

## Reducing the carbon footprint of the astronomical community.

Dear IAU President,  
dear Ewine,

The climate and environmental crises are now well-established facts and their effects are more and more visible and severe as years pass. According to IPCC recent reports, we can hope to limit the trend by strongly reducing greenhouse gas (GHG) emissions: by about half over the next decade, and by about 80% by 2050. This is a major challenge that will require all communities to adapt their behavior, including astronomers.

Several laboratories and institutions estimated their environmental impact and came to the conclusion that international conferences make a significant contribution to our community's GHG emissions.. Examples at national levels can be found at the links below.

Large facilities (e.g. observational, computational...) also have important carbon imprint. However, they provide science data or results inaccessible otherwise. Lowering their contribution is mandatory, but this may take time. On the other hand, a rapid result could be obtained by a reduction and optimized organization of international meetings. **This appears as the necessary first step to rapidly reduce the imprint of the astronomical community without affecting scientific progress.**

The multiplication of international meetings, at a pace that is not always justified by scientific progress and at locations spread around the world, has an obvious detrimental effect on the carbon impact of our community. Reducing the number of conferences and organizing them at optimized locations would straightforwardly save money and GHG emissions. The participation of scientists who live far from such optimized conference places could be secured by funding support at a larger scale than presently done. The cost could be shared by the countries located close to the optimized conference locations and benefitting from lower travel costs and emissions.

Face-to-face international conferences remain a necessity, especially to foster international collaborations, but could become much less numerous without damage, and be replaced as much as possible by web-based “virtual” conferences. Efforts in this direction are currently underway in other disciplines, e.g. in biology <https://cutt.ly/briw15c> .

Such evolutions need to be organized at worldwide level. The 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 CO<sub>2</sub> impact of astronomical activities, implement immediate recommendations and actions and encourage national societies to join these efforts. It would be to your credit that the IAU demonstrates strong leadership on this urgent issue, and works quickly to make our professional practices coherent with current scientific knowledge about global warming.

Further discussion more specific to astronomy can be found here :

Astronomy in a Low-Carbon Future : <https://arxiv.org/abs/1910.01272>

The imperative to reduce carbon emissions in astronomy : <https://arxiv.org/abs/1912.05834>

Travel to academic conferences :

[https://www.nature.com/news/popolopoly\\_fs/1.17125!/menu/main/topColumns/topLeftColumn/pdf/519261a.pdf](https://www.nature.com/news/popolopoly_fs/1.17125!/menu/main/topColumns/topLeftColumn/pdf/519261a.pdf)

With our warmest regards,  
The French Astronomical Society, SF2A

## The French Astronomical Community

### First signatures :

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