

California Planet Search – Organization and Procedures

This document describes the organization of the California Planet Search (CPS), the services that it provides, and procedures for administrative matters. CPS is an organization that stretches back more than two decades (including its time as the California-Carnegie Planet Search). The organizational structure and purpose of CPS have changed over time. This document describes CPS in May 2023 and future revisions will capture changes going forward.

Definition:

CPS is an organization that facilitates observations and the production of precise Doppler time series and related data from the HIRES and the Keck Planet Finder (KPF) spectrometers at the W. M. Keck Observatory (WMKO) and from the Levy Spectrometer on that Automated Planet Finder telescope at Lick Observatory. Unlike typical research collaborations, CPS is not organized around specific scientific goals. Rather, it provides the infrastructure for other research collaborations that have specific scientific goals to execute their observations using the above telescopes. Examples of these collaborations are the research groups of individual faculty members within CPS and multi-institutional collaborations such as the K2 Follow-up Survey, HAT-NET, the California-Kepler Survey, the TESS-Keck Survey, and the Kepler Giant Planets Search. CPS handles the production of data from the scheduling and execution of observations through the standardized reduction of raw data products (e.g., echelle spectra) into refined data products (e.g., radial velocities). It is the responsibility of the collaborating research groups (through their principal investigators) to select targets, use the refined data products in scientific analyses, interpret the results, and write papers. Telescope scheduling with CPS allows participants to have observations spread over the observing semester, instead of being concentrated in the allocated telescope time (e.g., one night at Keck). This facilitates science projects with cadence requirements that are not schedulable by an individual PI. CPS is independent of WMKO, Lick Observatory, and the Keck Observatory Archive (KOA). Users of the instruments mentioned above are not required to collaborate with CPS. CPS functions related to KPF are expected to be largely subsumed by similar activities run by WMKO; see the section ‘Timescales for CPS Services’ below for details.

Services:

To be part of CPS is to contribute to one of the observing queues or data pipelines for HIRES, KPF, and the APF. By contributing observing time, one agrees to have their observations executed through an observing queue. A designated **Scheduler** (named positions within CPS are written in bold text in this document) determines when the observations will be attempted. CPS participants can expect that observations will be scheduled proportionally to the time that they queue, within the constraints of the available nights and other practical considerations.

Observation Planning: The basis for queue observing is that individual observing programs contribute their scheduled nights to one of the CPS queues (for HIRES and KPF). Using a set of requested observations of specific targets, exposure settings, and cadences, the **Scheduler**

plans the observations for each night and over the course of a semester with certain goals in mind. One goal is to schedule the observations in proportion to the telescope time contributed to the queue by each program. A consequence is that each observing program in the queue will lose a similar fraction of its allocated time due to observing interruptions due to weather, facility problems, and other issues. In recent years, most programs receive 60-70% of their allocated time in observations executed through the CPS queues. This fraction varies by observing semester and program, and it is not a guarantee of observing time. CPS queue scheduling and observations are done on a best-effort basis. A second goal is to optimize the observing cadence of each program so that it matches the requested cadence as closely as possible. Observations are scheduled within the constraints of the available nights, target visibilities, sensitivity of the observing requests to sky conditions, and other practical considerations. Given these constraints, the **Scheduler** determines an observing script for each night of observing time in the queue (with backup plans for poor sky conditions). Most queue nights have a mix of targets from many observing programs. Planning for time-sensitive observations (e.g., transits of exoplanets) is handled differently. In those cases, the requested time is scheduled specifically for the time-sensitive observations, which are not rescheduled if the first attempt is unsuccessful.

Queue Observing: Observing scripts are executed by trained **Observers** on nights contributed to the queues. Observers do not favor one scientific program over another, though in cases of poor sky conditions they can exercise judgment in selecting targets to optimize the use of observing time. **Observers** go through an extensive training program to become expert operators of HIRES or KPF. This training happens before being given the responsibility of lead observer or solo observer on a given night and is supervised by the **Observing Trainer**. Typically, new observers need 15 nights of training under a variety of sky and observatory conditions to become proficient.

