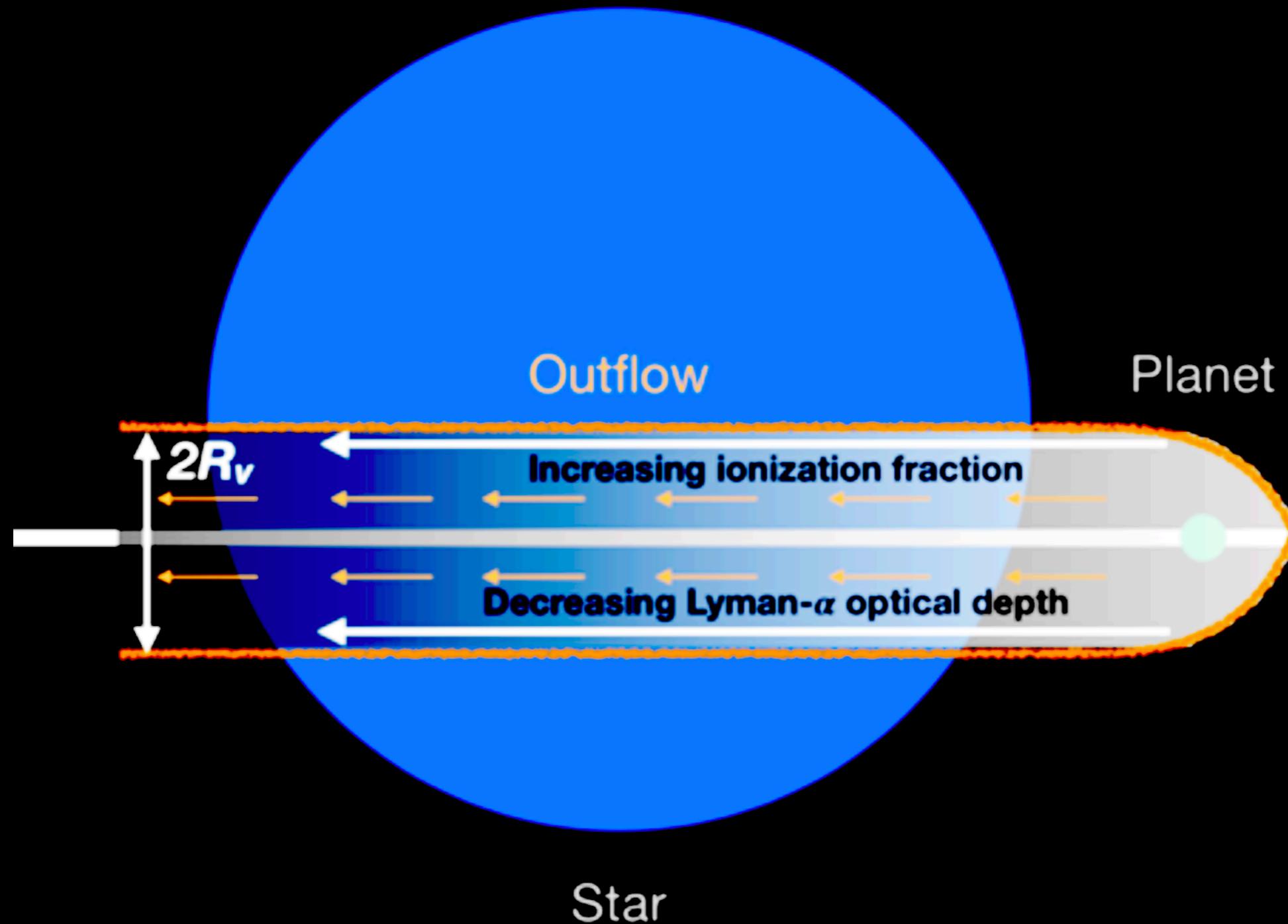


NASA's Solar Dynamics Explorer

