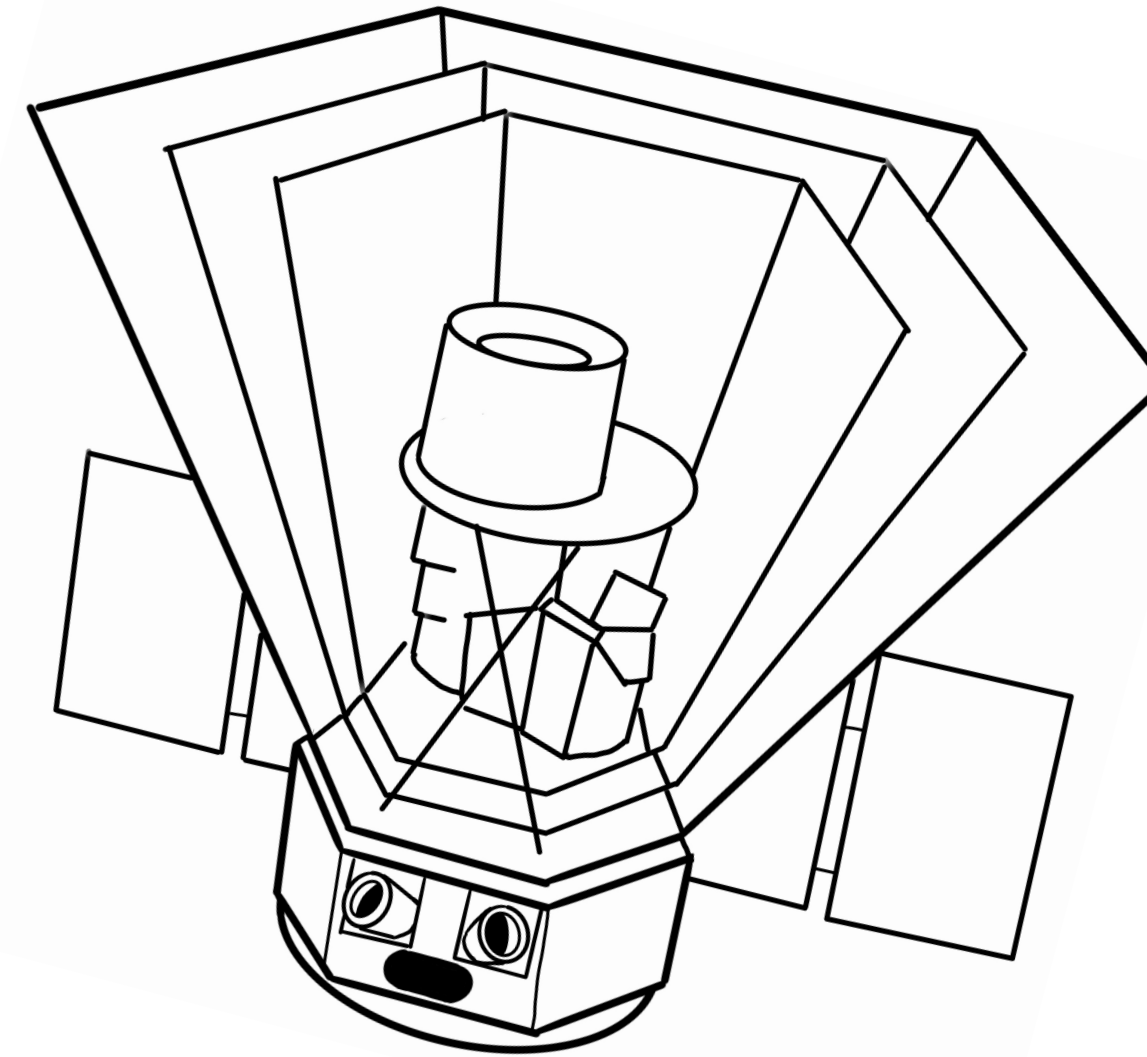
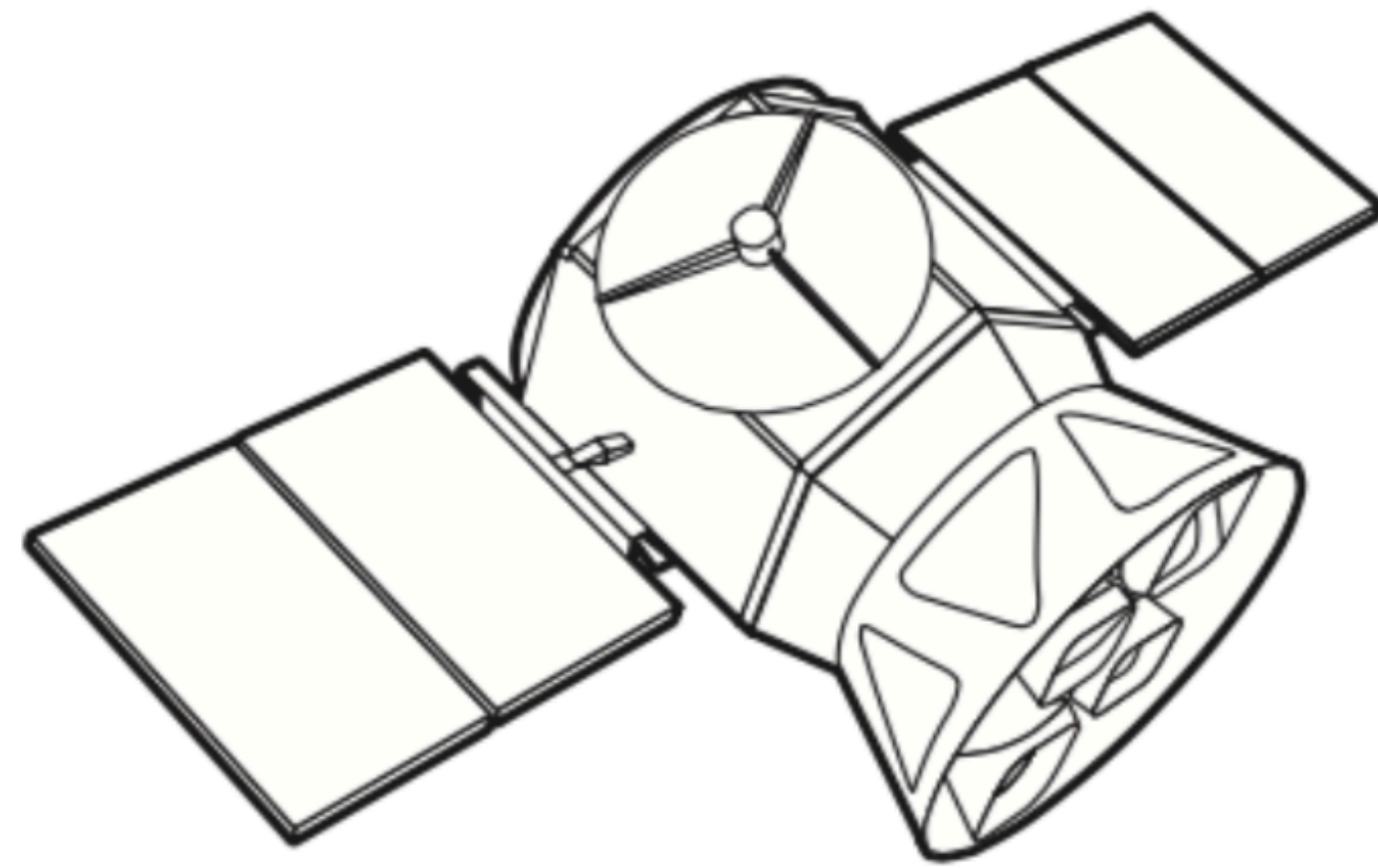


