



World Meteorological Organization (WMO)

World Radiocommunication Conference 2012 (WRC-12) Results on Meteorological Issues and Preparation to WRC-15 *(preliminary discussion)*

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Radiocommunication Conference 2012 (WRC -12)

WRC-12 (23.01 – 17.02 2012)

- 33 agenda items; again almost all services
- terrestrial: radiolocation, aeronautical, passive, meteorological aids, fixed, broadcasting, maritime, amateur services;
- space: aeronautical-satellite, space research, mobile-satellite, broadcasting-satellite, meteorological-satellite, radiodetermination-satellite services
- and many other issues, applications and systems: Res.951, SRDs, cognitive radio, UAS, ENG, HAPS, oceanographic radar, ...



Over 3000 participants, representing 165 out of ITU's 193 Member States attended the four-week Conference. Over 100 Observers from among ITU's 700 private and public sector members along with international organizations also attended WRC-12.

WRC-12 concluded its deliberations with the signing of the Final Acts that revise the Radio Regulations, the international treaty governing the use of radio-frequency spectrum and satellite orbits.



WRC-12 Key Issues

- Increase efficiency in the use of the spectrum/orbit resource
- Spectrum for International Mobile Telecommunications (IMT)
- Early warning, disaster mitigation and relief operations
- Earth observation's societal and economic value recognized
- Meteorological-satellite service gets more bandwidth
- Satellite remote passive sensing
- Oceanographic radars get support
- Maritime services
 - Maritime communication requirements to support safety systems for ships and ports
 - Transmitting frequencies in the VHF maritime mobile band
- Aeronautical services
 - Aviation safety
 - Aeronautical mobile (route) service
 - Aeronautical mobile to protect other primary services in 37–38 GHz band (*including EESS*)
 - Aerospace surveillance



WMO SG-RFC Main Activities before WRC-12

(as decided by SG-RFC Meeting in October 2011)

- SG-RFC at its meeting studied inputs from different administrations and developed “[Final WMO position paper on WRC-12 Agenda](#)”;
- WMO Secretariat translated this document to 5 other UN languages and submitted to the ITU as contribution “[WMO Position on WRC-12 Agenda](#)”
- SG-RFC members/experts continued promoting WMO positions at the ITU-R Study Groups and Working Parties meetings;
- SG-RFC appointed the SG-RFC focal points to promote WMO positions on the relevant WRC-12 Agenda items;
- SG-RFC developed the working arrangement and working methods of the SG-RFC Team during WRC-12;
- SG-RFC invited the SG-RFC Chairman and WMO Secretariat to coordinate the SG-RFC Team activities at WRC-12;



WMO SG-RFC Main Activities before WRC-12

continued

- WMO Secretary-General sent letters to PRs urging participation of SG-RFC members/experts in the SG-RFC Team at WRC-12;
- WMO Secretariat and SG-RFC member Mr. Ph. Tristant published articles promoting WMO position in the ITU NEWS magazine issued just before WRC-12 “Natural disasters and climate monitoring” and “Spectrum for Earth observations — A global challenge for ITU members”;
- WMO published the press-release “WMO highlights importance of radio frequencies for Earth observations. Weather, climate and water services depend on radio frequency bands” on 16 January 2012



WMO SG-RFC Team at WRC-12

Delegates in National Delegations

1	AL-ADAWI Ali (Oman)
2	CARTER Roger (UK)
3	DE WAAL Karel (South Africa)
4	DENNY Robert (USA)
5	DREIS Markus (Germany)
6	FOURNIER Gilles (SG-RFC Vice-Chairman) (Canada)
7	FRANC David (USA)
8	GOULD Glen (Australia)
9	HETRICK Paul (Australia)
10	LECK Robert (USA)
11	METZNER James (USA)
12	PRICE Alastair (UK)
13	RIVERA Carmelo (USA)
14	TRISTANT Philippe (France)
15	VASSILIEV Alexandre (Russia)
16	ZHANG Ming (China)

WMO Representatives

17	ATKINSON Roger (WMO)
<i>see 2</i>	CARTER Roger (UK)
18	CLERC Jean-Michel (Switzerland)
19	DE SOUSA BRITO Jose (SG-RFC Chairman) (Brazil)
<i>see 5</i>	DREIS Markus (Germany)
20	FOREMAN Stephen (WMO)
21	LAFEUILLE Jerome (WMO)
<i>see 12</i>	PRICE Alastair (UK) <i>see 11</i>
22	THOMAS David (WMO)
<i>see 14</i>	TRISTANT Philippe (France)

All 6 ITU regional organizations were represented in the WMO SG-RFC Team at WRC-12!!!



