

The CHEOPS Discretionary Programme

Policies and Procedures CHEOPS-EST-SCI-TN-006

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1 PURPOSE

The CHaracterising ExOPlanets Satellite (CHEOPS) is the first mission dedicated to the search for exoplanetary transits through high precision photometry of individual, bright stars already known to host planets. It is a follow-up mission, which will provide the unique capability of determining accurate radii for a subset of those planets for which the mass has already been estimated from ground-based spectroscopic surveys. It will also provide precise radii for new planets (Neptune-size and smaller) discovered by the next generation of ground- or space-based transits surveys. By unveiling transiting exoplanets with high potential for in-depth characterisation, CHEOPS will also provide prime targets

for future instruments suited to the spectroscopic characterisation of exoplanetary atmospheres.

80% of the science time on CHEOPS is dedicated to an observing programme defined by the CHEOPS Science Team (CST) and referred to as the Guaranteed Time Observing (GTO) Programme or Core Observing Programme. The remaining 20% is available to the astronomical community through a Guest Observers (GO) Programme run by ESA that is open to the science community as a whole. The GO Programme is broken into two parts: annual calls for proposals to which 15% of the science time per year on CHEOPS will be dedicated and a second - so-called Discretionary Programme (DP) - to which 5% of the CHEOPS science time per year will be dedicated, with proposal submission possible at any time.

This document informs potential users of CHEOPS of the policies and procedures to be followed for the two-step submission process for proposals requesting observing time through the CHEOPS Discretionary Programme.

The document is organised as follows:

- Section 2 provides a very brief introduction to CHEOPS, with an overview of the different categories of observing time given in section 3;
- Constraints specific to the discretionary programme are given in section 4;
- An overview of the proposal preparation and submission process is given in section 5. This includes a table/description of the tools and documentation that are available to aid the observer in their preparatory work, as well as a detailed description of the content required for the different elements of the Phase 1 proposal;
- Detailed descriptions of the proposal submission and proposal evaluation/selection procedures are given in sections 6 and 7 respectively;
- Section 8 provides a short description of the Phase II data entry required from PIs of proposals awarded CHEOPS observing time;
- Section 9 contains information on CHEOPS data products and proprietary periods;
- Section 10 contains details of the persistence of proposals awarded observing time in the first year of the DP;
- Section 11 provides an overview of how personal and intellectual data that is submitted in CHEOPS observing proposals will be used within the CHEOPS mission.
- A list of useful documents and weblinks is provided as an appendix.

Prospective proposers are advised to read all sections of this document very carefully. Attention is drawn to section 5 where the required contents of individual elements of a proposal are detailed. Any updates will be posted on the webpage for the DP at: <https://www.cosmos.esa.int/web/cheops-guest-observers-programme/discretionary-programme> which should be checked regularly.

Access to the tool to be used for proposal submission – the Phase I Proposal Handling Tool (PHT1) - requires user credentials on the ESA Cosmos system, as will access to the

scheduling feasibility checker software which is needed to check the visibility of a given target with CHEOPS. Details on how to request credentials are provided in section 6.

Prospective proposers are reminded that the team supporting the Guest Observers is very small – in-line with the small-class mission status of CHEOPS – and whilst every effort will be made to respond quickly to questions raised in the framework of proposal submission, it may still take a bit of time.

1.1 Acronyms

AO /AO-1/AO-2	Announcement of Opportunity/first AO/second AO
BJD	Barycentric Julian Date
CHEOPS	CHaracterising ExOPlanet Satellite
CST	CHEOPS Science Team
(C)TAC	(CHEOPS) Time Allocation Committee
CMC	CHEOPS Mission Consortium
DP/DT	Discretionary Programme/Discretionary Time
ETC	Exposure Time Calculator
GO	Guest Observers
GTO	Guaranteed Time Observers
IOC(R)	In-Orbit Commissioning (Review)
ICRS	International Celestial Reference System
MOC	Mission Operations Centre
MJD	Modified Julian Date
OR(s)	Observation Request(s)
PHT1	Phase I Proposal Handling Tool
PHT2	Phase II Proposal Handling Tool
PI	Principal Investigator
PS	Project Scientist
RTL	Reserved Target List
SOC	Science Operations Centre (University of Geneva)
UTC	Coordinated Universal Time

