



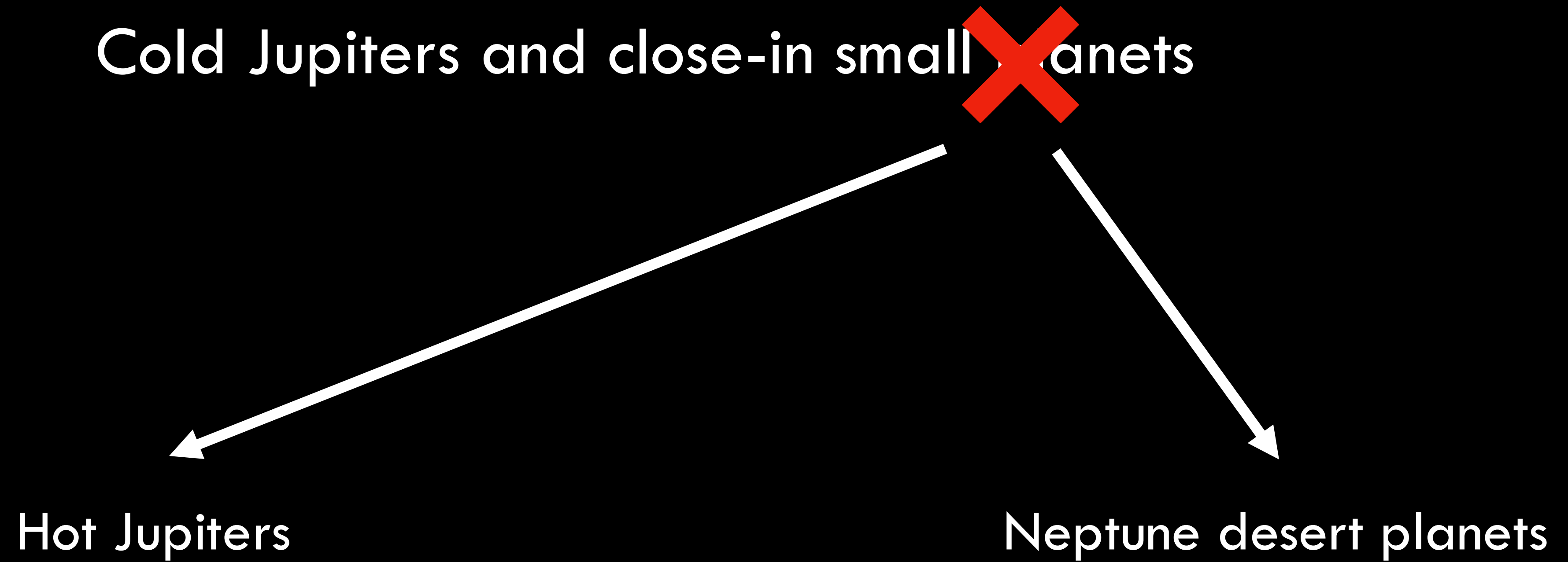
Outer giant planets shaping inner architectures: insights from two decades of CORALIE radial velocity monitoring

51 Peg b: Cool Giant planets and their systems - 7th October 2025 - OHP, France

Léna Parc, François Bouchy, Solène Ulmer-Moll, Louise Nielsen, Marion Neveu-vanMalle, Stéphane Udry... et al

4th year PhD Student - Observatory of Geneva, Switzerland

Context



Context

Cold Jupiters and close-in small planets

Hot Jupiters

Neptune desert planets

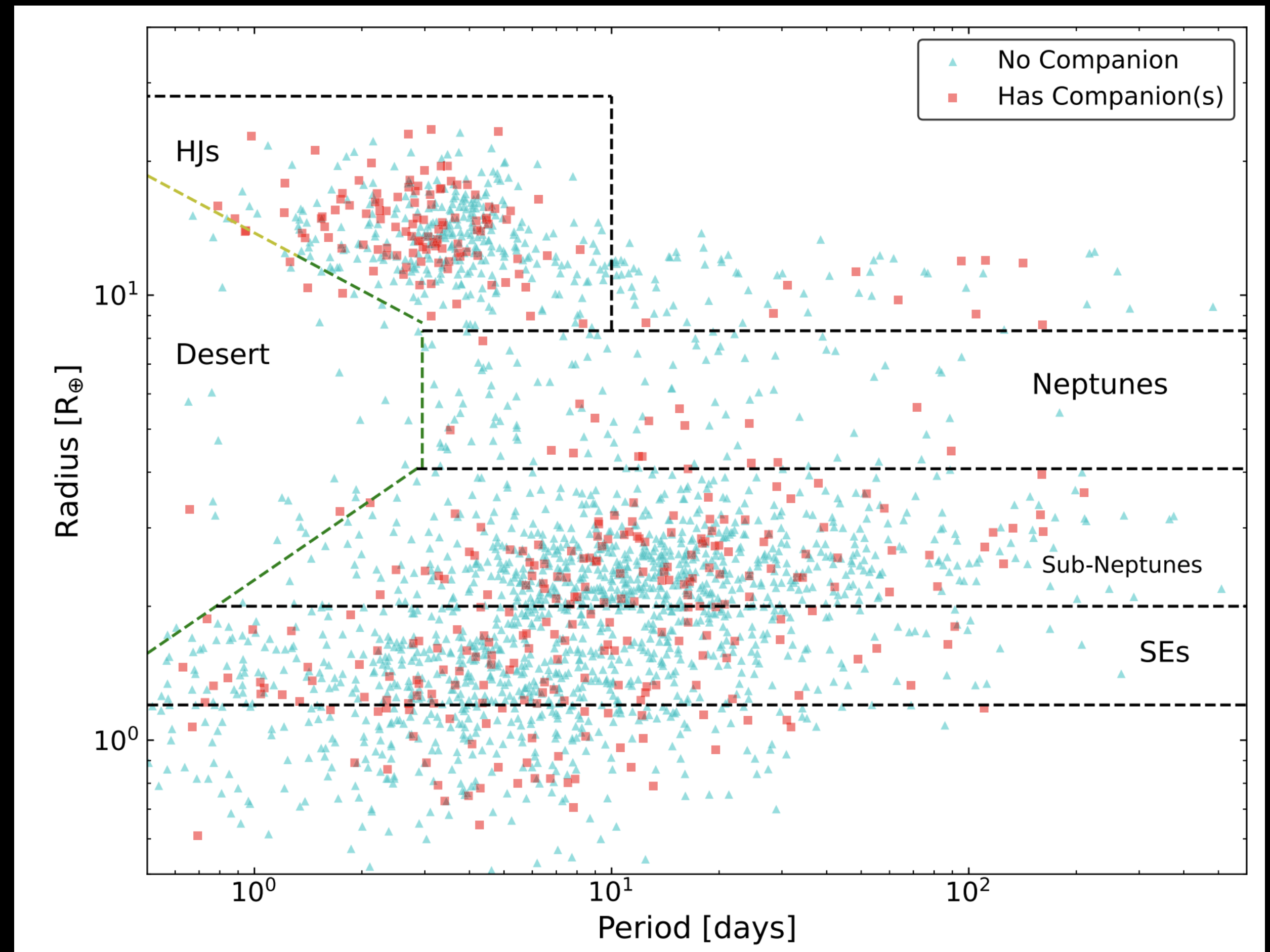
HEM operates by gravitational interactions with a distant massive companion.