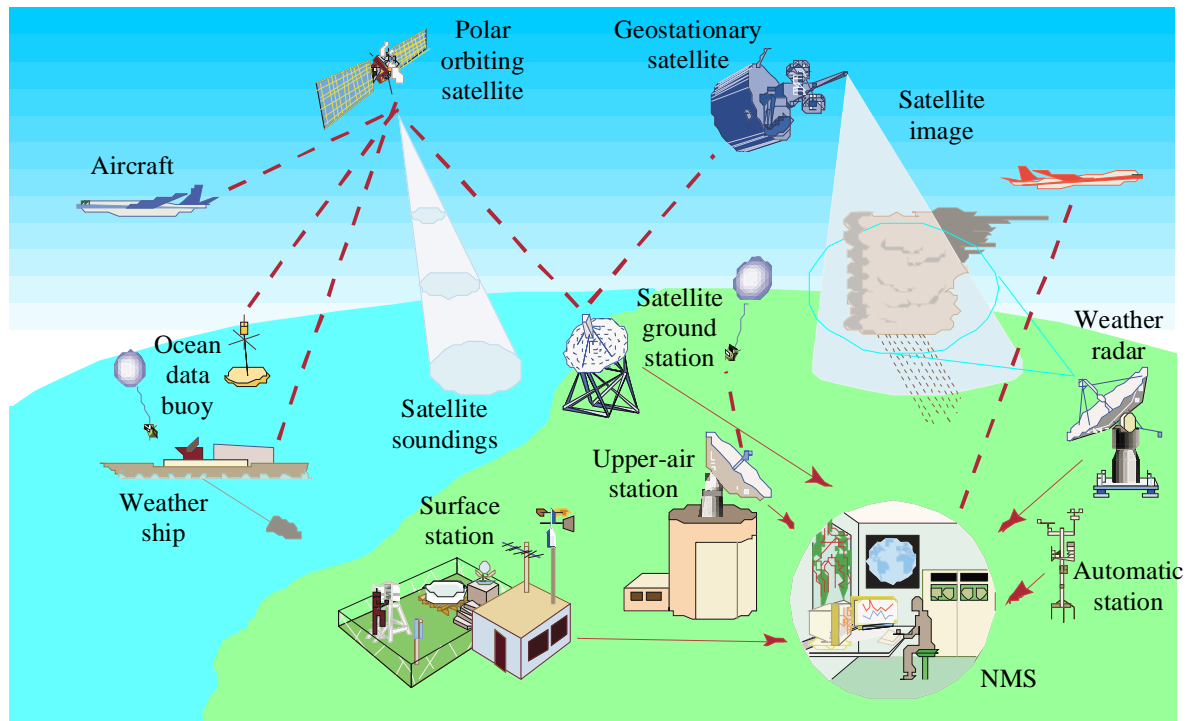
WMO SG-RFC Team Strategy and Activities at WRC-12

Working arrangement:

- introduction of WMO position document, presentation and promoting of WMO position at meetings of WRC-12 Committees, Working and Drafting groups by WMO representatives – coordinated by the SG-RFC Chairman Mr. J. De Sousa Brito and by Mr. D. Thomas;
- discussions of the latest development and the required actions at SG-RFC Team meetings (3 meetings were organized on the 1st, 2nd, and 3rd weeks of WRC-12);
- E-mail exchange on important issues;
- informal discussions and lobbying of WMO position with members of other delegations and regional groups;
- WMO published the press-release “[WMO Welcomes Outcome of World Radiocommunication Conference 2012](#)” on 17 February 2012.



Results of WRC-12 Deliberations on Agenda Items Devoted to the Effective Operation, the Further Development and International Recognition of Meteorological Applications and Systems





AI 8.1: Consider and approve the Report of the Director of the Radiocommunication Bureau on

8.1.1: Activities of the ITU-R Sector since WRC-07

Issue C: Radiocommunication use for Earth observation applications (Chapter 6 of CPM Report)

WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned Working Party(ies)
673 (WRC-07)	WP 7C	-

Situation before WRC-12: In response to Res. **673 (WRC-07)** ITU-R Study Group 7 (“Science Services”) with active participation of WMO developed several deliverables such as [Rec. ITU-R RS.1883](#) “Use of remote sensing systems in the study of climate change and the effects thereof”, [Report ITU-R RS.2178](#) “The essential role and global importance of radio spectrum use for Earth observations and for related applications”, [ITU/WMO Handbook](#) “Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction”.

WMO position: WMO supports all actions aimed at further recognition of the essential role and global importance of meteorological applications and related radio systems/networks. WMO considers that the results of ITU/WMO common studies are adequate response to Res. **673 (WRC-07)**.



AI 8.1.1 Issue C: Radiocommunication use for Earth observation applications (Chapter 6 of CPM Report) – *cont.*

WRC-12 decisions: WRC-12 revised and renamed Res. 673 (WRC-07) on radiocommunications use for Earth observation applications.

Resolution 673 (Rev.WRC-12) “The importance of Earth observation radiocommunication applications” *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.

Recognizing the importance of Earth observations WRC-12 also added the new Article 29A “Radio services related to Earth observation” to the Radio Regulations. Article 29A references Res. 673 (Rev.WRC-12).

These decisions is completely inline with WMO position.



AI 1.6: update spectrum use by passive services in 275-3000 GHz, and possible procedures for free-space optical-links (Chapter 6 of CPM Report)

WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned Working Party(ies)
950 (Rev.WRC-07)	WP 1A*	7C, 7D (3M)
955	WP 1A	5C, 7B, (3M)

* based on requirements developed by SG 7

WMO objective: include into RR No. 5.565 identifications of the bands of interest to Earth-exploration-satellite and space research passive services in the range 275-1 000 GHz and stress the interest of the passive services in the range 1 000-3 000 GHz.

WMO position: WMO supports the only Method in the CPM Report mentioned above.

WRC-12 decision: WRC-12 included reference to the passive bands within the 275-3000 GHz range in the Radio Regulations. No change to RR was made for free-space optical links.

This decision is completely in line with WMO position.



AI 1.12: protect primary services in the band 37-38 GHz from interference resulting from aeronautical mobile service operations (Chapter 4 of CPM Report)

WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned Working Party(ies)
754	WP 7B	4A, 5B, 5C (5A)

This WRC-12 Agenda item was not discussed by the SG-RFC, however taking into account that protection of the space research service (space-to-Earth) plays an important role in the WMO Space Weather programme an information on the AI 1.12 results may be interesting for WMO staff.

