



PLENARY MEETING

**Addendum 1 to
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E
4 October 2023
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African Common Proposals

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 9.1(9.1-a)

9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the ITU Convention;

9.1 on the activities of the ITU Radiocommunication Sector since WRC-19:

(9.1-a) In accordance with Resolution **657 (Rev.WRC-19)**, review the results of studies relating to the technical and operational characteristics, spectrum requirements and appropriate radio service designations for space weather sensors with a view to describing appropriate recognition and protection in the Radio Regulations without placing additional constraints on incumbent services;

Resolution **657 (Rev.WRC-19)** – Protection of radio spectrum-reliant space weather sensors used for global prediction and warnings

ARTICLE 2

Nomenclature

Section III – Designation of emissions

ADD AFCP/6069A24A1/1

1.xxx **space weather:** natural phenomena, mainly originating from solar activity and occurring beyond the major portion of the Earth's atmosphere, that impact Earth's environment and human activities. (WRC-23)

ARTICLE 4

Assignment and use of frequencies

4.20 Aircraft earth stations are authorized to use frequencies in the bands allocated to the maritime mobile-satellite service for the purpose of communicating, via the stations of that service, with the public telegraph and telephone networks.

ADD AFCP/6069A24A1/2

4.xxx Space weather sensors systems may operate under the meteorological aids service (space weather) allocations. (WRC-23)

ADD AFCP/6069A24A1/3

DRAFT NEW RESOLUTION [XXX SW IMPORTANCE] (WRC-23)

The importance of MetAids (space weather) service application

The World Radiocommunication Conference (Dubai, 2023),

considering

- a) that the collection and exchange of space weather data are important for detecting solar activity events including solar flare, high energetic particles and its relevant consequences to the Earth's geomagnetic and ionospheric conditions that impact services critical to the economy, safety and security of administrations and their population;
- b) that space weather data is critical for forecasting and providing alerts of space weather events and important to understand the physical process to develop prediction models for space weather events and their impacts on social-infra services;
- c) that space weather data is important to understand the physical process to provide prediction models for space weather events and their impacts;
- d) that spectrum-reliant space weather sensor technology has been developed and operational systems have been deployed without much regard for domestic or international spectrum regulations, or for the potential need for protection from interference;
- e) that spectrum-reliant space weather sensors may be vulnerable to interference from both terrestrial and spaceborne systems;

- f)* that some of the space weather sensors operate by receiving signals of low-level natural phenomena, mainly originating from solar activity and occurring beyond the major portion of the Earth's atmosphere, that impact Earth's environment and therefore may suffer harmful interference at levels which could be tolerated by other radiocommunication applications;
- g)* that the importance of space weather radiocommunication applications has been stressed by a number of international bodies, such as the World Meteorological Organization (WMO), the Intergovernmental Panel on Climate Change (IPCC), United Nations Office for Disaster Risk Reduction (UNDRR), International Civil Aviation Organization (ICAO), United Nations Committee on the Peaceful Uses of Outer Space (UN/COPUOS), and that ITU-R collaboration with these bodies is essential;
- h)* that space weather data collection is performed for the benefit of the whole international community and the data is generally made freely available to users,
- recalling*
- a)* the Plan of Action of the World Summit on the Information Society (Geneva, 2003), on e-environment, calling for the establishment of monitoring systems, using information and communication technologies (ICT), to forecast and monitor the impact of natural and man-made disasters, particularly in developing countries, least developed countries and small economies;
- b)* Resolution 136 (Rev. Bucharest, 2022) of the Plenipotentiary Conference, on the use of telecommunications/information and communication technologies for monitoring and management in emergency and disaster situations for early warning, prevention, mitigation and relief;
- c)* Resolution 182 (Rev. Bucharest, 2022) of the Plenipotentiary Conference, on the role of telecommunications/information and communication technologies on climate change and the protection of the environment for monitoring and management in emergency and disaster situations for early warning, prevention, mitigation and relief;
- d)* the Global Framework for Climate Services (GFCS) as identified at the Eighteenth World Meteorological Congress (Geneva, June 2019), which provides information to help society adapt to climate variability and change;
- e)* that the UNDRR and the International Science Council (ISC) identified hazards related to space weather in the initial list of the hazards for disaster risk management in 2021 under the Sendai Framework for Disaster Risk Reduction 2015-2030;
- f)* the United Nations General Assembly Resolution 76/3 of 25 October 2021, "The 'Space2030' Agenda: space as a driver of sustainable development", under objective 3: Increase awareness of the risks of adverse space weather and mitigate those risks, in order to ensure increased global resilience against space weather effects, and improve the international coordination of space weather-related activities, including outreach, communication and capacity-building, as well as the establishment of an international mechanism to promote increased high-level coordination in relation to space weather and increased global resilience against space weather effects;
- g)* Amendment 78 to Annex 3 to the Convention on International Civil Aviation (the International Standards and Recommended Practices, Meteorological Service for International Air Navigation) adopted on 7 March 2018 at the 213th Session of its Council, which has introduced space weather advisory information services on space weather phenomena expected to affect aeronautical radiocommunication and radio navigation systems,

recognizing

- a) that Report ITU-R RS.2456-0, on space weather sensor systems using radio spectrum, contains:
- a summary of spectrum-reliant space weather sensors; and
 - the documentation of the systems used for operational space weather monitoring, prediction and warnings deployed globally;
- b) that the ITU-R Handbook on radio astronomy contains further information on space weather observations;
- c) that an active space weather sensor is a system in the meteorological aids service (MetAids) (space weather) by means of which information is obtained by transmission and reception of radio waves;
- d) that a receive-only space weather sensor is a system in the MetAids (space weather) by means of which information is obtained by reception of radio waves of natural origin or by the opportunistic reception of transmissions of other specific radiocommunication services;
- e) that existing services, their systems and applications should be protected in the bands used for MetAids (space weather) observations and no undue constraints should be imposed on the future development of these services,

noting

- a) that *in situ* and remote space weather capabilities depend on the availability of radio frequencies;
- b) that, according to the United Nations Office for Outer Space Affairs (UNOOSA), society is becoming increasingly dependent on space-based systems and it is vital to understand how space weather could affect space systems and human space flight, electric power transmission, high-frequency radiocommunications, and global navigation satellite system (GNSS) signals;
- c) that certain frequency bands used by space weather applications have unique physical characteristics, so that migration to alternative frequency bands is not possible,

resolves

- 1 to recognize the importance of the spectrum usage by space weather applications for monitoring space weather phenomena and events that impact services critical to the economy, safety and security of administrations and their population;
- 2 to urge administrations to take into account space weather radio-frequency requirements and in particular protection of the related frequency bands;
- 3 to encourage administrations to consider the importance of the use and availability of spectrum for space weather applications prior to taking decisions that would negatively impact their operations.

Reasons: the issue is important in addressing the global climate change agenda.