2 INTRODUCTION TO CHEOPS

CHEOPS was launched from ESA’s spaceport in Kourou on 18 December 2019 as a co-passenger on a Soyuz rocket, with the early orbit phase culminating on 22 December 2019. In-orbit commissioning (IOC) started on 7 January 2020, and concluded with a successful IOC Review held on 25 March 2020. On this date responsibility for CHEOPS operations was handed over from ESA to the CHEOPS Mission Consortium led by the University of Bern, Switzerland. This date also marked the start of the 3.5 year nominal mission lifetime, and the start of Year 1 of CHEOPS observing. Routine science operations began a few weeks after on 18 April 2020.

The CHEOPS payload consists of a single instrument - a space telescope with a primary mirror with an effective diameter of 30 cm, which feeds a single CCD focal plane detector covering 330 – 1100 nm with a field of view of 0.32 deg². The payload design and operation has been optimised for ultra-high photometric stability and to achieve a photometric precision of, or better than, 20 parts per million (ppm) on the light curve of a $V_{\text{mag}} = 9$ G dwarf star ($T_{\text{eff}} = 5500$ K) in 6 hours, and 85 ppm or better on the light curve of a fainter $V_{\text{mag}} = 12$ K dwarf star ($T_{\text{eff}} = 4500$ K) in 3 hours. In both cases, these levels of precision are called for over periods of 48 hours and thus, together with high-cadence (from one image every c. 23 s to 1 image every ~60 s) sampling, CHEOPS offers the capability to measure high-precision, high-cadence, broad-band light curves covering the visible-near infrared waveband.

Photometric precisions of better than 15 ppm in 6 hours were measured in observations taken during IOC of HD 88111, a $V_{\text{mag}}=9.18$ ($T_{\text{eff}}=5330$ K) star, and 75 ppm in 3 hours in the case of observations of TYC 5502-1037-1, a $V_{\text{mag}}=11.92$ ($T_{\text{eff}}=4750$ K) star. In both cases, these precisions were maintained over periods of almost 48 hrs. These observations confirm that the photometric precision requirements of CHEOPS are met. Further details on the IOC performances can be found in a presentation that is available [at this link](#).

3 OBSERVING TIME

3.1 Top-sliced time

An estimated 10% of the total time in a year is top-sliced for two activities: (a) spacecraft- and instrument-related activities, such as satellite/instrument software maintenance and patching, satellite safe mode and recovery, and anomaly investigation; and (b) a dedicated monitoring and characterisation programme that has been designed by the CST to establish the scientific performance and characteristics of the payload, and to monitor their evolution over the course of the mission lifetime. The time remaining in the mission lifetime is referred to as nominal science observing time.

Note in the case that the top-sliced time used is either less than or more than 10% of a CHEOPS year, it will be either reassigned to or taken from the nominal science observing time according to the percentage split detailed in the introduction.

An overview of the monitoring and characterisation programme can be found in the CHEOPS Observers Manual which is available from the Documentation section of the AO webpage <https://cosmos.esa.int/web/cheops-guest-observers-programme/ao-1>

3.2 Guaranteed Time to the CHEOPS Science Team

The majority (80%) of the nominal science observing time on CHEOPS is dedicated to observations that are defined by the CST, and that are collectively referred to as Guaranteed Time Observing (GTO) and/or the Core Observing Programme. The GTO programme covers six broad scientific themes in Exoplanet science:

- Finding transits of known exoplanets;
- Improving radii of known transiting exoplanets;
- Exploring systems in search for new exoplanets;

- Characterising exoplanet atmospheres;
- Uncovering new exoplanetary features;
- Stellar and planetary science relevant to the analysis and interpretation of exoplanet data.