WRC-12 decision: taking into account the results of the ITU-R studies that demonstrated incompatibility of the aeronautical mobile systems with the space research service (space-to-Earth), WRC-12 excluded allocation to the aeronautical mobile service from 37-38 GHz frequency band.



AI 1.15: consider possible allocations in range 3-50 MHz to the RLS for oceanographic radar applications (Chapter 2 of CPM Report)

WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned Working Party(ies)
612	WP 5B	5C, 6D, (5A, 7B, 7D)

WMO objection: create the regulatory basis for effective operation and development oceanographic radars.

WMO position: from WMO prospective the relevant primary allocations (Method A in CPM Report) will provide the best opportunities for oceanographic radar applications.

WRC-12 decision: the Conference allocated frequency ranges on primary/secondary basis for the use by oceanographic radars that will ensure the operation of the current and future oceanographic applications. WRC-12 also modified Res. 612 (Rev. WRC-12) ensuring oceanographic radars do not interfere with systems of other services. *AI 1.15 was one of the most difficult AIs.* Although some of these allocations are not “primary”. This compromise will provide the ground for the use and future development of oceanographic radars.





AI 1.16: needs of passive systems for lightning detection in MetAids, including possibility of allocation in range below 20 kHz (Chapter 4 of CPM Report)

WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned Working Party(ies)
671	WP 7C	(3L, 5B, 5C, 7A)

WMO objective: Create the necessary regulatory environment for effective operation and future development of lightning detection applications in meteorological aids service.

WMO position: WMO supports the proposed the method in CPM Report adding to RR new allocation 8.3-11.3 kHz, modification of RR No. 5.53 and 5.54, addition of 2 new footnotes to RR Article 5. It is ensuring long-term availability of lightning detection applications.

WRC-12 decision: The Conference added the new allocation 8.3-11.3 kHz for meteorological aids service to RR Article 5, modified RR Nos. 5.53 and 5.54 and included 3 additional allocations for fixed/mobile/maritime/radionavigation services in some countries (Russia, Chine and some Arab States).

WRC-12 decision is in line with WMO position.





AI 1.24: consider extension to band 7850-7900MHz of existing MetSat allocation at 7750-7850 MHz, for NGSO satellites (space-to-Earth) (Chapter 4 of CPM Report)

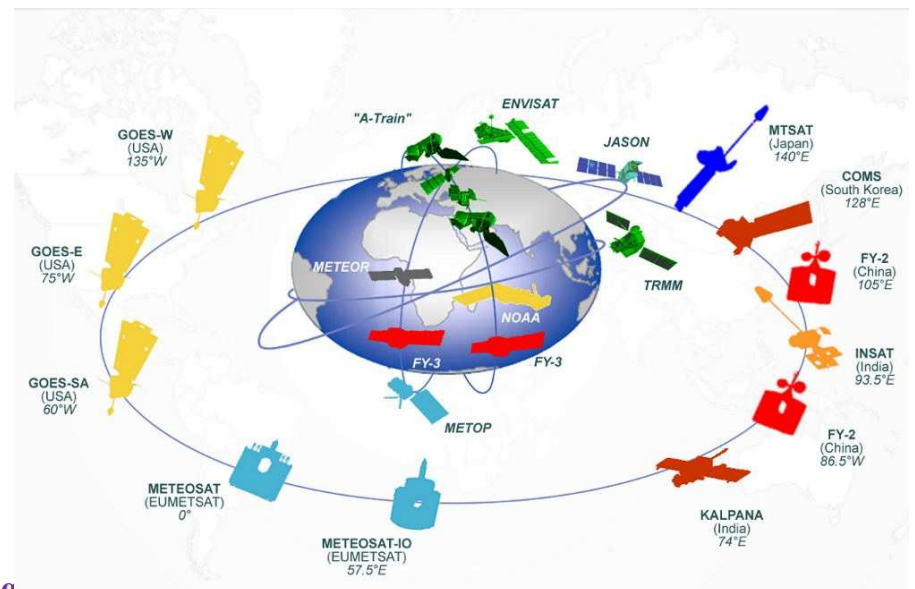
WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned Working Party(ies)
672	WP 7B	5C (5A, 5B)

WMO objective: support the expansion of allocation to the meteorological-satellite service. MetSat is a part of the Space-based Global Observing System.

WMO position: WMO is completely in line with the only Method in the CPM Report that satisfies WMO objective.

WRC-12 decision: WRC-12 agreed to an extension of the allocation to meteorological-satellite service in the band 7 750-7 850 MHz to the band 7 850-7 900 MHz.

This decision is completely in line with WMO position.





AI 1.2: take appropriate action with a view to enhancing the international regulatory framework (Chapter 6 of CPM Report)

WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned groups
951 (Rev.WRC-07)	WP 1B	SG 4, SG 5, SG 6, SG 7 (SG 3)

WMO objective: maintain protection of meteorological applications, provided by the existing version of RR. Keep a clear distinction between fixed and mobile services to avoid a potential risk for meteorological applications since otherwise it could create incompatibility scenarios.

WMO position: WMO supports no change to RR Methods (A1 and B1 as described in the CPM Report).

WRC-12 decision: After very long discussions WRC-12 administrations decided that no change were required in the Radio Regulations (RR).

This decision is completely in line with WMO position.



AI 1.5: consider worldwide/regional harmonization of spectrum for electronic news gathering (ENG) (Chapter 3 of CPM Report)

WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned Working Party(ies)
954	WP 5C*	5A, 6D, 6G, 6X (4A,4C,7B,7D)

* based on requirements developed by SG 6

WMO objective: avoid increasing interference level to meteorological applications due to introduction of ENG tuning ranges.

