

# ESA PLATO Mission: Data access and community involvement

A. M. Heras<sup>1</sup>, H. Rauer<sup>2</sup>, J. M. Mas-Hesse<sup>3</sup>, I. Pagano<sup>4</sup>, C. Aerts<sup>5</sup>, M. Deleuil<sup>6</sup>, L. Gizon<sup>7</sup>, M.J. Goupil<sup>8</sup>, H. Osborn<sup>9</sup>, G. Piotto<sup>10</sup>, D. Pollacco<sup>11</sup>, R. Ragazzoni<sup>10,12</sup>, G. Ramsay<sup>13</sup>, S. Udry<sup>14</sup>, and the PLATO Team\*

<sup>1</sup>ESA/ESTEC, <sup>2</sup>DLR, <sup>3</sup>Centro de Astrobiología (CSIC/INTA), <sup>4</sup>INAF-Osservatorio Astrofisico di Catania, <sup>5</sup>KU Leuven, <sup>6</sup>Laboratoire d'Astrophysique de Marseille, <sup>7</sup>Max-Planck-Institut für Sonnensystemforschung, <sup>8</sup>LESIA/Observatoire de Paris, <sup>9</sup>University of Bern, <sup>10</sup>Università degli Studi di Padova, <sup>11</sup>University of Warwick, <sup>12</sup>INAF, <sup>13</sup>Armagh Observatory and Planetarium, <sup>14</sup>Observatoire de Genève

