

TESS Mission Atmospheric Characterization Working Group Charter

January 4, 2022

Goals

The Atmospheric Characterization Working Group (ACWG) for NASA's TESS mission was initially envisioned to conduct pre-launch activities for maximizing TESS's impact on exoplanet atmosphere studies. Now that TESS is in the heart of its prime mission with an extended mission forthcoming, the ACWG is entering into a new phase of its work. Going forward, the role of the ACWG is to ensure the successful legacy of the TESS mission, specifically as it relates to the atmospheric characterization of its discovered exoplanets. In this context, success means pursuing a goal that the TESS-discovered exoplanets be observed by an optimal set of ground-based and spaced-based facilities in a coordinated manner, so as to extract population-level and individual planets' atmospheric properties.

Science Context

The atmospheres of exoplanets are unique laboratories for furthering our understanding of planetary physics, origins, and habitability. The efficacy of transit techniques (including primary transit, secondary eclipse, and phase-resolved observations – “transit spectroscopy”) to make penetrating studies of exoplanet atmospheres has been established over the last 15 years, and dramatic improvements in transit spectroscopy capabilities are expected with the advent of JWST and other new facilities in the near future. Large numbers of targets orbiting bright stars and with a range of properties are needed to take full advantage of these new capabilities for transformational exoplanet atmosphere studies.

Science Drivers

The TESS mission is designed to deliver a large sample of high-quality (i.e., scientifically interesting planets orbiting bright stars and with favorable planet-to-star radius ratios) targets for atmospheric characterization efforts.

Main Tasks

1. Identify the most promising TESS-discovered exoplanets for atmospheric characterization.
2. Coordinate with other TESS Working Groups to enable atmospheric characterization efforts.

3. Provide a venue for research groups to coordinate their atmospheric characterization observations.
4. Advocate for programs and procedures that will lead to successful atmospheric characterization of TESS-discovered exoplanets.

Organization

The ACWG will have a Chair and a Steering Committee consisting of the Chair and four other ACWG members. The Chair will serve as a point of contact for the ACWG and organize meetings. The Steering Committee will review membership applications and will have authoritative power in case of disputes or violations of the ACWG rules of conduct.

The Chair is appointed by the Steering Committee members for a 2-year term. At the end of each 2-year term, the Steering Committee (minus the current Chair) can choose to renew the current Chair or select a new Chair.

There are no formal term limits on Steering Committee membership. In the case of a Steering Committee member vacating their position, self nominations will be solicited from the ACWG membership. Such nominations should include a brief explanation of why the individual wishes to join the Steering Committee of the ACWG, what they'd bring to the Committee, and their involvement with TESS.

The current Chair is Eliza Kempton, and the additional members of the Steering Committee are Jayne Birkby, Nick Cowan, René Doyon, and Caroline Morley.

Individual tasks will be led by specified members of the ACWG, who will be responsible for managing the work.

Rules of Conduct

- The ACWG is not an observing team unto itself. Individual members of the ACWG are encouraged to actively pursue their own atmospheric characterization goals and to lead or participate in atmospheric observations of TESS-discovered exoplanets. The ACWG will not directly propose for observations as a group and will therefore not carry forth a specific observational agenda of its own. Rather, the ACWG will work to *enable* high-quality and coordinated investigations of TESS-discovered exoplanets for the purpose of atmospheric characterization. ACWG members who are leading (or proposing to lead) observational efforts related to the goals of the ACWG and who also seek leadership roles within the group should

disclose those activities to the Chair, to ensure that they are not assigned to lead ACWG tasks that are seen to be in conflict with their personal research agenda.

- To reach the stated goals, collaboration and open exchange of both published and unpublished data and results, figures, text, code, and ideas and plans will be vital. To facilitate complete and timely sharing of such information within the ACWG, members must agree to protect all intellectual property shared at ACWG meetings or via the web and e-mail exchanges etc.
- ACWG communication is primarily done via an ACWG mailing list that will include all members and via a monthly telecon. All e-mails to the mailing list and verbal communication during telecons should be treated as confidential. ACWG emails should never be forwarded or copied to non-members.
- The ACWG will have a shared Google Drive for to facilitate sharing information. This site will be available to all members of the ACWG.
- Papers resulting from significant involvement of the ACWG should include all the contributing members as co-authors. It is the responsibility of the first author of the paper to ensure that all contributions are properly recognized. Membership in the ACWG on its own is not sufficient to warrant co-authorship on papers.
- Members of the ACWG are expected to behave respectfully and professionally towards their colleagues and must refrain from behavior that constitutes harassment. Harassment includes offensive verbal comments related to gender, sexual orientation, disability, physical appearance, body size, race, religion, sexual images in public spaces, deliberate intimidation, stalking, following, harassing photography or recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome sexual attention.
- To facilitate optimal flow of information about individual targets, members of the ACWG must also be members of the TFOP working group. This includes agreeing to abide by the TFOP Charter and TFOP Publication Policy.
- Violations in the rules of conduct can lead to dismissal from the ACWG.

Membership Policy

Researchers with a desire and ability to contribute can apply to become a ACWG member. The applications should be sent to the Chair, will be reviewed by the Steering Committee, and must contain:

- A statement that the applicant agrees with the WG charter.

- A confirmation that the applicant is also a member of TFOP (policies for joining TFOP found here: <https://tess.mit.edu/followup/apply-join-tfop/>)
- A description of the applicant's scientific background, research interest and expertise, and expected/planned contribution to the ACWG.

Potential applicants are encouraged to discuss their ideas and the needs of the ACWG with the Chair before submitting a formal application.

Students and postdocs working under the direct supervision of ACWG members may be sponsored for temporary memberships. These temporary memberships are granted automatically and expire once the student or postdoc is no longer working for the ACWG member.

Students may only have temporary memberships sponsored by their advisors, who must be members. Postdocs not holding independent positions and who wish to become full members should also include in their application a letter from their supervisor outlining how much time they have available to work on ACWG projects and how long their position is guaranteed for.