# Outcomes of Cg-17, EC-68 and CBS-16

## Cg-17

1. As can be seen from the general summary of Cg-17, a copy of which is included as [Attachment 1](#_Attachment_1_–), Congress was very supportive of the work towards radio frequency coordination in WMO and the pending WRC-15. It passed two resolutions relating to frequency coordination.
2. Resolution 29 (see [Attachment 2](#_Attachment_2_–)) requested CBS to pursue the continuous review of regulatory and technical matters related to radio frequencies for operational and research meteorological and related environmental activities, and preparation of guidance and information for NMHS, in coordination with other technical commissions, especially the Commission for Instruments and Methods of Observation, and in liaison with other relevant international bodies, in particular the Coordination Group for Meteorological Satellites. It also urged all Members ensure that WMO’s needs were well recognized by national frequency regulators.
3. In order to assist Members, in particular their NMHS, be more effective in frequency coordination matters, Congress also adopted Resolution 30, approving the Guide for NMHS participation in national and international frequency coordination activities. This guide has now been published as WMO No 1159 and is online at <http://library.wmo.int/opac/index.php?lvl=notice_display&id=19056#.WG0fN1UrLRY> in all official languages.

## EC-68

1. Executive Council noting Resolution 29 (Cg-17) and the outcome of WRC-15 adopted Decision 36 (EC-68) and tasked CBS to pursue an intensive preparation for WRC-19, including preparation of a position paper on WRC-19 agenda and to update the WMO/ITU handbook, Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction. A copy of Decision 36 (EC-68) is provided in [Attachment 4](#_Attachment_4_–).

## CBS-16

1. CBS-16 Document 5.4.1(5) noted the Congress and EC resolutions and decisions and tasked SG-RFC accordingly to prepare and support Members in WRC-19 activities, including maintaining a WMO Position Paper on WRC-19 agenda and updating the WMO/ITU handbook on “Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction”. CBS also requested the Secretariat to support the SG-RFC suggestion of holding an ITU/WMO seminar to brief NMHS and national frequency managers on the updated handbook on use of radio spectrum for meteorology. A copy of the Decision 5.4.1(5)/1 is in [Attachment 5](#_Attachment_5_–). This decision will be allocated a formal decision number when the final report of CBS-16 is prepared.
2. CBS-16 Document 5.10(1) addressed the structure of CBS for the coming four years. It included maintaining the SG-RFC under the Open Programme Area Group of Integrated Observing Systems (OPAG-IOS). SG-RFC’s terms of reference were provided in Annex 1 to Decision 5.10(1)/1 (CBS-16). A copy of the Terms of Reference is provided in [Attachment 6](#_Attachment_6_).
3. Annex 3 to Decision 5.10(1)/1 (CBS-16), as listed in [Attachment 7](#_Attachment_7_–), shows that CBS-16 appointed Eric Allaix (France) and David Franc (USA) as Chair and Co-chair of SG-RFC.
4. CBS Management Group has asked OPAGs and expert team chairs to provide a list of core and associate members. A comparative list of existing SG-RFC members and CBS-16 nominations for membership of SG-RFC is provided in Attachment 1 of Doc04 (SG-RFC).
5. CBS Management Group has also invited the Chair of SG-RFC to participate in CBS management group discussions when necessary to enable the management group to identify frequency aspects into other OPAG activities.

## References

[1] Cg-17: Abridged final report with resolutions <http://library.wmo.int/opac/doc_num.php?explnum_id=3138> (04/01/2017)

[2] EC-68: bridged final report with resolutions and decisions <http://library.wmo.int/opac/doc_num.php?explnum_id=3166> (04/01/2017)

[3] CBS-16/Doc5.4.1(5) [Radio Frequency Matters](http://meetings.wmo.int/CBS-16/_layouts/15/WopiFrame.aspx?sourcedoc=%2FCBS-16%2FEnglish%2F2.%20PROVISIONAL%20REPORT%20(Approved%20documents)%2FCBS-16-d05-4-1(5)-RADIO-FREQUENCY-MATTERS-approved_en.docx&action=default) (04/01/2017)