Data Processing: Raw spectra are downloaded from WMKO, KOA, or the Lick Observatory Archive and processed by data reduction pipelines for HIRES, the APF, and KPF. The pipelines are overseen by the **Data Processing Lead** and run on large computers at Caltech owned by the **Lead**. The pipelines use raw spectra to generate reduced spectra and refined data products including radial velocities and stellar activity metrics. Other pipelines measure stellar properties including temperature, gravity, mass, absolute radial velocity, and stellar binarity. Additional pipelines can be used to model time series radial velocities to search for planetary signals and to measure orbital and physical properties for detected systems.

The KPF data reduction pipeline (DRP) is publicly available and also produces “quick look” products (QLP) available through Jump (see Data Distribution) that can be inspected to understand data quality. QLP are also available in real time for KPF observers, whether they are part of CPS or not, through the KPF observing interface at WMKO.

KPF data related to CPS projects are processed twice. First, WMKO executes the public KPF DRP on all raw KPF data (Level 0 files) using computers in Hawaii that are owned by WMKO. The raw data and processed files at WMKO are automatically ingested into KOA for distribution

to the proposing team (for the proprietary period) and later to the full community (when appropriate). Second, CPS also processes KPF raw data for CPS programs and all KPF calibration data using computers owned by the CPS **Lead**. This version of the data products appears on Jump and is distributed to CPS participants. The reason for redundant processing is that it allows the CPS team to have fine-grained control over choices in the reduction and develop improvements to the KPF DRP using real data. The CPS team will regularly contribute refinements to the KPF DRP Github repository, which is formally managed and version-controlled by WMKO. Accepted changes in the DRP repository will be applied to the KOA version of the KPF data products with regular reprocessing runs.

Data Distribution: Data products are distributed using a web-based system called Jump, which was developed specifically for CPS by project leaders (BJ Fulton, Andrew Howard, Erik Petigura, and others) and an outside programmer (Jake Llamas) using funding acquired by the **Lead** (Andrew Howard). Jump allows CPS participants to browse and download data products including raw spectra, reduced spectra, time series data (radial velocities and stellar activity measurements), and stellar properties. Jump provides a way to visualize data products using quick-look graphics (for KPF), standardized outputs for some pipelines (e.g., SpecMatch, SpecMatch-Empirical, Radvel, RVSearch), and time series radial velocities. Jump also facilitates observing with planning tools to manage observing scripts, visualize the distribution of target stars in the sky, and record details while observing. A commenting system allows users to record information about individual targets and observations that can be accessed by all Jump users. Sophisticated users of Jump who have needs for greater inspection of the data can request access to the database that underpins the system. This access can be requested from the **Lead** or **Data Processing Lead**.

Interpretation of Data: Interpretation of data generated by CPS is primarily the job of the scientists who are leading the relevant observing program. Upon request, CPS team members can provide pointers to literature descriptions of the algorithms used for data processing and can answer questions subject to their time constraints. CPS generally does not provide analyses beyond the standard, publication-ready data products.

Timescales for CPS Services:

CPS is organized specifically around data from KPF, HIRES, and APF. CPS does not expect to offer data services indefinitely for these facilities. Because CPS is a volunteer service to the WMKO and Lick communities and not a funded activity with contractual obligations, it can be paused or terminated if the **CPS Council** determines that continuation is no longer feasible or appropriate (e.g., because of a loss of key personnel or privately-raised funding). For HIRES, CPS operations are expected to continue through the 2023B observing semester but may be discontinued after that due to an insufficient number of contributed nights for successful queue operations, and other factors. For KPF, we expect that CPS services will be subsumed by an observatory-wide queue called KPF Community Cadence that is under development. That is, most current KPF users who are part of CPS will participate in the WMKO's Community Cadence queue and will receive their KPF data products from KOA. After this transition, the

public service functions of CPS related to KPF will likely cease to exist. The timeline for the transition is somewhat uncertain but is expected to be complete by about 2026. For the APF, we expect to continue CPS data processing for the foreseeable future so long as there is interest from **CPS Council** members and there are resources (personnel, funding, allocated telescope time on APF) to carry out the tasks. APF observations are scheduled and conducted robotically so CPS **Observers** are not involved.