# Science with **TESS** and **SPHEREx**

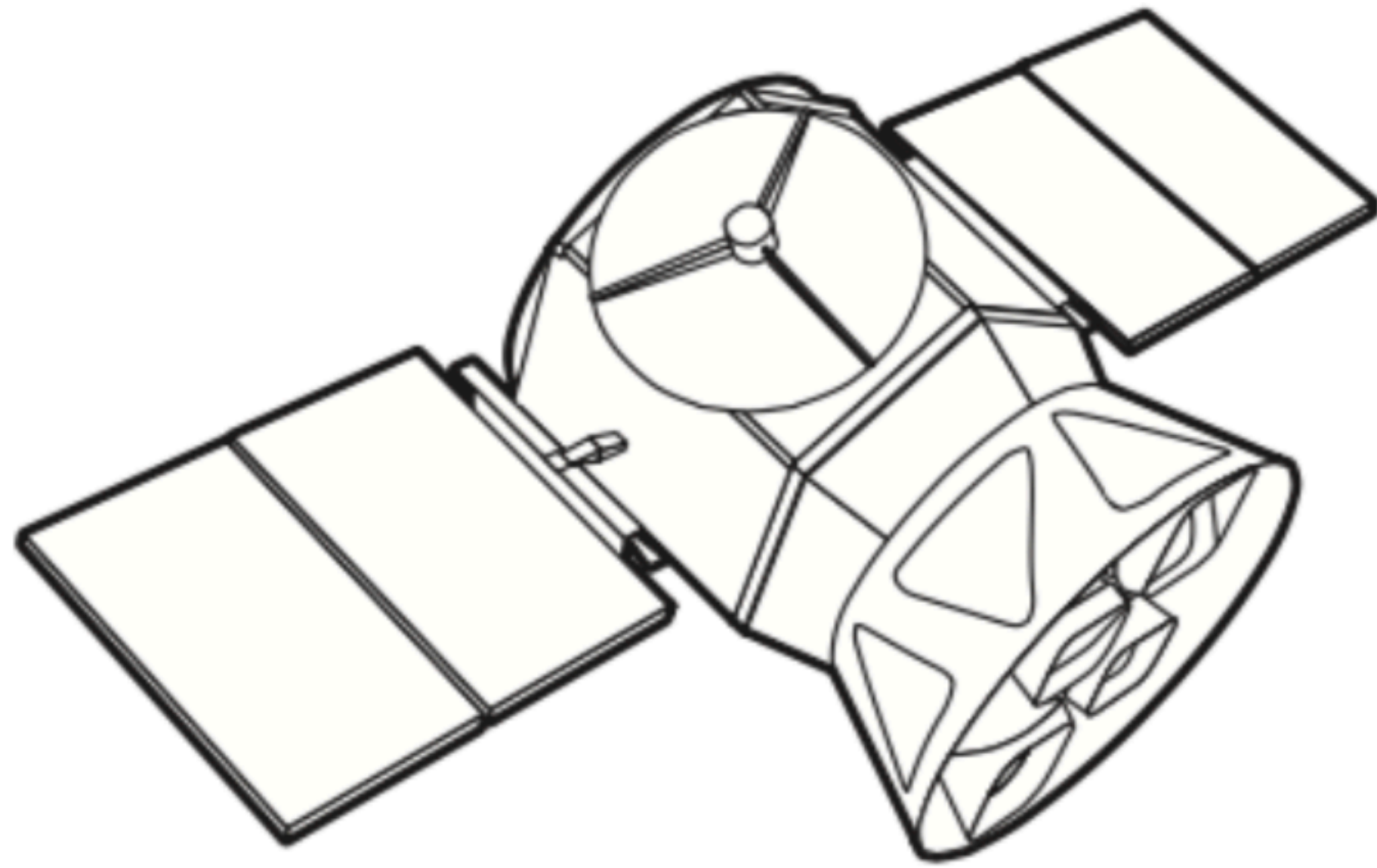


**Ruth Angus**

AMNH/Flatiron

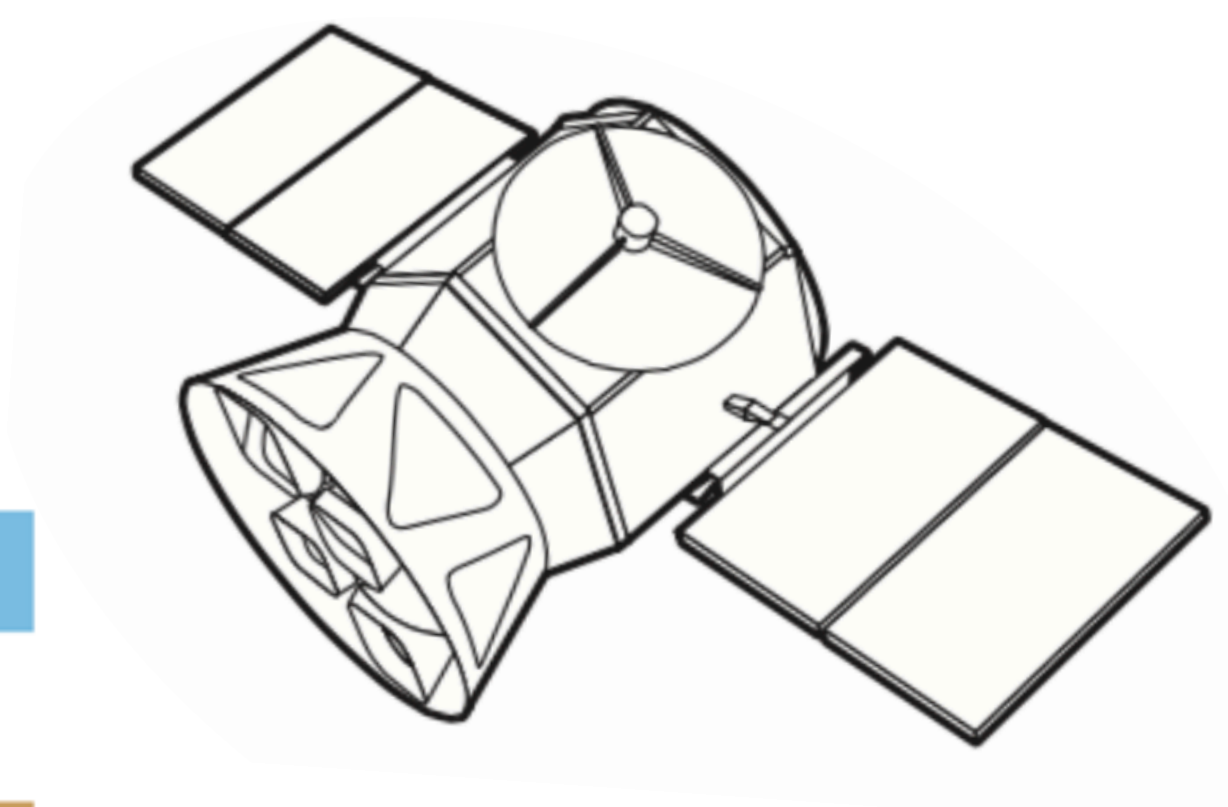
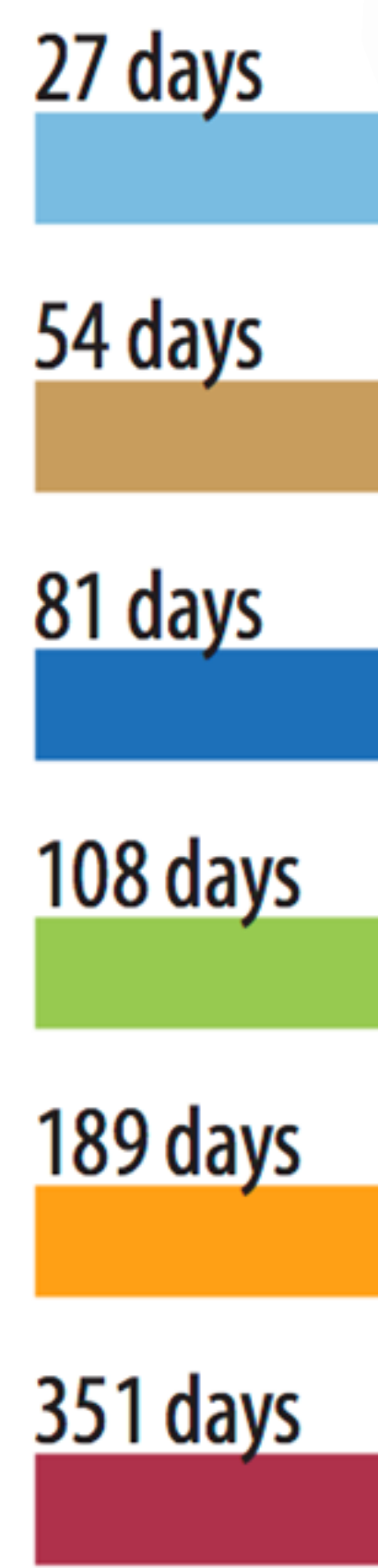
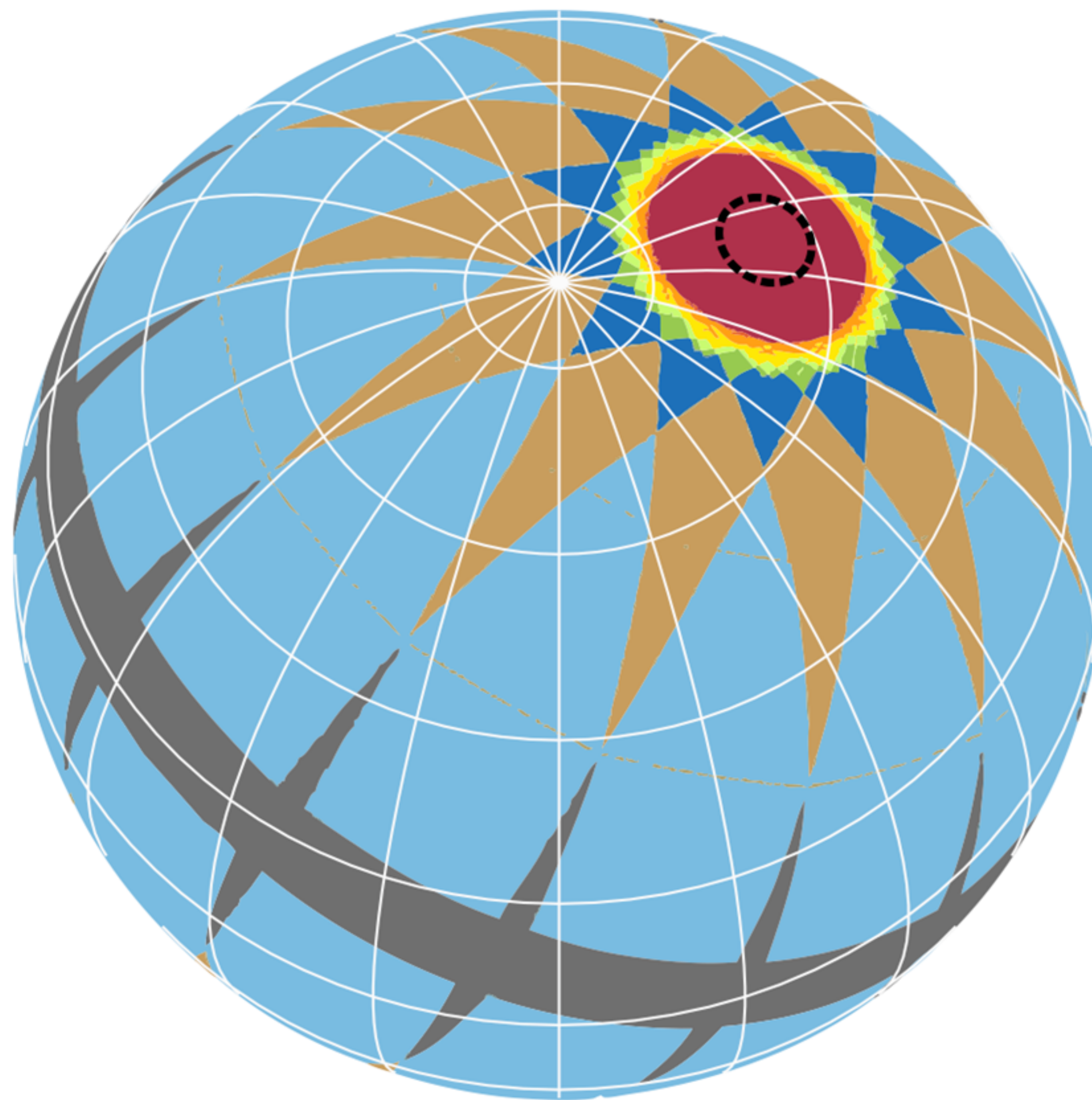
@ruthangus