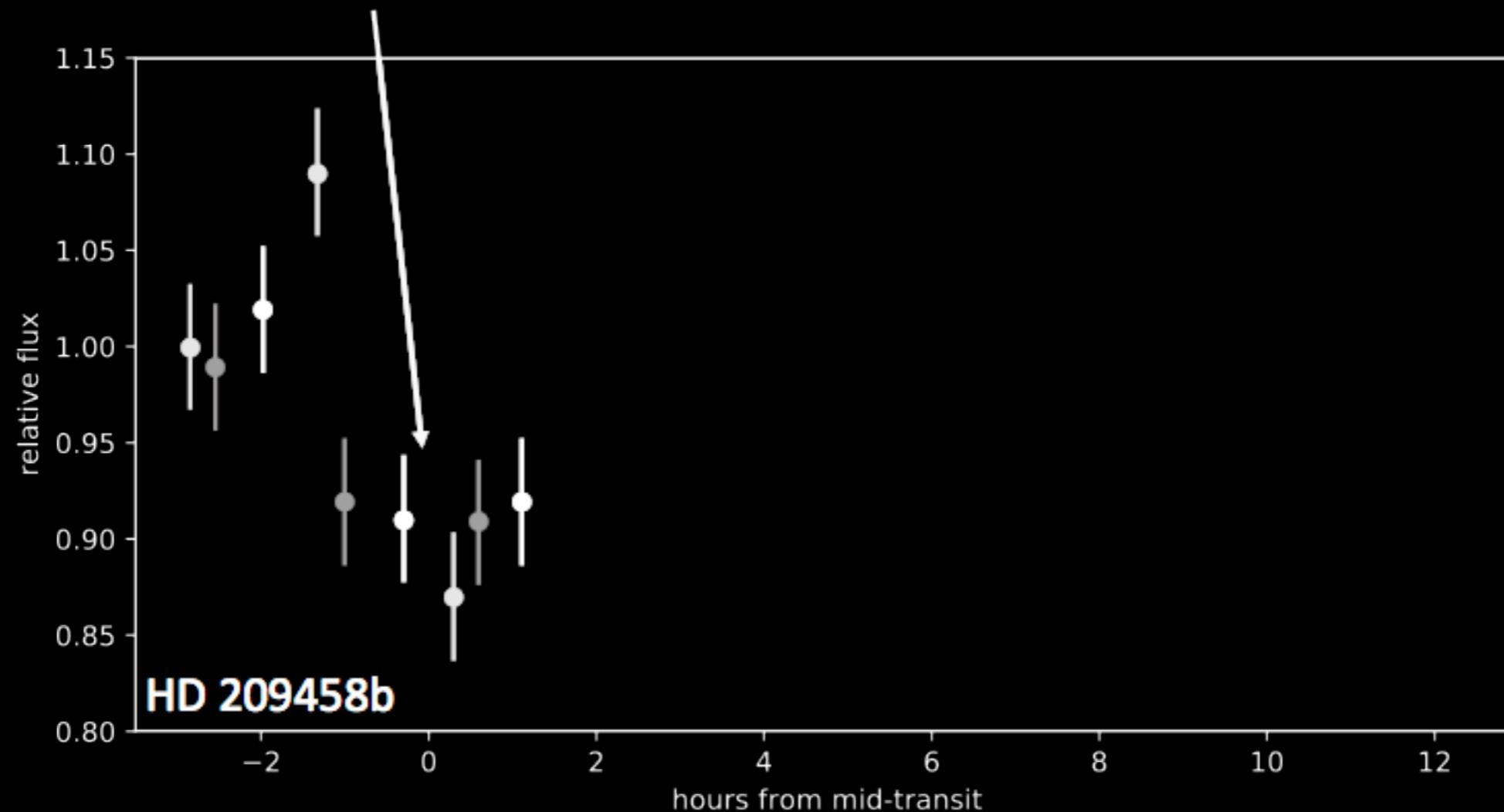


Owen et al. (2022)

Side on view of orbital plane
(Transit view)



