

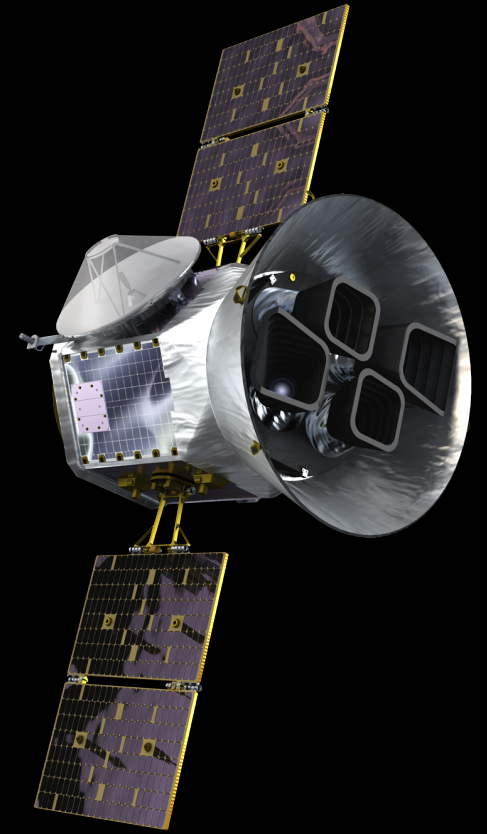
A Whole New ~~World~~ Mission



With thanks and/or apologies to

Robin Williams
acapellascience
George Ricker
Your ears

Jessie Christiansen
#ipacgiss @aussiastronomer

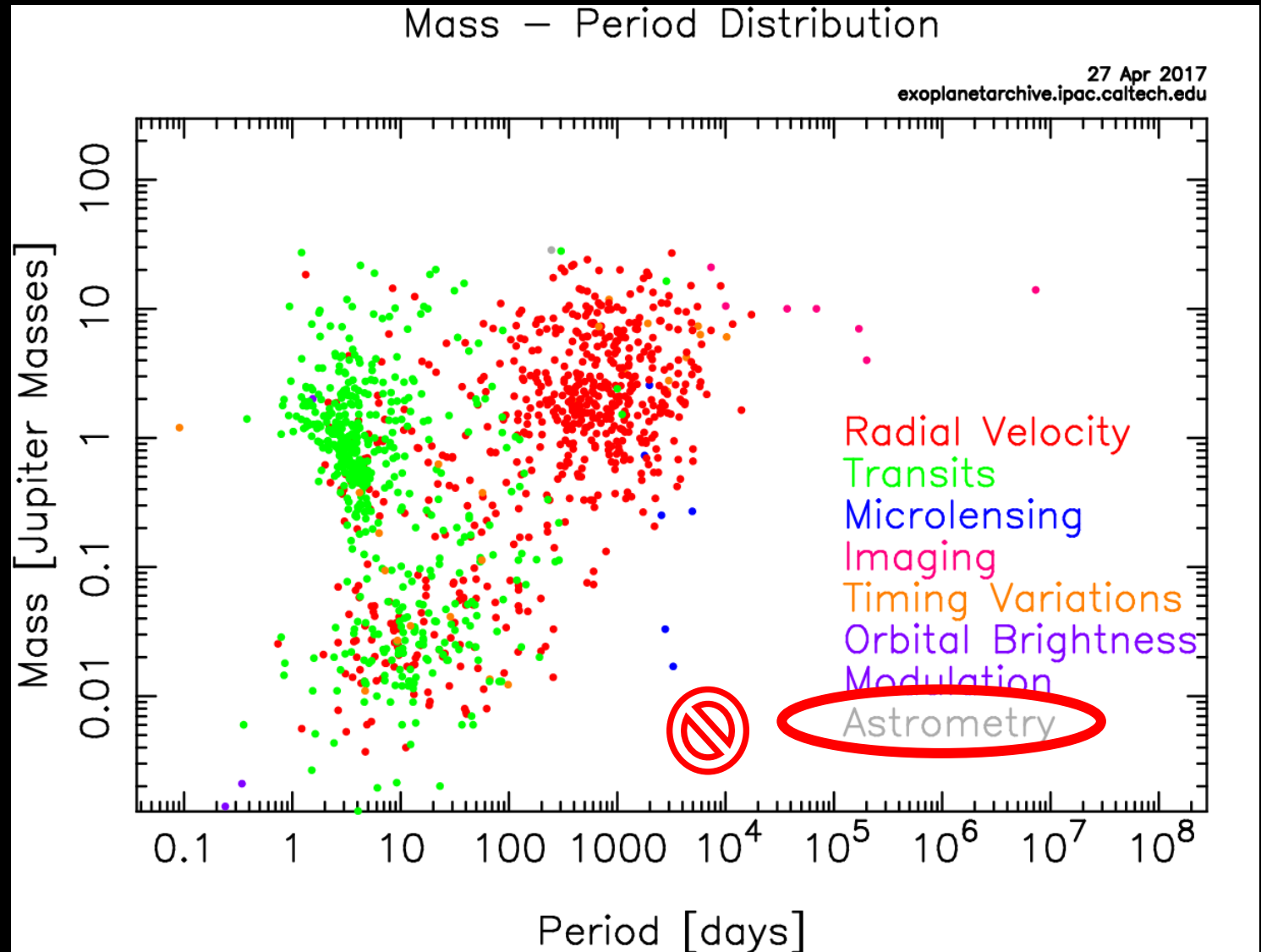


Well, plotting Doppler shifts is glacial-pace

And that astrometry never prevails

But baby you're in luck cause, up in space