# TESS — an overview

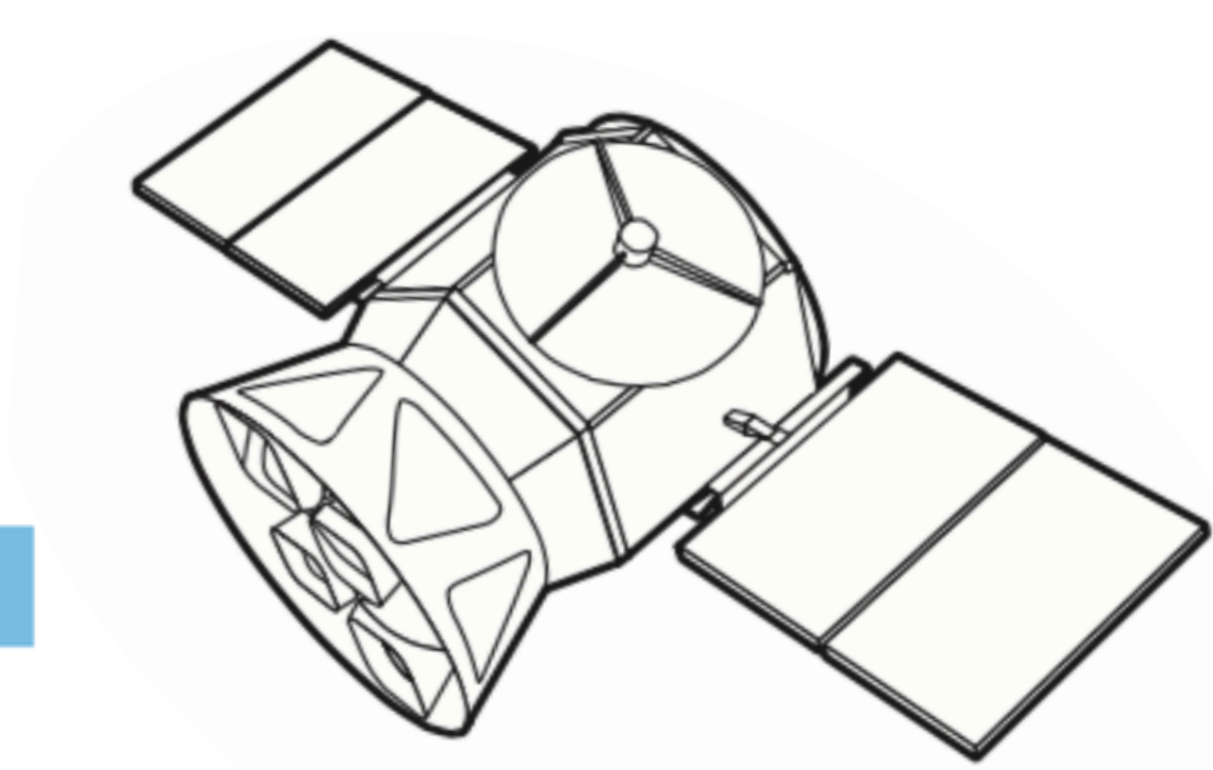
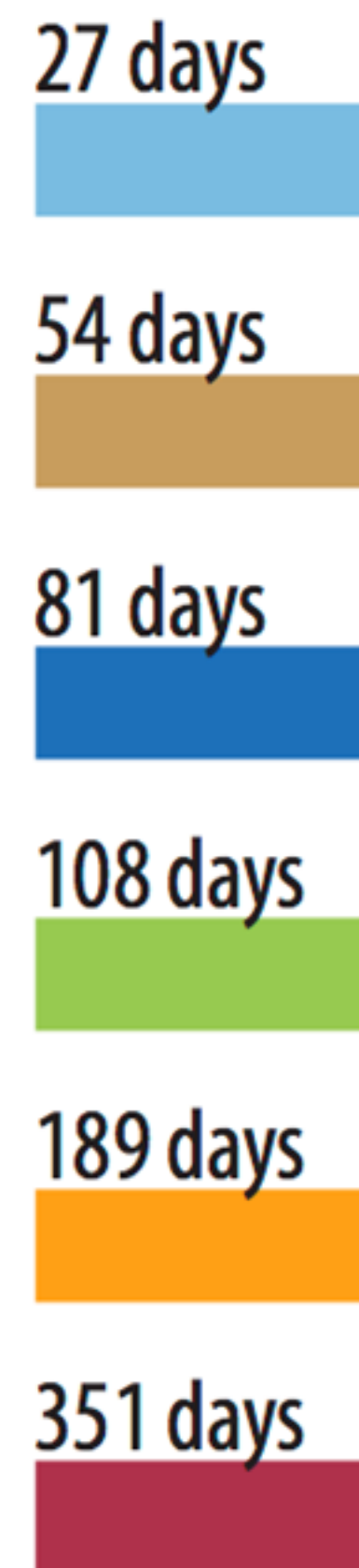
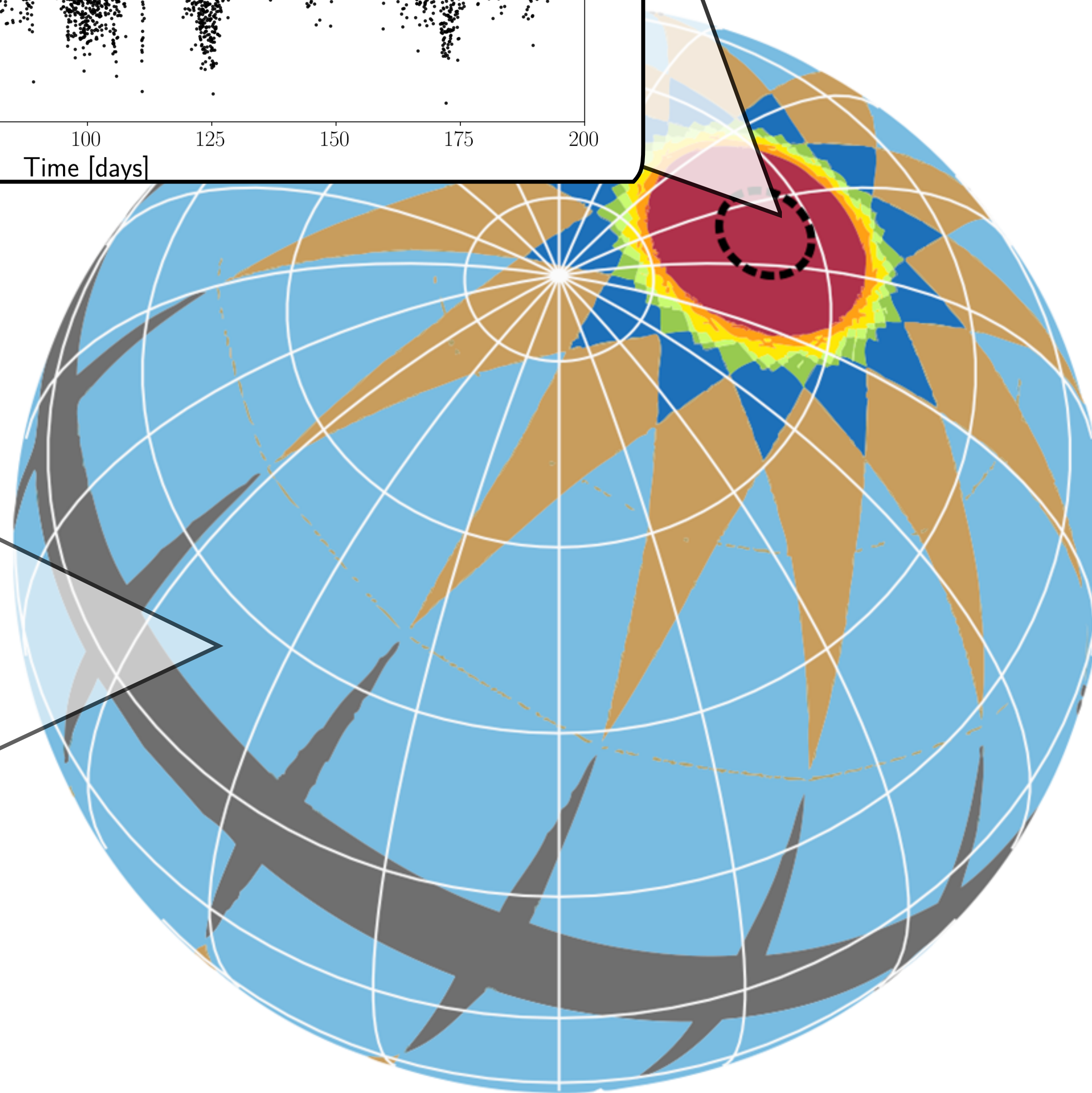
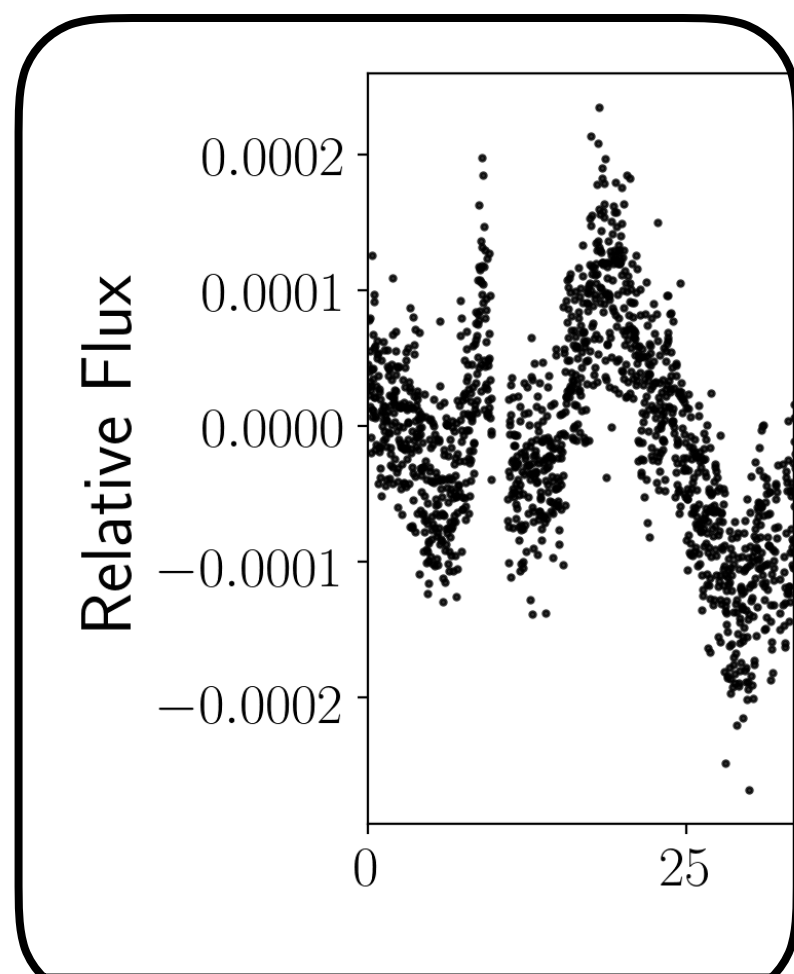
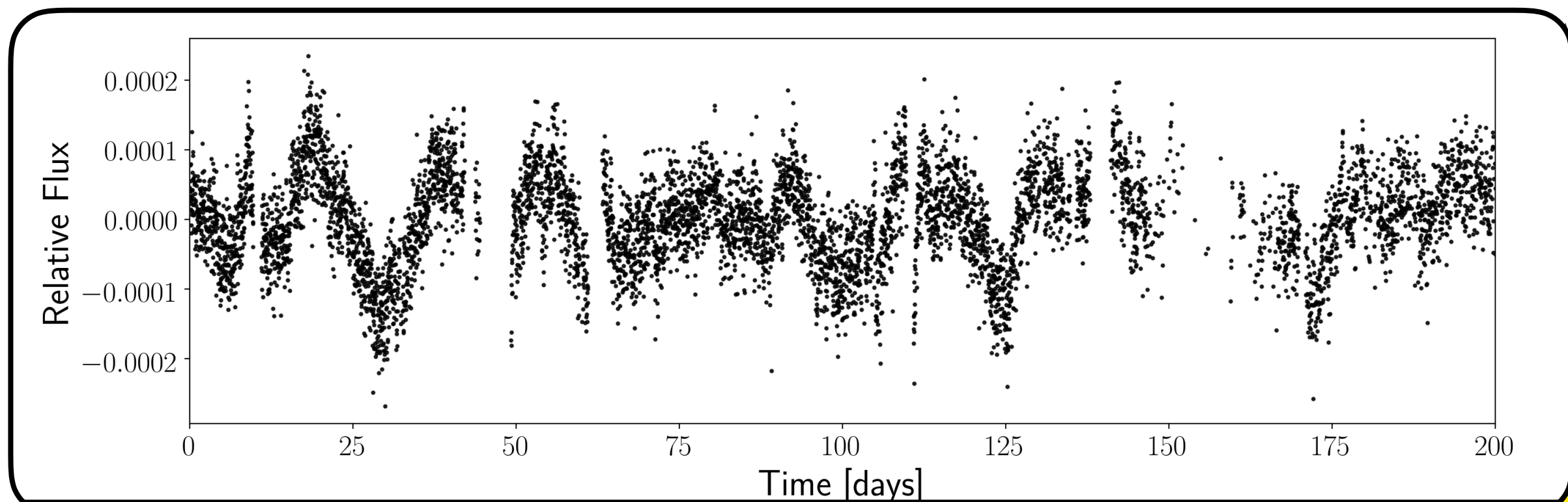