\*<https://platomission.com>, <https://www.cosmos.esa.int/web/plato>

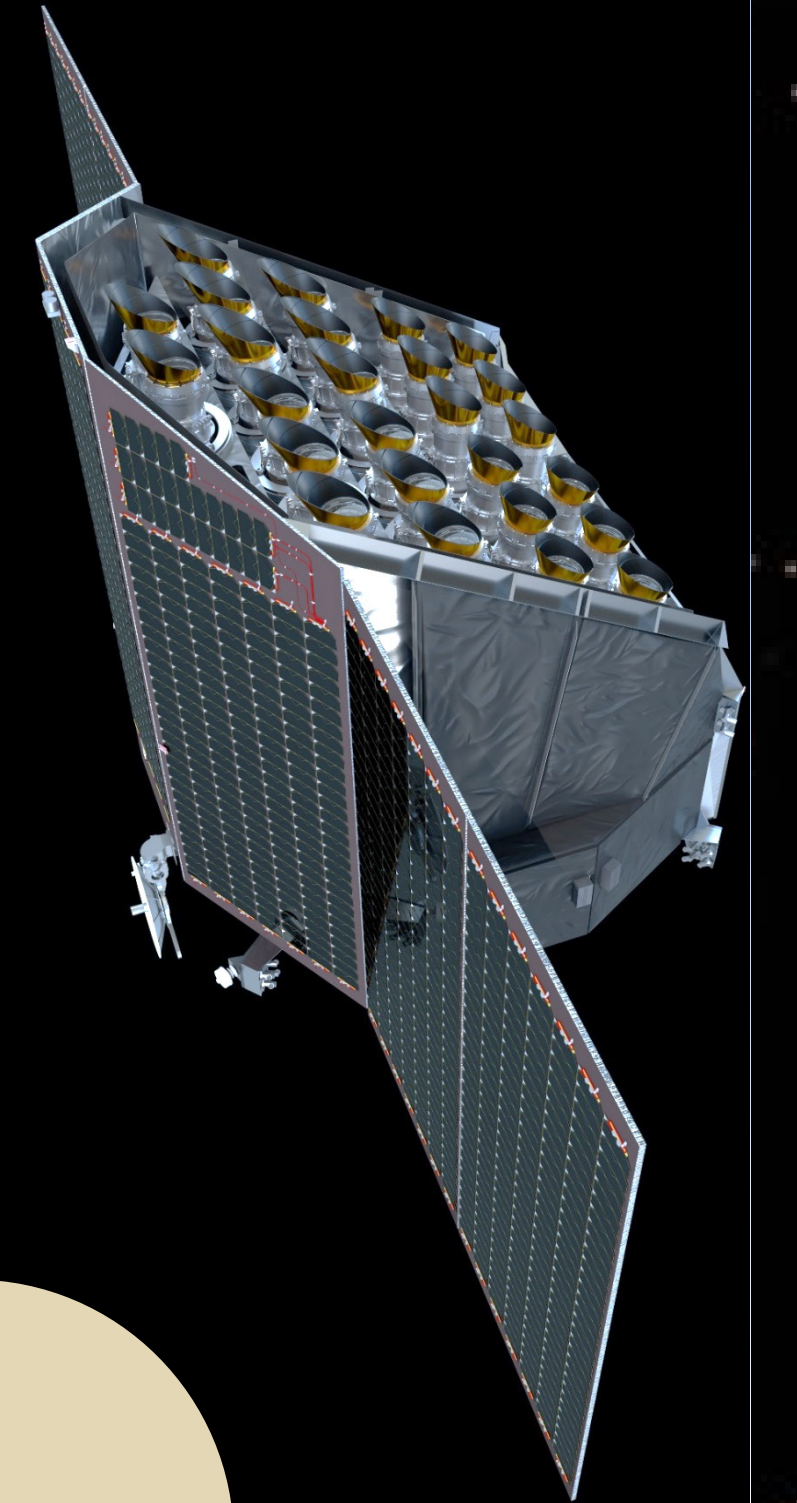


PLATO (PLAnetary Transits and Oscillations of stars) is the third medium class mission (M3) in ESA's Cosmic Vision programme. PLATO's main objective is the study of down to Earth-size planets orbiting up to the habitable-zone of Sun-like stars.

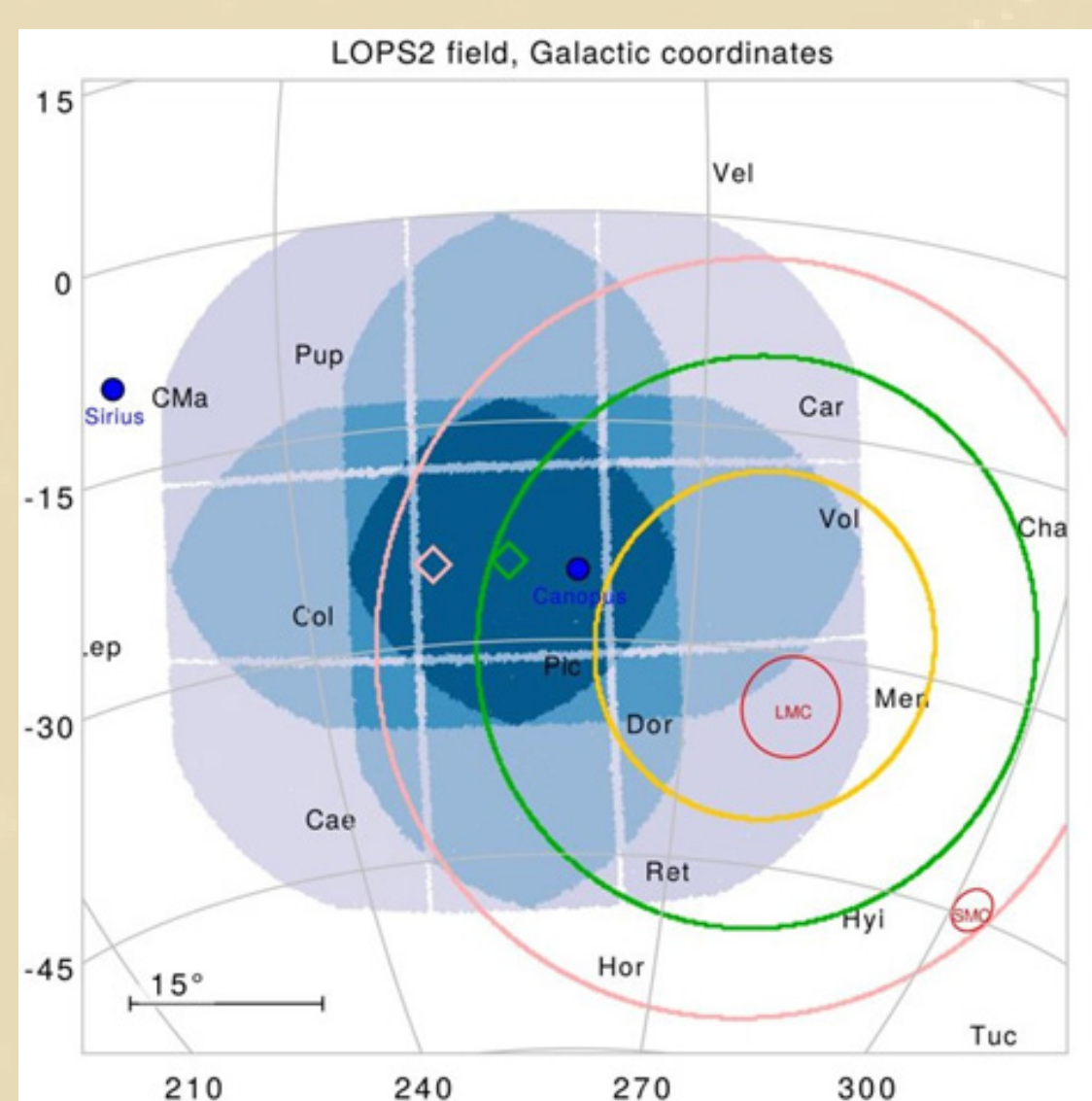
PLATO will use the transit method for the detection and characterisation of exoplanets, combined with the asteroseismic analysis of the planet host stars. PLATO's core observing sample will consist of bright Sun-like stars of  $m_V < 11$ , which will enable us to determine with unprecedented accuracy stellar ages and the bulk properties of small planets, including their masses from radial velocity measurements at ground-based observatories.