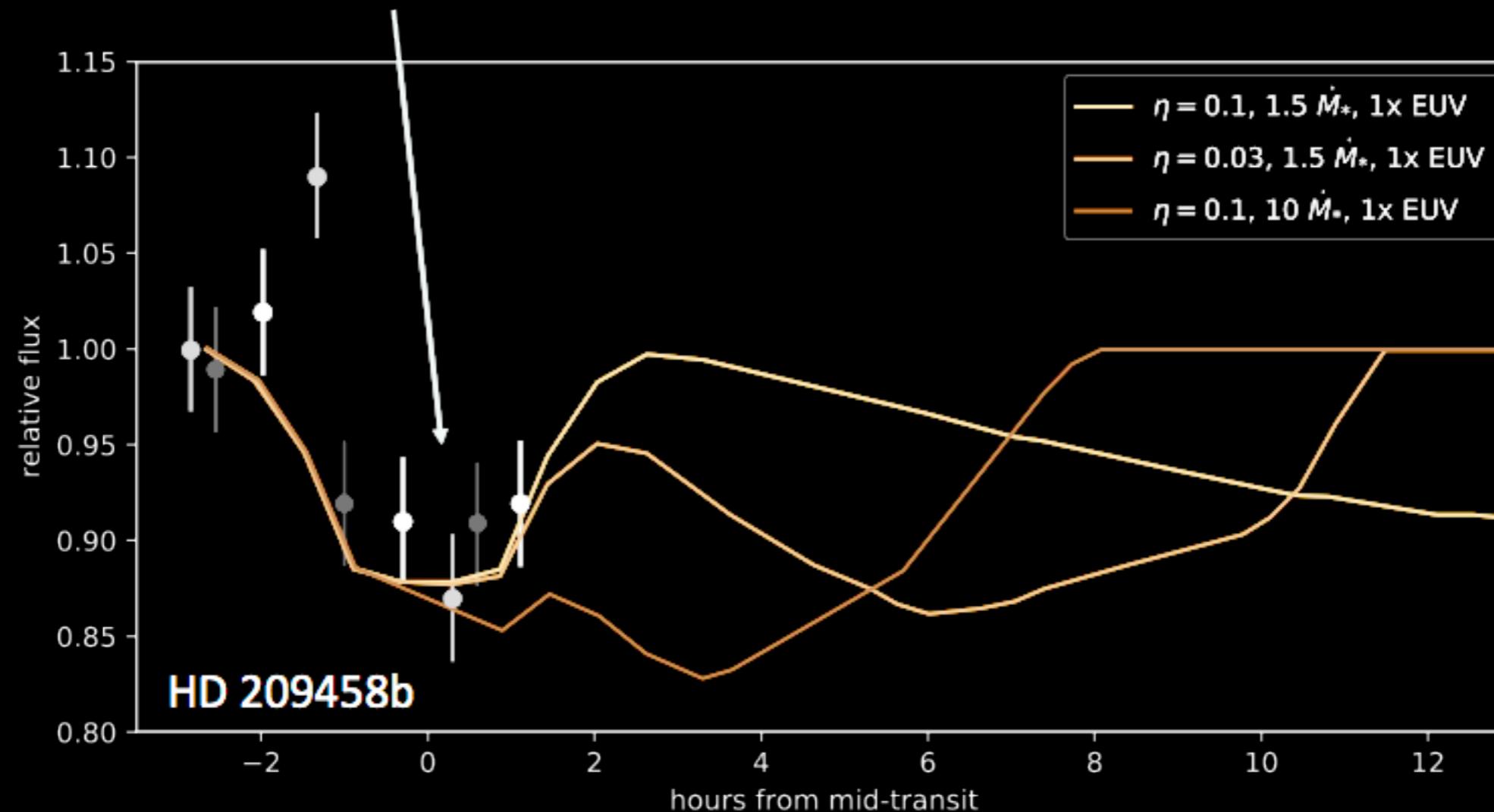
Vidal-Madjar et al. (2003)