WMO position: WMO supports Method B in CPM Report (“no change” to RR + WRC Res./Rec. on ENC tuning ranges) and opposes to inclusion in the tuning ranges bands 2 700-2 900 and 5 470-5 725 MHz.

WRC-12 decision: WRC-12 Plenary agreed to no change to the Radio Regulations. This avoids increasing interference level to meteorological applications due to introduction of electronic news gathering tuning ranges.

This decision is in line with WMO position.

2200-2290 MHz - MetSat data transfer; 2700-2900 MHz- S-band weather radars;
10.6-10.68 GHz - primary passive satellite sensing band: rain, snow, ice,
sea state, ocean wind, ocean surface temperature, soil moisture



AI 1.8: consider progress studies of technical and regulatory issues relative to the FS in the bands between 71 GHz and 238 GHz (Chapter 3 of CPM Report)

WRC Resolution(s)	ITU-R resp. group	ITU-R concerned Working Party(ies)
731 (WRC-2000)	WP 5C	7C, 7D (1A, 4A)
732 (WRC-2000)		7B, (1A, 4A)

WMO objective: not suppressing WRC Resolutions that provide protection of meteorological applications and systems.

WMO position: taking into account that Res. 731 (WRC-2000) covers sharing and adjacent band compatibility issues between passive and active services *in general* not only with the fixed service WMO should support the Method A1 in the CPM Report.

WRC-12 decision: WRC-12 did not suppress and revised instead Resolutions 731 (Rev.WRC-12) and 732 (Rev.WRC-12) taking into account the recent development. **This decision is completely in line with WMO position.**

AI 1.8 was one of the most difficult Agenda items.



AI 1.8: consider progress studies of technical and regulatory issues relative to the FS in the bands between 71 GHz and 238 GHz (Chapter 3 of CPM Report) - *continued*

WRC Resolution(s)	ITU-R resp. group	ITU-R concerned Working Party(ies)
731 (WRC-2000)	WP 5C (8 - 16 November 2011)	7C, 7D (1A, 4A)
732 (WRC-2000)		7B, (1A, 4A)

WMO objective: include EESS protection criteria in RR.

WMO position: in order to provide an adequate protection to EESS WMO supports the Method B1 (introduction of the hard limits) in the CPM Report.

WRC-12 decision: In considering technical and regulatory issues relating to the fixed service in the bands between 71 and 238 GHz, WRC-12 decided to include recommended limits for active services using adjacent bands to passive services and invited ITU-R to carry out necessary studies and develop relevant Recommendations.

AI 1.8 was one of the most difficult Agenda items. This decision is a compromise that should provide necessary protection to EESS systems.

86-92 GHz – secondary passive satellite sensing band: clouds, ice, rain, snow



AI 1.19: consider regulatory measures in order to enable the introduction of software-defined radio (SDR) and cognitive radio systems (CRS) (Chapter 6)

WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned groups
956	WP 1B	SG 3, SG 4, SG 5, SG 6, SG 7

WMO objective: CRS are incompatible with passive sensors. CRS shall not be used in “passive bands” and in the bands used by meteorological radars. SDR systems shall not be deployed in the above-mentioned bands.

WMO position: WMO supports the following Methods in CPM Report:

- **SDR issue - Method A** (NOC to RR+SUP Res. **956(WRC-07)**);
- **CRC issue – either Method B1** (NOC to RR+SUP Res. **956(WRC-07)**+ITU-R Res. on studies related to the use of CRC) **or Method B2** – similar to Method B1 but WRC Res. instead of ITU-R Res. on studies related to the use of CRC.

WRC-12 decision: No change to RR, SUP Res.956 (WRC-07), Rec. COM6/1 (WRC-12) “Deployment and use of cognitive radio systems”. Radiocommunication Assembly RA-12 has also adopted Res. ITU-R 58 “Studies on the implementation and use of cognitive radio systems”. **This decision is completely in line with WMO position.**



AI 1.20: studies on spectrum identification for gateway links for HAPS in the range 5 850-7 075 MHz to support operations in the FS and MS (Chapter 3 of CPM Report)

WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned Working Party(ies)
734 (Rev.WRC-07)	WP 5C	4A (3M, 5A, 5B, 7B,7C)

WMO objective: the 6 425-7 075 MHz band is used by EESS (passive). ITU-R sharing studies show that HAPS will cause interference to EESS (passive) systems..

WMO position: WMO supports Method A (No change to RR) in CPM Report.

WRC-12 decision: after a very long deliberation the Conference allocated the frequency band 6 560-6 640 MHz (ground-to-HAPS direction) in 6 countries only (Australia, Burkina Faso, Cote d'Ivoire, Mali and Nigeria) and introduced significant limitations on the use of HAPS that should not create real problems for EESS systems.

The WMO achieved its aim to reduce the risk of interference EESS passive system.

6 425-7 075 MHz – microwave sensing over ocean



AI 1.22: examine effect of emissions from short-range radio devices (SRD) on radiocommunication services (Chapter 3 of CPM Report)

WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned groups
953	WP 1A	SG 3, SG 4, SG 5, SG 6, SG 7

WMO objective: ensure compatibility of SRD with and protection of meteorological applications and services.

WMO position: any method from CPM Report under condition that the aggregate effect of emissions from SRDs deployed within one country shall not have negative impact on space-based radiocommunication systems and in particular passive remote sensors operated by other administrations. WMO also opposes identification of the so-called “RLAN bands” (5 150-5 350 MHz and 5 470-5 725 MHz) and the 401-406 MHz band as harmonised SRD bands either at WRC-12 or in an ITU-R Recommendation.