High-eccentric tidal migration (HEM)

Context

Cold Jupiters and close-in small planets

HEM operates by
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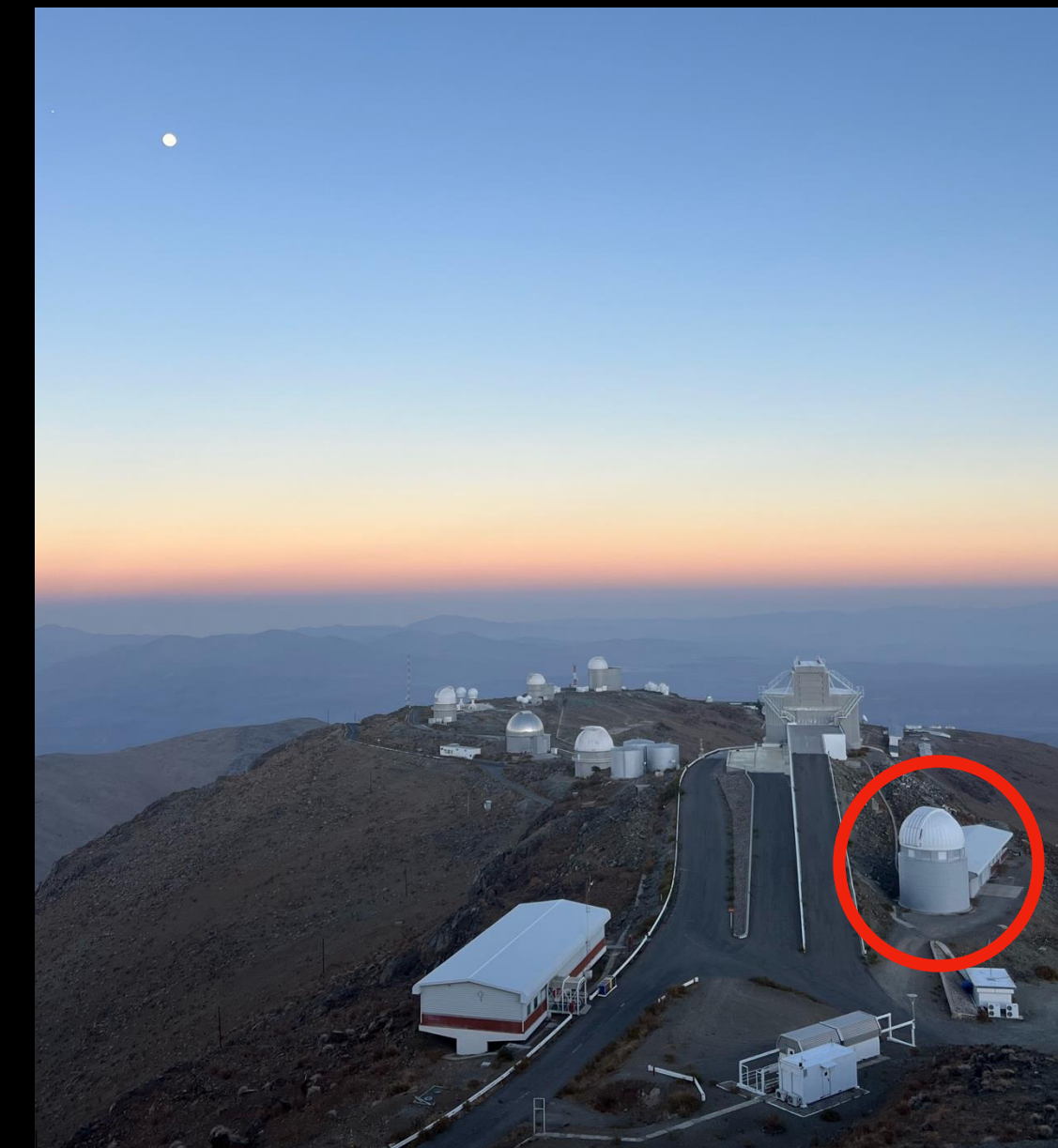
Eeles-Nolle et al. (2025)

CORALIE spectrograph

- Copy of ELODIE that discovered 51 Peg b
- Mounted on the 1.2m Euler Swiss telescope at La Silla observatory.
- $R \sim 60\,000$
- Visible range: 388-681 nm
- Major updates in 2007 and 2014
- Long-term RV follow-up programs :
~ 12-15% of the time observed with Euler !!