- All sky photometric survey
- 30 minute cadence
- 27 day stares
- Two continuous viewing zones
- 0.6-1  $\mu\text{m}$
- ~15th mag limit?









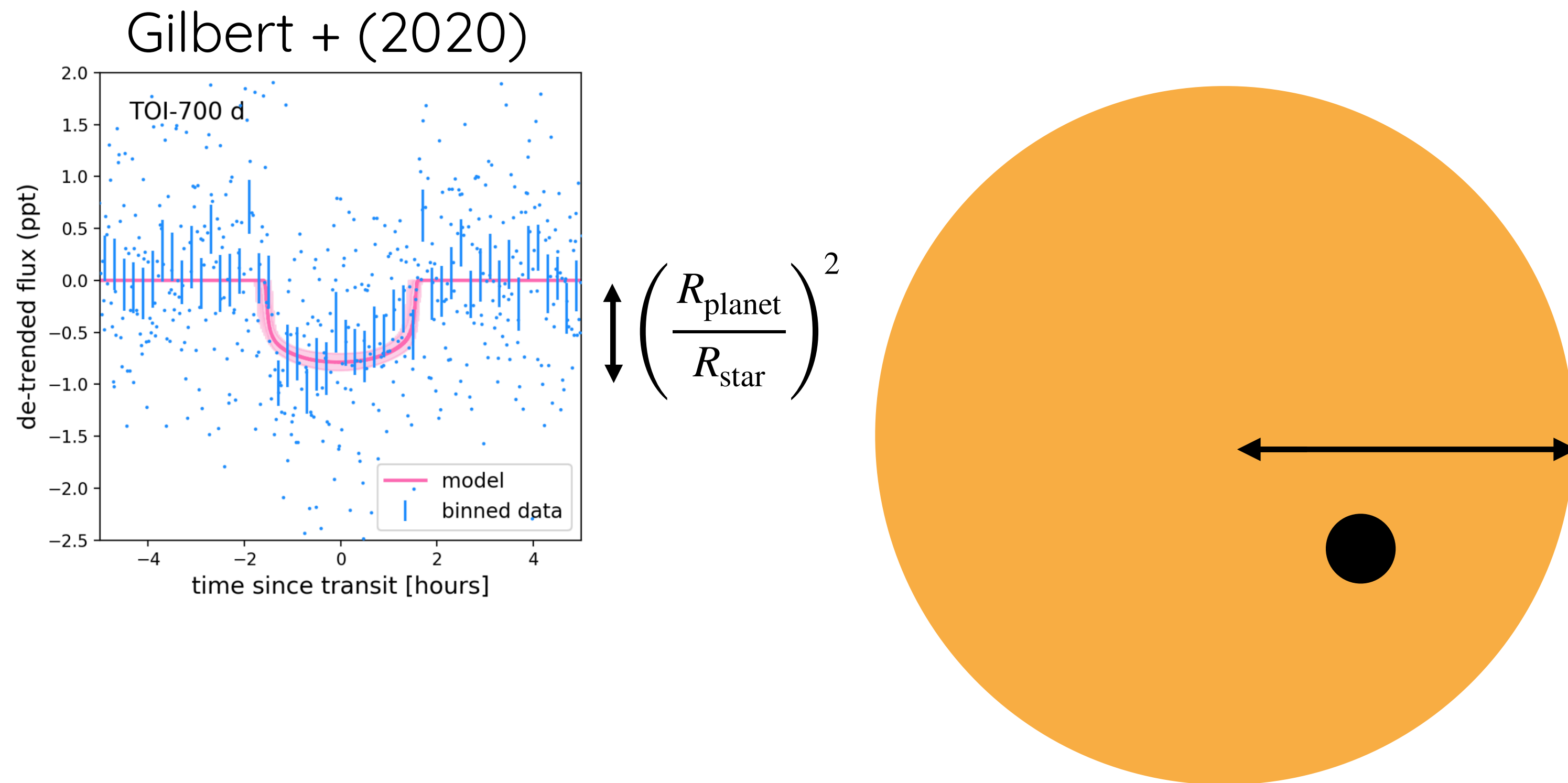
# TESS-SPHEREx projects

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- Exoplanet radii
- Cool dwarf variability
- Disk evolution