A description of the GTO programme can be found at the following link:

<https://www.cosmos.esa.int/web/cheops-guest-observers-programme/guaranteed-time-observing-programme>

Each theme is broken down into a number of individual, focused science programmes which, together with their associated target lists, will evolve over the course of the mission. The targets associated with the programmes are reserved, and cannot be proposed or observed by Guest Observers. Targets are added to the on-line Reserved Target List (RTL) which can be checked at the following link:

<https://cheops.unige.ch/pht2/search-reserved-targets/>

Note once observation requests (see Table 1) have been completed, i.e. their associated targets are no longer requested to be scheduled further with CHEOPS, then these targets are released from the RTL and become available for new proposals.

3.3 Guest Observers Time

20% of the nominal science observing time is available to the general science community, through the ESA-run GO Programme, to conduct investigations of their choice. The programme is administered by ESA, using tools and an Observers manual provided by the CHEOPS Mission Consortium (CMC). Proposals are solicited through a combination of AOs foreseen to come out annually and the Discretionary Programme. The first annual call (AO-1) for observations in the first year of CHEOPS operations came out in March 2019, with details available at <https://cosmos.esa.int/web/cheops-guest-observers-programme/ao-1>.

25% of the time allocated to the GO programme (5% of the total CHEOPS nominal science observing time) is foreseen to be allocated via the Discretionary Programme/Discretionary Time (DP/DT). This translates to a total of ~394 hours, or approximately 237 orbits in the first year of CHEOPS operations. Due to the large number of time-critical observations in the CHEOPS schedule, more time (no more than around 20%) than is physically available will be allocated to DP programme to enable efficient scheduling. Successful proposals will be assigned a priority of 1 (highest) or 2 which is used by the tool to generate the observing schedule. The schedule is optimised weekly over the timescales that match the typical period for which a target is visible with CHEOPS (c. 4 months) by means of a genetic algorithm and its associated merit function which promotes high priority observations, timely completion of observing programmes and a high observing efficiency/filling factor. A 1-year plan is also periodically produced, using the same tool and optimisation process, to get an overview of the long term planning and insight into programme completion.

Targets in all GO programme proposals are included in the on-line reserved target list and may not be proposed for or observed by others until their respective observation requests have been completed.

4 CONSTRAINTS ON PROPOSALS FOR THE DISCRETIONARY PROGRAMME

The DP is open to the worldwide scientific community. Proposals can be submitted at any time. To qualify for the DP, a proposal must meet the following criteria:

- Contain a single target of high scientific interest.
- Demonstrate that the target has been discovered (published) or be able to explain why it has become a target of high scientific interest, since the time of the close of the most recent call (16 May 2019),
- Contain a target that is observable by the date foreseen for the end of the AO cycle 2 (24 March 2022), and that is not in the on-line Reserved Target List*

Both time-critical and non-time critical observations may be requested.

The time requested should be no less than 1 orbit, with a guide line of a maximum of 20 orbits. More orbits may be requested, however it is important to remember that a total of 237 orbits is available per CHEOPS year through the Discretionary Programme, and requests for a significant fraction of this total will require a correspondingly strong justification.

Failure to meet any of the above criteria will result in the automatic rejection of the proposal on formal grounds.

*To give scientists from the community some time to write and submit a proposal to observe newly discovered targets, it has been agreed that a target can be claimed by a DP proposal if it can be shown that the DP proposal was submitted within 24 hours of the target being added to the Reserved Target List by the CHEOPS Mission Consortium.

By default, the proprietary period for data taken as part of the DP is that given of any science observation of CHEOPS and as given in section 9. It may, however, be reduced at the discretion of the CHEOPS Project Scientist, for example in the case that multiple proposals are received for the same target within a 24-hour period.

5 PHASE I PROPOSAL PREPARATION

In Phase I, observers are required to provide inputs that enable both a scientific and technical evaluation of the proposed observations to be made. All material submitted must be written in English. A minimum font size of 10 pt must be used, with an A4 portrait paper format and 1.5 line spacing. Page limits for the individual sections are given below. All documents need to be submitted to the proposal handling tool (PHT1) in the form of pdfs, where individual files may not exceed 50 MB. Please note that non-compliance with instructions noted in this section and associated subsections will result in rejection of the proposal on formal grounds.