[4] CBS-16/Doc. 5.10(1) [CBS Working Structure](http://meetings.wmo.int/CBS-16/_layouts/15/WopiFrame.aspx?sourcedoc=/CBS-16/English/2.%20PROVISIONAL%20REPORT%20(Approved%20documents)/CBS-16-d05-10(1)-CBS-WORKING-STRUCTURE-approved_en.docx&action=default) (04/01/2017)

[5] Final Report of SG-RFC 2015 <http://wis.wmo.int/file=2187> (14/12/2015)

## Recommended Text

SG-RFC noted the ongoing importance of radio frequency activities as expressed in Resolution 29 (Cg-17), the reliance on CBS to address ongoing issues, including WRC-19 as stated in Decision 36 (EC-68) and the important role of SG-RFC in carrying out this work as described in Decision 5.4.1(5)/1 (CBS-16). It further noted the emphasis place on the Secretariat support of SG-RFC activities with immediate priorities being to provide a position paper on WRC-19 agenda, update the 2008 version of the WMO/ITU Handbook on “Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction” and to consider running a joint WMO / ITU seminar on the importance of frequency coordination for NMHS and national frequency managers.

SG-RFC thanked sincerely Mr Jose Arimatea de Sousa Brito and Mr Gilles Fournier for their strong leadership and contributions as Chair and Vice Chair over the past four and more years. It congratulated Mr Eric Allaix and David Franc on their being made the Chair and Co-chair of SG-RFC.

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# Attachments

## Attachment 1 – Text from Cg-17 General Summary

***Radio-frequency coordination***

4.2.2.87 Congress noted the progress on the preparation for the International Telecommunications Union (ITU) World Radiocommunication Conference 2015 (WRC-15). It expressed its appreciation to the CBS Steering Group on Radio-frequency Coordination (SG-RFC) for its continued diligence and efforts in managing the very specialist issue of radio-frequency coordination and for maintaining the WMO Position Paper on WRC-15 Agenda for the guidance of National Meteorological and Hydrological Services (NMHSs). It noted that the position paper had been submitted to the second WRC-15 Conference Preparatory Meeting as well as other WRC-15 related preparatory meetings.

4.2.2.88 Congress noted the potential impacts of WRC-15 decisions, in particular WRC-15 agenda item 1.1 related to additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications to facilitate the development of terrestrial mobile broadband applications. Congress urged WMO Members and regional associations to ensure that the WMO Position Paper on WRC-15 Agenda is brought to the attention of their national and regional radio-frequency spectrum managers and taken into consideration in the development of national and regional preparations for WRC-15. It also encouraged NMHSs to maintain close contact with respective national radio-frequency authorities during and after the WRC-15 process.

4.2.2.89 Emphasizing that radio-frequency coordination activities remained a matter of high priority as the demand on radio spectrum continues to increase, Congress adopted Resolution 29 (Cg-17) – Radio frequencies for meteorological and related environmental activities.

4.2.2.90 Noting that EC-64 had identified the need for a guide on radio-frequency coordination matters and the request of Resolution 9 (EC-65) for effective participation of NMHSs in national and international radio-frequency coordination processes, Congress adopted Resolution 30 (Cg-17) – Guide to National Meteorological and Hydrological Services’ Participation in Radiofrequency Coordination. It encouraged all NMHSs and regional associations to make use of this guide to enhance their effectiveness in radio-frequency coordination matters at national, regional and global levels.