You'll have a planet-finder never fails!



You got the power of
precision now

You'll have a view
without an atmosphere

So no more nights spent
locked up in your tower

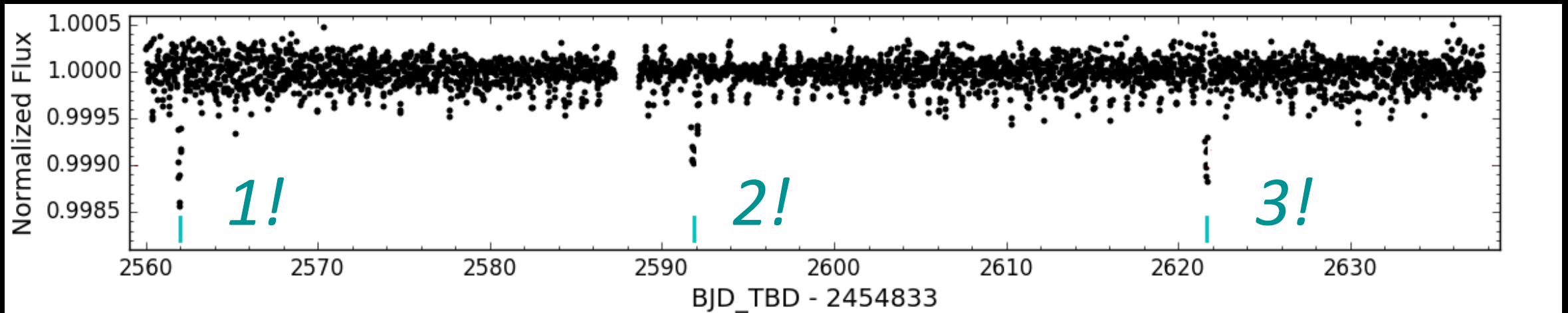
All you gotta do is wait
right here

And I say...

(March 2018)



Oh TESS the planet-searcher
Got a dip, no 2, no 3!
We just measure brightness
Plot it out and that's transiting photometry