Organizational Structures and Roles:

Lead: Provides overall leadership to CPS; makes executive decisions regarding CPS policy, in consultation with the **CPS Council**, on decisions not explicitly delegated to that body; secures funding for the **Scheduler**, **Observing Trainer**, and **Data Processing Lead**, and for the maintenance of computer software and hardware related to CPS; and represents CPS in discussions with outside collaborations and individuals.

Scheduler: Responsible for assigning **Observers** to observe on specific nights with HIRES or KPF. A second responsibility is establishing the target list for each night of observing with HIRES and KPF.

Observer Trainer: Organizes the training of **Observers** in the use of HIRES and KPF and determines when they have sufficient experience to be a lead observer or solo observer. The training itself may be delegated to other experienced HIRES and KPF observers.

Observers: Execute telescope operations with high-resolution echelle spectrographs at W. M. Keck Observatory. Fully trained **Observers** will have logged typically 15 nights in training and also demonstrated sufficient technical knowledge for qualification, at the discretion of the **Observer Trainer**. Most **Participating Scientists** are expected to contribute to the observing pool by being observers themselves or by having members of their research group participate as **Observers**. The principle is a research group's total contribution to CPS should be in proportion to the time spent by CPS to plan and execute their observations and to process their data. However, for especially small or short observing programs, contributions to the **Observer** pool are not necessary.

Data Processing Lead: Organizes the operation of the pipelines that process data from KPF, HIRES, and APF and ingest it into the Jump database. In some cases, the operation of specific pipelines can be delegated to others.

Data Distribution Lead: Controls user-level access to Jump and introduces new users to the data products available through Jump. The **Lead** also maintains administrative access to Jump and coordinates Jump invitations with the **Data Distribution Lead**. Aspects of this job may be delegated to other **CPS Council** members as shared responsibilities.

CPS Council: This group is of the set of CPS participants who have made significant contributions to the infrastructure of CPS over many years, plus two additional members defined

below (**Council Secretary** and **Council Member at Large**). Infrastructure contributions include the development of analysis pipelines, the development of Jump and other data distribution/visualization tools, the scheduling of observations and observers, the development of procedures for observing and calibration, project organization, and fundraising. Many members of this group have also led multiple large projects through CPS over multi-year timescales. Membership in this group can be requested and it is the job of the CPS Council to determine by majority vote to make the determination. Members of this group have complete access to all data products for monitoring data quality and improving CPS services.

The **CPS Council** is the main decision-making body within CPS and is expected to meet at least four times per year. It has three special members. The **Council Chair** is responsible for convening the **CPS Council** and setting its agenda. Other members and the **Ombudsperson** can also call for a meeting or raise issues to be discussed. The **Council Secretary** is a junior member who is a voting member of the **CPS Council**. The **Council Member at Large** is also a voting member.

The duties of the **CPS Council** include:

- Oversee CPS membership
- Review and endorse observing proposals for the CPS queues
- Determine and/or review proposed authorship on manuscripts that made use of CPS services
- Conflict resolution
- Approve revisions to this document

Decisions not explicitly delegated to the **CPS Council** will be made by the **Lead**.

Council Chair: Responsible for convening the **CPS Council** and setting its agenda. This position should be filled by a **CPS Council** member other than the **Lead**.