More detailed information on the proposed observations will be requested from the PIs of proposals awarded time through the Phase II tool (PHT2) (see section 8).

5.1 Tools and aids for proposal preparation

A number of tools and documentation have been developed by the CMC to aid the CST with their preparations for observing with CHEOPS. These are made available to the Community to facilitate their preparation of proposals. A summary of these is given in Table 1. Further details on each are given in the pre-launch issue of the CHEOPS Observers Manual. It should be noted that this is in the process of being updated to reflect performances determined during IOC. Details of all pre-launch tools and their associated manuals and instructions can be found via links on the AO-1 webpage

<https://www.cosmos.esa.int/web/cheops-guest-observers-programme/ao-1>

Tool/Aid	Description
CHEOPS Observers Manual	<p>The manual provides the point of reference for all aspects of the mission. It includes a comprehensive overview of CHEOPS, a detailed description of the instrument and operations, and CHEOPS data (including examples of simulated data). The manual is available as a pdf file.</p> <p>The manual currently available is from pre-launch, however still provides an excellent overview of CHEOPS and its capabilities.</p> <p>Performances determined during IOC are summarised in a presentation detailed below (last table entry) – these replace performances given in the manual.</p>
Reserved Target List Query Tool	<p>The tool provides a check of whether a target is already on the reserved target list i.e. part of an existing GTO programme or GO programme. It can be found at: https://cheops.unige.ch/pht2/search-reserved-targets/</p> <p>SIMBAD is used to retrieve/resolve the coordinates of names targets. You are advised to check whether a target is on the reserved target list by using the target coordinates, not the target name, as not all targets (eg. TESS objects of interest) are in SIMBAD. A check should also be made of the CHEOPS mission archive to ensure that observations of the proposed target have not already been made.</p>

	<p>Screen capture shall be used as evidence that a check has been made, and needs to be converted to a pdf and to be included in the proposal submission.</p>
<p>Scheduling Feasibility Checker</p>	<p>The tool is used to check whether and when a target is visible to CHEOPS, and to help assess the impact that interruptions due to passage through the South Atlantic Anomaly and Earth Occultation have on target visibility and observing efficiency. It should be noted that the level of interruptions can differ from those that are actually achieved due to changes in orbital parameters, and so are indicative only.</p> <p>The tool requires the download and installation of a virtual machine platform, together with an image of the server/client interface. Instructions on how to install and use the tool are provided at: https://www.cosmos.esa.int/web/cheops-guest-observers-programme/scheduling-feasibility-checker</p> <p>The page detailing the password needed to download the image requires the user to be logged in to the Guest Observers Webpage and to be a member of the Guest Observers Group.</p> <p>Details of the periods of target visibility need to be included in the Technical Justification.</p>
<p>Exposure Time Calculator (ETC)</p>	<p>The tool is used to calculate the predicted photometric precision that can be achieved in a given integration time, and can be found at:</p> <p>https://cheops.unige.ch/pht2/exposure-time-calculator/</p> <p>The results of the ETC can be exported to pdf, and are required input to PHT1.</p> <p>As of June 2020, the tool is based in part on data from the on-ground calibration campaign (pre-launch) and in part from the results of IOC. A manual for the pre-launch ETC is available from this link – this, together with the tool itself need to be</p>

	considered in light of the notes/disclaimer given on the webpage of the ETC itself.
Phase II Proposal Handling Tool (PHT2)	PHT2 is used to generate and submit detailed observation requests, which is only required for <u>proposals that have been awarded time</u> . Details on the Phase II proposal preparation and submission process can be found at: https://www.cosmos.esa.int/web/cheops-guest-observers-programme/phase-2-proposal-submission
CHEOPS Data	A dedicated webpage at: https://www.cosmos.esa.int/web/cheops-guest-observers-programme/cheops-data provides users with details of a selection of CHEOPS data that is available. These include: <ol style="list-style-type: none"> 1. Simulated data from CHEOPSim, and end-to-end simulator of CHEOPS observations 2. Reference/calibration files that are used by the data reduction pipeline to calibrate/correct CHEOPS data 3. Data sets for four CHEOPS observations made during In-orbit Commissioning, including demonstrators of photometric performance, a target that is significantly brighter than the typical CHEOPS stars and a reference transit observation.
CHEOPS visibility maps	Monthly and annual visibility plots showing the sky accessible with CHEOPS. These are available in the CHEOPS Observers Manual in graphic form, as well as in electronic form/ascii data files via a link in the “useful data” section on the discretionary programme webpage.
Overview of CHEOPS performances measuring during IOC.	A short presentation prepared by the CHEOPS Mission Consortium summarising the key performances of CHEOPS – photometric precision, point spread function and noise performance overview – measured during IOC can be found at this link , as well as on the discretionary programme webpage.