HD 209458b

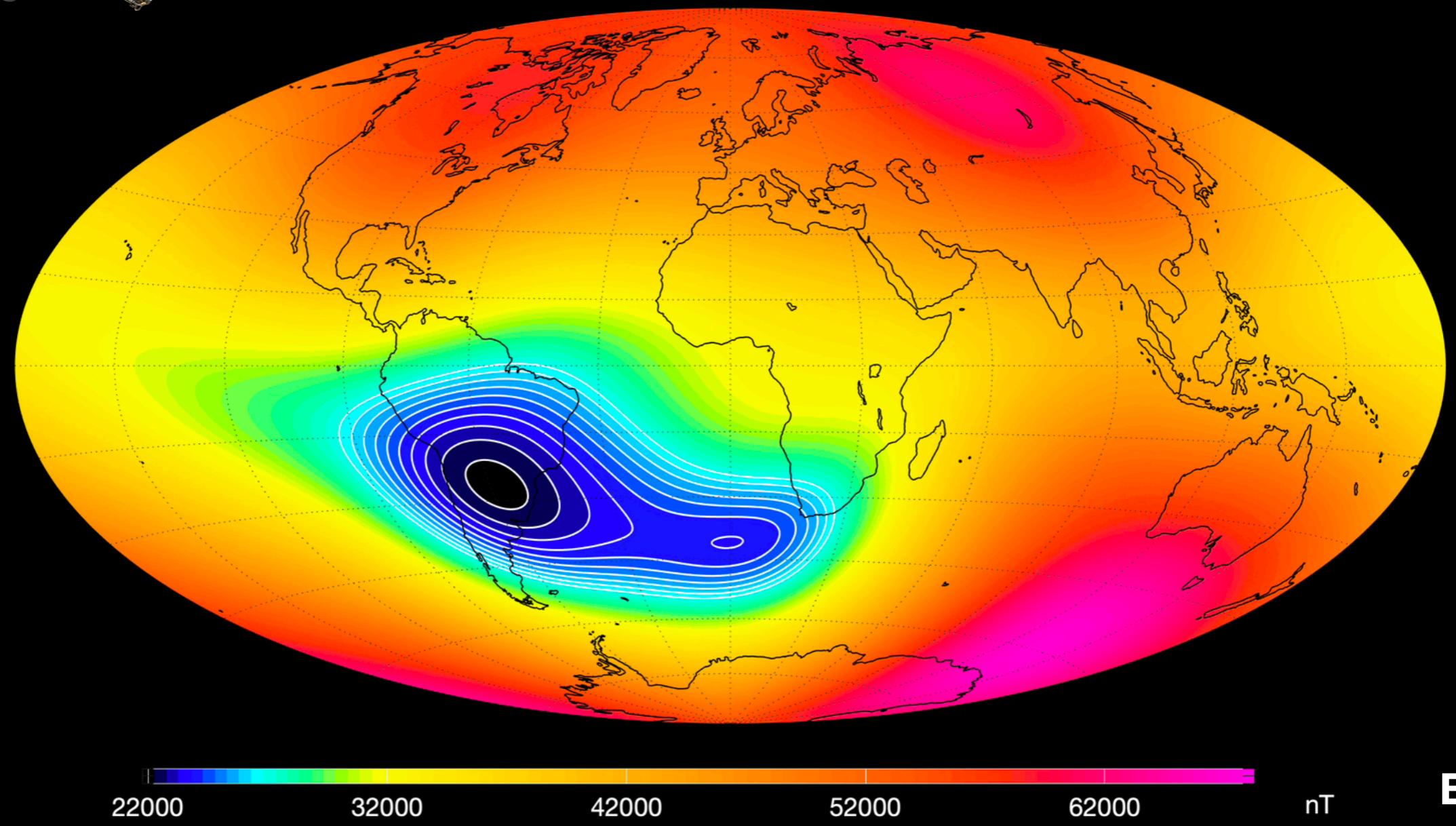
Spake et al. (in prep)