WRC-12 decision: No change to the Radio Regulations. The above-mentioned frequency bands were not included in Rec. ITU-R SM.1896 [“Frequency ranges for global or regional harmonization of short-range devices”](#) approved in Nov 2011.

These decisions by ITU-R are completely in line with WMO position.

401-406 MHz - meteorological aids (radiosondes);
5150-5350 and 5470-5725 MHz- C-band weather radars



AI 1.25: consider possible additional allocations to the mobile-satellite service (MSS), particular focus on the bands between 4 GHz and 16 GHz (Chapter 5 of CPM Report)

WRC-07 Resolution(s)	ITU-R resp. group	ITU-R concerned groups
231	WP 4C	SG 1, SG 3, SG 5, SG 6, SG 7

WMO objective: ensure protection of EESS applications (passive and active) from interference by future MSS systems (if any).

WMO position: 6 frequency bands for consideration were identified in CPM Report. MSS allocations in the bands 2, 4, 5 may create significant problems for meteorological applications. Therefore WMO supports:

No change to RR related to band 2; may agree with allocations in bands 4 and 5 if EESS protection is ensured.

WRC-12 decision: no new allocation to MSS (No change to RR).
This decision is completely in line with WMO position.

	Frequency band	Direction*
1	5 150-5 250 MHz	DL
2	7 055-7 250 MHz	DL
3	8 400-8 500 MHz	UL
4	10.5-10.6 GHz	DL
5	13.25-13.4 GHz	DL
6	15.43-15.63 GHz	UL

*DL = downlink,
 UL = uplink

7 055-7 250 MHz passive measurements over ocean; 10.6-10.7 GHz - primary passive satellite sensing band: rain, snow, ice, sea state, ocean wind, ocean surface temperature, soil moisture; 13.25-13.4 GHz - scatterometers, altimeters and spaceborne X-band radars.



Conclusion

Radio frequency spectrum which is vital for weather forecasts, disaster warnings and climate monitoring will remain available to the meteorological community and protected from interference from other applications thanks to decisions taken by the World Radiocommunication Conference 2012 (WRC-12).

WRC-12 reinforced the commitment of previous World Radiocommunication Conferences to the special needs of meteorological and hydrological services, despite competing pressure for scarce radio frequencies from wireless technology and other uses.



AI 8.2: “to recommend to the Council items for inclusion in the agenda for the next WRC, and give its views on the preliminary agenda for the subsequent conferences, taking into account Res. 806 (WRC-07)

WRC-12 adopted Resolution COM 6/6 (WRC-12) with a draft of WRC-15 Agenda (to be considered and approved by the ITU Council). The following AIs were included:

- 1.1** to consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, in accordance with Res. **COM6/8 (WRC-12)**;
- 1.2** to examine the results of ITU-R studies, in accordance with Res. **COM5/10 (WRC-12)**, on the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service in Region 1 and take the appropriate measures;
- 1.3** to review and revise Res. **646 (Rev.WRC-12)** for broadband public protection and disaster relief (PPDR), in accordance with Res. **COM6/11 (WRC-12)**;
- 1.4** to consider possible new allocation to the amateur service on a secondary basis within the band 5 250-5 450 kHz in accordance with Res. **COM6/12 (WRC-12)**;



WRC-15 Provisional Agenda (2)

1.5 to consider the use of frequency bands allocated to the fixed-satellite service not subject to Appendices **30**, **30A** and **30B** for the control and non-payload communications of unmanned aircraft systems (UAS) in non-segregated airspaces, in accordance with Res. **COM6/13 (WRC-12)**;

1.6 to consider possible additional primary allocations:

- 1.6.1** to the fixed-satellite service (Earth-to-space and space-to-Earth) of 250 MHz in the range between 10 GHz and 17 GHz in Region 1;

- 1.6.2** to the fixed-satellite service (Earth-to-space) of 250 MHz in Region 2 and 300 MHz in Region 3 within the range 13-17 GHz;

- and review the regulatory provisions on the current allocations to the fixed-satellite service within each range, taking into account the results of ITU-R studies, in accordance with Res. **COM6/4 (WRC-12)** and **COM6/5 (WRC-12)**, respectively;

1.7 to review the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-geostationary mobile-satellite systems in the mobile-satellite service) in accordance with Res. **114 (Rev.WRC-12)**;

1.8 to review the provisions relating to earth stations located on board vessels (ESVs), based on studies conducted in accordance with Res. **COM6/14 (WRC-12)**;



WRC-15 Provisional Agenda (3)

1.9 to consider, in accordance with Res. **COM6/15 (WRC-12)**:

•1.9.1 possible new allocations to the fixed-satellite service in the frequency bands 7 150-7 250 MHz (space-to-Earth) and 8 400-8 500 MHz (Earth-to-space), subject to appropriate sharing conditions;

•1.9.2 the possibility of allocating the bands 7 375-7 750 MHz and 8 025-8 400 MHz to the maritime-mobile satellite service and additional regulatory measures, depending on the results of appropriate studies;

1.10 to consider spectrum requirements and possible additional spectrum allocations for the mobile-satellite service in the Earth-to-space and space-to-Earth directions, including the satellite component for broadband applications, including International Mobile Telecommunications (IMT), within the frequency range from 22 GHz to 26 GHz, in accordance with Res. **COM6/16 (WRC-12)**;

1.11 to consider a primary allocation for the Earth exploration-satellite service (Earth-to-space) in the 7-8 GHz range, in accordance with Res. **COM6/17 (WRC-12)**;