## Attachment 2 – Res 29 (Cg-17)

**Resolution 29 (Cg-17)**

**RADIO FREQUENCIES FOR METEOROLOGICAL AND RELATED ENVIRONMENTAL ACTIVITIES**

THE WORLD METEOROLOGICAL CONGRESS,

**Noting**:

(1) The WMO Strategic and Operating Plans,

(2) Resolution 4 (Cg-XV) – Radio frequencies for meteorological and related environmental activities,

(3) The current radio-frequency allocations and regulatory provisions related to the meteorological aids, meteorological satellite, Earth-exploration satellite and radiolocation (weather and wind profiler radars) services in the Radio Regulations of the International Telecommunication Union (ITU),

(4) The outcome of the ITU World Radiocommunication Conferences (WRCs),

(5) The agenda of the forthcoming ITU World Radiocommunication Conference and related WMO positions submitted during the ITU preparatory process to WRCs,

**Considering**:

(1) The prime importance of the specific radiocommunication services for meteorological and related environmental activities required for the detection and early warning of hazards and the prevention and mitigation of natural and technological (human-induced) disasters, the safety of life and property, the protection of the environment, climate change studies and scientific research,

(2) The importance of information provided by the Earth-exploration systems including meteorological systems for a wide range of economic activities such as agriculture, transportation, construction and tourism,

(3) The crucial importance of the allocation of suitable radio-frequency bands for the operation of surface-based meteorological observing systems, including in particular radiosondes, weather radars and wind profiler radars,

(4) The crucial importance of the allocation of suitable radio-frequency bands for the operation of meteorological and research and development satellites, including remote-sensing, data collection and data distribution links,

**Stressing** that some radio-frequency bands are a unique natural resource due to their special characteristics and natural radiation enabling space-borne passive sensing of the atmosphere and the Earth surface, which deserve adequate allocation to the Earth-exploration satellite service (passive) and absolute protection from interference,

**Expresses** its serious concern at the continuing threat to several radio-frequency bands allocated to the meteorological aids, meteorological-satellite, Earth-exploration satellite and radiolocation (weather and wind profiler radars) services posed by the development of other radiocommunication services;

**Requests** the Commission for Basic Systems to pursue the continuous review of regulatory and technical matters related to radio frequencies for operational and research meteorological and related environmental activities, and preparation of guidance and information for National Meteorological and Hydrological Services, in coordination with other technical commissions, especially the Commission for Instruments and Methods of Observation, and in liaison with other relevant international bodies, in particular the Coordination Group for Meteorological Satellites;

**Urges** all Members to do their utmost to ensure the availability and protection of suitable radiofrequency bands required for meteorological and related environmental operations and research, and in particular:

(1) To ensure that their national radiocommunication administrations are fully aware of the importance of and requirements for radio frequencies for meteorological and related activities, and to seek their support in the ITU World Radiocommunication Conferences and Radiocommunication Sector (ITU-R) activities;

(2) To participate actively in the national, regional and international activities on relevant radiocommunication regulatory issues and, in particular, to involve experts from their Services in the work of relevant regional telecommunication organizations and of ITU-R, especially ITU-R Study Groups 5 and 7 on Terrestrial (including radiolocation) and Science Services, respectively;

(3) To register adequately with their national radiocommunication administrations all radiocommunication stations and radio frequencies used for meteorological and related environmental operations and research;

**Appeals** to the International Telecommunication Union and its Member Administrations:

(1) To ensure the availability and absolute protection of the radio-frequency bands which, due to their special physical characteristics, are a unique natural resource for spaceborne passive sensing of the atmosphere and the Earth surface and are of crucial importance for weather, water and climate research and operations;

(2) To give due consideration to the WMO requirements for radio-frequency allocations and regulatory provisions for meteorological and related environmental operations and research;

(3) To pay special attention to the WMO positions related to the WRC agenda, in the light of Appeals (1) and (2) above;

**Requests** the Secretary-General:

(1) To bring the present resolution to the attention of all concerned, including the International Telecommunication Union;

(2) To pursue as a matter of high priority the coordination role of the Secretariat in radiofrequency matters, especially with ITU-R, including participation of WMO in ITU-R Radiocommunication Study Groups, conference preparatory meetings and World Radiocommunication Conferences;

(3) To facilitate the coordination between National Meteorological and Hydrological Services and their national radiocommunication administrations, particularly in preparing for the ITU World Radiocommunication Conferences, by providing appropriate information and documentation;

(4) To assist the Commission for Basic Systems in the implementation of the present resolution.

