



The International Astronomical Union and the Protection of Dark and Quiet Skies

Reduction and prevention of artificial sky glow and radio-frequency interference is a priority goal of the IAU. A dark and radio-quiet sky is not only essential to advancing our understanding of the Universe, but also as a resource that should be protected for all the Earth's inhabitants.

The IAU works to:

Make tangible progress in stopping the encroachment of artificial sky glow and radio-frequency interference on major astronomical research facilities.

Raise public awareness to prevent the losses caused by light pollution for all observatories and for the fundamental right to starlight.

Work with relevant national and international authorities to set up legal policies and guidelines for the protection of observational research.

The Starlight Foundation

The Starlight Foundation is an integrated action of UNESCO, supported by the IAU and UNWTO, which was promoted by the Instituto de Astrofísica de Canarias (Spain) after the publication of the “Declaration on the Defense of the Night Sky and the Right to Light of the Stars” (Declaration of La Palma or Starlight Declaration).

It is the body responsible for the creation of the Starlight Reserves, protected natural spaces where a commitment is established to defend the quality of the night sky and the access to starlight. Their function is to preserve the quality of the night sky and the different associated values, be they cultural, scientific, astronomical, landscape or natural.



DARK

Centre for the Protection of Satellite Constellation Interference

The Problem:

In the past few years, advances in satellite technology and space launches have accelerated the use of Low Earth Orbits (LEO). Large satellite constellations composed of hundreds to thousands of satellites are currently in the deployment phase and plans for even larger constellations are in place. These new “mega-constellations” are proposed to provide internet connectivity anywhere in the world, but they have some side effects. For example, optical telescopes are affected by the reflection of sunlight from the satellites, which is compounded by the very large numbers that are planned and deployed. Radio telescopes, too, are affected: very high-power signals coming from the satellites can “blind” receivers or prevent observations in specific portions of the radio spectrum.

Who We Are:

The International Astronomical Union’s Centre for the Protection of the Dark and Quiet Sky from Satellite Constellation Interference (IAU CPS) coordinates multidisciplinary international efforts to mitigate the negative impact of satellite constellations on ground-based optical and radio astronomy observations, and on humanity’s enjoyment of the night sky.

The Centre’s vision is to become the leading astronomical voice on this topic and to act as a hub of information and resources to which any stakeholder group can contribute, and which they can use to support their own activities. It is co-hosted by NSF’s NOIRLab, the US centre for ground-based optical astronomy, and the SKA Observatory (SKAO), an intergovernmental organisation headquartered in the UK, tasked with delivering the world’s most powerful networks of radio telescopes in Australia and South Africa.



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What We Do:

The IAU embraces the principle of a dark and radio-quiet sky as essential to advancing our understanding of the Universe, as well as for humanity's cultural heritage, and the protection of nocturnal wildlife. As such, it is deeply concerned about the increasing number of launched and planned satellite constellations in mainly low Earth orbits.

IAU CPS works across the global astronomical community to coordinate efforts to protect the dark and quiet sky from the negative effects of these satellites, which can cause interference for optical and radio telescope observations. The Centre brings together astronomers, satellite operators, policymakers and the wider community and acts as a bridge between all stakeholders to protect the dark and quiet skies. It builds on the vast amount of work carried out by the two-host institutions and more generally the astronomy community, recognising the various interests of different observatories according to wavelength, existing regulations, and expected impact.

The Centre will coordinate work from many international groups and individuals. Four hubs (SatHub, Policy, Industry and Technology, and Community Engagement) will be the driving force of its activities, and contributions from members will be coordinated by each hub.

How to Get Involved:

IAU CPS welcomes applications to join its efforts. There are two categories of membership:

- a) Contributing Members commit resources to specific core activities and agree to deliver their contributions according to a defined schedule and requirements.
- b) Affiliated Members agree to contribute to the activities of the Centre, however without committing specific resources and deliverables.

