

RESOLUTION 673 (REV.WRC-23)

The importance of Earth observation radiocommunication applications

The World Radiocommunication Conference (Dubai, 2023),

considering

- a)* that the collection and exchange of Earth observation data are essential for maintaining and improving the accuracy of weather forecasts, which contribute to the protection of life and preservation of property throughout the world;
- b)* that Earth observation data are also essential for monitoring and predicting climate changes, for disaster prediction, monitoring and mitigation, for increasing the understanding, modelling and verification of all aspects of climate change, and for related policy-making;
- c)* that Earth observations are also used to obtain pertinent data regarding natural resources, this being particularly crucial for the benefit of developing countries;
- d)* that observations of the Earth's surface are also used for a large variety of other applications (e.g. urban developments, utilities deployments, agriculture, security);
- e)* that many observations are performed over the entire world which require spectrum-related issues to be considered on a worldwide basis;
- f)* that the importance of Earth observation radiocommunication applications has been stressed by a number of international bodies such as the World Meteorological Organization (WMO), the Intergovernmental Panel on Climate Change and the Group on Earth Observation, and that ITU-R collaboration with these bodies is essential;
- g)* that, although meteorological and Earth observation satellites are currently operated by only a limited number of countries, the data and/or related analyses resulting from their operation are distributed and used globally, in particular by national weather services in developed and developing countries and by climate change-related organizations;
- h)* that Earth observations are performed for the benefit of the whole international community and the data are generally made available at no cost,

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 (ICTs), 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/ICTs for humanitarian assistance and for monitoring and management in emergency and disaster situations, including health-related emergencies, for early warning, prevention, mitigation and relief;

c) Resolution 182 (Rev. Bucharest, 2022) of the Plenipotentiary Conference, on the role of telecommunications/ICTs in regard to climate change and the protection of the environment,

recognizing

a) Recommendations ITU-R RS.1859, on use of remote sensing systems for data collection to be used in the event of natural disasters and similar emergencies, and ITU-R RS.1883, on use of remote sensing systems in the study of climate change and the effects thereof;

b) the Report on Question ITU-D 22/2, on utilization of ICTs for disaster management, resources and active and passive space-based sensing systems as they apply to disaster and emergency relief situations;

c) the joint WMO-ITU Handbook *Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction* and the ITU-R Handbook *Earth Exploration-Satellite Service*,

recognizing further

Report ITU-R RS.2178, on the essential role and global importance of radio spectrum use for Earth observations and for related applications,

noting

a) that *in situ* and remote Earth observation capabilities depend on the availability of radio frequencies under a number of radio services, allowing for a wide range of passive and active applications on satellite- or ground-based platforms (see Report ITU-R RS.2178);

b) that, according to the United Nations Framework Convention on Climate Change, more than 90 per cent of natural disasters are climate- or weather-related;

c) that for certain Earth observation applications, long-term consistency of measurements is essential (e.g. climate change);

d) that certain frequency bands used by Earth observation applications have unique physical characteristics (e.g. spectral lines), so that migration to alternative frequency bands is not possible;

e) that ground-based radiometer measurements at the frequencies of water vapour absorption lines are essential for weather prediction and climate monitoring;

f) that some essential passive frequency bands are covered by No. **5.340** of the Radio Regulations;

g) that some essential passive Earth observation sensors could suffer from interference resulting in erroneous data or even complete loss of data,

resolves

- 1 to continue to recognize that the use of spectrum by Earth observation applications has a considerable societal and economic value;
- 2 to urge administrations to take into account Earth observation radio-frequency requirements and in particular protection of the Earth observation systems in the related frequency bands;
- 3 to encourage administrations to consider the importance of the use and availability of spectrum for Earth observation applications prior to taking decisions that would negatively impact the operation of these applications.