EPSC Abstracts
Vol. 15, EPSC2021-572, 2021
https://doi.org/10.5194/epsc2021-572
Europlanet Science Congress 2021

Twinkle: Update on the international, collaborative exoplanet survey

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The Twinkle Space Mission is a space-based observatory that has been conceived to measure the atmospheric composition of exoplanets, stars and solar system objects. Twinkle's collaborative multi-year global survey programmes will deliver visible and infrared spectroscopy of thousands of objects within and beyond our solar system, enabling participating scientists to produce world-leading research in planetary and exoplanetary science. Twinkle's growing group of international Founding Members have now started shaping the survey science programme within focused Science Teams and Working Groups and will soon be delivering their first papers.

Twinkle will have the capability to provide simultaneous broadband spectroscopic characterisation (0.5 - 4.5μm) of the atmospheres of several hundred bright exoplanets, covering a wide range of planetary types. It will also be capable of providing phase curves for hot, short-period planets around bright stars targets and of providing ultra-precise photometric light curves to accurately constrain orbital parameters, including ephemerides and TTVs/TDVs present in multi-planet systems.

I will present an overview of Twinkle's mission status and discuss some example exoplanet surveys to highlight the broad range of targets the mission could observe, demonstrating the scientific potential of the spacecraft. I will also report on the work of the Twinkle exoplanet Science Team, showcasing their science interests and the studies into Twinkle's capabilities that they have conducted since joining the mission.