Vidal-Madjar et al. (2003)



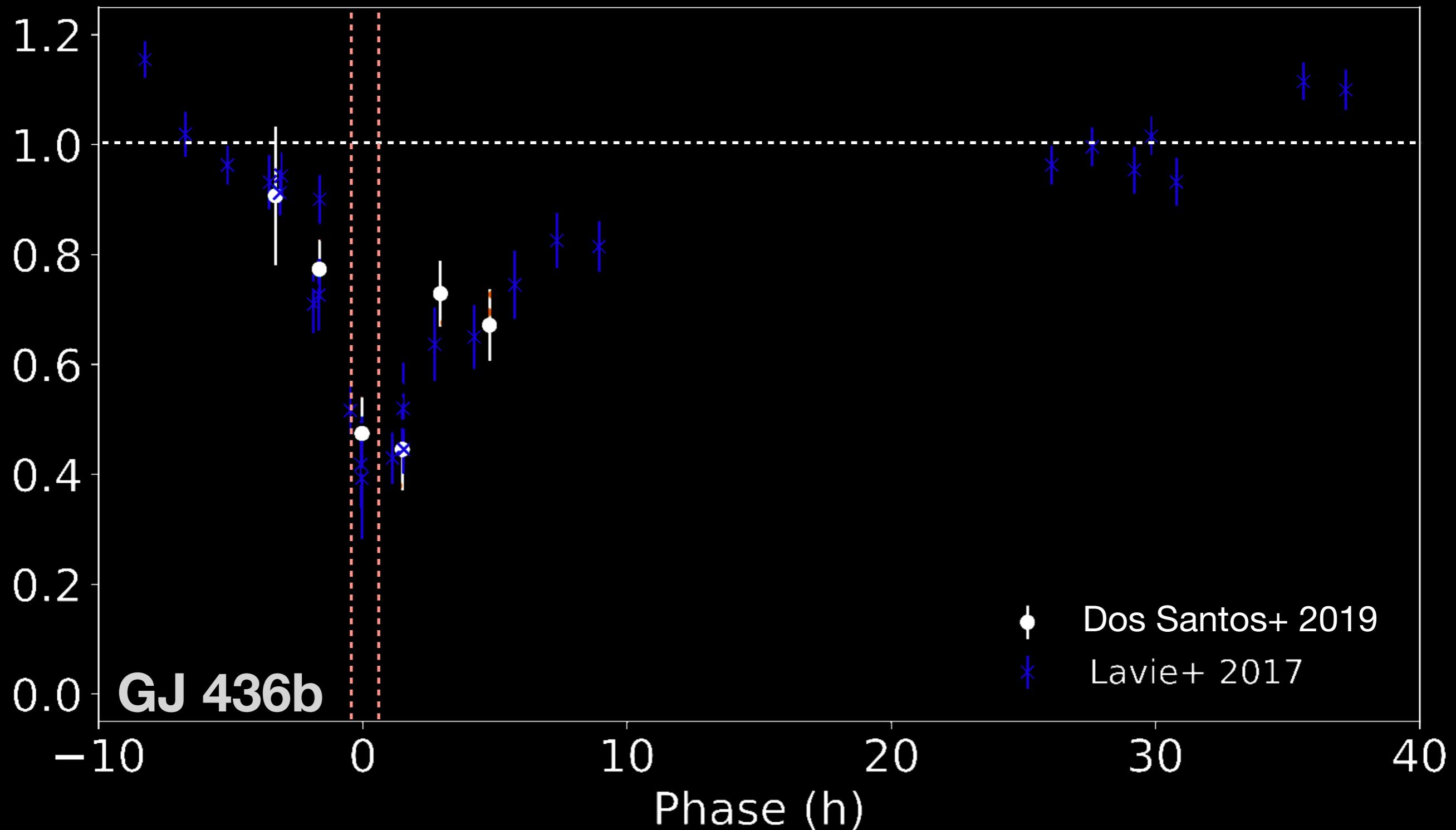
Spake et al. (in prep)