1.12 to consider an extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9 300-9 900 MHz by up to 600 MHz within the frequency bands 8 700-9 300 MHz and/or 9 900-10 500 MHz, in accordance with Res. **COM6/18 (WRC-12)**;



WRC-15 Provisional Agenda (4)

1.13 to review No. **5.268** with a view to examining the possibility for increasing the 5 km distance limitation and allowing space research service (space-to-space) use for proximity operations by space vehicles communicating with an orbiting manned space vehicle, in accordance with Res. **COM6/19 (WRC-12)**;

1.14 to consider the feasibility of achieving a continuous reference time-scale, whether by the modification of coordinated universal time (UTC) or some other method, and take appropriate action, in accordance with Res. **COM6/20 (WRC-12)**;

1.15 to consider spectrum demands for on-board communication stations in the maritime mobile service in accordance with Res. **COM6/3(WRC-12)**;

1.16 to consider regulatory provisions and spectrum allocations to enable possible new Automatic Identification System (AIS) technology applications and possible new applications to improve maritime radiocommunication in accordance with Res. **COM6/21 (WRC-12)**;

1.17 to consider possible spectrum requirements and regulatory actions, including appropriate aeronautical allocations, to support wireless avionics intra-communications (WAIC), in accordance with Res. **COM6/22 (WRC-12)**;

1.18 to consider a primary allocation to the radiolocation service for automotive applications in the 77.5-78.0 GHz frequency band in accordance with Res. **COM6/23 (WRC-12)**;



WRC-15 Provisional Agenda (5)

2 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with Res. **28 (Rev.WRC-03)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in Annex 1 to Res. **27 (Rev.WRC-12)**;

3 to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;

4 in accordance with Res. **95 (Rev.WRC-07)**, to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

5 to review, and take appropriate action on, the Report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention;

6 to identify those items requiring urgent action by the Radiocommunication Study Groups in preparation for the next world radiocommunication conference;



WRC-15 Provisional Agenda (6)

- 7** to consider possible changes, and other options, in response to Res. 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, an advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Res. **86 (Rev.WRC-07)** to facilitate rational, efficient, and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;
- 8** to consider and take appropriate action on requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Res. **26 (Rev.WRC-07)**;
- 9** to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention:
- 9.1 on the activities of the Radiocommunication Sector since WRC-12;
 - 9.1.1 – Res. **205 (Rev.WRC-12)** Protection of the systems operating in the mobile-satellite service in the band 406-406.1 MHz
 - 9.1.2 – Res. **COM5/5 (WRC-12)** Studies on possible reduction of the coordination arc and technical criteria used in application of No. 9.41 in respect of coordination under No. 9.7
 - 9.1.3 – Res. **COM5/11 (WRC-12)** Use of satellite orbital positions and associated frequency spectrum to deliver international public telecommunication services in developing countries
 - 9.1.4 – Res. **COM6/2 (WRC-12)** Updating and rearrangement of the Radio Regulations



WRC-15 Provisional Agenda (7)

9.1.5 – Res. **COM6/24 (WRC-12)** Consideration of technical and regulatory actions in order to support existing and future operation of fixed-satellite service earth stations within the band 3 400-4 200 MHz, as an aid to the safe operation of aircraft and reliable distribution of meteorological information in some countries in Region 1

9.1.6 – Res. **PLEN/1 (WRC-12)** Studies towards review of the definitions of *fixed service, fixed station and mobile station*

9.1.7 – Res. **647 (Rev. WRC-12)** Spectrum management guidelines for emergency and disaster relief radiocommunication

9.1.8 – Res. **COM6/10 (WRC-12)** Regulatory aspects for nano- and picosatellites

- 9.2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations; and
- 9.3 on action in response to Res. **80 (Rev.WRC-07)**;

10 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention,



Future WMO Tasks Related to Radio-Frequency Spectrum Issues

Among WRC-12 Agenda items, 13 items concerned frequency bands or issues of prime interest/concern for Meteorology.

According to a preliminary analysis based on the same counting method there are 16 Agenda items related to frequency bands or issues of prime interest/concern for meteorology in the draft WRC-15 Agenda!

THERE IS MUCH LESS TIME AVAILABLE FOR STUDIES – PRACTICALLY UP TO JULY 2014 ONLY!!!



Additional Information

8 March 2012, WMO Headquarters, Geneva



Conference Preparatory Meeting CPM15-1 (20-21 February 2012)

CPM mandate: The CPM shall prepare a consolidated report to be used in support of the work of World Radiocommunication Conferences.

CPM15-1:

- allocated ITU-R preparatory work for WRC-15 agenda items, as proposed in Resolution COM6/6 (WRC-12) including the identification of the ITU-R “responsible groups” and “concerned groups” for the WRC-15 agenda items;
- defined CPM Report structure;
- elected the Chapter Rapporteurs;
- defined the terms of reference of the Joint Task Group 4-5-6-7 (JTG 4-5-6-7) responsible for WRC-15 Agenda items 1.1 and 1.2;
- elected JTG 4-5-6-7 Chairman.