Table 1: Summary of the tools, documents and information provided by the CMC to support the Scientific Community with preparing their proposals.

5.2 Required components of a Phase I proposal

There are three components to a Phase I CHEOPS observing proposal: the scientific justification and the technical justification and implementation which are detailed in the subsections below, and inputs to the on-line proposal submission tool (detailed in section 6).

5.2.1 *Scientific justification (max 4 pages)*

The justification shall include the following information:

- Description of the proposed programme (maximum 2 pages) excluding figures and tables (additional 1/2 page maximum), including:
 - a. Title of the proposal*
 - b. Name of PI and institute*
 - c. Science goals: questions to be addressed by the observations proposed, to include a clear description of how CHEOPS observations will advance the state of knowledge in the area covered by the proposal.
 - d. Why CHEOPS: to include a clear description and justification for the functionality and performances of CHEOPS that will enable the science goals of the programme to be achieved.
 - e. Clear statements that demonstrate that the target proposed meets all requirements for it to be considered for the discretionary programme CHEOPS (see section 4) must be included.
 - f. A concise description of the data reduction/analysis plan (maximum 1 page)
- A concise management plan (maximum 1/2 page), to include a short summary of:
 - a. Team background: List of co-Is (including Name, Institution, Country) together with a short description of the track records of the team.
 - b. Team roles: description of the tasks to successfully complete the science objectives, together with assignment of team roles and responsibilities.

The completed file needs to be uploaded into PHT1 in the form of a pdf no larger than 50 MB (strictly enforced). All items marked with an asterisk (*) should match and duplicate inputs requested by PHT1 itself.

Note that proposals exceeding the limits noted above will be rejected on formal grounds and will not be reviewed further.

5.2.2 *Technical Justification and Implementation*

The technical justification and implementation is made up of three individual components described below. The three individual files need to be uploaded into the PHT1 tool in the form of pdf, each with a size no larger than 50 MB (files larger than this will be rejected by the tool). All items marked with an asterisk (*) should match and duplicate inputs requested by the PHT1.

5.2.2.1 Technical Justification and Implementation Case (maximum 1 page excluding target details)

To include:

- PI name (for identification) and title of proposal*.
- Observing strategy: to include overall strategy, as well as criteria used for the target selection.
- The target name*, coordinates (J2000, ICRS) in decimal degrees*, GAIA G band magnitude*, spectral type (where applicable), no: orbits per visit*, number of visits per target*, total observing time requested.
- Time request: Total time requested (in orbits), together with a full calculation demonstrating the need for the time requested. This should include an evaluation of sensitivity needed to achieve the science objectives of the proposal, as well as a demonstration through use of the ETC that this can be met. Within the time requested. Time requests should allow for time lost due to interruptions (see ETC documentation), but not for slewing.
- Any special requirements/constraints (justified): e.g. observing efficiency, the criticality of start and stop times of observation requests.

A short statement that the Scheduling Feasibility Checker has been used to check the feasibility of each proposed target is also required. Date on which/intervals for which the target can be observed with the required efficiency should be given - where numerous eg. observations of the transit of a very short period exoplanet, a selection will be sufficient.

5.2.2.2 Time Estimate

The on-line ETC calculator has the option to produce a pdf of the webpage, which includes both input parameters and output observing times for a single target. This needs to be uploaded to PHTI.