No Hubble Ly-a observations
during SAA crossings



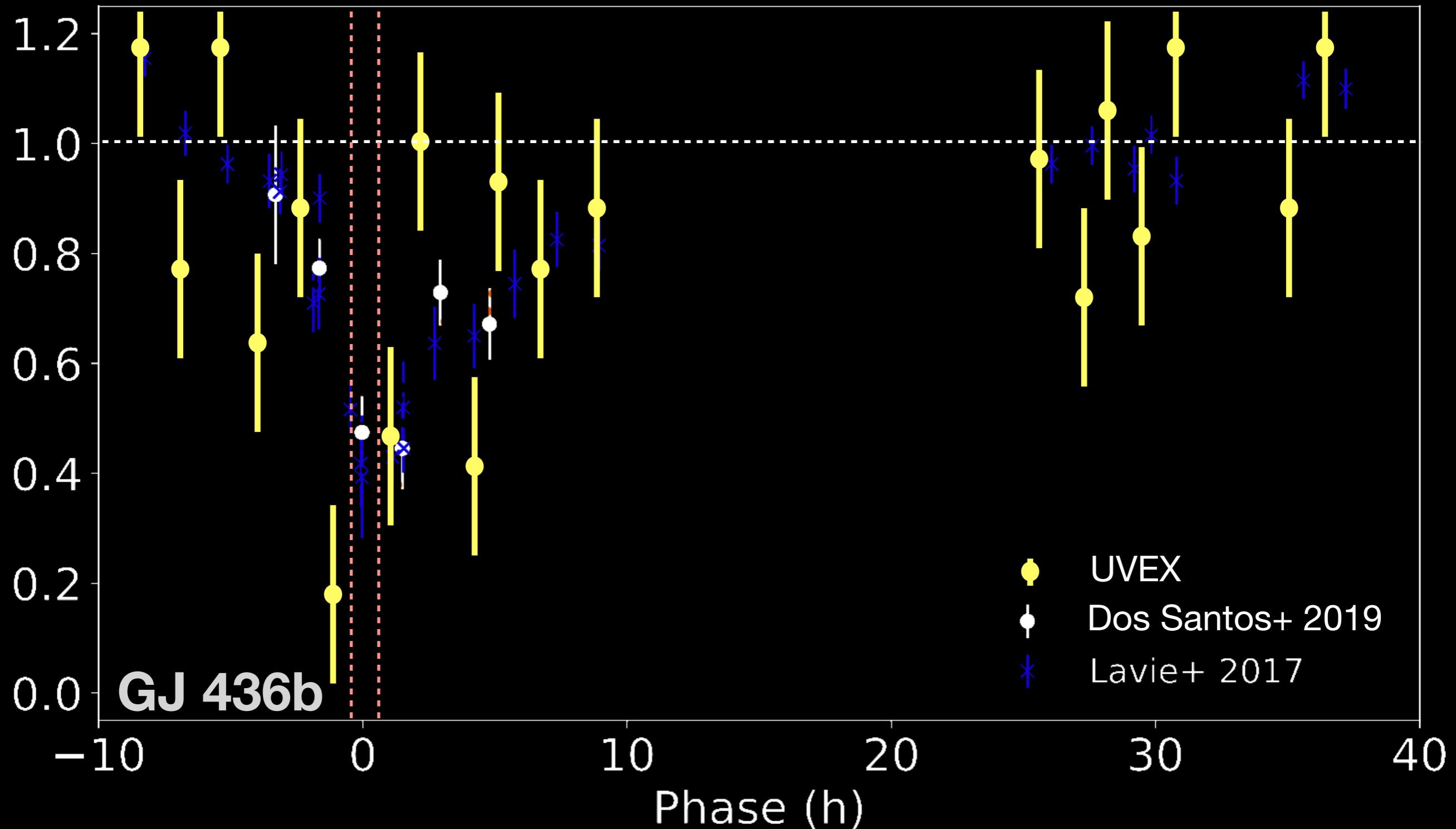
ESA

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



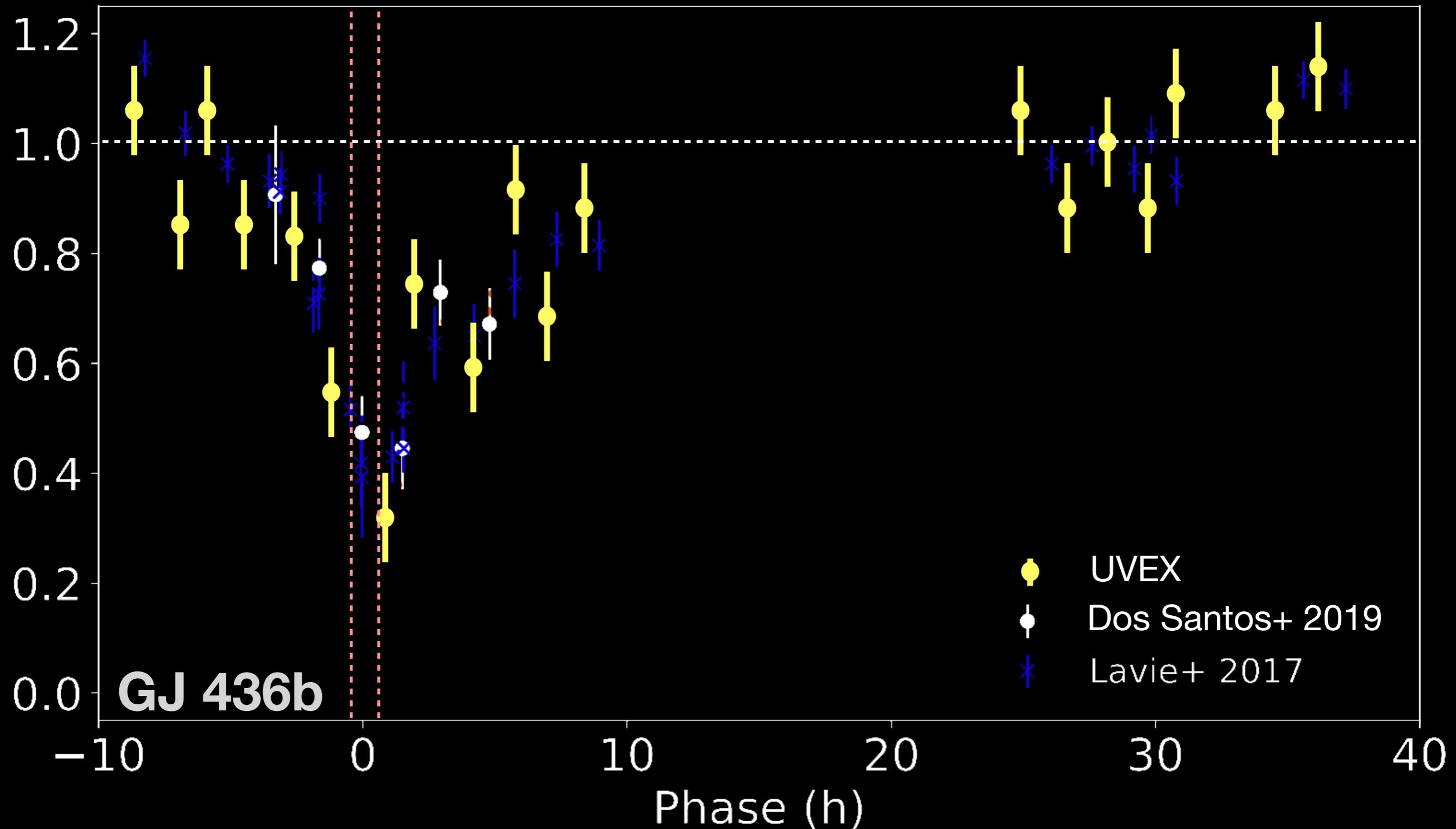
1 UVEX VISIT