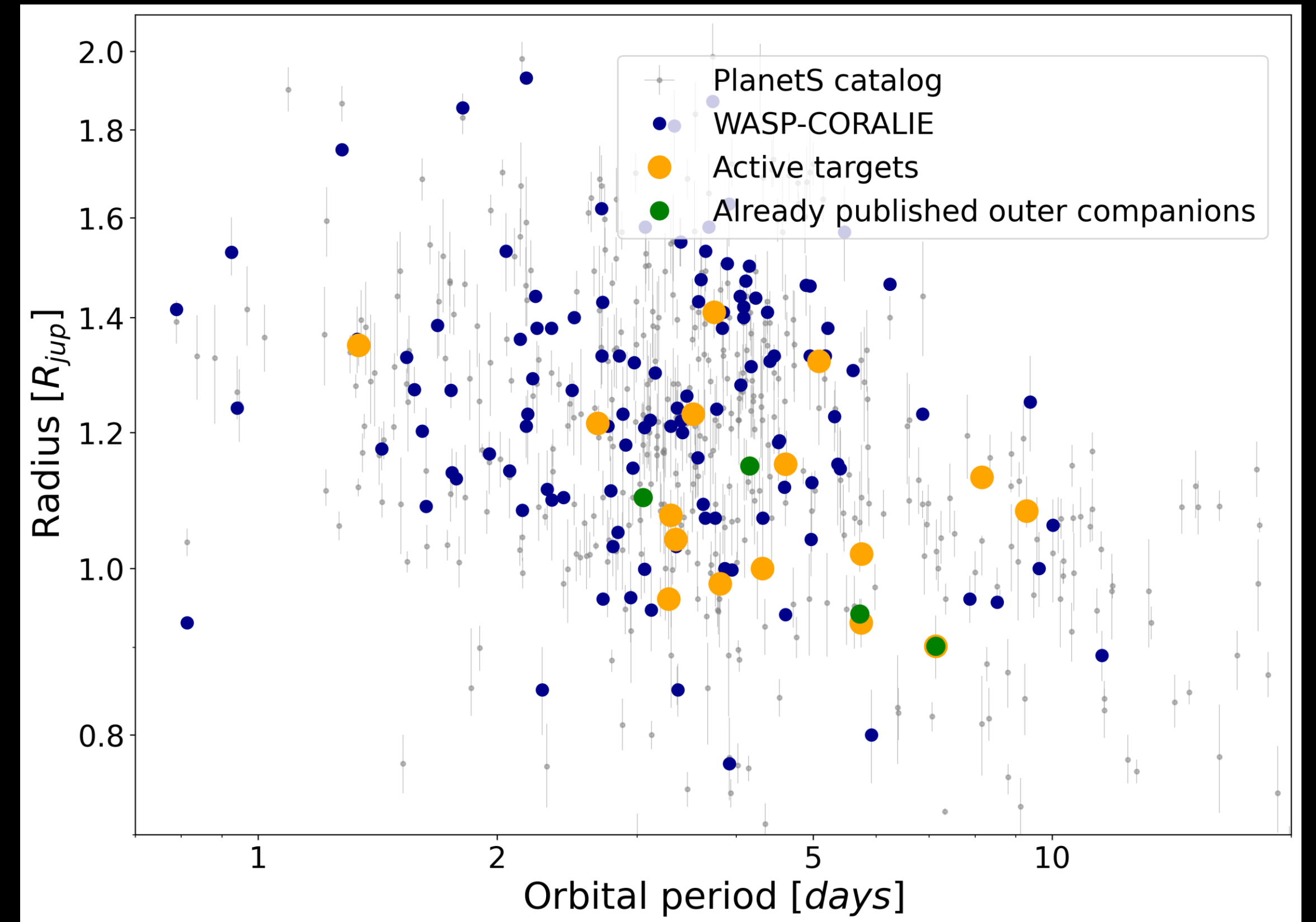


See W. Ceva's poster

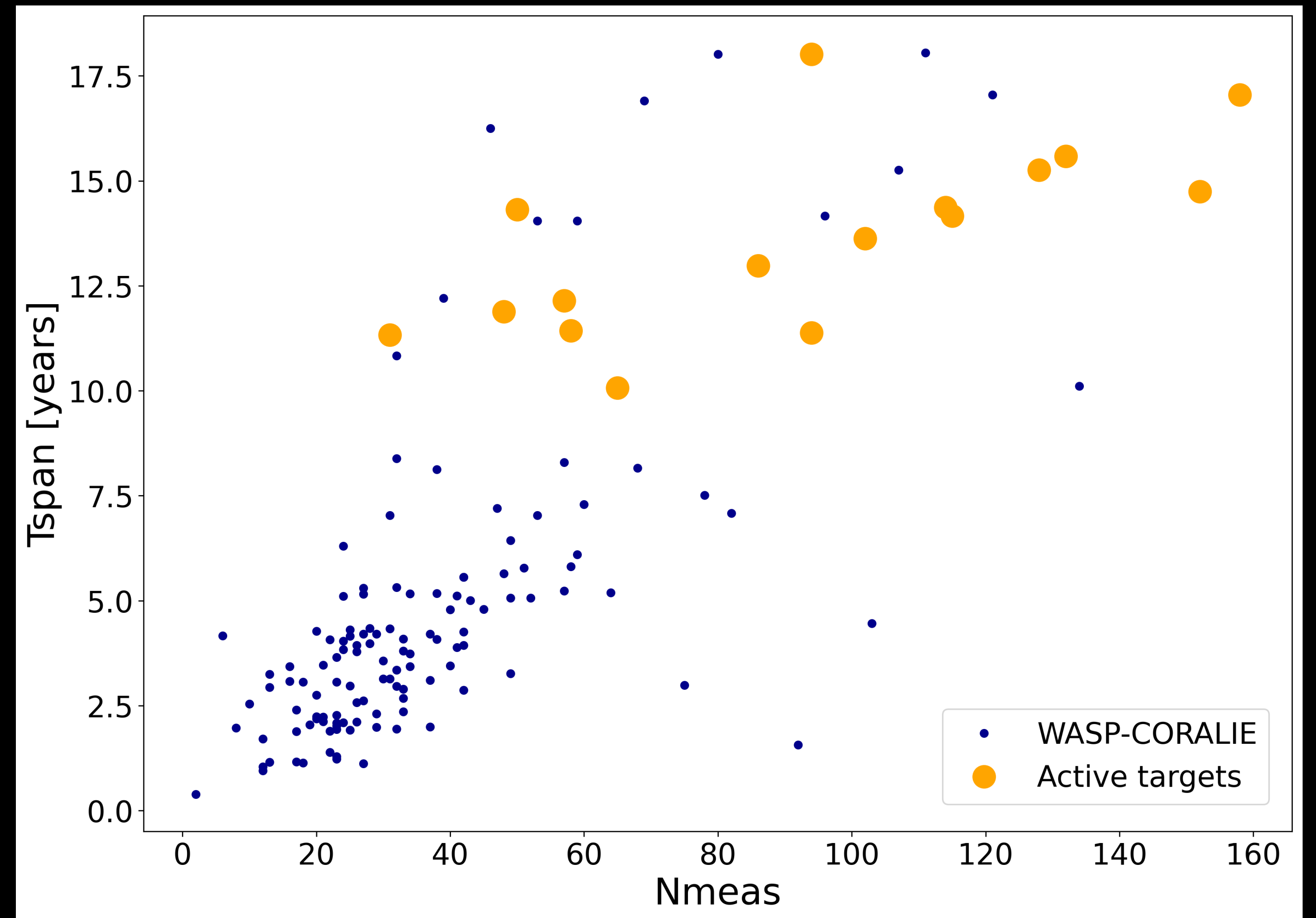
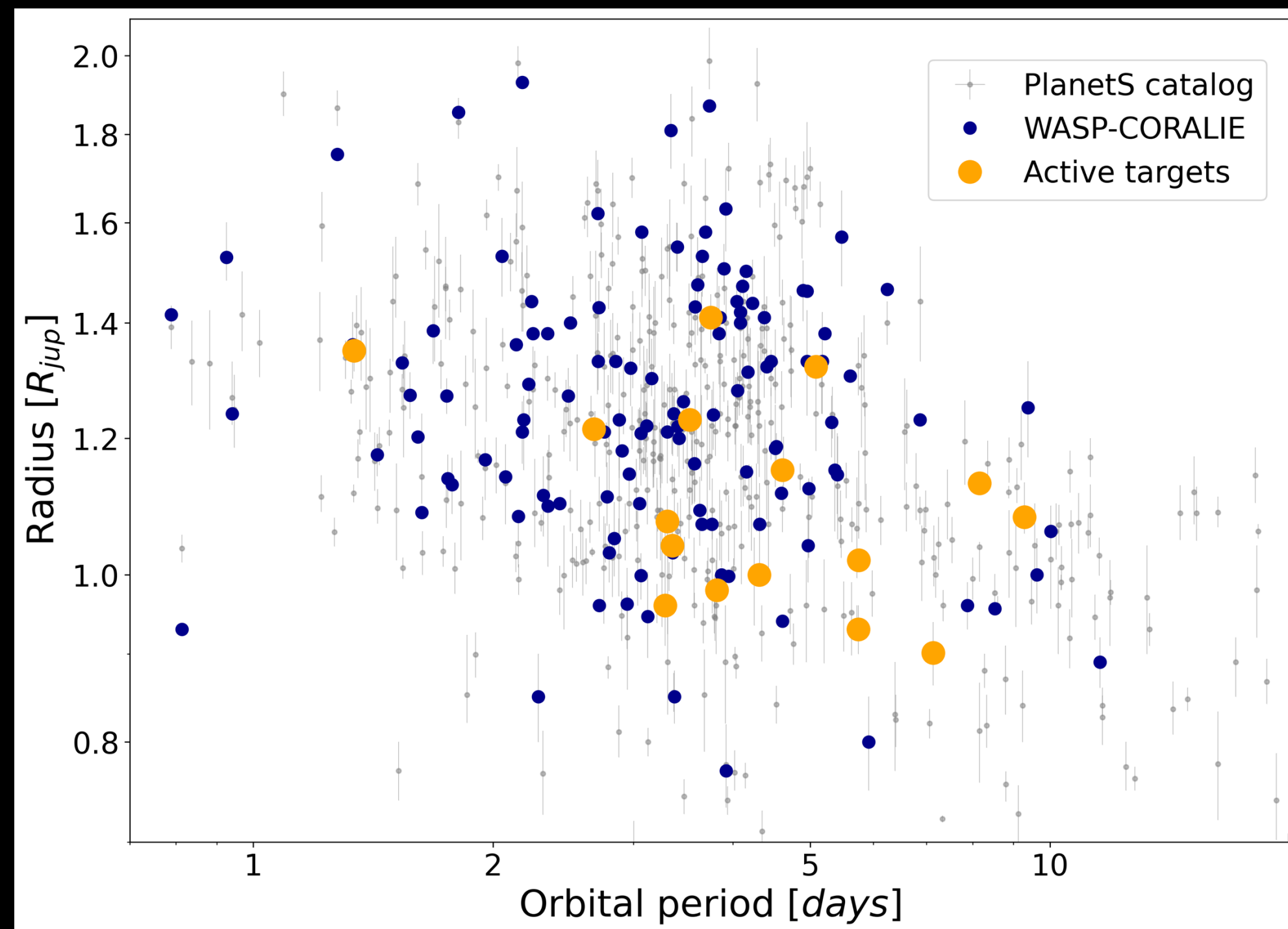


The CORALIE 730 program: Hot-Jupiters

- Started in 2007 to confirm planets from the WASP survey!!!
- All « WASP-... » with CORALIE data = 159 targets -> 137 planets confirmed in NEA
- Today : 16 remaining « active » targets.
- 4 outer companions already published