# TESS-SPHEREx projects

## — Exoplanet radii

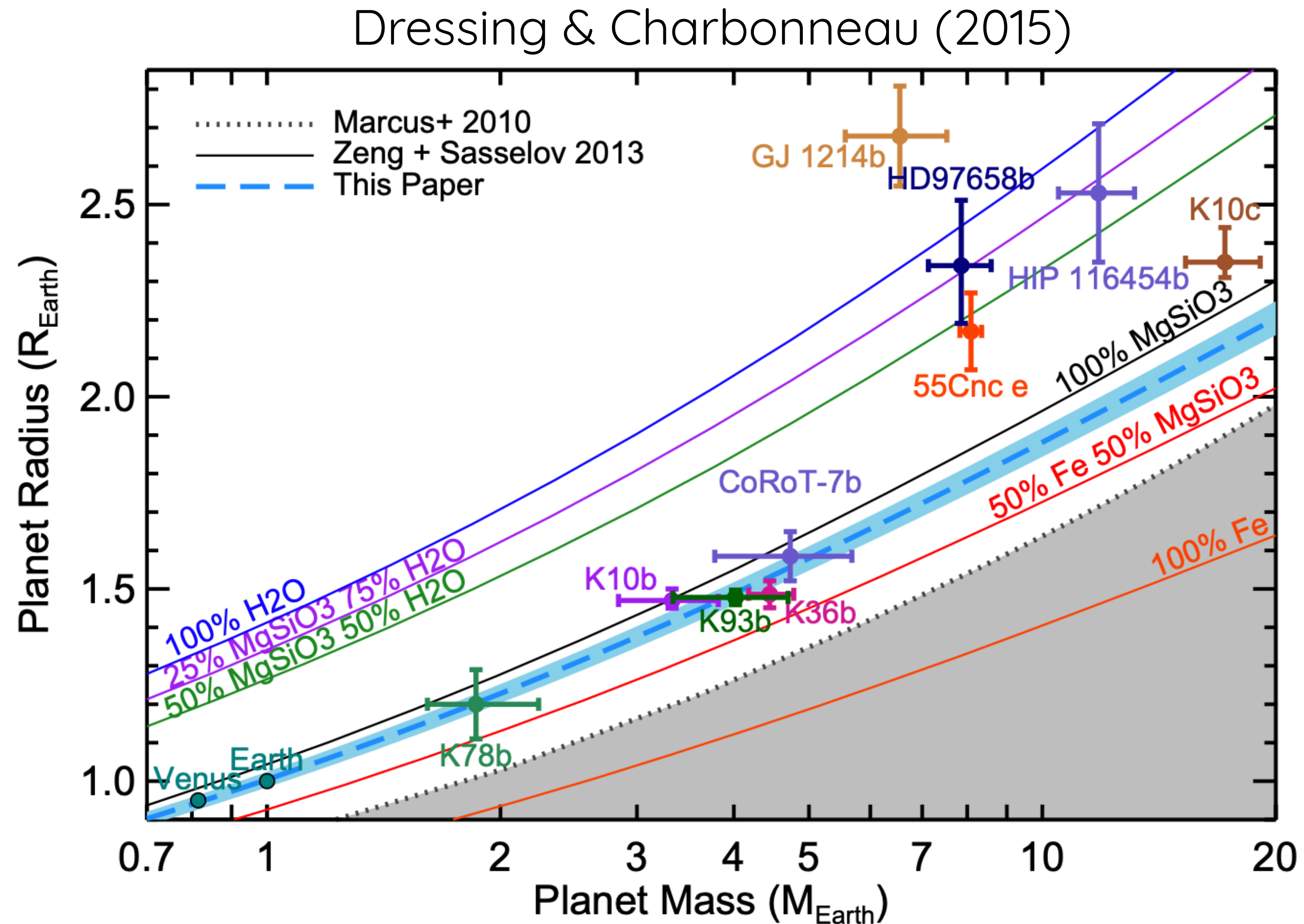


**SPHEREx** & broadband photometry & Gaia:  
1% radius precision (Doré et al. 2018)



# TESS-SPHEREx projects

## — Exoplanet radii



# TESS-SPHEREx projects

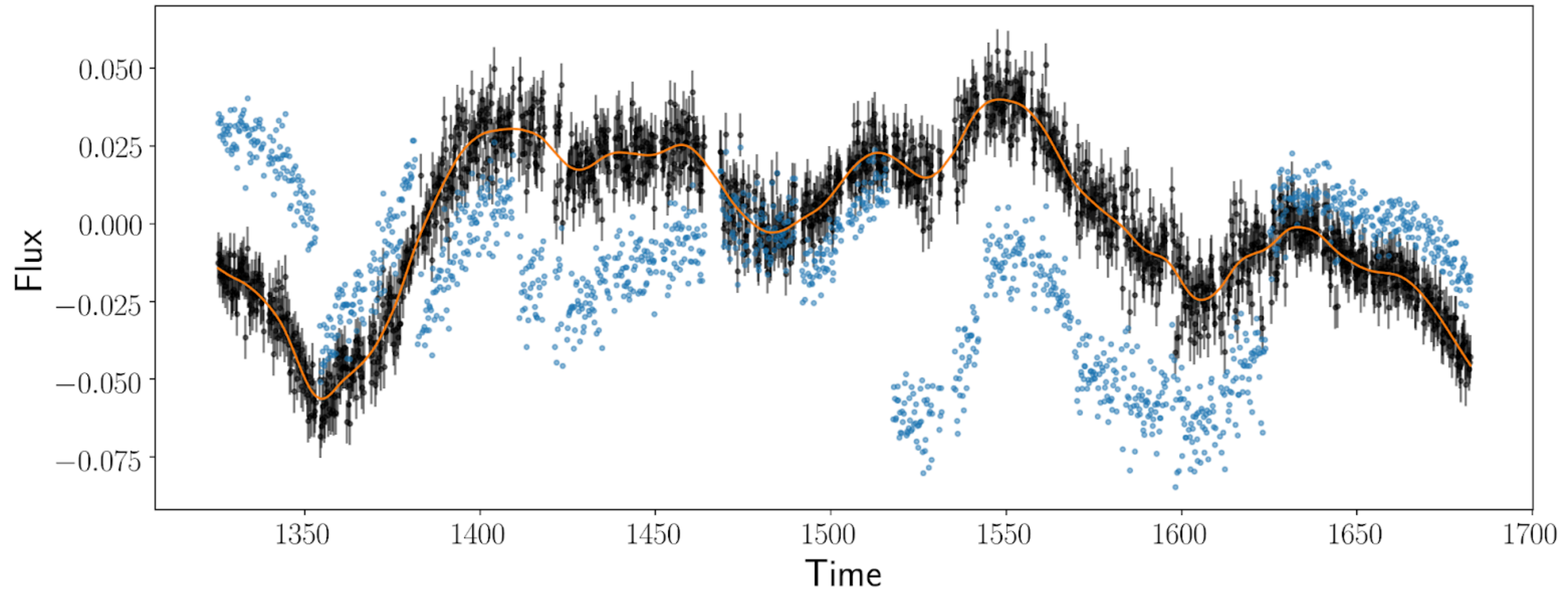
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- Exoplanet radii
- Cool dwarf variability
- Disk evolution



# TESS-SPHEREx projects

— Cool dwarf variability



Made by



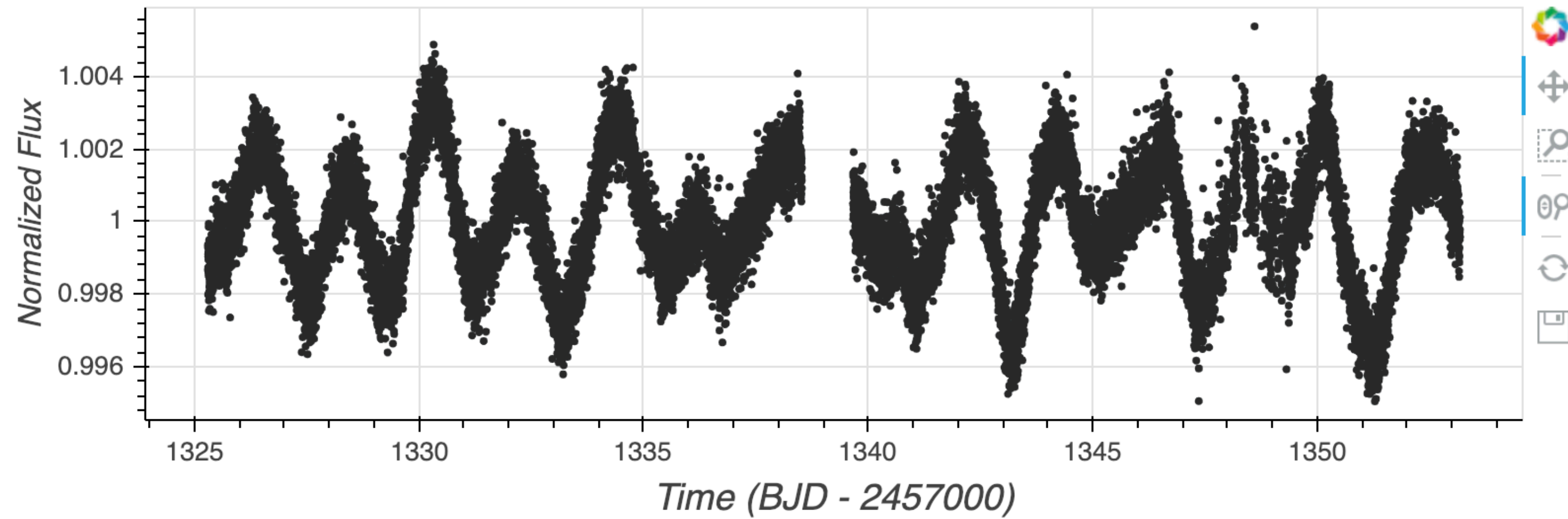
Megan Bedell  
(Flatiron Institute)

