

IAU statement to be delivered at the 65th COPUOS session under the Agenda Item 7 – Report of the STSC on its 59th session

Mister Chair, distinguished Delegates,

The deployment of large communication satellite constellations represent an important technological development for improving the global network connectivity.

However, the large number of satellites in Low Earth Orbit, estimated to grow to several tens of thousands in a few years, have a serious impact on the astronomical observations, both in the optical/IR and radio wavelength ranges.

The problem has been thoroughly discussed during the last 59th Session of the STSC under the specific Agenda Item 18 “General exchange of views on dark and quiet skies for Science and Society”. A Working Paper on the theme was presented by the Delegations of Austria, Chile, the Dominican Republic, Slovakia, Spain and by the Observers IAU, ESO and SKAO. The Working Paper was positively commented by 25 Delegations and it was decided to maintain the same Item in the Agenda of next year STSC Session in order to assess the evolution of the situation.

The Working Paper encourages all stakeholders, in particular the astronomical community, space industry and the constellations’ companies to collaborate in studying and implementing all possible measures that can mitigate the negative impact of the constellations on astronomy and on the visibility of the pristine night sky.

As a manifestation of these actions, the new “Centre for the Protection of Dark and Quiet Sky from Satellite Constellations Interference” or CPS, has been recently constituted by the International Astronomical Union.

The co-hosts of the Centre are NSF’s NOIRLab, the US center 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. The CPS Director is formally based at the IAU Office in Paris.

The Centre, which officially started its operation on April 1st, 2022, coordinates collaborative multidisciplinary international efforts with institutions and individuals and works across multiple geographic areas to help mitigate the negative impact of satellite constellations on

ground-based optical and radio astronomy observations as well as humanity's enjoyment of the night sky.

Its activities can be grouped in four main pillars or hubs: the SatHub, that will operate a repository of visual observations of the satellites and will offer to the astronomical community software tools aimed at avoiding or mitigating the interference by the satellites' trails and their electromagnetic emission; the Industry and Technology Hub, which will engage the industrial stakeholders in studying and developing hardware and operational mitigating solutions; the Policy Hub, which will monitor the evolution of national and international guidelines and regulations about the deployment of large satellite constellations; and the Community Engagement Hub, which will give voice to the society at large, in particular to indigenous and minority communities, about their perception of the impact of the constellations on their cultural heritages.

More than 50 international Institutions or individuals have already expressed their availability to become Contributing Members of the Centre by committing specific resources to its work plan and a similar number will become Affiliated Members, contributing at will to the achievement of the main objectives of the Centre.

At the moment, one of the most crucial mitigating measures, which is important for both the optical and radio observations, is the possibility of predicting with great positional and timing accuracy, the trails of the satellites. The classic TLE data, which are publicly available, are not always sufficient for the purpose, and obtaining more detailed orbital data may be protected by various types of formal restrictions. The IAU wishes to encourage the National Delegations and Agencies to investigate suitable solutions that would allow the astronomers to predict the accurate position of the satellites without infringing any confidential or security rules.

A second crucial mitigating measure is the satellite brightness issue, on which a number of satellite industry staff and astronomers are collaborating on promising research efforts. Again, the IAU would like to encourage the National Delegations and Agencies to invite the satellite industries within their countries to contact the IAU CPS.

Mister Chair, distinguished delegates,

The IAU, in its position of permanent observer, will present the achievements of the Centre for the Protection of Dark and Quiet Sky from Satellite Constellations Interference at the next session of the Scientific and Technical SubCommittee in February 2023 under the specific Agenda Item. A document that summarizes the activity of the Centre will be distributed in advance to the interested Delegations inviting them to express their comments and suggestions under the same Agenda Item.

Finally, I like to raise your attention to the Conference New Space Economy, jointly organized by the Amaldi Foundation and Fiera di Roma, which will held in Rome from December 1st to 3^d, 2022. The Conference will have a special session dedicated to Space pollution: the progress in protecting the sky will also be reported and discussed on that occasion.

Thank you for your attention.