The CORALIE 730 program: Hot-Jupiters



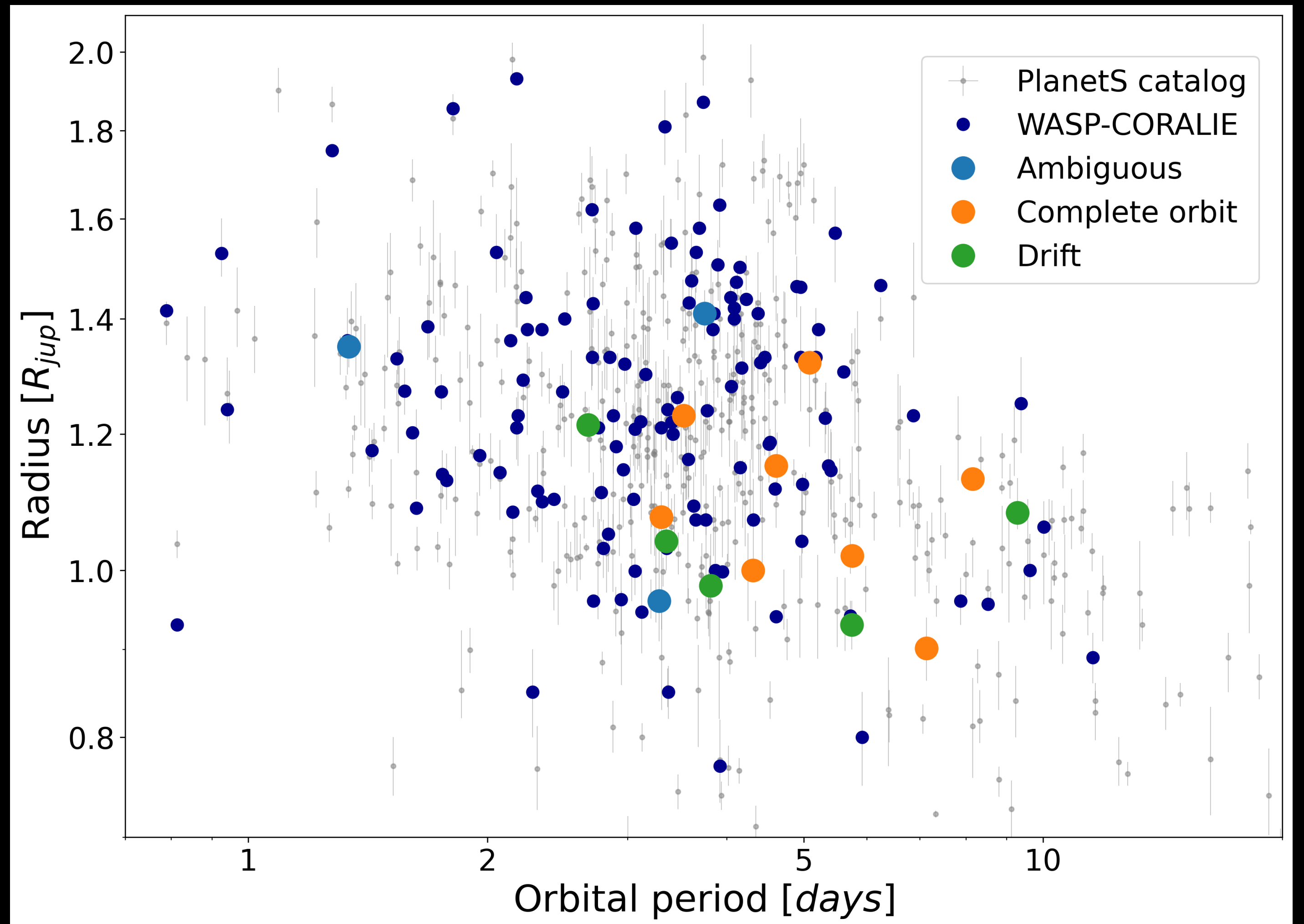
The CORALIE 730 program: Hot-Jupiters

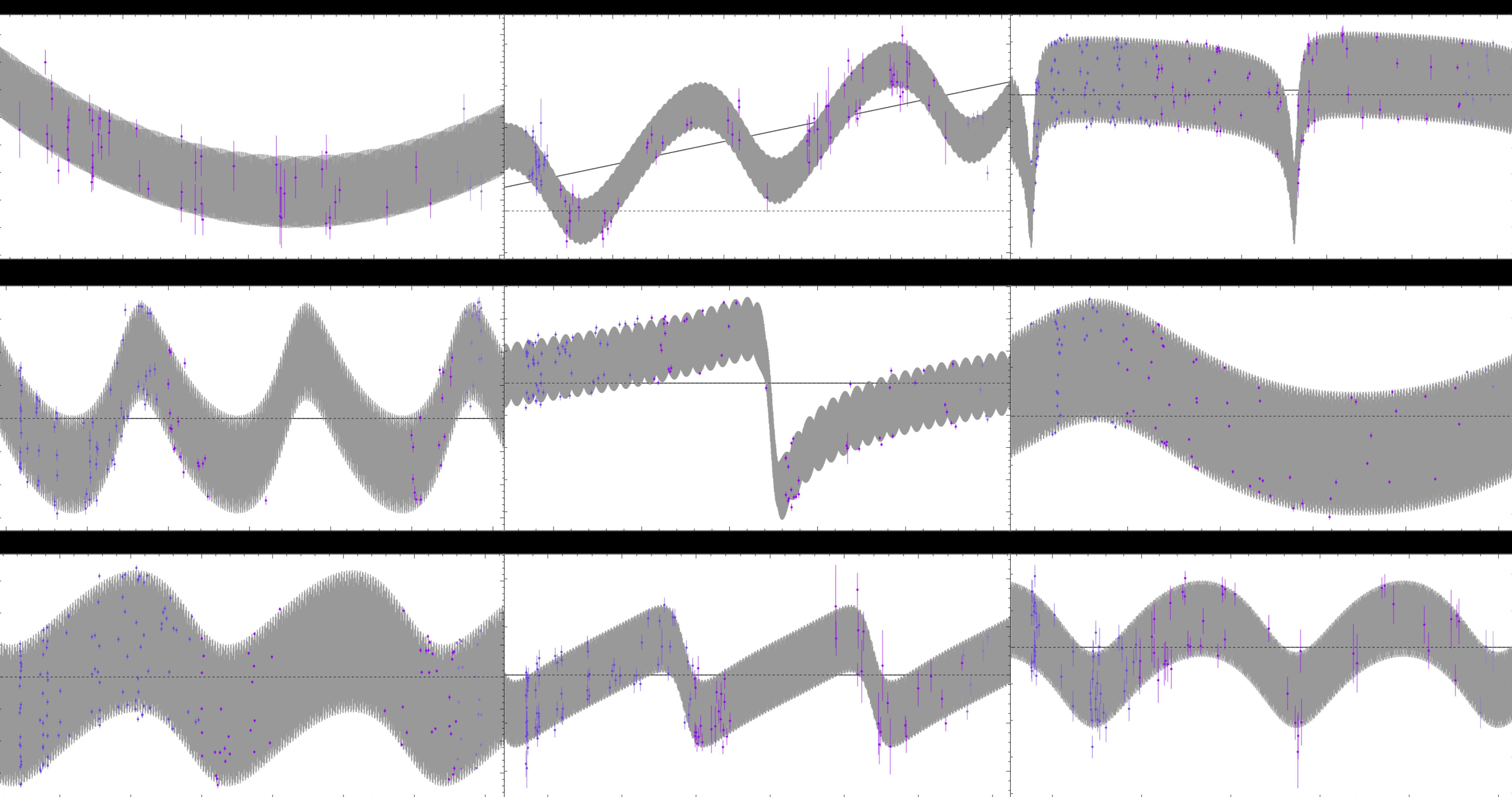
Population view

-> 8 complete orbits