For statistical studies, PLATO will also monitor a large sample of Sun-like stars with  $m_V < 13$  and a sample of cool late-type dwarfs with  $m_V < 16$ , along with a small sample of bright stars distributed over the HR diagram observed in two colour bands.

The launch of PLATO is planned for end 2026. The nominal duration of the mission is 4.25 years, with consumables available for 8.5 years.



## FIRST PLATO LONG POINTING FIELD "LOPS2" (> 2 years)



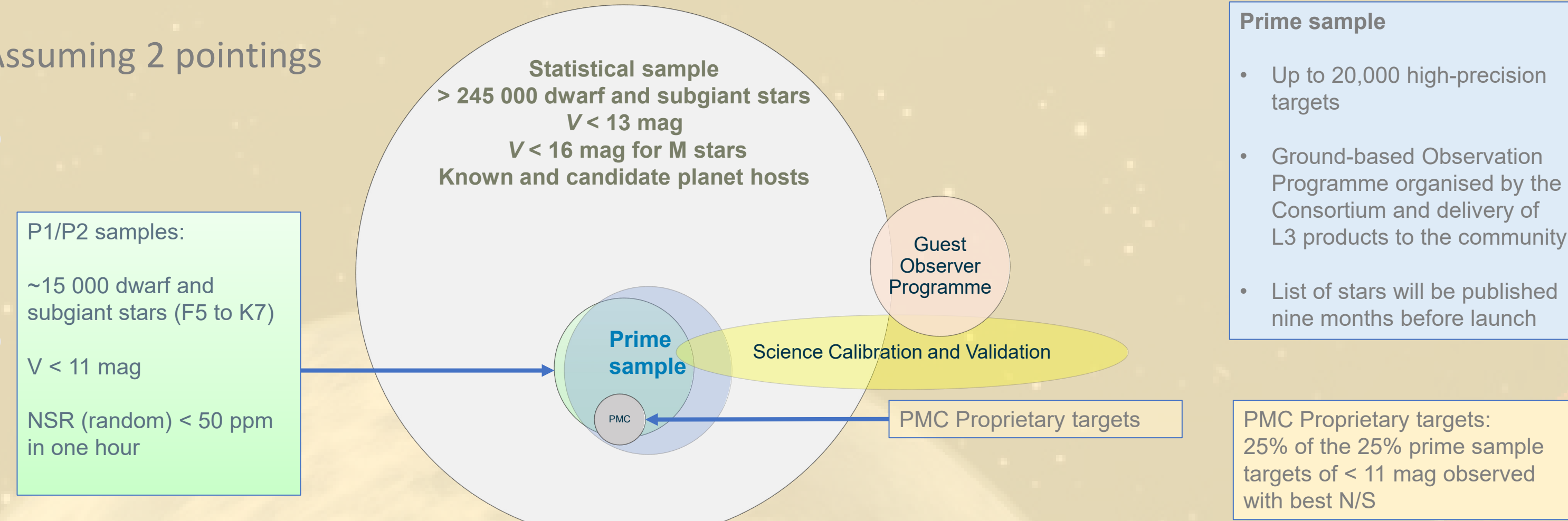
- The four blue shades, from dark to light, map regions observed with 24, 18, 12, 6 cameras (corresponding to four, three, two, and one group(s) of six co-pointing telescopes each, respectively).
- The pink circle marks the contour of the  $|\beta| > 63^\circ$  technical requirement for the centre of the LOP fields ("allowed region").
- The green circle represents the  $|\beta| > 70^\circ$  condition for the centres of fields that are independent on the initial rotation angle of the spacecraft.
- The yellow circle represents the TESS continuous viewing zone, with the Large Magellanic Cloud indicated in red.