5.2.2.3 Target Duplication Checks

The proposer is required to check and confirm that the target is not already reserved and so on the RTL or has not already been observed:

- The former check is done by using the Reserved Target List Query Tool (see Table 1 in section 4). SIMBAD is used to retrieve/resolve the coordinates of names targets. You are advised to check whether a target is on the reserved target list by using the target coordinates, not the target name, as not all targets (eg. TESS objects of interest) are in SIMBAD.
- The latter is done by checking the CHEOPS mission archive at: https://cheops-archive.astro.unige.ch/archive_browser. Note that the archive target query is case-sensitive, as well as being sensitive to blank/spaces, and so you are advised to query the archive both using the target name and the target coordinates.

A pdf of the screen shot of the checks needs to be uploaded as part of the proposal.

It has been agreed with the CST that a target can be claimed by a DP proposal if it can be shown that the DP proposal was submitted within 24 hours of the target being added to the RTL by the CST.

6 PROPOSAL SUBMISSION PROCEDURE

Phase I proposals must be submitted to ESA using the Phase I Proposal Handling Tool (PHT1) at: <https://cosmos.esa.int/web/cheops-guest-observers-programme/pht1-dp>. This is the only way in which CHEOPS proposals can be submitted. The tool is self-explanatory, with concise on-line help available by hovering over the requested inputs.

The tool calls for a combination of on-line input and the upload of pdf files: the detailed content and format of the uploaded files must be in line with the guidelines provided the previous section, which will be strictly enforced.

Access to PHT1 requires user credentials on the ESA Cosmos system, together with registration to the CHEOPS Guest Observers Programme group. Users can check at <https://www.cosmos.esa.int/web/cheops-guest-observers-programme/register> to see whether they already have an ESA Cosmos account, also whether they are already members of the CHEOPS Guest Observers Programme group. Details of how to apply for credentials/to register are provided at the same URL in case not.

The following mandatory information needs to be entered for each Phase 1 proposal:

- Principle Investigator contact details;
- Equivalent details of an additional contact (this person will also be able to consult PHT2 inputs and have access to observational data taken for the proposal in the CHEOPS mission archive during the proprietary period) ;
- Title (maximum of 200 characters);
- Abstract (maximum of 1500 characters);
- Classification of proposal science (Exoplanet Science, Stellar Science, Other);
- Scientific justification (pdf file) – see section 5.2.1;
- Technical justification and implementation (pdf file) – see section 5.2.2.1;
- A pdf with the output of the ETC tool for the target -- see section 5.2.2.2;
- A pdf with a screenshot providing confirmation that the target is not on the reserved target list – see section 5.2.2.3;
- Target name, RA (J2000, ICRS) and Dec (J2000, ICRS) in decimal format, GAIA magnitude, (tick-box) confirmation that the target is not on the RTL, whether an observation is time-critical or non-time-critical, the number of CHEOPS orbits requested per target visit and the total number of visits.

The requested observing time needs to be provided in units of orbits and visits, and shall include time for interruptions due to passage through the South Atlantic Anomaly and Earth occultation. A minimum of one orbit per visit is required. The time to slew to, to point and to acquire targets does not need to be included in the time request.

Additional information - including orbital period, transit duration and mid-transit time – is requested for time-critical observations (relevant in particular to exoplanet observations) to facilitate the technical evaluation of proposals, however is not mandatory (in which case the input NA can be provided).

An email will be sent to the PI to acknowledge proposal submission. This contains the number of your proposal. Proposal submission is final, with no possibility of editing. If changes are needed, then the proposal should be deleted and resubmitted.

7 PROPOSAL EVALUATION AND SELECTION

Phase I proposals will be evaluated by the CHEOPS Project Scientist in consultation with the Chair of the Time Allocation Committee¹ and the CHEOPS Mission Principal Investigator. Where possible, a rotating member of the TAC will be included in the consultation process.

The following points, in addition to those noted in section 4, will be considered as part of the review:

- Scientific excellence and timeliness of the proposal, overall feasibility and technical merit;
- Justification and correct determination of the observing time requested;
- Confirmation that the target is not already on the Reserved Target List.