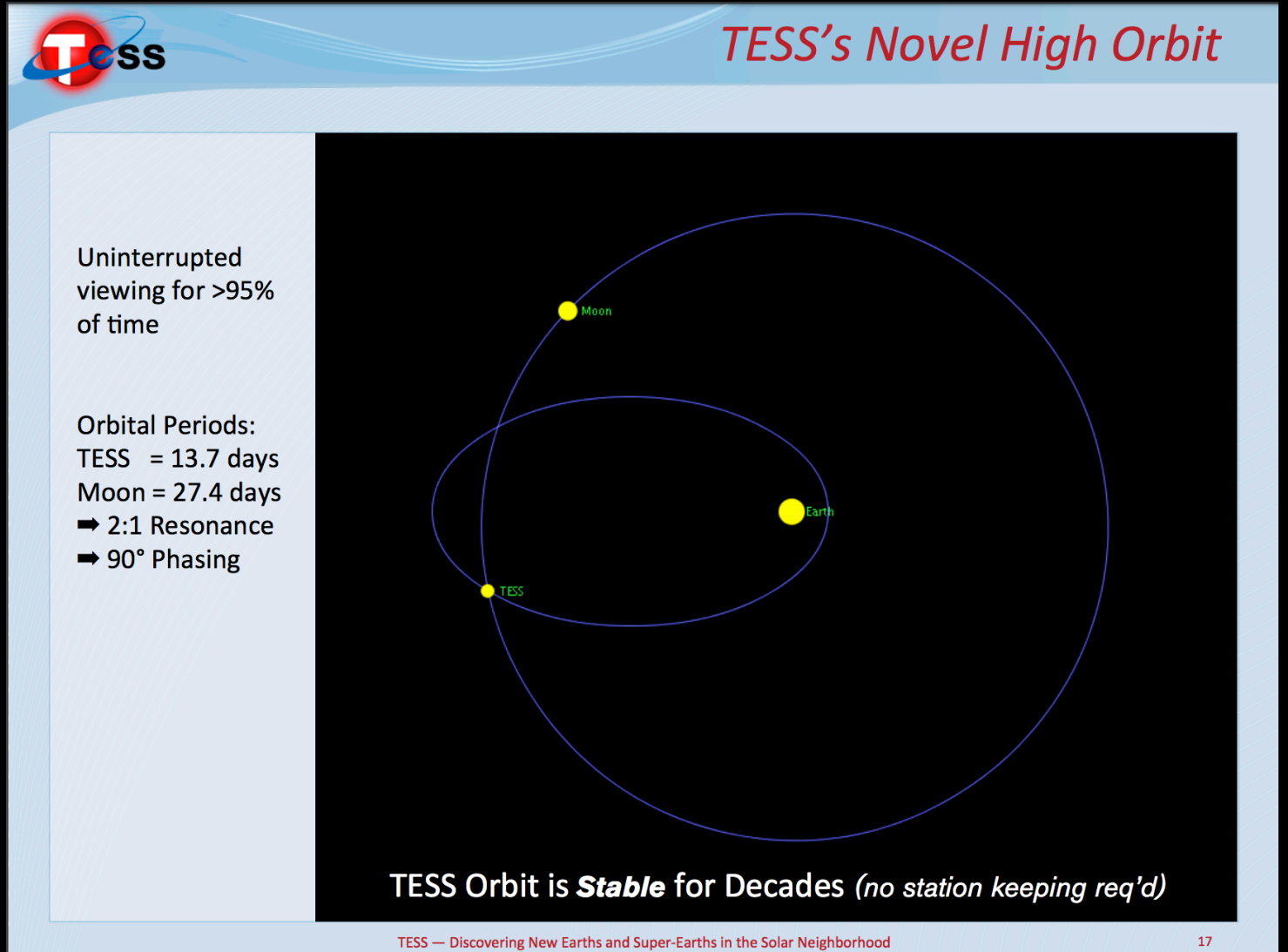


Christiansen+, accepted

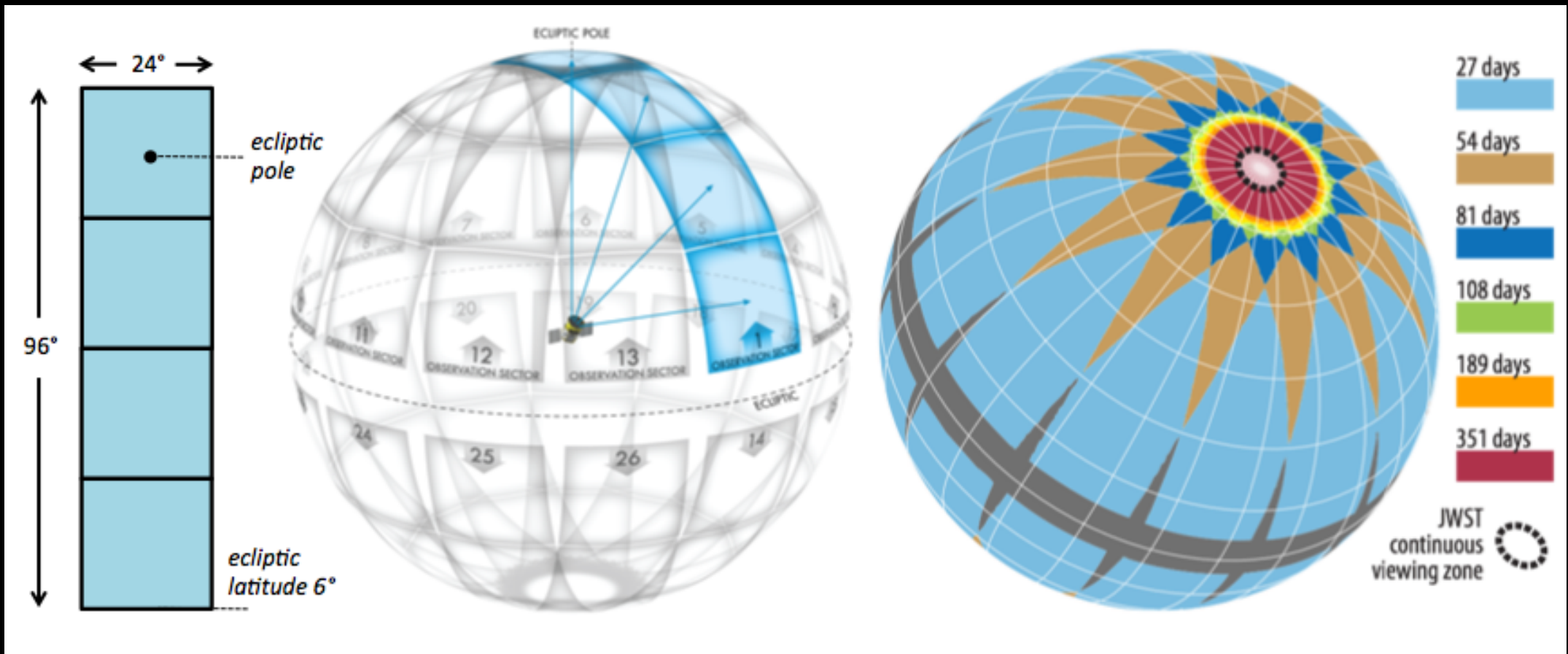
It's in a lunar orbit, full of eccentricity

We grab the data every 14 days

Gathered while it's at apogee!



[TESS Orbit Animation](#)



Yes sir, we've gotta lotta cameras

[FOV Animation](#)

Scanning all of the degrees!