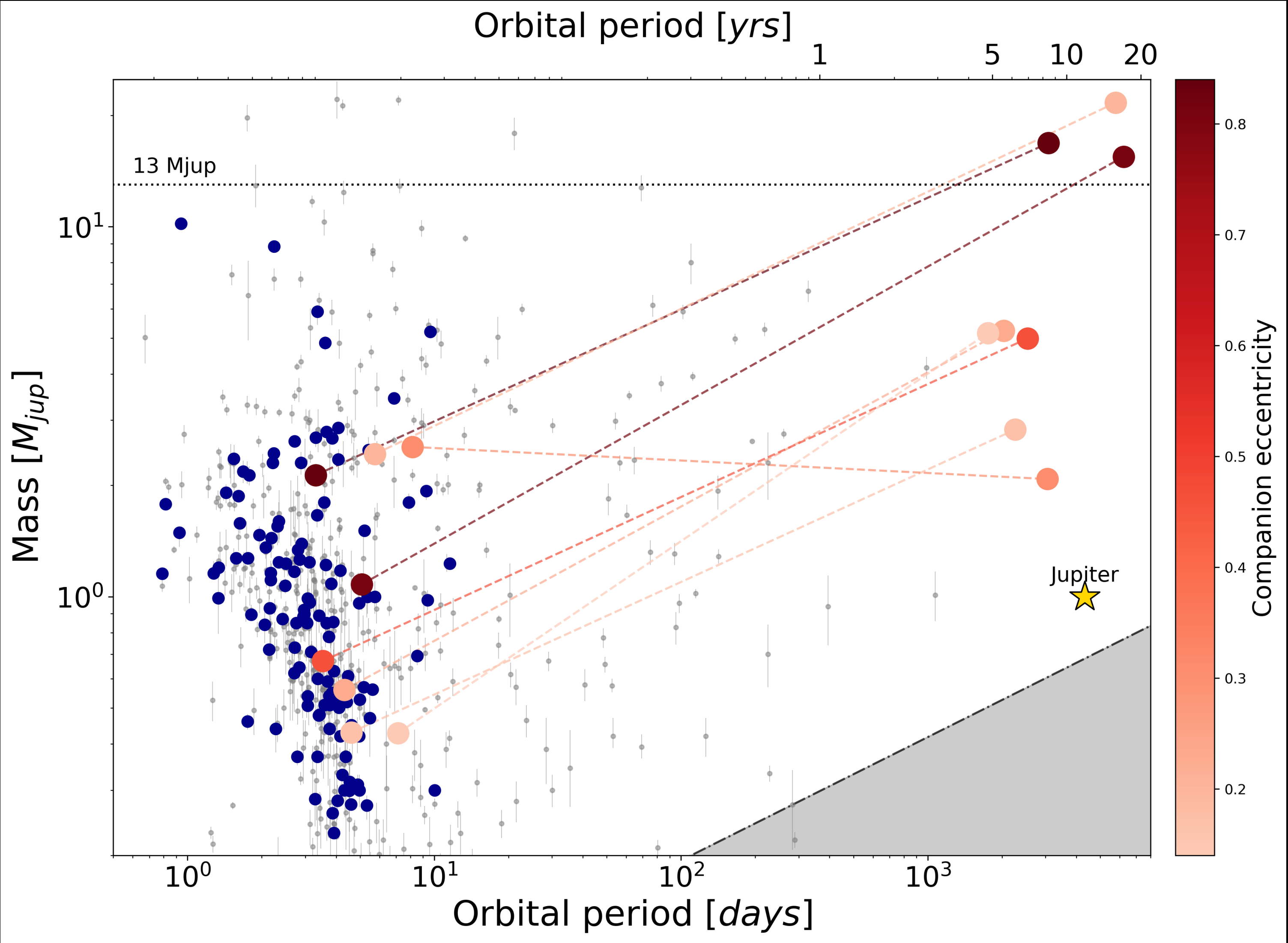
-> 5 linear/quadratic drifts

-> 3 unclear





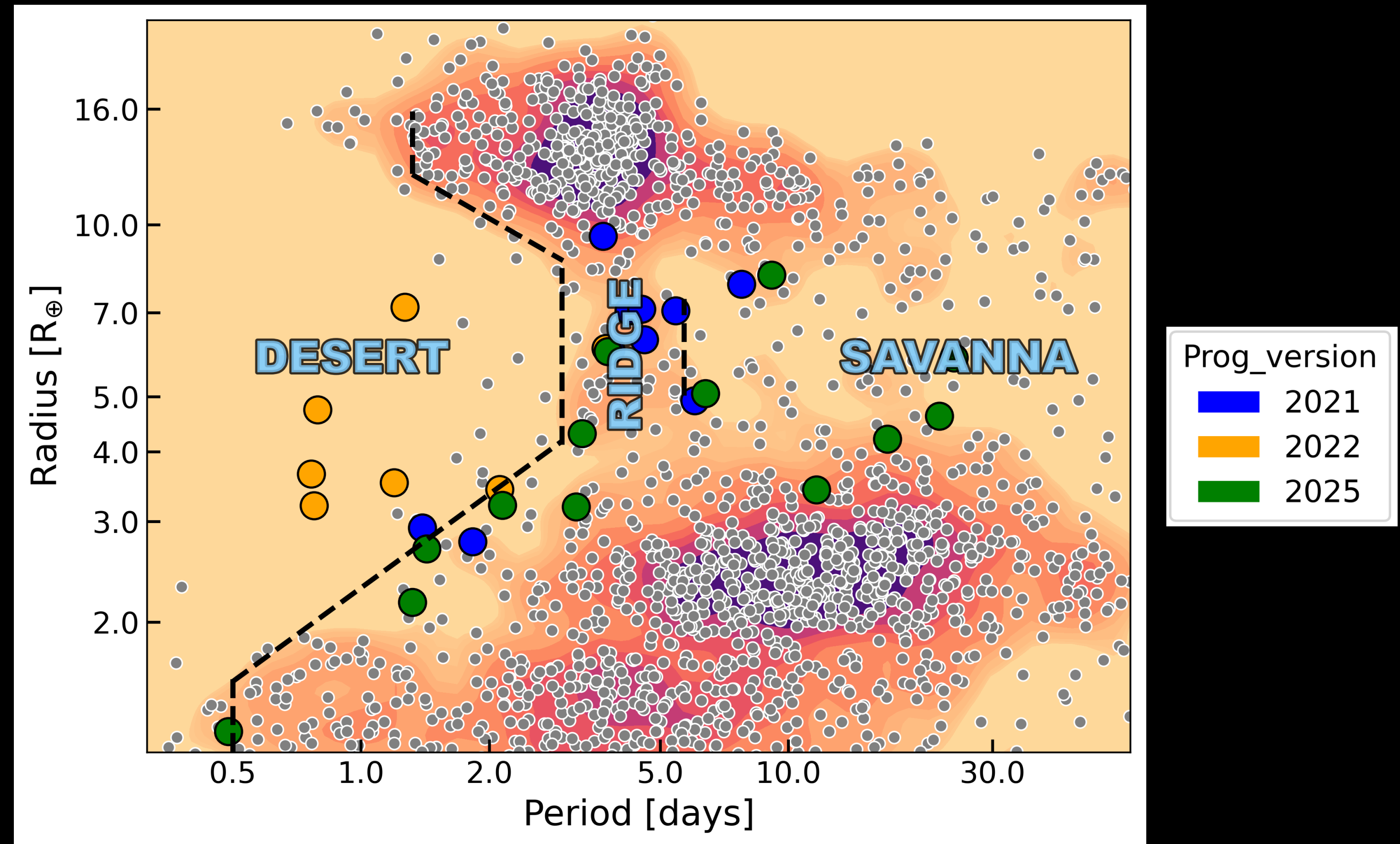
The CORALIE 730 program: Hot-Jupiters



