



# ASTRONOMERS FOR PLANET EARTH

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## Statement on Conferences and Meetings

Astronomers for Planet Earth (A4E) strives for more sustainability, inclusivity and accessibility in the field of astronomy and astrophysics. Events such as conferences, meetings, workshops, and review panel meetings account for a large share of the carbon footprint of astronomers as a community.<sup>1</sup> Particularly air travel and long-haul flights contribute to this, depending on location and career seniority.<sup>2 3 4 5</sup> Given the immediacy and severity of climate crisis,<sup>6</sup> there is urgency to reduce greenhouse gas emissions to zero as soon as possible, in order to meet the Paris Agreement goal of limiting global heating to 1.5 deg C (2.7 deg F). Furthermore, the astronomical community is diverse and international, but this is typically not represented at in-person events<sup>7</sup>. They often are less accessible, e.g. for care-giving, disabled, and neurodivergent astronomers, and introduce a selection effect based on funding possibilities and visa availability creating further barriers for traditionally underrepresented members of the community. With this statement, we aim to provide guidelines for more sustainability in our field and contribute to ensure a thriving astronomical community based on diversity, equity, and inclusion. For a more detailed discussion – particularly for those who are part of an organizing team – please see “[The Future of](#)

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<sup>1</sup> Jérôme Mariette et al 2022 Environ. Res.: Infrastruct. Sustain. 2 035008, <https://iopscience.iop.org/article/10.1088/2634-4505/ac84a4>

<sup>2</sup> Stevens, A.R.H., Bellstedt, S., Elahi, P.J. et al. The imperative to reduce carbon emissions in astronomy. Nat Astron 4, 843–851 (2020). <https://doi.org/10.1038/s41550-020-1169-1>

<sup>3</sup> Burtscher, L., Barret, D., Borkar, A.P. et al. The carbon footprint of large astronomy meetings. Nat Astron 4, 823–825 (2020). <https://doi.org/10.1038/s41550-020-1207-z>

<sup>4</sup> Jahnke, K., Fendt, C., Fouesneau, M. et al. An astronomical institute’s perspective on meeting the challenges of the climate crisis. Nat Astron 4, 812–815 (2020). <https://doi.org/10.1038/s41550-020-1202-4>

<sup>5</sup> Martin, P., Brau-Nogué, S., Coriat, M. et al. A comprehensive assessment of the carbon footprint of an astronomical institute. Nat Astron 6, 1219–1222 (2022). <https://doi.org/10.1038/s41550-022-01771-3>

<sup>6</sup> Allan, R., Arias, P., Berger, S., et al., im Auftrag des IPCC, 2021, Climate Change 2021 - The Physical Science Basis - Summary for Policymakers, Cambridge University Press

<sup>7</sup> Moss, V.A., Adcock, M., Hotan, A.W. et al. Forging a path to a better normal for conferences and collaboration. Nat Astron 5, 213–216 (2021). <https://doi.org/10.1038/s41550-021-01325-z>

[Meetings: Outcomes and Recommendations](#)<sup>8</sup> and “[Best practice for interaction](#)”<sup>9</sup>. **The statement below offers a brief overview and we strongly urge you to consider these criteria when either organizing professional events or deciding on your attendance.**

For all meetings, regardless of their format:

1. Clearly **define the purpose** of the event and weigh its importance to choose the best-suited format and tools corresponding to your aims.
2. **Regularly experiment with new tools and approaches** to build awareness of new solutions. To this end, [The Future of Meetings](#) team offers advice and technical help to organizers. An example is to divide large, international meetings into several synchronous regional hubs.
3. Provide **means of interaction, networking and socializing that are accessible and inclusive**. A4E offers guidelines to this end.
4. To enhance global accessibility independent of bandwidth and timezone, take **recordings** and provide them in a timely manner along with asynchronous communication channels.
5. Determine a **code of conduct and points of contact** in case of any related concerns or violations for each event, see eg the [A4E Symposium code of conduct](#).
6. **Perform evaluations** to quantify the satisfaction of the audience and to measure the success of the intended purpose of the event (point 1). Sharing the corresponding outcomes with attendees is encouraged.

If it is concluded that an in-person component is required:

7. **Virtual participation should be granted** to attendees and speakers who are not able or willing to travel to the venue. This not only covers scientific content but also networking and socializing. A digital-first approach is recommended for good interaction.
8. The meeting **venue should be chosen to minimize the environmental impact** of the event<sup>10</sup>. Choices in partial disagreement with this need to be well justified, see point 1. A statement about the location is recommended for transparency.
  - For instance, events taking place in developing countries may increase participation from underrepresented parts of the community. To reach this

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<sup>8</sup> Moss, V. A. et al. The Future of Meetings: Outcomes and Recommendations (Zenodo, 2020); <https://zenodo.org/record/4345562#.X9wYmOkzbUJ>

<sup>9</sup> Moss, Vanessa A., Adcock, Matt, Hotan, Aidan W. et al. (2021). TFOM: Best practice for interaction (1.0). The Future of Meetings Symposium (TFOM), Virtual. Zenodo. <https://doi.org/10.5281/zenodo.4588075>

<sup>10</sup> A very helpful to choose the best location of a meeting depending on the participants list (and especially their city of departure) is <https://travel-footprint-calculator.irap.omp.eu/>

goal they should include a clear list of aims, involve the local community, and establish networking and long-term collaboration with these communities.

- Some venues have particular benefits for team-building etc. but choosing a remote venue solely for its touristic assets is not acceptable.

9. **Priority for face-to-face interaction** (including funding allocation to facilitate travel) should be given to early-career researchers, and those from traditionally underrepresented groups and countries, as the demographic who should benefit from networking, with some caveats to allow for a fair allocation of funding. Senior people in attendance should ensure to be available for junior researchers.
10. Whenever possible **multiple events should be made compatible** for overlapping audiences, i.e. organizers are encouraged to cooperate so that events take place over several weeks in the same area.
11. **Avoid the distribution of merchandise.** If goodies are distributed, preferably offer sustainable items or things that people acquire very often and make it 'opt-in' during the registration with a note about wanting to reduce waste.
12. Aim to provide **food and beverages that are sourced locally, sustainably and ethically and minimize plastic as well as waste** by communicating this explicitly to caterers and vendors, if not included as requirements when selecting them.

By following the criteria outlined above, we can strive for more sustainability in our field and contribute to system change, decolonisation, diversity, equity, and inclusion. We acknowledge that decarbonizing our meetings is an ongoing process, and we invite feedback from the community to further improve these efforts. Together, we can make a positive impact and create a more sustainable and inclusive future of astronomy.

We welcome your feedback, comments, and ideas in our slack workspace or via [inof@astro4earth.com](mailto:inof@astro4earth.com) and look forward to interacting with you!

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