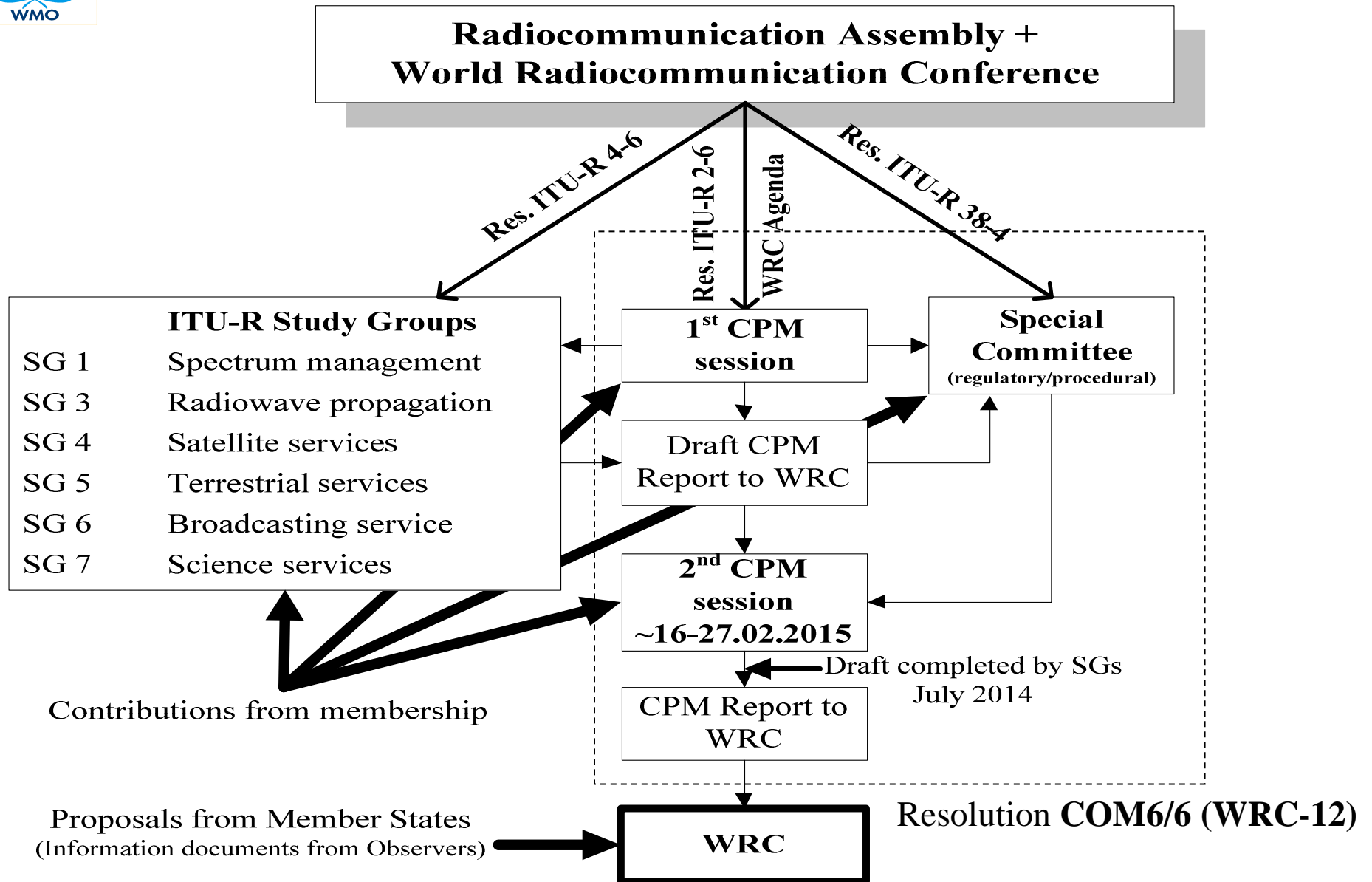


CPM Report Structure and Chapter Rapporteurs

Chapters	Chapter Rapporteur
Chapter 1 – Mobile and Amateur issues Agenda items 1.1 and 1.2 Agenda items 1.3 and 1.4	Ms Cindy-Lee COOK (Canada) Mr Charles GLASS (USA)
Chapter 2 – Science issues Agenda items 1.11, 1.12, 1.13, 1.14	Mr Alexandre VASSILIEV (Russia)
Chapter 3 – Aeronautical, Maritime and Radiolocation issues Agenda items 1.5, 1.15, 1.16, 1.17, 1.18	Mr Martin WEBER (Germany)
Chapter 4 – Satellite services Agenda items 1.6, 1.7, 1.8, 1.9.1 Agenda items 1.9.2 and 1.10,	Mr Xiaoyang GAO (China) Mr Mehdi Abyaneh NAZARI (Iran)
Chapter 5 – Satellite regulatory issues Agenda items 7, 9.1.1, 9.1.2, 9.1.3, 9.1.5, 9.1.8, 9.3	Mr Khalid AL-AWADHI (UAE)
Chapter 6 – General issues Agenda items 2, 4, 9.1.4, 9.1.6, 9.1.7, 10	Mr Peter N. NGIGE (Kenya)



ITU-R Preparation for WRC-15





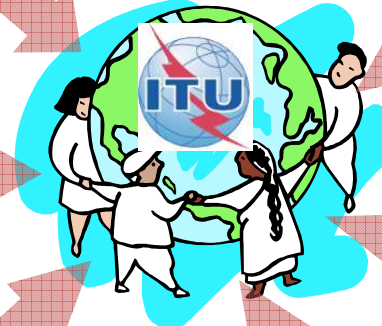
✓ Six regional groups:

European Conference of Postal and Telecommunication Administrations (CEPT)



Regional Commonwealth in the Field of Communications (RCC)

Inter-American Telecommunication Commission (CITEL)



Asia-Pacific Telecommunity (APT)



African Telecommunication Union (ATU)



Arab Spectrum Management Group (ASMG)

✓ For the preparation of common and coordinated proposals



Other Elements for the Future WMO Strategy (to be identified by relevant WMO Commissions)

Determination of:

- portion of radio-frequency spectrum not required anymore due to introduction of new technologies, applications and systems (related to radiosondes for example);
- portions of radio-frequency spectrum for new instruments and applications;
- appropriate timing for development and submission the relevant proposals/requirements to the ITU.