Including a continuous viewing zone

Synched up with JWST



(SOC/POC)

Oh TESS the planet-searcher

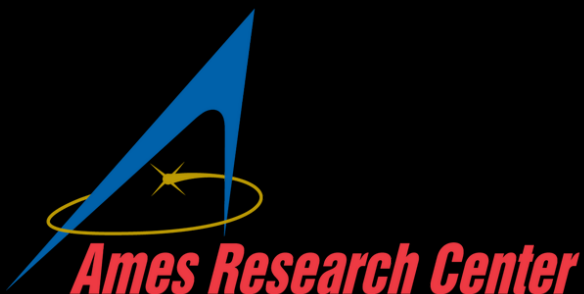
Led out of MIT

Throw in the MAST, CfA and Ames

And don't forget GSFC...



(TSO)



(SPOC)



(ExoFOP-TESS)

(GI Program)



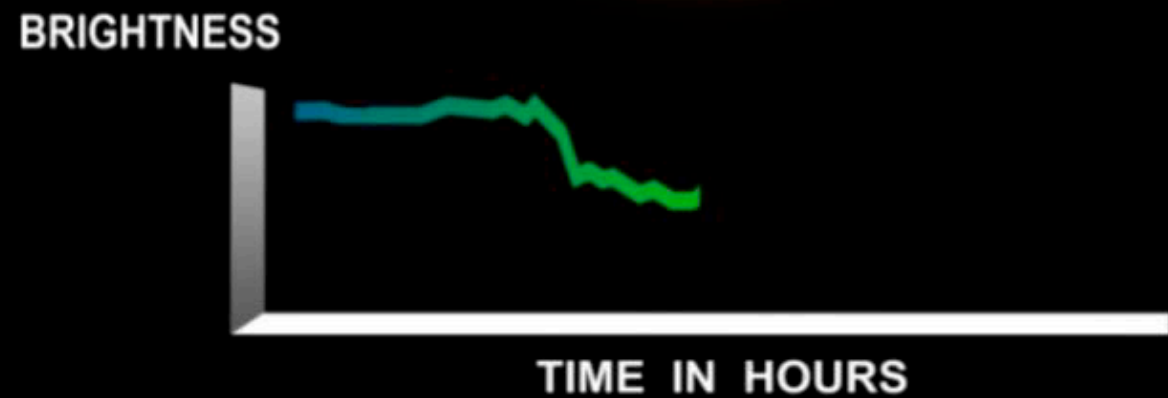
Barbara A.

