SOCIEDAD ESPAÑOLA DE ASTRONOMIA

The astronomical community and its role in the reduction of greenhouse gas emissions

Dear IAU President,

The consequences of climate change are developing into a vast and unparalleled crisis, which is human in its causes and impact. Faced with this truth, inaction and delay are neither ethical nor wise. Every field of human activity must take urgent steps to mitigate the crisis and avoid the worst potential outcome. This includes the practices of professional astronomers. An immediate reduction of greenhouse gas emissions is required to avoid the catastrophic consequences of global warming by more than 1.5o C. As scientists this is an ethical obligation that we cannot ignore.

Several laboratories and institutions have already estimated their environmental impact and come to the conclusion that most of the astronomical activities produce significant consequences. Examples can be found from the links below[1]. Among these activities, air travel of any kind, in particular to travel to attend international conferences and/or to short term meetings (observational panel committees, PhD defence commissions etc) produce the most greenhouse gas emissions per capita. Furthermore, the operation of large facilities (e.g. observational, experimental…) also has a significant carbon footprint, especially supercomputing. While it will take time to reduce the carbon emissions from the latter activities, we believe that a rapid first step to reduce the carbon footprint of the astronomical community could be to cut professional travelling without affecting scientific progress.

Although face-to-face international/national conferences and short meetings remain important, they could become much less numerous without causing any damage. The frequency, locations and timing of the conferences should be planned to minimize air travel, with remote participation encouraged using on-line platforms. On-line conferences will as well increase participation, especially for astronomers working with fewer financial resources. Conferences should favour low-impact food options by default, taking steps to minimize waste of any kind. Many of these solutions are win-win scenarios. Some ideas can be seen in the recent article published in Nature Reviews Physics 2020, Vol 2, 67.

Astronomers reach a large audience. Astronomy has traditionally been one of the more attractive scientific disciplines for students and society in general. Astronomers are well-positioned to communicate climate change to others. The major challenge is overcoming misinformation and disinformation to increase awareness of the urgency of the problem so that people will be motivated to act.

It is time for the international astronomical community to lead this global effort and help raise awareness of the uniqueness of our planet Earth. Such an effort needs to be organized at a worldwide level. IAU is in the best position to make things move forward fast. As the IAU president, we urge you to launch a global assessment of the greenhouse gas emission impact of astronomical activities, implement immediate recommendations and actions and to encourage national societies to join these efforts.

Considering the size and severity of the problem, astronomers have an obligation to act on climate change in every way possible, and we need to do it now.

Best regards,

The Spanish Astronomical Society, SEA February 8th, 2020

[1] https://arxiv.org/abs/1910.01272 https://arxiv.org/abs/1912.05834