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What is CHEOPS?

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Launched on 18 December 2019, CHEOPS (CHAracterising ExOPlanet Satellite) is the first exoplanet mission dedicated to the search for transits of exoplanets by means of ultrahigh precision photometry of bright stars already known to host planets. It is S-(small) class mission in ESA's Cosmic Vision 2015-2025, and a partnership between Switzerland and ESA, with important contributions from 10 other member states.

CHEOPS will provide the unique capability of determining accurate radii for a subset of planets in the super-Earth to Neptune mass range, for which masses have already been estimated from ground-based spectroscopic surveys. It will also provide precision radii for new planets discovered by ground- and space-based transit surveys, including TESS. By combining known masses with CHEOPS sizes, it will be possible to determine accurate densities for these smaller planets, providing key insight into their composition and internal structure. By identifying transiting exoplanets with high potential for in-depth characterisation – e.g. those that are potentially rocky and have thin atmospheres - CHEOPS will also provide prime targets for future instruments suited to the spectroscopic characterisation of exoplanetary atmospheres.

80 % of the observing time in the 3.5 year nominal mission lifetime on the satellite is dedicated to the Guaranteed Time Observing Programme defined by the CHEOPS Science Team. The remaining 20% is available to the Community through the ESA Guest Observers Programme, which comprises annual calls and a discretionary time component.

In this first poster in a series of three, we present an overview of the mission, including its capabilities and scientific performances.