It is expected that the turnaround time for proposal evaluation will be short, where possible within a few days. PIs will be informed of the results of the proposal evaluation process by e-mail. Successful proposals, including the title of the proposal (and target) and the time awarded, will be made available at <https://www.cosmos.esa.int/web/cheops-guest-observers-programme/dp-approved>

All targets will be added to the RTL.

8 PHASE II DATA ENTRY

PIs of accepted proposals will be required to follow Phase II of the proposal preparation. The purpose of Phase II is to provide the detailed information required to schedule observations, in the form of observation requests (ORs). Target information (including coordinates) together with the time awarded for each target will be sent by ESA to the SOC, based on the inputs given to PHT1 and the time awarded. This will be used to pre-populate the ORs, and will not be changeable by the observer. Access to the tool will require user credentials, which will be provided by the SOC to the proposal PI and the additional contact.

An overview of how to use PHT2 is available in section 1.4 of the CHEOPS Observers manual and has been extracted and made available at <https://www.cosmos.esa.int/web/cheops-guest-observers-programme/phase-2-proposal-submission>

¹ The CHEOPS Time Allocation Committee (CTAC) together with the CTAC chair are independent scientists appointed by ESA, in consultation with the CHEOPS PI. Their primary role is to evaluate proposals submitted to the annual calls for proposals for CHEOPS, and to make a recommendation to the ESA Director of Science for the award of CHEOPS observing time following the call.

Once submitted, the ORs will be reviewed by the SOC and then added to those from all other Guest Observers Programmes and from the GTO programme as input to the mission planning tool used to generate the weekly activity plans (observing schedules).

Observers are reminded that whilst every attempt will be made to schedule observations of proposals that have been awarded time, for operational reasons there is no guarantee that this will be possible.

9 DATA PRODUCTS AND PROPRIETARY RIGHTS

CHEOPS has the following level data products:

Level-0	Received at the SOC from the Mission Operations Centre. Includes science data, as well as housekeeping and auxiliary data. The data format is either telemetry packets (as downlinked from the spacecraft) or XML or plain ascii files as produced by the MOC;
Level-0.5	Output of the preprocessing step at SOC. All data are time-tagged with UTC and MJD. Telemetry, science and housekeeping data are converted into FITS files at the level of visits and passes, and housekeeping data are converted into physical values;
Level-1	Calibrated and corrected science images (full-array images as well as sub-array images) as produced by the Data Reduction Pipeline. Engineering meta-data are associated to the science data. Data are time tagged with UTC, MJD and BJD.
Level-2	Photometric time series (light curves) and associated meta-data resulting from processing of the Level-1 images.

All data products are ingested into the CHEOPS mission archive, together with an automatically generated report detailing the steps of and results from data processing that is produced by the data reduction pipeline. The CHEOPS mission archive can be found at: https://cheops-archive.astro.unige.ch/archive_browser/

Details of examples of CHEOPS observations and data products can be found on the CHEOPS data page: <https://www.cosmos.esa.int/web/cheops-guest-observers-programme/cheops-data>

Data from all GTO programmes and GO observations granted time through AOs will be subject to an initial proprietary period of 1 year. The proprietary period will be set at the level of observation requests: it will begin after the last visit of a given observation request has been made and declared complete following quality checks of the data at SOC. The proprietary period will not exceed a period of 1.5 years that starts from the time of successful

completion of the first visit of the observation request. During the proprietary period only the PI of the proposal associated with the observation request, together with the additional contact detailed in the Phase 1 proposal, will be able to access the data and associated reports.

The default discretionary proprietary period for observations made in the DP is as per that described above, however this may be reduced at the discretion of the Project Scientist.

10 PERSISTENCE OF TARGETS AWARDED TIME IN THE DISCRETIONARY PROGRAMME

Observation requests for discretionary proposals that have been started, but not completed by the end of the AO cycle in which they were awarded time target will remain on the RTL until the end of the mission.