**Thank you for
your attention
and patience!**

8 March 2012, WMO Headquarters, Geneva



A Few Definitions from Radio Regulations

- **1.2 administration:** Any governmental department or service responsible for discharging the obligations undertaken in the Constitution of the ITU, in the Convention of the ITU and in the Administrative Regulations (CS 1002).
- **1.6 radiocommunication:** *Telecommunication* by means of *radio waves*.
- **1.7 terrestrial radiocommunication:** Any *radiocommunication* other than *space radiocommunication* or *radio astronomy*.
- **1.8 space radiocommunication:** Any *radiocommunication* involving the use of one or more *space stations* or the use of one or more *reflecting satellites* or other objects in space.
- **1.16 allocation** (of a frequency band): Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions. This term shall also be applied to the frequency band concerned.
- **1.18 assignment** (of a radio frequency or radio frequency channel): Authorization given by an administration for a radio *station* to use a radio frequency or radio frequency channel under specified conditions.
- **1.19 radiocommunication service:** A service as defined in this Section involving the transmission, *emission* and/or reception of *radio waves* for specific *telecommunication* purposes.



Meetings of ITU-R SGs/WPs Carrying Studies on WRC-15 Agenda Items of Interest to WMO in 2012

Beginning Date	End Date	Group	Title
2012-05-08	2012-05-09	SG 7	Science Services
2012-05-22	2012-05-31	WP 5A	Land mobile service above 30 MHz*(excluding IMT); wireless access in the fixed service; amateur and amateur-satellite services
2012-05-22	2012-06-01	WP 5B	Maritime mobile service including Global Maritime Distress and Safety System (GMDSS); aeronautical mobile service and radiodetermination service
2012-05-23	2012-05-29	WP 4C	Efficient Orbit/Spectrum Utilization for MSS and RDSS
2012-05-30	2012-06-06	WP 4A	Efficient Orbit/Spectrum Utilization for FSS and BSS
2012-06-06	2012-06-13	WP 1B	Spectrum Management Methodologies and Economic Strategies
2012-06-14	2012-06-15	SG 1	Spectrum Management
2012-07-16	2012-07-20	WP 5D	IMT Systems
2012-09-12	2012-09-18	WP 4C	Efficient Orbit/Spectrum Utilization for MSS and RDSS
2012-09-17	2012-09-21	WP 7B	Space Radiocommunication Applications
2012-09-17	2012-09-21	WP 7C	Remote Sensing Systems
2012-09-19	2012-09-26	WP 4A	Efficient Orbit/Dpectrum Utilization for FSS and BSS
2012-09-27	2012-09-28	SG 4	Satellite Services
2012-10-03	2012-10-11	WP 5D	IMT Systems
2012-11-05	2012-11-16	WP 5A	Land mobile service above 30 MHz*(excluding IMT); wireless access in the fixed service; amateur and amateur-satellite services
2012-11-05	2012-11-16	WP 5B	Maritime mobile service including Global Maritime Distress and Safety System (GMDSS); aeronautical mobile service and radiodetermination service
2012-11-19	2012-11-20	SG 5	Terrestrial Services
2012-11-21	2012-11-23	SC-WP	Working Party of the Special Committee
???	???	JTG 4-5-6-7	Joint Task Group (JTG 4-5-6-7) responsible group for the WRC-15 Agenda Items 1.1 and 1.2



List of the radio services abbreviations

Abbreviations	Radio services	RR definition
AMS	aeronautical mobile service	No. 1.32
AM(R)S	aeronautical mobile (route) service	No. 1.33
AMSS	aeronautical mobile-satellite service	No. 1.35
AMS(R)S	aeronautical mobile-satellite (route) service	No. 1.36
ARNS	aeronautical radionavigation service	No. 1.46
ARNSS	aeronautical radionavigation-satellite service	No. 1.47
AS	amateur service	No. 1.56
ASS	amateur-satellite service	No. 1.57
BS	broadcasting service	No. 1.38
BSS	broadcasting-satellite service	No. 1.39
EESS	Earth exploration-satellite service	No. 1.51
FS	fixed service	No. 1.20
FSS	fixed-satellite service	No. 1.21
ISS	inter-satellite service	No. 1.22
LMS	land mobile service	No. 1.26
LMSS	land mobile-satellite service	No. 1.27
MetAids	meteorological aids service	No. 1.50



List of the radio services abbreviations

Abbreviations	Radio services	RR definition
MetSat	meteorological-satellite service	No. 1.52
MMS	maritime mobile service	No. 1.28
MMSS	maritime mobile-satellite service	No. 1.29
MRNS	maritime radionavigation service	No. 1.44
MRNSS	maritime radionavigation-satellite service	No. 1.45
MS	mobile service	No. 1.24
MSS	mobile-satellite service	No. 1.25
RAS	radio astronomy service	No. 1.58
RDS	radiodetermination service	No. 1.40
RDSS	radiodetermination-satellite service	No. 1.41
RLS	radiolocation service	No. 1.48
RLSS	radiolocation-satellite service	No. 1.49
RNS	radionavigation service	No. 1.42
RNSS	radionavigation-satellite service	No. 1.43
SOS	space operation service	No. 1.23
SRS	space research service	No. 1.55