Council Secretary: This position facilitates the operation of the **CPS Council** by organizing several of its activities. The **Council Secretary** monitors the online solicitation for proposal submission for CPS endorsement each semester, identifies potential overlap in observing targets or science cases between submitted programs and existing programs, and convenes discussions about submitted proposals (this is often done asynchronously online). All of this should be done in consultation with **CPS Council**. This position is elected by the **CPS Council** after a solicitation of nominations. The **Council Secretary** should be a regular CPS participant and at the graduate student or postdoc career stage, if possible.

Council Member at Large: The at-large position is intended to broaden the perspectives and representation of the **CPS Council**. This position should be filled by some at a senior career level (beyond the postdoc stage or equivalent) who is not otherwise eligible for the **CPS Council**. It is preferred that the at-large member be drawn from one of the large collaborations associated with CPS (e.g., the TESS-Keck Survey or the Keck Planet Finder Science Team) and has a primary institutional affiliation that is different from the **Lead's**.

Participating Scientists: The principal investigators of observational programs that are part of CPS (but are not part of the **CPS Council**) are referred to as **Participating Scientists**. Large collaborations that contribute telescope time to CPS may request this status for the co-leaders of a project. **Participating Scientists** may sponsor the nominations of **Affiliates**.

Participating Scientists contribute telescope time to one of the ad hoc queues. In return, their observations are executed and they receive access to data products for their targets using Jump. Members of the KPF science and instrument teams may also be designated as **Participating Scientists** to facilitate their development of CPS infrastructure.

Affiliates: CPS participants with this status are scientists connected with specific observing projects. They must be sponsored by an active **CPS Council** member or **Participating Scientist** and their membership is tied to specific projects and the active period of their sponsor. The primary reason for this membership class is so that non-lead scientists can have access to the data for particular projects.

Ombudsperson: This person is a member of the CPS collaboration who can act as a trusted person to receive requests for change and complaints and convey them to the **CPS Council** and/or **Lead**. The role of the **Ombudsperson** is not to advocate for a particular position on these issues, but to ensure that the issues are fairly articulated and represented to the **CPS Council** and **Lead**. Communicating concerns through the **Ombudsperson** can be done anonymously (if desired) and is a supplement to other methods of communication described below. The **Ombudsperson** is empowered to call for a meeting of the CPS Council to discuss an issue of concern and explore and assist them in determining options to help resolve conflicts, problematic issues, or concerns.

The **Ombudsperson** should be broadly perceived as an approachable person who can impartially carry out the duties as described. It is preferred that the **Ombudsperson** have a senior role in the field of astronomy (to prevent power imbalances with the **CPS Council** or **Lead**) and it is preferred that the **Ombudsperson** not be a member of the **CPS Council**. They may be a **Participating Scientist**.

Membership Chair: This person facilitates the solicitation and receipt of membership forms (signed copies of this document), cataloging the dates of membership and status of each member, and the maintenance of email lists and webpages with member lists. The office should be filled by a regular CPS participant and be at the graduate student or postdoc career stage, if possible.

Expectations and Policies:

Conduct: CPS embraces the following statement from the [National Academy of Sciences Code of Conduct \(2018\)](#) as guiding principles: “Members shall treat all individuals in the scientific enterprise collegially and with respect, including supervisors, colleagues, other CPS members, students, and other early-career colleagues, technical and clerical staff, and interested members

of the public. CPS members must refrain from discrimination, harassment, and bullying in their professional encounters, especially when they involve power differentials, as these behaviors have adverse impacts on the careers of scientists and the proper conduct of science.” CPS members are expected to behave professionally in their in-person interactions, online interactions, and public statements.

CPS further adopts the [Caltech Code of Conduct](#) as a set of ethical and conduct guidelines for all members of CPS. (The final point in this document, #11 about representing Caltech, does not apply to CPS members that are not part of Caltech.) This code was chosen because Caltech is the home institution of the current **Lead**, which centers the CPS organization at Caltech. CPS members who have different home institutions are expected to additionally follow their own institution’s code of conduct. Many members of CPS are mandated reporters of prohibited conduct including violence, threats of violence, and sexual misconduct. Other CPS members are also encouraged to report such conduct violations to the appropriate institution.