## STELLAR SAMPLES REQUIREMENTS (for two long duration pointings)

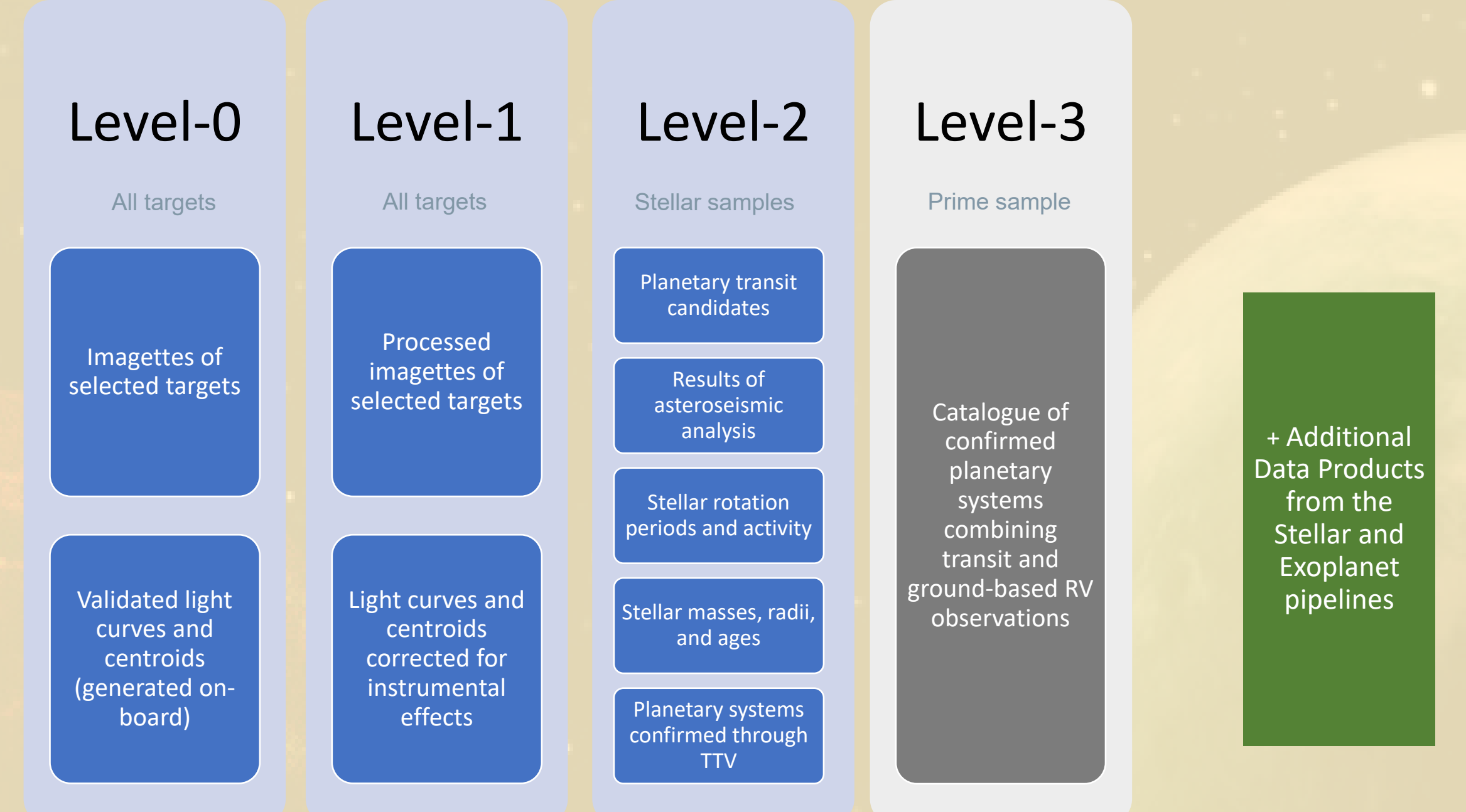
	Core sample		Statistical sample		Colour sample
	Sample 1	Sample 2	Sample 4	Sample 5	
Stars	$\geq 15,000$ (goal 20000)	$\geq 1,000$	$\geq 5,000$	$\geq 245,000$	300
Spectral type	Dwarf and subgiants F5-K7	Dwarf and subgiants F5-K7	Cool late type dwarfs	Dwarf and subgiants F5-K	Anywhere in the HR diagram
Limit $m_V$	11	8.5	16	13	-
Random noise (ppm in 1 hour)	$\leq 50$	$\leq 50$	-	-	-
Observation sampling times	Imagettes	25 s 2.5 s for a subsample	25 s for $> 5,000$ targets	25 s for $> 9,000$ targets	2.5 s
	Light-curves	-	-	-	$\leq 600$ s
	Centroid measurements	-	-	-	$\leq 50$ s for 5% of targets
	Transit oversampling	-	-	-	$\leq 50$ s for 10% of targets
Wavelength	500-1000 nm				Red and blue spectral bands

