



ASTRONOMERS FOR PLANET EARTH

Open Letter to Astronomy Departments, Institutions, and Societies: Adopt Sustainability as a Primary Goal

We, astronomers, astrophysicists, and global citizens, recognize the urgency of the climate crisis and our impact on it. We also recognize that we have the power to change our current practices. We call on astronomical institutions worldwide to set an example for the field in mitigating our contribution to climate change: naming sustainability as a primary goal, putting in place specific sustainable practices to lower carbon emissions, and clearly communicating these changes both to their own members and the general public.

Comprehensive scientific evidence clearly demonstrates that we are living in a climate emergency that calls for urgent action.^{1,2} Both the Paris agreement³ and the 2020 United Nations Emissions Gap Report⁴ outline the imperative to halt global heating and ocean acidification. Only through immediately effecting a significant and continuous reduction in global emissions can we achieve this goal. Without doing so, we will face both a biodiversity crisis through mass extinctions, and a humanitarian crisis from increasingly inhospitable living conditions.⁵ At our current rate of emissions — even despite the Covid pandemic⁶ — we are failing to prevent this disaster.¹

Astronomers rely heavily on fossil fuel energy for computation, telescope operation, and travel. Our work practices therefore create a large carbon footprint.⁷ The climate crisis also threatens to negatively impact ground-based astronomical observing conditions.⁸ If the future of astronomy is to be safeguarded, we must acknowledge the ongoing environmental crisis and our role in creating it.^{8,9,10,11} We have the power to change our practices, raise awareness, and work together towards climate solutions.

As members of the scientific community, we stand behind the scientific evidence of anthropogenic climate change. We acknowledge the impact of astronomy research on the climate and vice versa, and we commit to a rapid decarbonisation of the field. We accept the responsibility associated with our trusted position in educational systems and society to raise awareness of the uniqueness and fragility of our home planet. We no longer have time to adopt small, incremental changes to our working practices. Environmental sustainability must form a core component of current and future astronomical endeavours, as well as in our lives.

We thus call for:

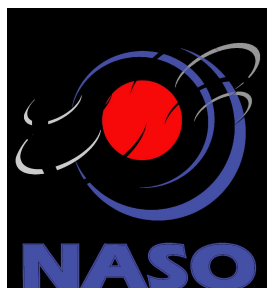
- Astronomical departments, institutions, and societies across the globe to adopt sustainable practices;
- Astronomical societies and unions to include environmental sustainability as a primary goal in their constitutions;
- The above changes to be widely communicated both within and outside the field.

The climate crisis reaches beyond country borders and individual communities. We urge the astronomical community to stand together and lead by example. The time to act is now; there is no Planet B.

Signed:

Astronomers for Planet Earth and 2808 professional astronomers as of July 15, 2021 (full signature list at <https://astronomersforplanet.earth/open-letter>)

Endorsed by:



¹ IPCC, 2018: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C.

Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)). In Press.

² Lenton, T.M., Rockström, J., Gaffney, O., et al. Climate tipping points - Too risky to bet against. *Nature* 575, 592-595 (2019)

³ Adoption of the Paris Agreement. Paris, 2015. United Nations Framework Convention on Climate Change. Available from <https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>

⁴ United Nations Environment Programme (2020). Emissions Gap Report 2020. Nairobi. Available from <https://www.unep.org/emissions-gap-report-2020>

⁵ Steffen, W., Rockström, J., Richardson, K., Lenton, T. M., et al. Trajectories of the Earth System in the Anthropocene. *Proceedings of the National Academy of Sciences*, 115 (33) 8252-8259 (2018)

⁶ Le Quéré, C., Jackson, R.B., Jones, M.W., et al. Temporary reduction in daily global CO₂ emissions during the COVID-19 forced confinement. *Nature Climate Change* 10, 647–653 (2020)

⁷ The climate issue. *Nat Astron* 4, 811 (2020)

⁸ Cantalloube, F., Milli, J., Böhm, C. et al. The impact of climate change on astronomical observations. *Nature* 4, 826-829 (2020)

⁹ ESO green policy (2019) <https://www.eso.org/public/about-eso/green/>

¹⁰ Matzner C.D., Cowan N.B., Doyan R., et al. Astronomy in a low Carbon Future. Canadian Long Range Plan for Astronomy and Astrophysics White Papers, LRP2020 (2019)

¹¹ Williamson K., Rector T.A., and Lowenthal J. Embedding Climate Change Engagement in Astronomy Education and Research. *Astro2020: Decadal Survey on Astronomy and Astrophysics*, APC white papers, no. 49; *Bulletin of the American Astronomical Society*, 51, Issue 7, id. 49 (2019)