# TESS ROULETTE

Feeling lucky? 🎰

HIT ME

TIC25392282



HOUSE RULES

DOUBLE DOWN

ROYAL FLUSH

CASH OUT

# TESS-SPHEREx projects

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- Exoplanet radii
- Cool dwarf variability
- Disk evolution



# TESS-SPHEREx projects

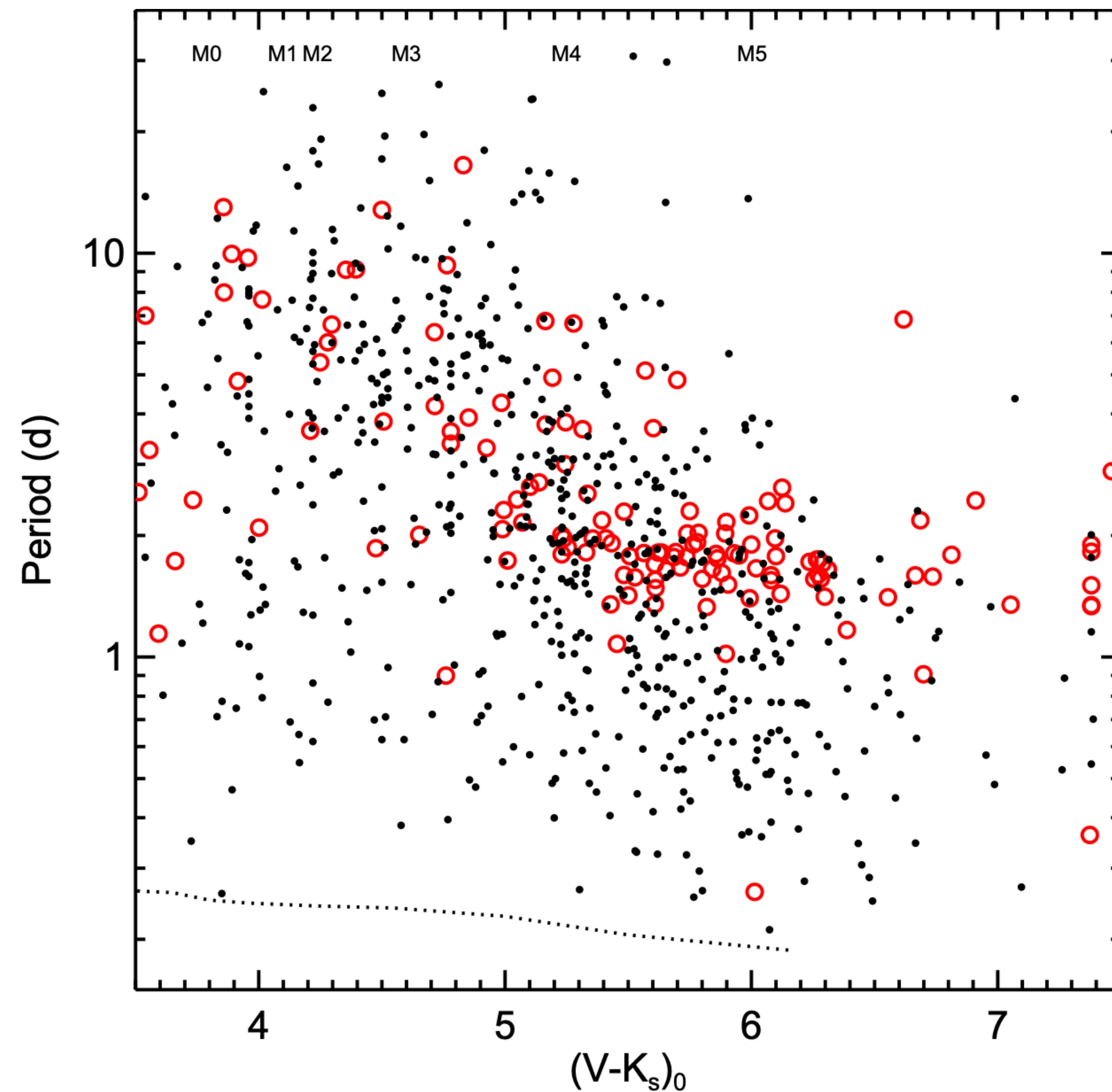
— Disk evolution



NASA

# TESS-SPHEREx projects

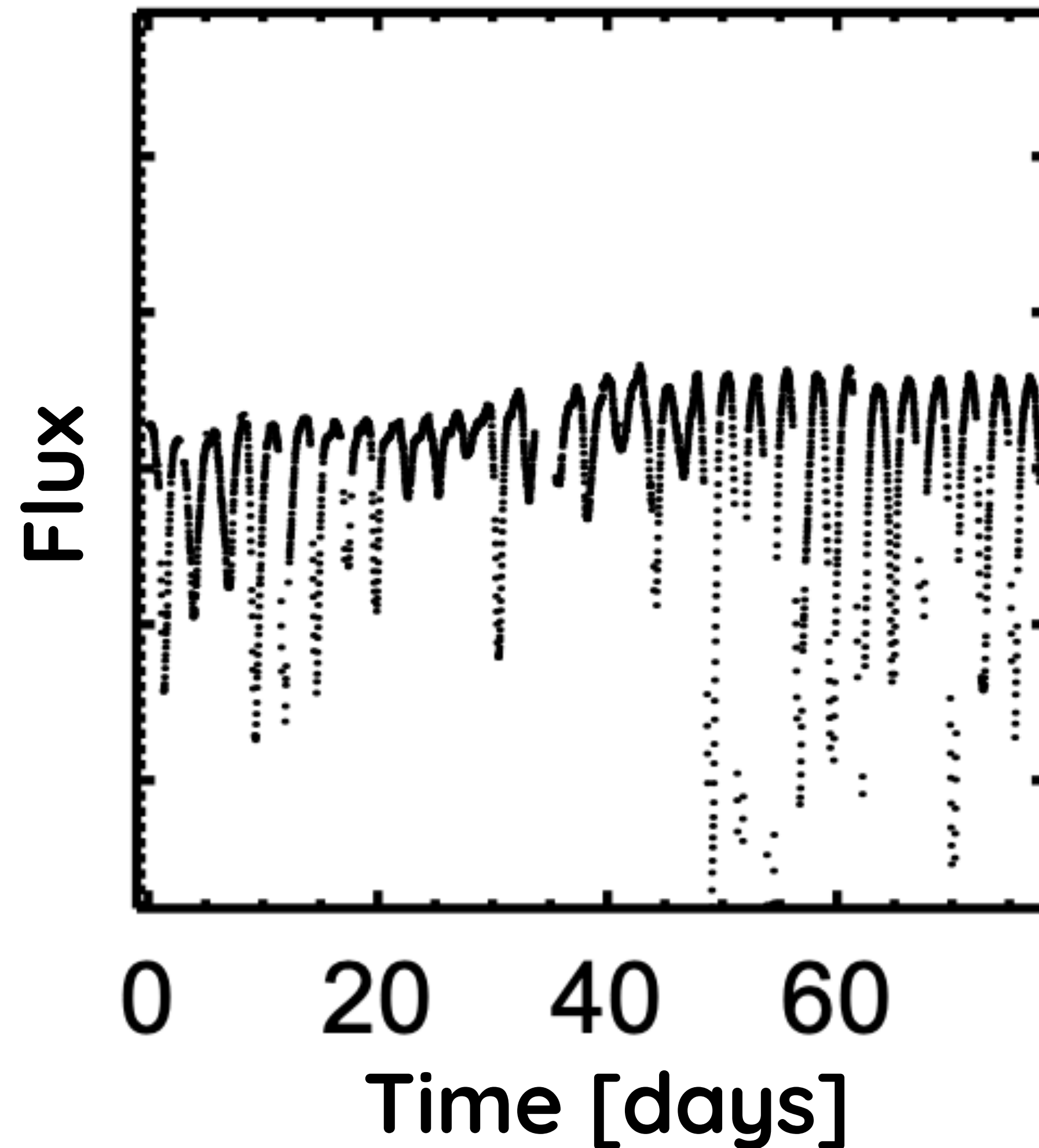
— Disk evolution



Rebull et al. (2018)