## STELLAR SAMPLES AND OTHER PLATO TARGETS

Assuming 2 pointings



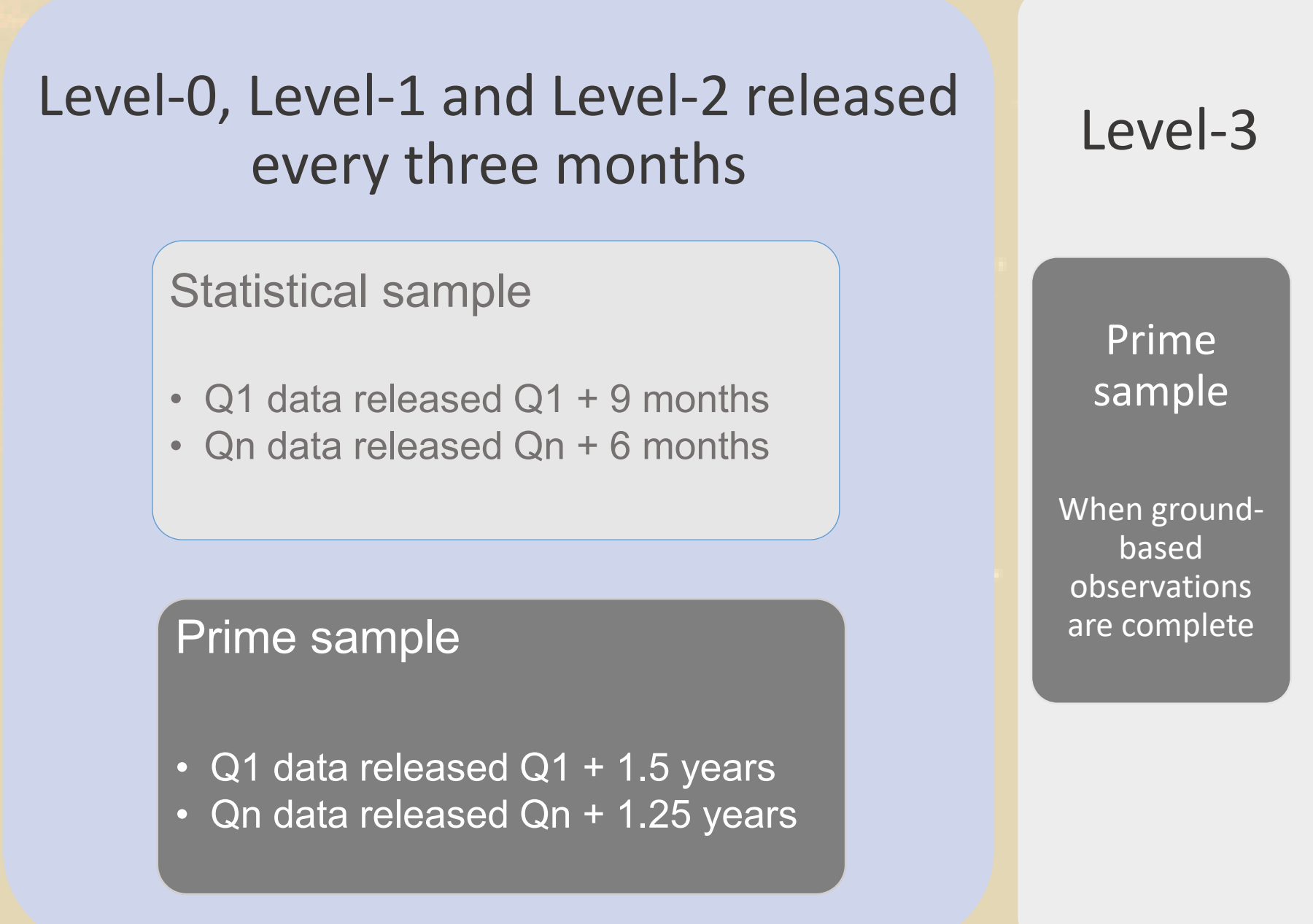
## DATA PRODUCTS



## GUEST OBSERVER PROGRAMME

- ESA will issue calls for proposals for complementary science programmes, focused on topics not covered by the PLATO core science objectives (as described in the Science Management Plan)
- The first call will be issued **nine months before launch**. More open calls will be issued during the mission (once per year, TBC)
- Proposals can include PIC targets but not Prime Sample targets
- Allocated time: Over the mission lifetime, **an average of 8% of the science data rate** (excluding calibration data)
- Proposals on **targets of opportunity possible**, but they will be executed on a best effort basis
- Proprietary period:** One year, starting at the time of the delivery to the observer of the last portion of the relative Level-1 data

## DATA RELEASES



## PLATO MISSION CONSORTIUM (PMC) – HOW TO JOIN

PLATO is a joint development by ESA and the PMC.

PMC contributions:

- Science Payload
- Ground segment:
  - [PLATO Science Management \(including the GOP\) – How to join](#)
  - PLATO Data Center
  - Calibration & Operation
  - Science Performance Monitoring



## GROUND-BASED OBSERVATIONS PROGRAMME (GOP)

- The GOP Team organises and executes the ground-based follow-up of the planet candidates of the Prime sample as specified in the Science Management Plan.
- The GOP Team will also organise the follow-up of other planetary candidates in the framework of the PLATO Mission Consortium science activities
- [More information on tasks and work packages:](#)