MIKULSKI ARCHIVE FOR SPACE TELESCOPES

(The karaoke version says 'SCAT')

(I'm not doing that)

When your stars do this
And your curves displace
Then your star's got this
Transiting its face



Then you hit compute! And lookie here
You get good diameter data from that dip
And orbit distance from the length of year...

NASA EXOPLANET ARCHIVE											
NASA EXOPLANET SCIENCE INSTITUTE											
Home About Us Data Tools Support Login											
Select Columns Download Table Plot Table View Documentation User Preferences											
Confirmed Planets											
Row ID	Host Name	Planet Letter	Discovery Method	Orbital Period [days]	Orbit Semi-Major Axis [AU]	Planet Radius [Jupiter radii]	Planet Density [g/cm**3]	RA [sexagesimal]	Dec [sexagesimal]	Distance [light years]	
48	BD+20 594	b	Transit	41.6855 ^{+0.0030} _{-0.0031}	0.241 ^{+0.019} _{-0.017}	0.199 ^{+0.012} _{-0.010}	7.890 ^{+3.400} _{-3.100}	03h34m36.23s	+20d35m57.2s	152.1	
62	CoRoT-1	b	Transit	1.5089557±0.0000064		1.49±0.08	0.38±0.05	06h48m19.17s	-03d06m07.7s		
63	CoRoT-10	b	Transit	13.2406±0.0002	0.1055±0.0021	0.97±0.07	3.70±0.83	19h24m15.29s	+00d44m46.1s	345±70	
64	CoRoT-11	b	Transit	2.994330±0.000011	0.0436±0.005	1.43±0.03	0.99±0.15	18h42m44.94s	+05d56m15.7s	560±30	
65	CoRoT-12	b	Transit	2.828042±0.000013	0.04016 ^{+0.00093} _{-0.00092}	1.44±0.13	0.411 ^{+0.129} _{-0.094}	06h43m03.76s	-01d17m47.2s	1150±80	
66	CoRoT-13	b	Transit	4.035190±0.000030	0.0510±0.0031	0.885±0.014	2.34±0.23	06h50m53.07s	-05d05m11.2s	1060±100	
67	CoRoT-14	b	Transit	1.51214±0.00013	0.0270±0.002	1.09±0.07	7.3±1.5	06h53m41.81s	-05d32m09.7s	1340±100	
68	CoRoT-16	b	Transit	5.35227±0.00020	0.0618±0.0015	1.17 ^{+0.16} _{-0.14}	0.44 ^{+0.21} _{-0.14}	18h34m05.93s	-06d00m09.3s	840±90	
69	CoRoT-17	b	Transit	3.7681±0.0003	0.0461±0.0008	1.02±0.07	2.82±0.38	18h34m47.82s	-06d36m44.0s	920±50	
70	CoRoT-18	b	Transit	1.9000693±0.0000028	0.0295±0.0016	1.31±0.18	2.2±0.8	06h32m41.38s	-00d01m53.7s	870±90	
71	CoRoT-19	b	Transit	3.89713±0.00002	0.0518±0.0008	1.29±0.03	0.71±0.06	06h28m08.06s	-00d10m14.5s	770±160	
72	CoRoT-2	b	Transit	1.7429935±0.0000010	0.02798 ^{+0.00076} _{-0.00080}	1.466 ^{+0.042} _{-0.044}	1.470 ^{+0.080} _{-0.074}	19h27m06.49s	+01d23m01.4s	200	
73	CoRoT-20	b	Transit	9.24285±0.00030	0.0902±0.0021	0.84±0.04	8.87±1.10	06h30m52.90s	+00d13m36.9s	1230±100	
74	CoRoT-22	b	Transit	9.75598±0.00011	0.0920±0.0014	0.435 ^{+0.015} _{-0.035}	0.249 ^{+1.0} _{-0.097}	18h42m40.11s	+06d13m08.9s	592 ⁺²⁰ ₋₄₀	
75	CoRoT-23	b	Transit	3.6313±0.0001	0.048±0.004	1.05±0.13	3.0±1.1	18h39m07.83s	+04d21m28.1s	600±50	
76	CoRoT-24	b	Transit	5.1134±0.0006	0.056±0.002	0.33±0.04	0.9 ^{+0.5}	06h47m41.41s	-03d43m09.5s	600±70	
77	CoRoT-24	b	Transit	41.750±0.0062	0.008±0.002	0.44±0.04	1.2	06h47m41.41s	-03d43m09.5s	600±70	