Scientific Integrity: CPS scientists are expected to carry out their scientific research with integrity and the highest standards. They shall not commit scientific misconduct, defined as fabrication, falsification, or plagiarism. Scientific error or incorrect interpretation of research data that may occur as part of the scientific process does not constitute scientific misconduct.

CPS is built on trust. At a basic level, CPS members commit to not revealing the scientific goals, targets, or data for scientific projects that they learn about through CPS. This includes **CPS Council** members who review potential CPS observing programs, **Observers** who have access to target information, and other CPS collaborators whose Jump access makes visible the details of observations and targets for other scientific projects. Bulk data downloading or distribution of data without the consent of program leads is prohibited. For CPS participants with small observing programs, Jump is usually configured for compartmented access to data for the relevant programs only. Compartmented access is not practical for **Observers** and for those with larger roles with CPS (e.g., maintainers and developers of data reduction pipelines, **Observers**, and KPF instrument experts).

A complementary aspect is that CPS collaborators should expect that instrument experts within CPS will have access to their data to optimize the performance of the instruments and pipelines. Trust is placed in these people to treat the data and project information confidentially. For example, KPF experts within CPS may examine CCD images over a range of times to detect and track subtle detector artifacts.

Authorship: It is the policy of CPS that those who make significant intellectual contributions to a scientific paper should be offered coauthorship and the author list order should be determined by the order of contribution. Offers can be declined for any reason. CPS investigators are also expected to adhere to the authorship criteria for the intended journal. In the past, most CPS papers were sent to the AAS Journals that list their authorship criteria [here](#). As of this writing, those criteria are:

- *Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND*
- *Drafting the work or revising it critically for important intellectual content; AND*
- *Final approval of the version to be published; AND*
- *Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.*

CPS investigators agree to offer coauthorship to those who have made any of the following contributions to CPS infrastructure:

- Participated in observing the targets in a paper during 10+ nights at Keck Observatory (HIRES and KPF). Only observations not previously published by CPS should be considered for the 10+ nights.
- Observed a transit of the target (a multi-hour sequence of observations of the same target) at Keck Observatory (HIRES and KPF).
- Contributed to the data as the **Scheduler** or **Data Processing Lead** during the period when the observations were executed. (The substantial CPS workload for these roles is not widely appreciated.)
- Made other significant contributions to CPS infrastructure that go beyond the services provided for all projects.
- Made extensive contributions to the planning of the observations or interpretation of the data.
- Made other significant contributions, as determined by the **CPS Council**.

The determination about an offer of coauthorship should be made for all current and past CPS team members whose contributions meet the established criteria (see also the Addendum below). The above criteria are in addition to the usual reasons for an offer of coauthorship (paper writing, data analysis, and other activities that are beyond the scope of CPS contributions to a paper).

The lead authors of papers that include CPS data are strongly encouraged to include a ‘who-did-what’ paragraph in the acknowledgments section that describes the specific contributions of each author, including those from CPS. These descriptions help to clarify the roles that individuals played in the development of the paper and are especially helpful for multi-year projects. Examples are in the first paragraphs of the Acknowledgements of [Petigura et al. \(2017\)](#) and [Rosenthal et al. \(2021\)](#).

Procedures:

Membership: Researchers interested in pooling time with CPS can contact the **Lead** or **Scheduler** for information. This should happen before telescope proposals are submitted. In limited cases, telescope time can be added to a CPS queue during an observing semester, but conflicting observing requests with previously admitted programs must yield priority.