The CORALIE 736 program: Neptunes

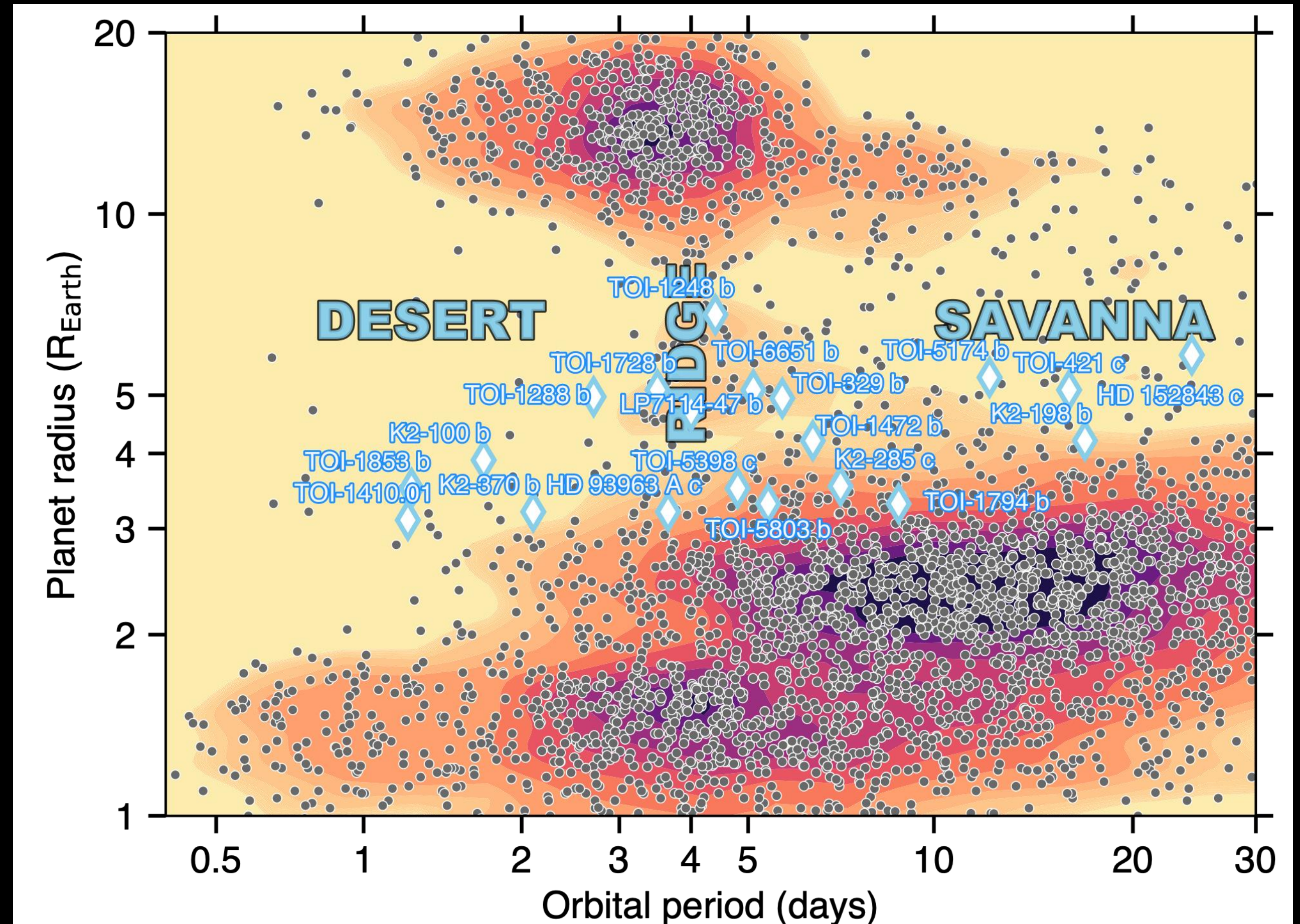
- Started in 2021
- Collaboration with Dave Armstrong and Vincent Bourrier (et al.) with the NOMADS and ATREIDES programs.