# TESS-SPHEREx projects

— Disk evolution

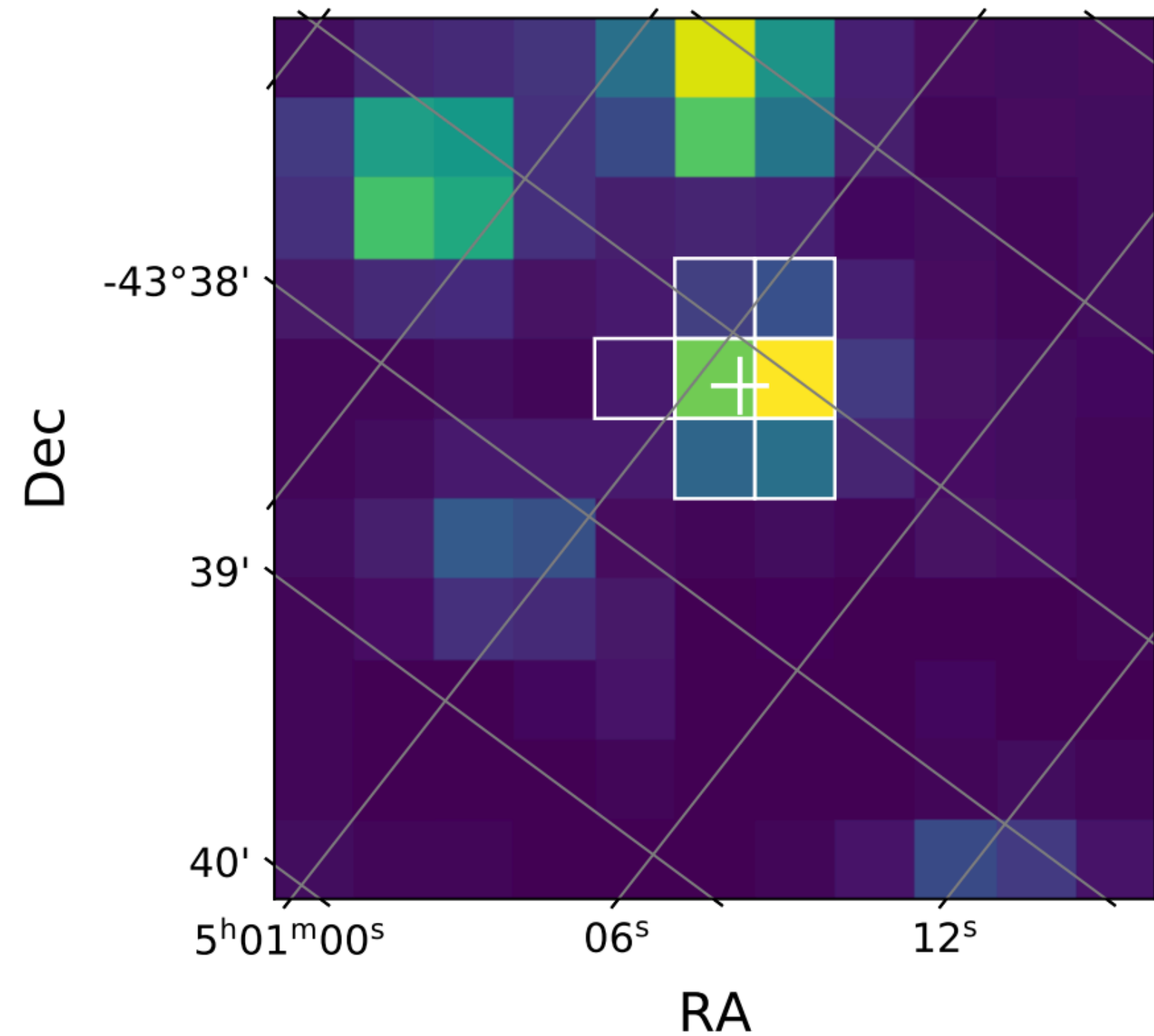


Rebull et al. (2018)

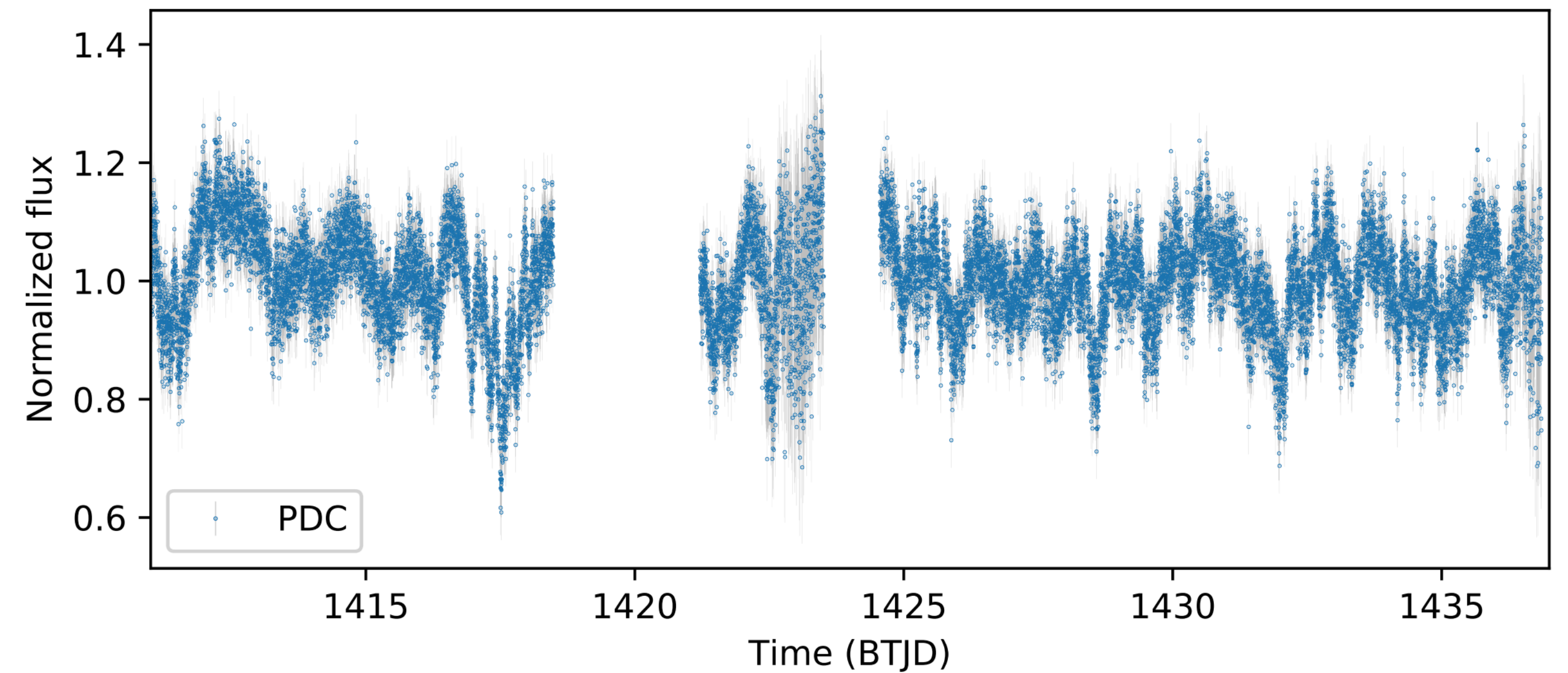


# TESS-SPHEREx projects

— Dipper stars

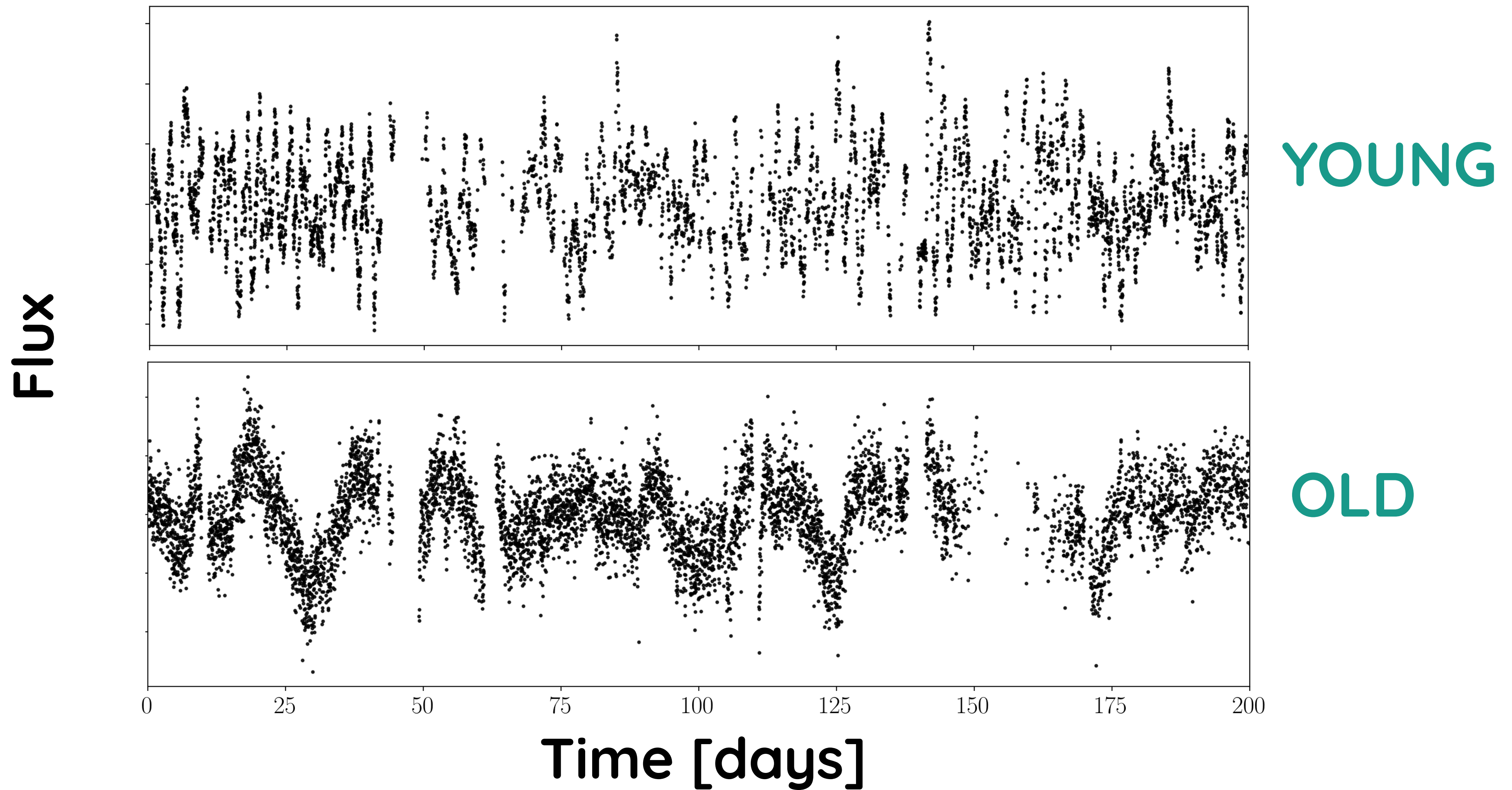


Silverberg + (2020)