The **CPS Council** formally oversees membership in CPS. Most cases of admission will not require substantial consideration because the new members are connected with a new (successful) telescope proposal that was previously endorsed before its submission to a time allocation committee. Membership renewal should be granted for cases where the observations are still actively being studied or if there are other factors that the **CPS Council** considers important. Membership revocation (as opposed to non-renewal) can be carried out by a majority vote of the **CPS Council** for extreme violations of CPS policy. Criteria for these membership issues are described below.

Membership may be automatically renewed by:

- Contributing additional nights to the CPS queues on Keck and/or APF.
- Contributing observing person-hours in the queue by trained **Observers** during a semester.
- Contributing CPS organizational or leadership activities as specified above.

CPS membership will expire 24 months after the last contribution of awarded telescope time to a CPS queue (the end of the relevant observing semester). That is 18 months (the standard proprietary time of Keck data at most institutions) plus six months of additional time. This will primarily affect access to data products on Jump. Reasonable requests made to the **Data Distribution Lead** to access data after that time will be granted upon review by the **CPS Council**.

Several positions were filled at the time of the first writing of this document and do not require an initial election. These positions are **Lead, CPS Scheduler, Observer Trainer, Data Processing Lead, Data Distribution Lead**, and members of the **CPS Council**. The people listed in the personnel table below are expected to occupy those positions indefinitely, except in cases of resignation or termination by the **CPS Council**. Termination should be reserved for cases of serious non-performance or conduct violations. The **CPS Council Chair, CPS Council Secretary, Council Member at Large, Ombudsperson**, and **Membership Chair** shall be elected by a majority vote of the **CPS Council** based on nominations from the CPS community. These positions have terms of two years and can be renewed. Eligible **Participating Scientists** shall have their membership ratified by the **CPS Council**. **Participating Scientists** may nominate **Affiliates** that are connected to their participation in CPS, and their membership shall be ratified by the **CPS Council**. **Observers** shall be recommended by the **Observing Trainer** and ratified by the **CPS Council**. **Observers** will be considered inactive after six months without observing for CPS.

The **Membership Chair** will maintain lists of active and past CPS members on a public webpage. They will also maintain email lists to communicate about the proposal process, changes in policy, etc.

CPS Endorsement of Observing Proposals: The **CPS Council** will promptly review telescope observing proposals seeking endorsement that are submitted via [Google form](#). The purpose of

this step is to select proposals in advance of submission to institutional time allocation committees that CPS commits to provide observing and data services. The differing institutional deadlines for Keck proposals (typically with a 2-3 week spread) make it challenging to review all proposals in a semester for conflicts on a rolling basis. The review process, therefore, strongly encourages all proposers to submit at least minimal proposal details (a short abstract and targets) by March 1st (for B semester proposals) and September 1st (for A semester proposals). This is 1-2 weeks before the earliest institutional proposal deadline.

Submissions from non-members assume that the proposers (prospective **Participating Scientists** and **Affiliates**) will sign a copy of this document to become a member. This action will be completed after telescope time has been awarded by institutional time allocation committees.

The **CPS Council** will convene (remotely and/or asynchronously) each semester to consider proposals submitted for CPS queue observing, with the goals of (1) identifying which proposals can be supported within the CPS infrastructure, (2) resolving any conflicts between proposals regarding targets and/or time usage, particularly for proposals that overlap in scientific intent and/or targets with ongoing CPS projects. CPS does not endorse proposals based on scientific merit but will flag proposals that appear to be technically infeasible. The **Council Chair** will distribute proposal reading and assessment assignments within the **CPS Council**. The default proposition is that proposals that can be supported by the CPS infrastructure will be selected. Reasons for declining endorsement include technical infeasibility, a conflict with another proposal or program being supported or planned by CPS, or a serious issue identified by the **CPS Council** (e.g., scientific misconduct). Council members with significant conflicts of interest (e.g., a competing proposal) should alert the **CPS Council** of those conflicts and abstain from voting on the proposal in question.