See V. Bourrier's poster

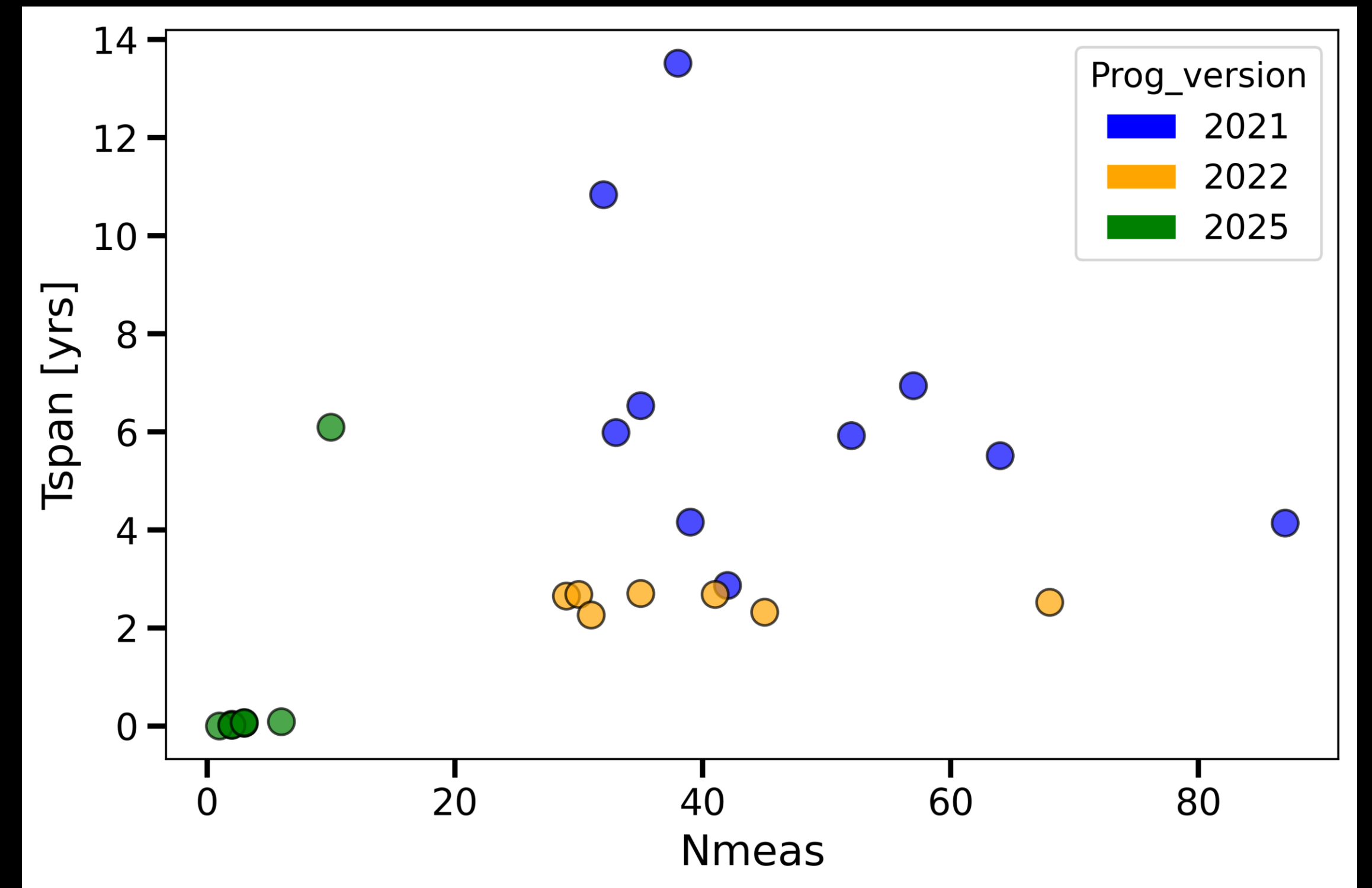
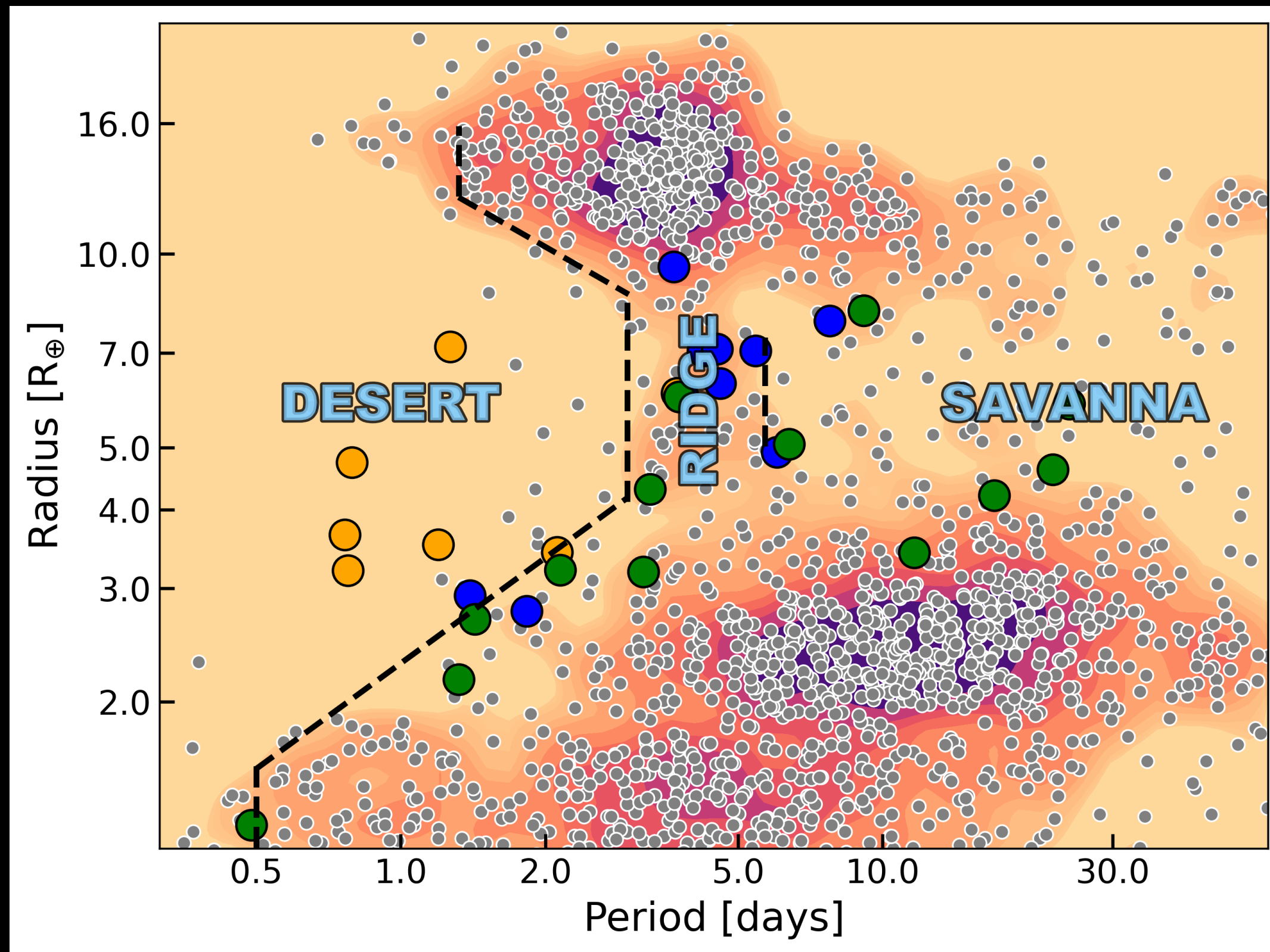


Accepted SOPHIE proposal!