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**Note**: This resolution replaces Resolution 4 (Cg-XV), which is no longer in force.

## Attachment 3 – Guide to NMHS on Radio Frequency Coordination

**Resolution 30 (Cg-17)**

**GUIDE TO NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES’**

**PARTICIPATION IN RADIO-FREQUENCY COORDINATION**

**THE WORLD METEOROLOGICAL CONGRESS,**

Having considered the *Abridged Final Report with Resolutions and Recommendations of the Extraordinary Session 2014 of the Commission for Basic Systems* (WMO-No. 1140),

Noting Resolution 29 (Cg-17) – Radio frequencies for meteorological and related environmental activities,

Considering Recommendation 13 (CBS-Ext.(2014)) – Guide to National Meteorological and Hydrological Services Participation in Radio-frequency Coordination,

Decides to approve the Guide to National Meteorological and Hydrological Services’ Participation in Radio-frequency Coordination, as provided in the annex to Recommendation 13 (CBSExt.(2014));

Requests the Secretary-General to take appropriate action to publish the new Guide in order that Members are able to use it in their preparation processes for the World Radiocommunication Conference 2015;

Authorizes the Secretary-General to make any consequent editorial amendments.

## Attachment 4 – Decision 36 (EC-68) –Preserving RF Spectrum for Meteorology at WRC-19

**Decision 36 (EC-68)**

**PRESERVING THE RADIO-FREQUENCY SPECTRUM FOR METEOROLOGICAL AND RELATED ENVIRONMENTAL ACTIVITIES AT THE WORLD RADIOCOMMUNICATION CONFERENCE 2019**

THE EXECUTIVE COUNCIL,

**Recalling** Resolution 29 (Cg-17) – Radio frequencies for meteorological and related environmental activities, and Resolution 9 (EC-65) – Preserving the radio-frequency spectrum for meteorological and related environmental activities at the World Radiocommunication Conference 2015,

**Recognizing:**

(1) The crucial importance of radio frequencies for obtaining environmental data used for weather forecasting, monitoring and prediction of climate change and for related policymaking,

(2) 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,

(3) The need for absolute protection from interference of radio-frequency bands that enable passive sensing of the atmosphere and the Earth,

**Acknowledging** Resolution 673 (Rev. WRC-12) – The importance of Earth observation radiocommunication applications, of the International Telecommunication Union (ITU),

**Having considered** the outcome of the ITU World Radiocommunication Conference 2015, including the agenda for World Radiocommunication Conferences scheduled for 2019 and 2023,

**Expresses** its serious concern over the potential threats that some agenda items of the World Radio Communication Conference 2019 pose to radio-frequency bands allocated to meteorological aids, meteorological-satellite, Earth exploration-satellite and radiolocation services;

**Requests** the Commission for Basic Systems to:

(1) Pursue an intensive preparation for World Radiocommunication Conference 2019, in coordination with other technical commissions, especially the Commission for Instruments and Methods of Observation, and in close collaboration with ITU and other relevant international bodies, in particular the Coordination Group for Meteorological Satellites and the Space Frequency Coordination Group, in order to ensure a full understanding and a complete consideration of meteorological interests;

(2) Prepare and maintain a WMO position paper on agenda items for World Radiocommunication Conference 2019 that are relevant to WMO and Earth observation activities;

(3) Review and update the 2008 edition of the WMO/ITU handbook, *Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction*, to provide a worldwide full and accurate description of meteorological systems and their current and projected use of spectrum;

**Requests** the Secretary-General:

(1) To give high priority to the preparation for World Radiocommunication Conference 2019, in order to obtain and preserve the radio-frequency bands essential for meteorology and related fields, in particular, through the Steering Group on Radio Frequency Coordination of the Commission for Basic Systems;