In the case of a proposal that overlaps with another proposal or a specific ongoing CPS project, the **CPS Council** will use its discretion to work toward collaboration between overlapping proposers, if appropriate, or to endorse the proposal that is most in the interest of CPS. These interests include favoring ongoing projects, especially by students and longtime CPS participants. Overlapping proposers may also be encouraged to modify their proposals to be complementary, e.g. by selecting different targets. If a compromise cannot be reached, the **CPS Council** will select which proposal to endorse. Though individual cases may differ, a rough order of prioritization would favor the endorsement of ongoing projects and proposals submitted by (1) current **CPS Council Members** and their graduate students and postdocs, (2) other graduate students and postdocs, (3) current **Participating Scientists**, (4) current **Affiliates**, and (5) chronological order from other proposers. At least one representative from the **CPS Council** will also review any mid-semester requests for target-of-opportunity observations that are likely to yield high-impact publications. The selection of such special request targets is at the discretion of the **CPS Council**.

Submitting an observing proposal to use HIRES and KPF does not require CPS endorsement or participation because those instruments are facility-class at WMKO. Many astronomers use those instruments independently of CPS. The same is true for APF at Lick Observatory.

Authorship: As a paper using CPS services is being constructed, a **Participating Scientist** or **Affiliate** in a leadership role for the paper should send an email to the **Council Chair** and the **Scheduler**. The email should include (1) a summary or paper draft, (2) a list of targets with date ranges for the observations, and (3) a description of any non-standard CPS contributions (e.g., beyond observing) so that the **CPS Council** (through the **Council Chair**) can determine which CPS contributors should be offered coauthorship. The **Scheduler** should determine the set of Observers who contributed 10+ nights of observing. This process may require iteration and a response should take a week or less though this is on a best-effort basis. Expedited processing can be requested. Lead authors are encouraged to submit requests as early in the process as possible. In cases of an error in the author list, the lead author should make every effort to correct the issue before the paper is accepted by the journal.

Conflict Resolution: The goals of conflict resolution are to ensure a safe and productive working environment within CPS. To the extent possible, conflict resolution will focus on reconciliation and reintegration.

CPS offers support for addressing concerns related to policy, conduct, or anticipated conflicts through several mechanisms. CPS investigators are encouraged to raise issues with any **CPS Council** member via email or conversation. The **Ombudsperson** is another channel through which concerns or issues can be conveyed. The **Ombudsperson's** role is to facilitate the transmission of a concern and advocate for its resolution, though not for a particular outcome. A [CPS Conduct Concern Form](#) provides a way to raise issues confidentially. Filling out this form alerts the **CPS Council** and the **Ombudsperson** through email and/or Slack messages. Concerns and issues will be reviewed promptly. **CPS Council** members will not adjudicate cases in which they are named as parties of concern.

Outcomes for Violations of CPS Policy:

CPS members are granted membership privileges at the discretion of the CPS Council, and such privileges may be modified, suspended, or revoked by the Council upon reasonable grounds. In examining such cases, the CPS Council will consider violations of the scientific integrity and conduct policies outlined in this document and may be informed by serious documented violations of the conduct standards of other institutions (e.g. CPS members' host institutions and professional societies).

The **CPS Council** (except named parties of concern) will vote on the outcome of concerns submitted by email or conversation with a Council member or the **Ombudsperson**, or through the web form. Outcomes range in severity:

1. Discussion/Mediation – The first step in resolving most conflicts should be professional discourse between the parties in question, with a third party available to facilitate discussion and resolution. Mediation will be applied in scenarios in which it is not clear

whether the CPS policy has been violated to better establish what happened and what the outcomes were and/or should be.

