

UN/SKAO Workshop on Dark and Quiet Skies for Science and Society 2025

09 - 11 DECEMBER 2025



Tarcísio Aurélio Bakaus, MSc – Brazil
bakaust@anatel.gov.br



2025 BRIEF SUMMARY

62 STSC/2025: A/AC.105/C.1/2025/

- CRP.22/REV.3 – CHILE, SPAIN, SKAO, IAU, ETC...
- CRP.27 – RUSSIA
- CRP.32 - NSS
- CRP.13 – SKAO
- PRESENTATIONS BY GERMANY, MOROCCO, UK, SGAC, SKAO

68 COPUO/2025

- CRP AC105_2025_CRP28REV02 – CHILE, SPAIN, SKAO, IAU, ETC...
- DQS, ASTRONOMY AND LARGE CONSTELLATIONS ON THE STSC AGENDA UNTIL 2029

PROBLEMS AND CHALLENGES

RADIO ASTRONOMY: RFI

- Electromagnetic Radiation (UEMR) from onboard electronics
- No cumulative UEMR monitoring or data repository
- Increasing difficulty of preserving dark and quiet skies in LEO
- Immediate interference with radio astronomy observations

ASTRONOMY: OPTICAL INTERFERENCE AND LIGHT POLLUTION

- Satellite brightness and glints interfere with observations
- Lack of standardized brightness modeling and data sharing
- Atmospheric degradation from satellite reentries Suggested
- Satellite streaks compromise NEO detection and time-domain astronomy

EXPERT GROUP PROPOSAL

Establish EG on Technical Coordination for Dark and Quiet Skies

COPUOS has successfully addressed complex technical issues expert groups - this agenda item should follow that model

The EG could act as a technical bridge between COPUOS and ITU-R, ensuring complementarity without overlapping regulatory mandates

EXPERT GROUP PROPOSAL

PROPOSED MANDATE - TO STUDY AND DELIVER:

➤ RADIOASTRONOMY ISSUES

- UEMR DATA OBSERVATORY
- ROADMAP FOR SPACE/LUNAR ASTRONOMY
- TECHNICAL INPUT ON UEMR/EMC FOR ITU-R

➤ ASTRONOMY ISSUES

- OPTICAL MITIGATION GUIDE
- MINIMUM OPTICAL MODELLING DATASET (MOMD) SPECIFICATION
- ATMOSPHERIC IMPACT SCOPING PAPER

→ **SPECIALISTS NEED TO DEFINE IT !**

EXPERT GROUP PROPOSAL

- Established under the 63 STSC, approved by the 69 COPUOS
- **EG Membership:**
 - Member States (government representatives)
 - Relevant intergovernmental organizations (ITU, IAC, ESA,...)
 - Industry and academia as observers or advisors (no voting rights, but allowed to present studies and best practices)
- Formal outputs: Technical reports, voluntary guidelines, and recommendations for COPUOS
- **EG-DQS and ITU-R Link**
 - Cross-representation of members in EG and ITU-R Working Parties
 - Information documents from the EG participants to ITU-R Groups



COMPLEMENTARY ACTIONS OUTSIDE EG MANDATE

- **IMMEDIATE INTERFERENCE WITH RADIO ASTRONOMY OBSERVATIONS:**
INVITE VOLUNTARY RF QUIET SCHEDULING ARRANGEMENTS FOR CRITICAL OBSERVATIONS
- ***DIRECT COORDINATION BETWEEN OPERATORS AND OBSERVATORIES***
- ***WITH ADMINISTRATIONS HELP***

Support of...

Group of Friends of the Dark and Quiet Sky for Science and Society

MEMBER STATES

- AUSTRALIA
- BELGIUM
- BULGARIA
- BRAZIL
- CANADA
- CHILE
- COLOMBIA
- FRANCE
- GERMANY
- ITALY
- LUXEMBOURG
- MEXICO
- NEW ZEALAND
- REPUBLIC OF KOREA
- RUMANIA
- SLOVAKIA
- SOUTH AFRICA
- SPAIN
- SWITZERLAND
- THAILAND
- UNITED KINGDOM
- UNITED STATES OF AMERICA

Permanent Observers

- African Astronomical Society (AFAS)
- Committee on Space Research (COSPAR)
- European Astronomical Society (EAS)
- European Southern Observatory (ESO)
- International Academy of Astronautics (IAA)
- International Astronomical Union (IAU)
- Lunar Policy Platform (LPP)
- Secure World Foundation (SWF)
- Space Generation Advisory Council (SGAC)
- Square Kilometre Array Observatory (SKAO)

UN/SKAO Workshop on Dark and Quiet Skies for Science and Society 2025

THANK YOU!



Tarcísio Aurélio Bakaus, MSc – Brazil
bakaust@anatel.gov.br