Targets from proposals that are awarded time through the DP but for which no observations have been done will remain on the RTL until the end of the AO cycle in which they were awarded time. An email will be sent by ESA to DP PIs 6 weeks before an AO, asking for confirmation by the latest 2 weeks before the upcoming call that the observations are still considered relevant and that a proposal will be submitted to the upcoming call. Where no confirmation is received, the relevant target(s) will be removed from the RTL, and can be proposed for observation by other observers; in the case of confirmation, targets will remain on the RTL until shortly after the AO for the next cycle closes. Any resubmitted proposal loses its DP status and becomes a standard proposal submitted to an annual call for assessment alongside all other proposals submitted for the relevant call. Whether observing time is awarded to the resubmitted proposal will depend on the deliberations of the TAC. If no time is awarded, the target will be dropped from the RTL.

11 HOW DATA SUBMITTED IN CHEOPS OBSERVING PROPOSALS WILL BE USED?

11.1 Personal data

All submitted proposals (which include names, any email addresses and institutions of all co-Is) will be kept in databases at ESA and on the computer of the CHEOPS project scientist and on the computers of persons working at ESA authorised by the ESA CHEOPS project scientist. Proposals will also be distributed to the Chair and members of the CHEOPS Time Allocation Committee as part of the proposal evaluation process.

For operational purposes, the name of the PI, their email address, institute and ESA Cosmos ID, together with those of the co-I (designated in the Phase I Proposal Handling Tool to be able to edit observing requests and access the archive), will be kept at ESA and will also be kept by the CHEOPS Science Operations Centre based at Geneva Observatory, in the University of Geneva. The name and email address of the PI will be included in files that are used by the SOC in the mission planning system to schedule CHEOPS observations. Files used by the mission planning system may also be shared with the company that developed the planning system solely for test and development purposes. The PI's name will be

included in the FITs header of all CHEOPS data files which will be publicly available through the CHEOPS mission archive at Geneva Observatory after the proprietary period has expired. The PI's email address will be used by SOC to inform them that observations have been scheduled, and that data taken has been successfully processed and is in the CHEOPS mission archive. The PI's email address will be used by ESA/the CHEOPS Project Scientist to keep the PI up-to-date on CHEOPS, to interact with their programme.

11.2 Scientific/intellectual data

Both the proposal submission and evaluation process, and execution of operational activities have been devised to minimise the exchange of information between the GO Programme and the CHEOPS Mission Consortium. All parties in the Consortium and at ESA that do handle information relating to the GO programmes are subject to confidentiality agreements.

USEFUL REFERENCES/WEBLINKS

- Webpage for the CHEOPS mission:
<https://cosmos.esa.int/web/cheops>
- Webpage for the CHEOPS Guest Observers Programme:
<https://cosmos.esa.int/web/cheops-guest-observers-programme>
- Webpage for the CHEOPS Discretionary Programme:
<https://cosmos.esa.int/web/cheops-guest-observers-programme/discretionary-programme>
- Webpage for CHEOPS data:
<https://www.cosmos.esa.int/web/cheops-guest-observers-programme/cheops-data>
- Webpage for the Phase I proposal handling tool (PHT1):
<https://www.cosmos.esa.int/web/cheops-guest-observers-programme/pht1-dp>
- Webpage for AO-1, the first annual call in the CHEOPS Guest Observers Programme: <https://www.cosmos.esa.int/web/cheops-guest-observers-programme/ao-1>
- Webpage listing approved proposals from AO-1:
<https://www.cosmos.esa.int/web/cheops-guest-observers-programme/ao-1-programmes>
- Webpage listing approved DP proposals:
<https://www.cosmos.esa.int/web/cheops-guest-observers-programme/dp-approved>
- CHEOPS Observers Manual - available for download from the AO-1 webpage (Note: the manual is currently under revision by the CHEOPS Mission Consortium to reflect in-flight performances. Up-issue is foreseen in Q4 2020).

- An overview of the current CHEOPS Guaranteed Time Observing Programme:
<https://www.cosmos.esa.int/web/cheops-guest-observers-programme/guaranteed-time-observing-programme>
 - This is foreseen to be updated in Q2 2020, and will be announced and posted on the CHEOPS mission webpages when available.

- Webpage for frequently asked questions (FAQ) for the Discretionary Programme:
<https://www.cosmos.esa.int/web/cheops-guest-observers-programme/faq-dp>