(2) To maintain the coordination role of the Secretariat in preparation for World Radiocommunication Conference 2019, including participation in ITU radiocommunication meetings and in the Conference itself;

(3) To facilitate coordination between National Meteorological and Hydrological Services and their national radiocommunication administrations in preparing for World Radiocommunication Conference 2019, by providing appropriate information and documentation;

**Requests** Members to provide experts to participate in the Steering Group on Radio Frequency Coordination of the Commission for Basic Systems, the ITU radiocommunication sector and other activities related to the preparation of World Radiocommunication Conference 2019;

**Urges** Members to take an active role in preparation for the Conference and do their utmost to ensure the availability and protection of radio-frequency bands required for meteorological and related environmental operations and research, and in particular:

(1) To participate actively in national, regional and international activities in preparation for the Conference and especially to involve experts from their Services in the work of and working parties;

(2) To include consideration of radio-frequency spectrum issues into regional and national implementation plans of the WMO Integrated Global Observing System;

(3) To ensure that their national radiocommunication/radio-frequency spectrum management administrations are fully aware of the WMO position on the agenda of the World Radiocommunication Conference 2019.

## Attachment 5 – Decision 5.4.1(5)/1 (CBS-16)

**Decision 5.4.1(5)/1 (CBS-16)**

Preserving the radio-frequency spectrum for meteorological and related environmental activities at the World Radiocommunication Conference 2019

**THE COMMISSION FOR BASIC SYSTEMS,**

**Recalling:**

(1) Resolution 29 (Cg-17) - Radio frequencies for meteorological and related environmental activities,

(2) Decision 36 (EC-68) - Preserving the radio-frequency spectrum for meteorological and related environmental activities at the World Radiocommunication Conference 2019,

**Recognizing:**

(1) The requirement for CBS to pursue the continuous review of regulatory and technical matters related to radio frequencies for operational and research meteorological and related environmental activities, and preparation of guidance and information for National Meteorological and Hydrological Services (NMHSs), in coordination with other technical commissions and stakeholders such as the Coordination Group for Meteorological Satellites,

(2) The successful and effective approach of the Steering Group on Radio Frequency Coordination (SG-RFC) in the three previous World Radiocommunication Conferences (WRC-07, WRC-12 and WRC-15),

(3) The important role of the following two publications in assisting radio frequency managers and NMHSs to understand the needs of the WMO communities for radio frequency spectrum allocation and management:

(a) Joint WMO and International Telecommunication Union (ITU) publication of the “Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction” ([2008 Edition](http://www.itu.int/en/publications/ITU-R/pages/publications.aspx?parent=R-HDB-45-2008&media=electronic)), presently under review by WMO and ITU experts,

(b) WMO *Guide to participation in Radio Frequency Coordination* ([WMO-No. 1159](http://wis.wmo.int/page=SG-RFC-Guide)),

**Decides:**

(1) To maintain the continuous review of regulatory and technical matters related to radio frequencies in line with Resolution 29 (Cg-17);

(2) To make available to NMHSs and radio frequency regulators a WMO Position Paper on the needs of WMO to be considered under the World Radiocommunication Conference 2019 (WRC-19) Agenda;

(3) To complete, in coordination with ITU, the review of “Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction” ([2008 Edition](http://www.itu.int/en/publications/ITU-R/pages/publications.aspx?parent=R-HDB-45-2008&media=electronic));

**Requests** the Steering Group on Radio Frequency Coordination:

(1) To continue in the preparation for WRC-19 including developing and maintaining a position on WRC-19 Agenda ensuring that such information is made available to national and regional WRC-19 preparation activities;

(2) To complete the update of “Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction”;

**Requests** the Secretary-General:

(1) To support the work of CBS and the SG-RFC as a matter of importance, including to maintain the relevant priority and visibility of this action, in particular in budgetary and personnel decisions, to facilitate publishing of the WMO position on WRC-19 Agenda and the WMO/ITU handbook on “Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction”;