2. Verbal and/or written reprimand – for minor infractions and/or first-time violations, the violator may be delivered a verbal and/or written reprimand.
3. Suspension of activities – for more serious infractions and/or multiple violations, the violator may be suspended from a subset of CPS activities. The duration of the suspension is at the discretion of the **CPS Council** and will depend on the infraction. These privileges might be suspended.
 - a. Opportunity to submit future telescope proposals with a CPS endorsement
 - b. Invitation to some or all CPS meetings or activities (in-person or remote)
 - c. Access to CPS data
 - d. Access to CPS communications (including email, Slack, and Confluence)
 - e. Leadership standing within CPS (if applicable)
 - f. Observing or observer training (if applicable)

The goal of a suspension is to warn the violator of the elevated level of concern and to encourage a reformation of their conduct, with the eventual goal of reinstating CPS membership. For this reason, suspensions will *not* affect the queue scheduling of any targets.

4. Revocation of membership – in the most extreme and/or severe cases, the violator’s CPS membership may be revoked. The privileges listed in the previous section about suspensions may be revoked. In addition, access to the CPS queue may be terminated immediately.

For extreme cases or ethical/policy scenarios not described in this document, the CPS Council will consider the guiding ethical principles of this group, the adopted code of conduct, advice from professional organizations (e.g., the National Academy of Science and the American Astronomical Society), and the interests of CPS and its members to address the issue.

Personnel:

CPS personnel as of July 2023 are listed below.

<u>Title</u>	<u>Person</u>
Lead	Andrew Howard
CPS Scheduler	Howard Isaacson & Luke Handley
Observer Trainer	Howard Isaacson
Data Processing Lead	BJ Fulton
Data Distribution Lead	Howard Isaacson
CPS Council	Fei Dai, BJ Fulton, Sam Halverson, Andrew Howard,

	Howard Isaacson, Erik Petigura, Lauren Weiss
Council Chair	unfilled
Council Secretary	unfilled
Council Member at Large	unfilled
Ombudsperson	unfilled
Participating Scientists	will be listed at https://exoplanets.caltech.edu/cps/
Affiliates	will be listed at https://exoplanets.caltech.edu/cps/
Observers	will be listed at https://exoplanets.caltech.edu/cps/
Membership Chair	unfilled

Addendum:

This document is meant to be a general description of CPS. While the document notes the current people who occupy leadership positions within CPS, it is intended to transcend the particular individuals involved. Because of particular interest in one past member of CPS, we note here some historical details and commitments. Geoff Marcy was a member of CPS from the organization’s earliest days until 2015 when he left his academic position at UC Berkeley after being found in violation of Title IX policies. In some cases since 2015, Marcy has been a coauthor on papers stemming from his contributions to specific CPS projects that occurred prior to 2015. In those cases, coauthorship was offered based on the criteria described above that include a requirement for a substantial contribution to the work. In April 2023, Marcy preemptively declined coauthorship on papers related to CPS and projects at Keck Observatory in which he would have been offered coauthorship based on substantial contributions from 2015 and prior years. Because of the sensitivity of this topic, the CPS leadership views this pledge to decline coauthorship as irrevocable.

Version History:

A majority vote of the **CPS Council** shall ratify changes to this document.

Date	Comments/Changes
May 12, 2023	Initial Version
May 17, 2023	Updated based on feedback
July 27, 2023	Additional updates based on CPS group feedback
August 2, 2023	Clarification regarding data access for CPS Council

Signature for Membership:

Prospective CPS members send a signed copy of this PDF document to the **Membership Chair** for their CPS membership to be considered and activated. Prospective **Affiliate** members should copy their sponsoring **Participating Scientist** in the message. The message should also include:

1. A statement that the prospective member has read and agrees to abide by the details in this document ('California Planet Search – Organization and Procedures').
2. Their expected role in CPS (**Participating Scientist**, **Affiliate**, **Observer**, one of the named roles, etc.).
3. The name of the sponsoring **Participating Scientist**, if the application is for **Affiliate** status.
4. The name of the KPF, HIREs, or APF observational program that they are a part of (if appropriate).
5. An expected end date for CPS participation, if appropriate. "Ongoing" is an appropriate answer.
6. Contact details (email).

Name

Date