Showing records 1 to 17 of 2741 (3483 total)

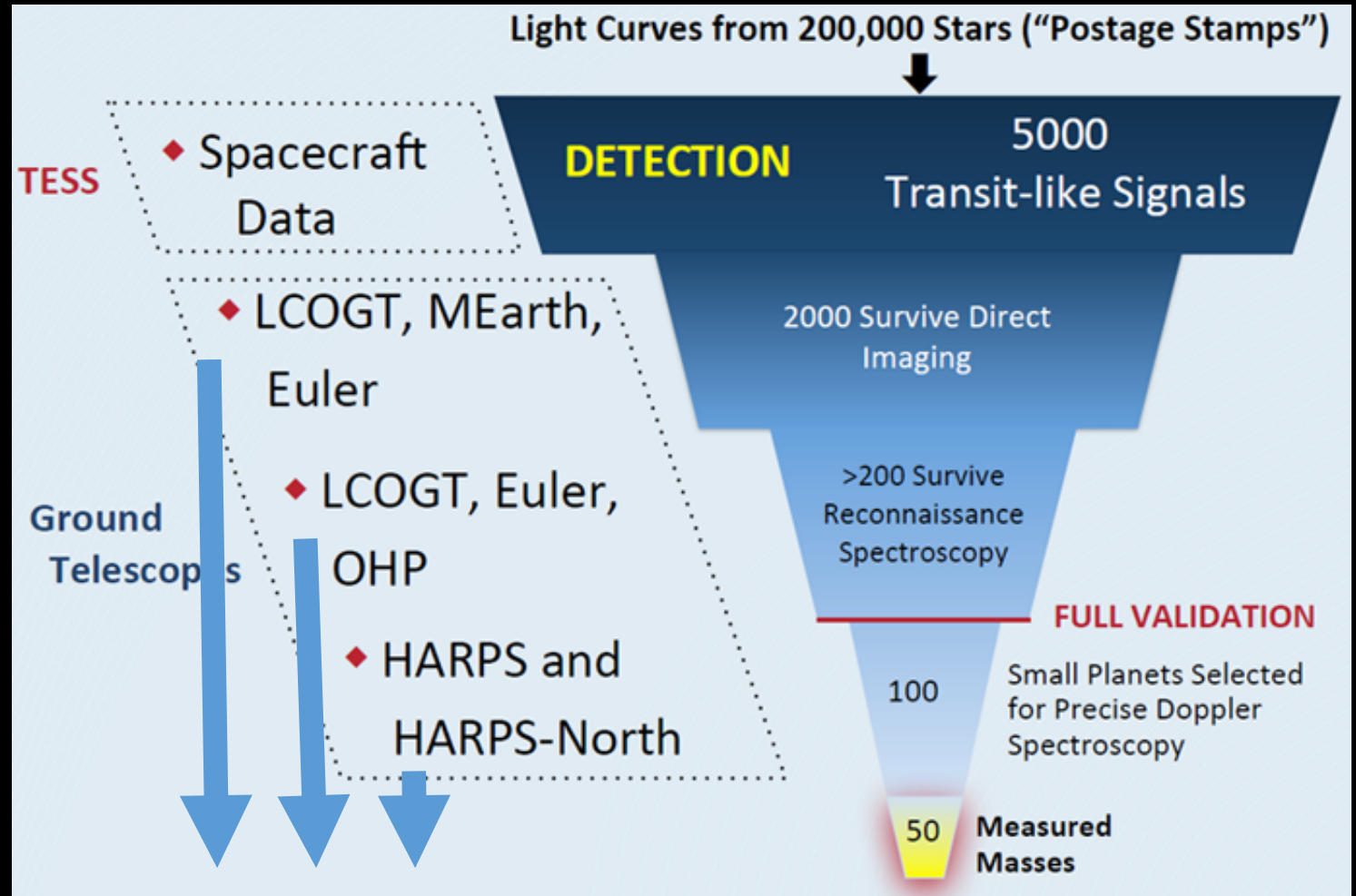
Clear Checked Check All Reset Filters

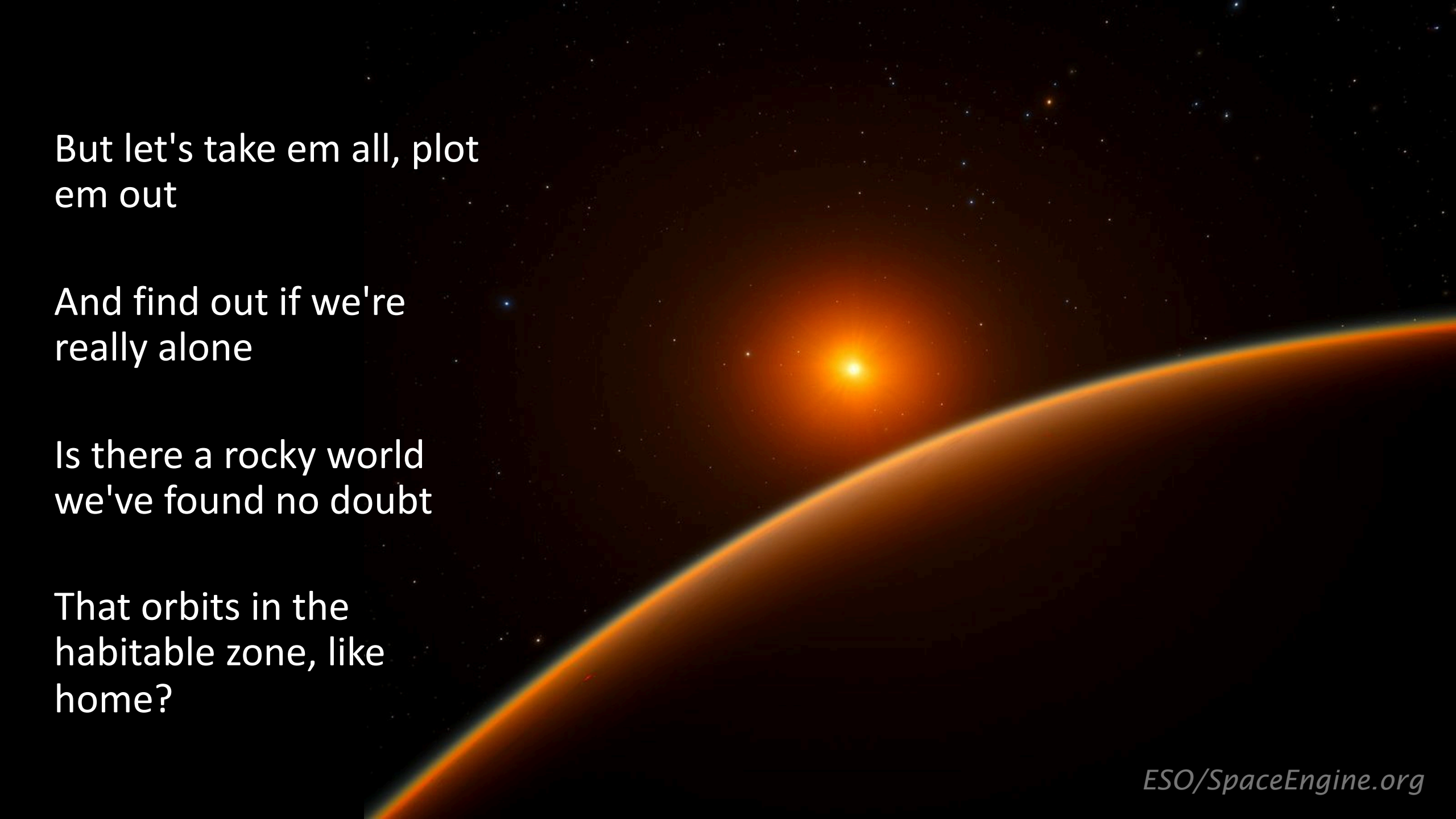
Well now we need this
tale supported by

A ground observer with a
good Échelle

We got observers lining
up to help

If we need 'em only time
will tell...



A space scene featuring a bright orange star in the center, a curved horizon of a planet or moon in the foreground, and a dark background filled with numerous small stars.