(2) To bring the present decision to the attention of all concerned, including the International Telecommunication Union Radiocommunication Sector (ITU-R);

(3) To coordinate with ITU on increasing awareness of the WMO position on WRC-19 Agenda and on the use of radio spectrum in the WMO community including consideration of an ITU/WMO seminar to brief NMHS and non NMHS frequency managers on the updated handbook on use of radio spectrum for meteorology;

**Authorizes** the Secretary-General to make editorial changes to the output of CBS under this decision for the purposes of distribution and publication;

**Urges** NMHSs to participate in national radio frequency coordination activities including presenting the WMO position on WRC-15 agenda at national and regional frequency management and coordination forums.

## Attachment 6 - SG-RFC Terms of reference

Annex 1 to Decision 5.10(1)/1 (CBS-16)

(a) Under the direction of the chairperson of the OPAG-IOS, undertake tasks and provide advice on and support for the implementation of the WIGOS framework and the priority activities of the WIGOS pre-operational phase;

(b) Review allocations of radio frequency bands and frequency assignments of systems and applications for meteorological activities including their operational requirements (telecommunications, instruments, sensors, etc.) and research purposes, in close coordination with other technical commissions, especially CIMO, and the CBS/OPAG-ISS;

(c) Coordinate with WMO Members, with the assistance of the WMO Secretariat, to:

(i) Ensure the availability of radio-frequency spectrum to meteorological and other environment monitoring radiocommunication services;

(ii) Ensure the proper notification and registration of frequency assignments used for meteorological purpose;

(iii) Identify the future use of the radio-frequency spectrum for meteorological purpose;

(d) Keep abreast of the activities of the Radiocommunication Sector of the International Telecommunication Union (ITU-R), and in particular of the Radiocommunication Study Groups, on radio frequency matters pertaining to meteorological activities, and represent WMO in ITU-R work;

(e) Prepare and coordinate proposals and advice to WMO Members on radio regulation matters pertaining to meteorological activities in ITU Radiocommunication Study Groups, radiocommunication Assemblies (RA), World Radiocommunication Conferences (WRC) and related global and regional preparatory meetings;

(f) Facilitate the cooperation among WMO Members for the use of frequency bands allocated to meteorological and environment monitoring radiocommunication services with respect to:

(i) Coordination of radio-frequency spectrum use and frequency assignments between countries;

(ii) Sharing the same frequency bands between various radiocommunication services;

(g) Facilitate the coordination of WMO frequency use activities with other international organizations which address radio spectrum management issues, including specialized organizations (e.g. CGMS, the Space Frequency Coordination Group (SFCG)) and regional telecommunication organizations, such as the European Conference of Postal and Telecommunications Administrations (CEPT), the Inter-American Telecommunication Commission (CITEL), the Asia-Pacific Telecommunity (APT), the Regional Commonwealth in the Field of Communications (RCC); the African Telecommunication Union (ATU), and the Arab Spectrum Management Group (ASMG);

(h) Assist WMO Members, upon request, on issues related to the assignment of frequency bands to radiocommunication systems;

(i) Increase the understanding of the role of NMHSs in radio frequency coordination and the importance of the close collaboration with the ITU Radiocommunication Sector (ITU-R) and the Telecommunication Development Sector (ITU-D) in the accomplishment of the WMO priority activities, and in particular review and propose updates to the WMO *Guide to Participation in Radio Frequency Coordination* (WMO-No. 1159), and the WMO/ITU Handbook on the "Use of radio spectrum for meteorology: weather, water and climate monitoring and prediction”;

(j) Provide advice and support to the chairperson of OPAG-IOS, and report on all activities relevant to its Terms of Reference.

## Attachment 7 – SG-RFC Chairs

**Annex 3 to Decision 5.10(1)/1 (CBS-16)**

Chairperson: E Allaix (France)

Co-chairperson: D Franc (USA)