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



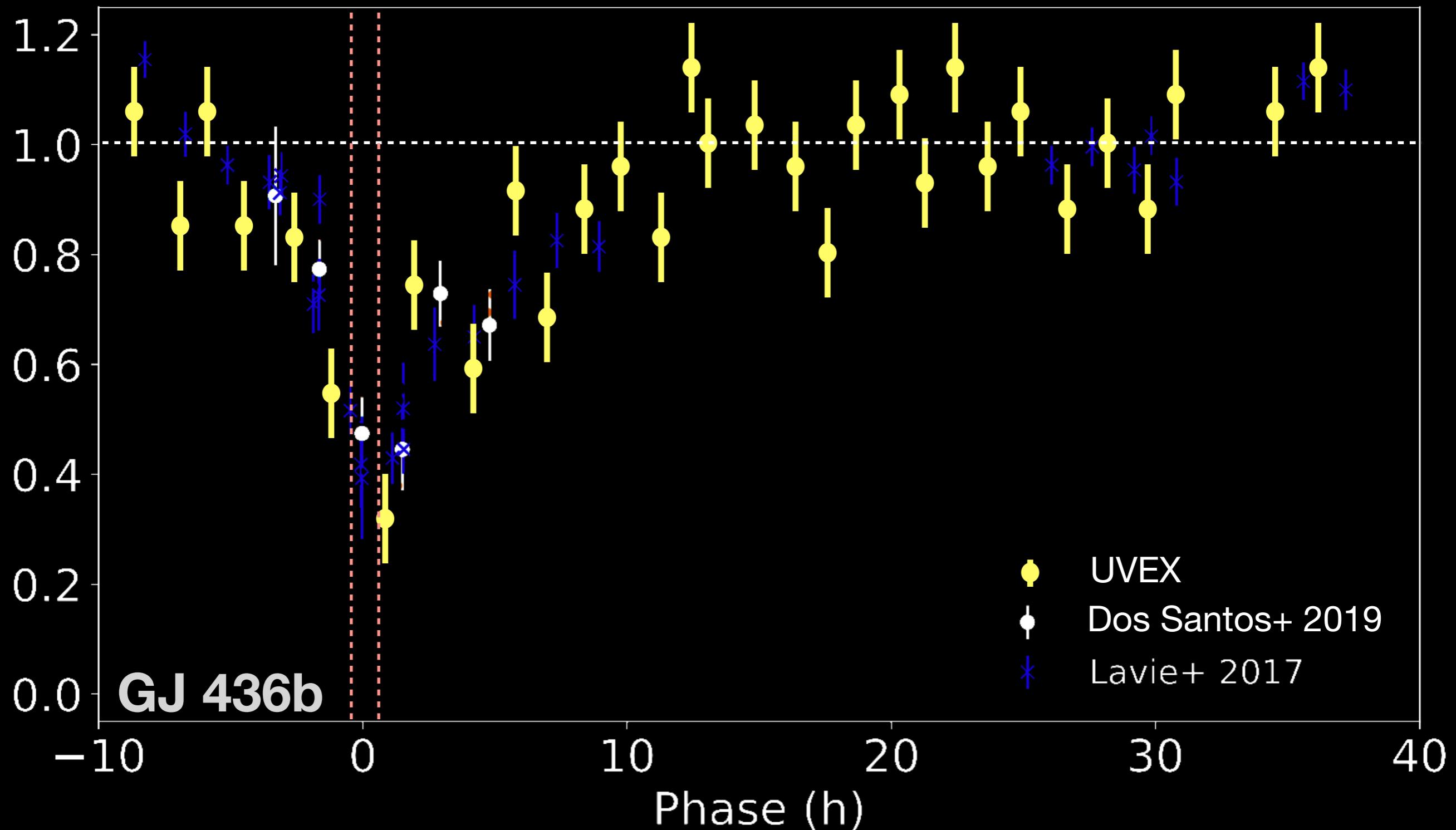
4 UVEX VISITS

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



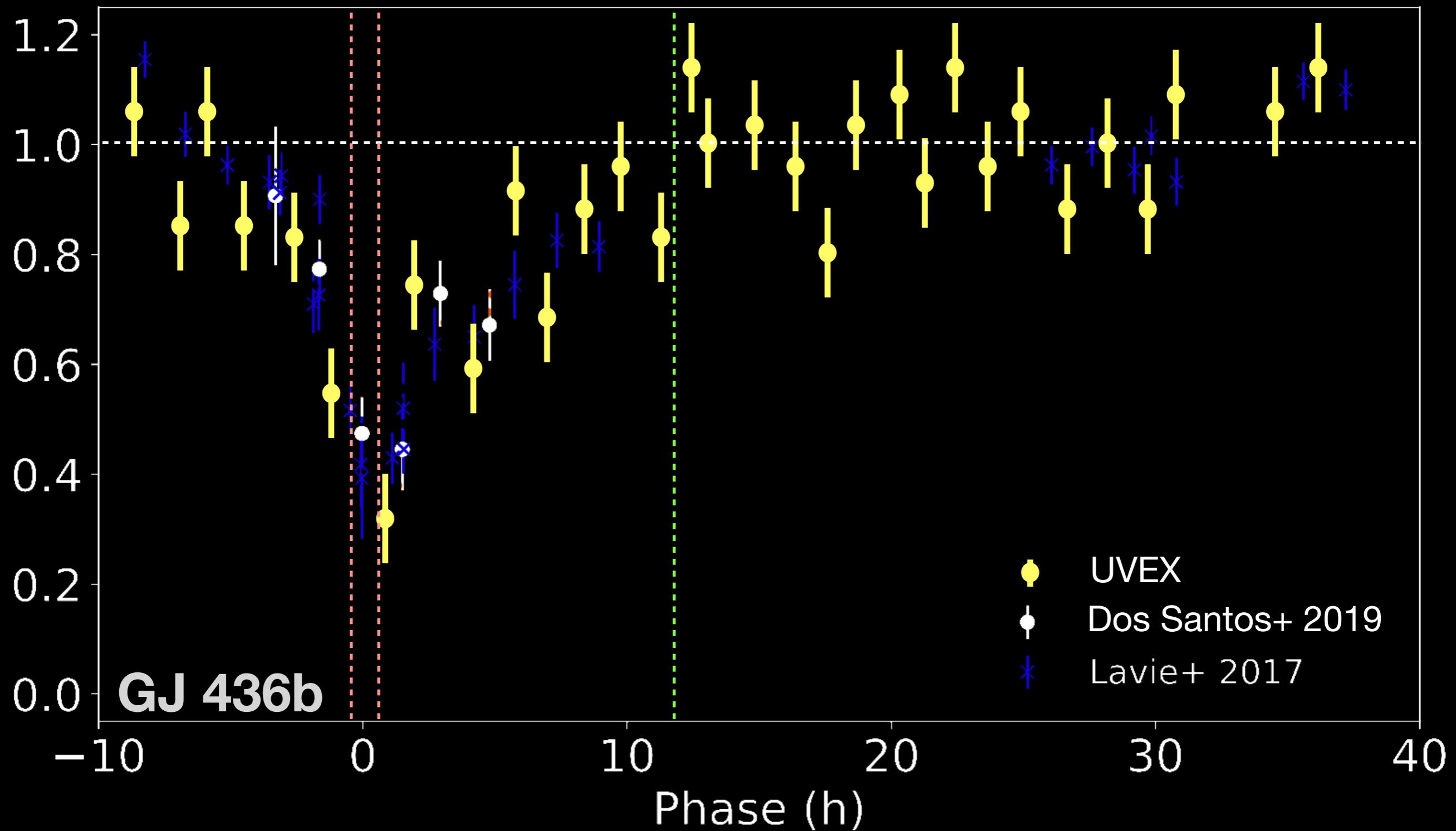
4 UVEX VISITS

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



4 UVEX VISITS

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



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