But let's take em all, plot
em out

And find out if we're
really alone

Is there a rocky world
we've found no doubt

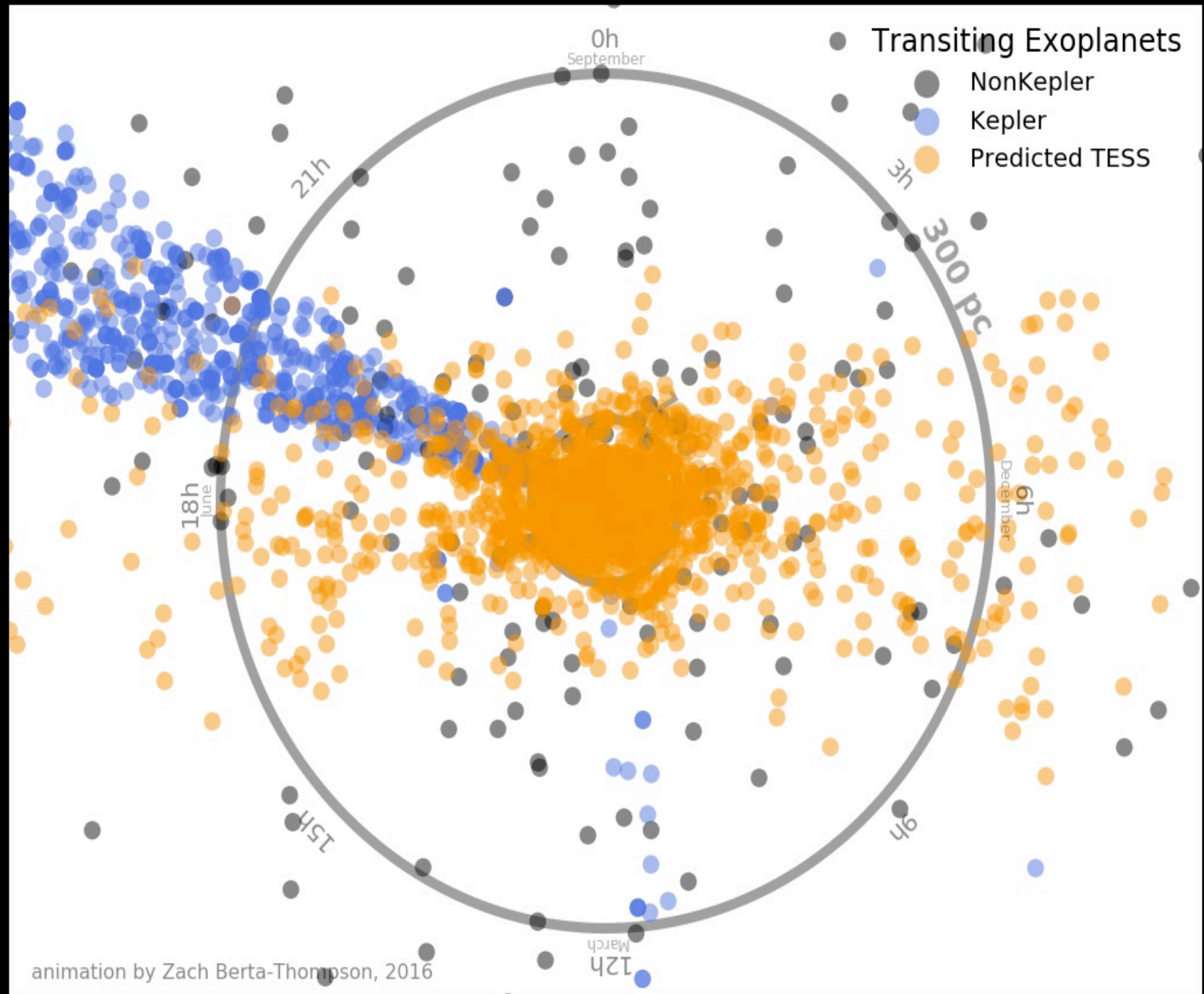
That orbits in the
habitable zone, like
home?

Oh TESS the planet
searcher

Got some planets yet to
see

Part of a throng

40 billion strong



There ain't never been a
field clever as the field

There ain't never been a
field better than the field

They call

Exoplanetology!

(...Exoplanetology!)