# TESS-SPHEREx projects

— Disk evolution



# TESS-SPHEREx projects

— Disk evolution

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## Pre-data

- Crossmatch TESS & **WISE** IR-excess stars
- Measure rotation periods from TESS light curves
- Infer gyro-ages/explore disk-locking



# TESS-SPHEREx projects

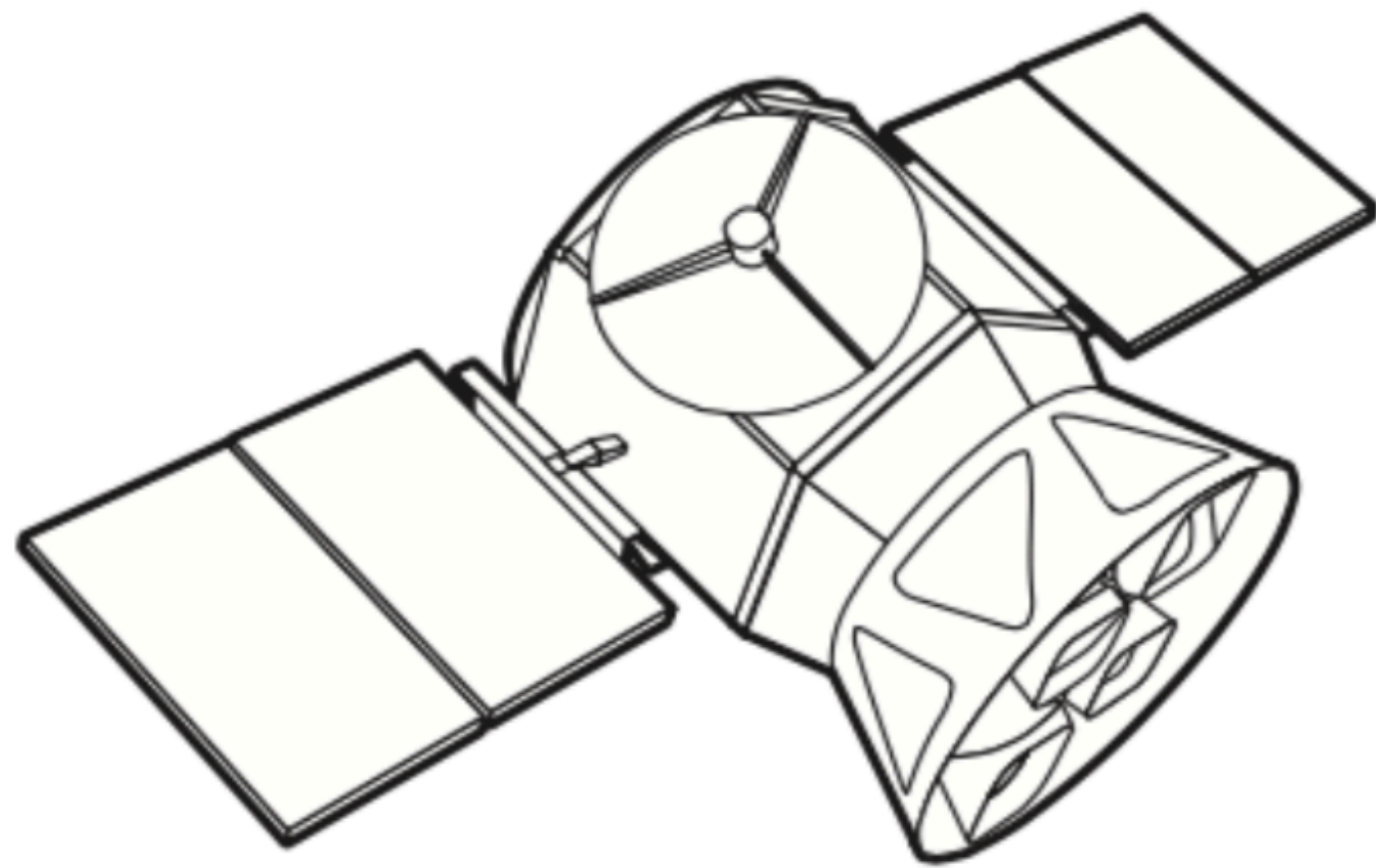
— Disk evolution

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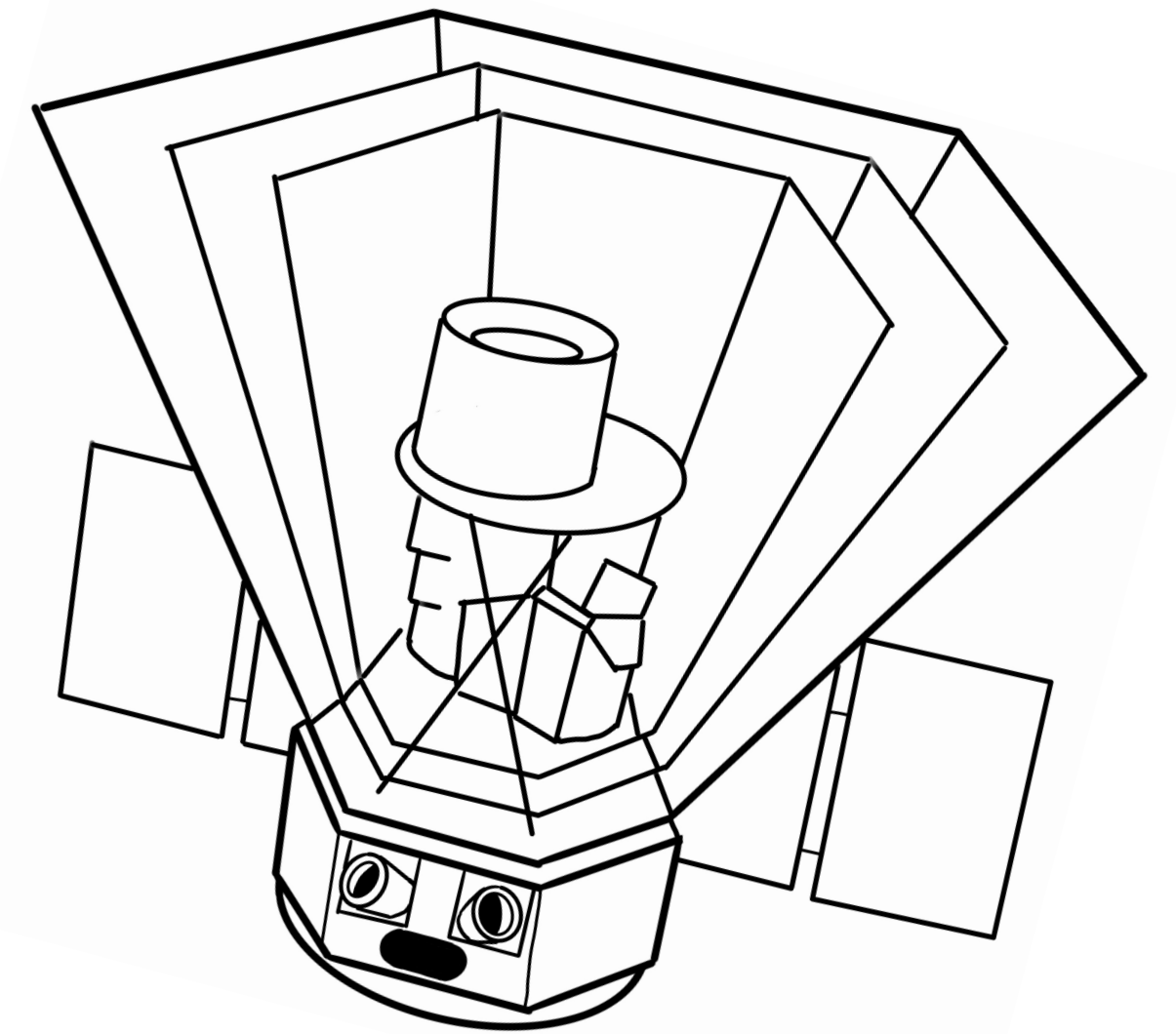
## Post-data

- Crossmatch TESS & **SPHEREx** IR-excess stars
- Measure rotation periods from TESS light curves
- Infer gyro-ages/explore evolving disk properties

# Science with **TESS** and **SPHEREx**



- Exoplanet radii
- Cool dwarf variability
- Disk evolution



**Ruth Angus**

AMNH/Flatiron