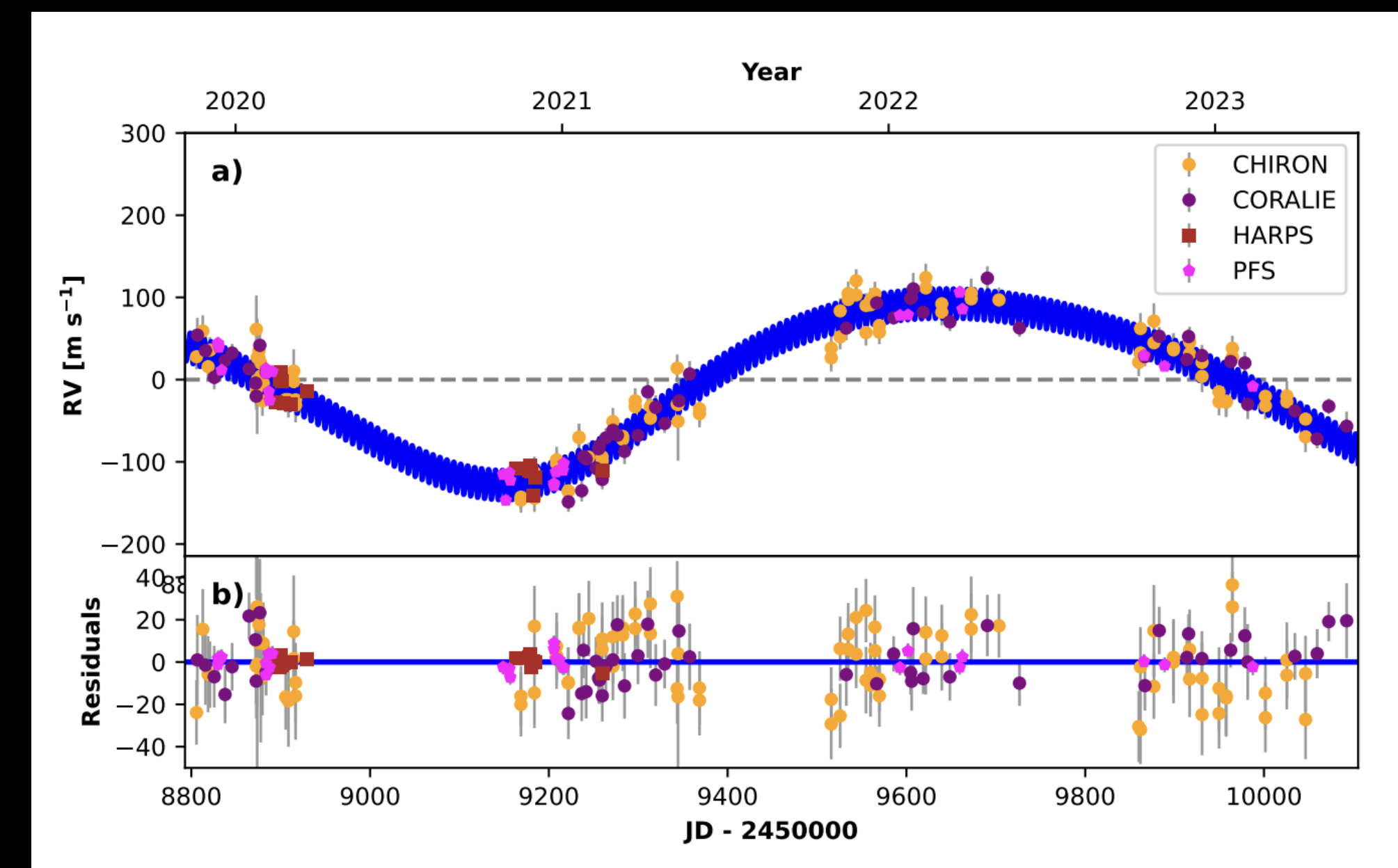
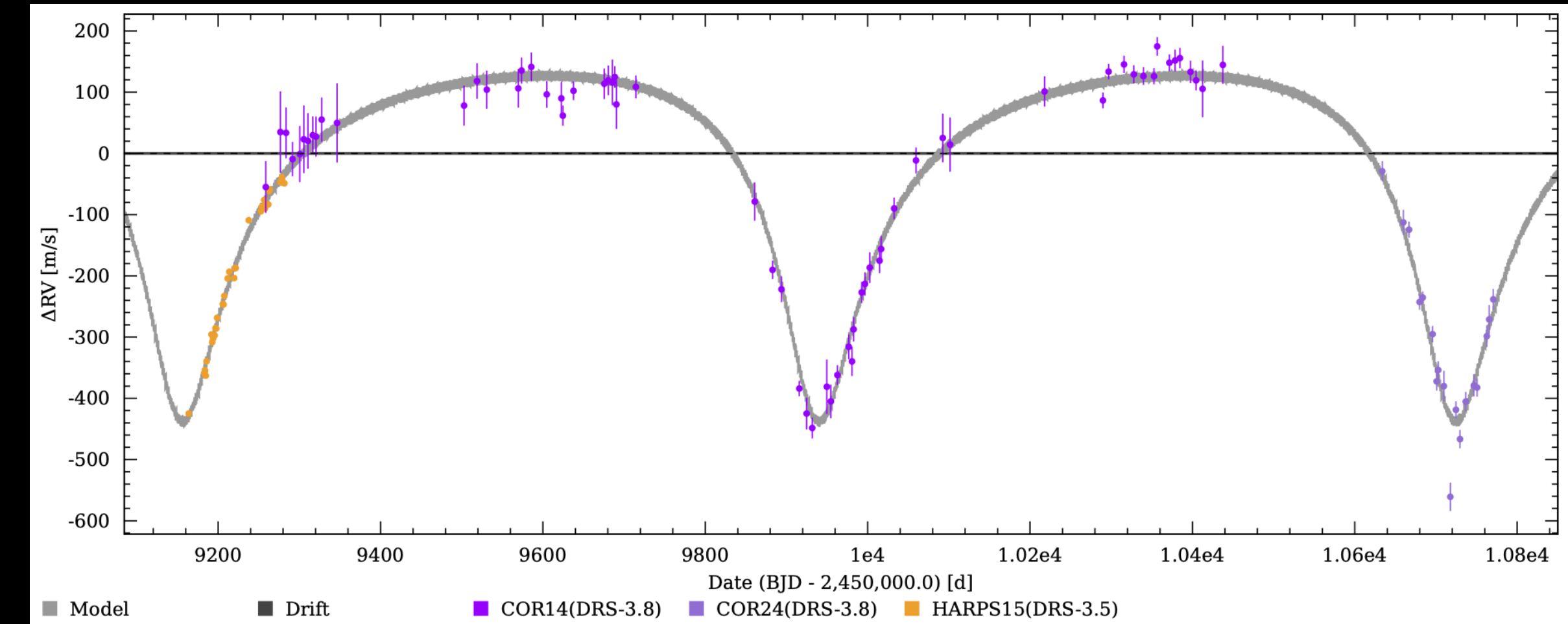
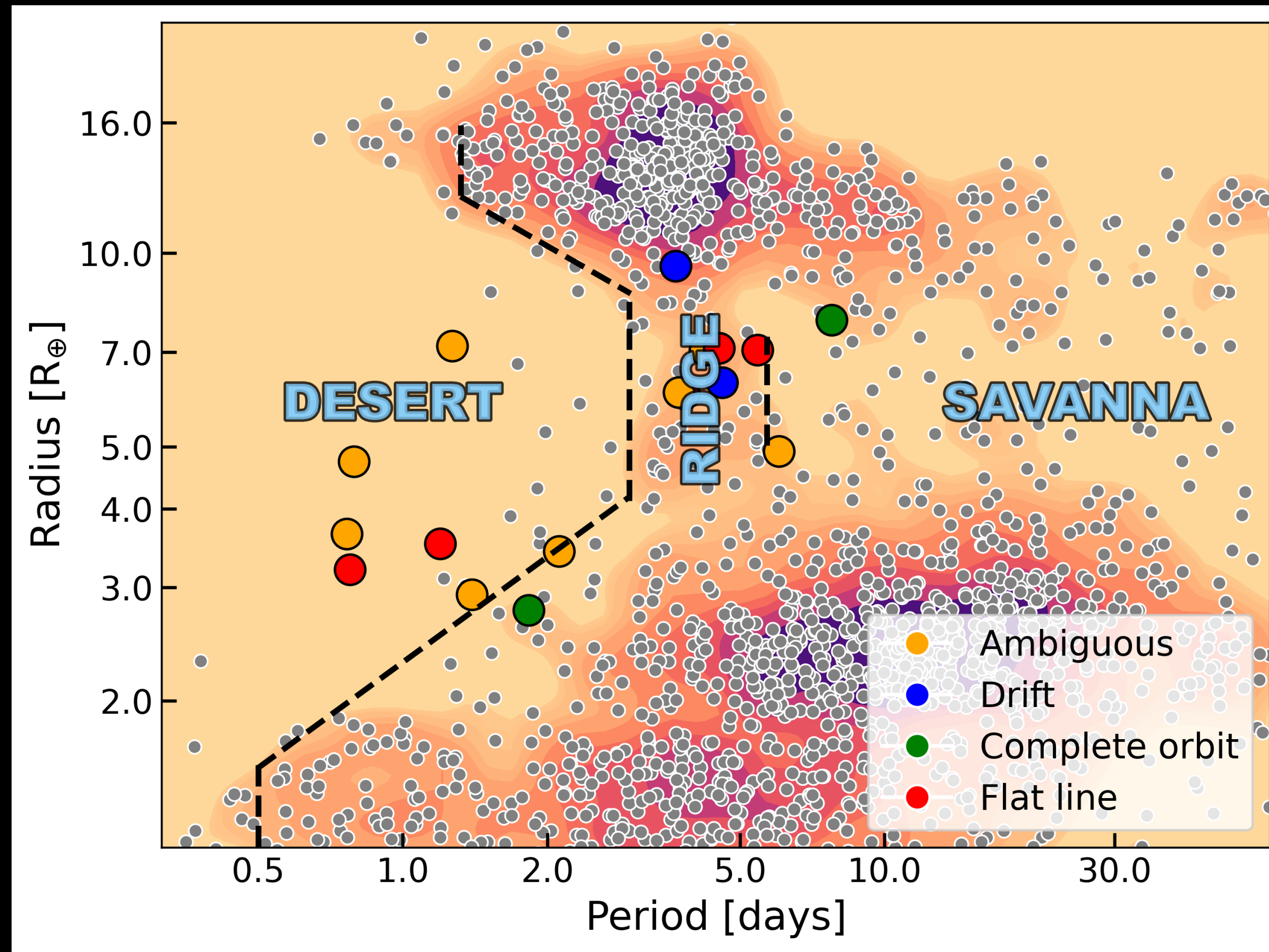
- PI: Nathan Hara, Vincent Bourrier, Léna Parc et al.
- 7 nights this semester
- 20 targets
- Goal to obtain ~ 15 meas per target per year during 10 years



The CORALIE 736 program: Neptunes



The CORALIE 736 program: Neptunes



Wong et al. (in prep)

Prospects



Take home messages

1. The search for external companions is essential to obtain a complete overview of a system's history, to be combined with the histories of architecture and atmosphere.
 2. Synergies with Gaia DR4: will be able to find massive planets at few years of periods but RVs are needed to scan intermediate periods and masses.
- > Also an expert in RV follow-up of transiting super-Earths and sub-Neptunes, and in demographic studies. Come and chat if you're interested :)