

*Draft*  
**Preparations for WRC-2000**

---

**Summary and Purpose of Document**

To inform CGMS of the issues to be dealt with at WRC-2000  
and of preparations currently under way

---

**Action Requested**

Members are urged  
to participate in national, regional and international preparatory activities,  
to contact their national spectrum regulators and to  
inform them of the need to protect bands used by meteorology.

## **Preparations for WRC-2000**

### **SUMMARY**

At the 1992 World Administrative Radio Conference (WARC-92), the Mobile Satellite Service (MSS) gained access to three meteorological bands and became the primary threat to the radio spectrum used by meteorology. At subsequent World Radiocommunication Conferences (WRC-95, WRC-97), MSS proponents have continued their pressure to increase their access and to loosen the restrictions placed on them on behalf of meteorology. In recent years, however, several new threats have emerged. They are targeting additional met bands and appear to have even greater support than the MSS had in the past. Efforts are under way to deal with these issues at the next WRC, currently scheduled for May-June 2000 in Istanbul.

In addition to these purely defensive measures, efforts are being made by several administrations to gain allocation changes that will benefit the meteorological services.

The success of meteorology in achieving these ends depends on the support it receives from many administrations attending WRC-2000. CGMS members are encouraged to become and remain active in preparatory efforts, and particularly in encouraging their administrations to support the protection of meteorological spectrum at the WRC.

### **BACKGROUND**

At WARC-92, the MSS obtained allocations in the meteorological bands at 137 - 138 MHz, 400.15 - 401 MHz and 1675 - 1710 MHz. This last allocation exists only in ITU Region 2. Also, the band 1670 - 1675 MHz was reallocated to permit access to commercial air-ground communications.

At WRC-95, several unsuccessful efforts involving the 137 - 138 MHz and 1675 - 1710 bands were made to benefit the MSS at the expense of the meteorological services, and a new proposal was made to introduce the MSS into the band 401 - 406 MHz. At WRC-97 these efforts continued, without success, but meteorology made some advances of its own. New MetSat allocations were created at 7750 - 7850 MHz for non-geostationary meteorological satellites (space-to-Earth) to support the higher data rates required by future sensors, and certain allocations in 50.2 - 59.3 MHz were rearranged to provide for improved passive sensing. A new allocation for spaceborne active sensing of cloud radars was created at 94 - 94.1 GHz, Earth

Exploration Satellite (EES) and MetSat allocations at 401 - 403 MHz (for Data Collection Platforms, or DCPs) were upgraded from secondary to primary and a new footnote to the allocation table provided for wind profiler radars to operate near 50, 400 and 1000 MHz.

The WMO has studied radiosonde operations and concluded that the theoretical ability to make radiosondes more “spectrum efficient”, thus freeing spectrum for the MSS, will not be practically available until about 2010. ITU-R’s Study Group 7 has also concluded that the bands 401 - 406 MHz and 1675 - 1710 MHz are not appropriate for MSS use. It should not be assumed that this will prevent industry partisans from continuing their attacks on these bands since there exists the hope for great profit wherever spectrum may be obtained. MSS partisans continue to assert a need for more of it and to find support from involved administrations.

### **SPECTRUM THREATS AT WRC-2000**

IMT-2000 - The reprieve given the 1675 - 1710 MHz band at WRC-97 was due in part to a trade-off in which some administrations promoting both MSS operations in this band and proposed IMT-2000 systems were permitted to add the latter to the WRC-2000 agenda. A so-called “3<sup>rd</sup> Generation” standard comprising land- and satellite-based mobile multimedia systems, IMT-2000 (known in Europe as UMTS) is, if anything, more spectrum-hungry than the MSS. There is currently a debate within the ITU as to whether the alleged spectrum requirements of IMT-2000 may be partially satisfied by existing allocations for the MSS and mobile services. The system’s major proponents assert that new systems must co-exist for a time with those already in place and that separate spectrum is therefore required. Others point out that IMT-2000 is a successor to existing cellular and MSS systems, is planned in some ways to be backward compatible with them, and can therefore transition into their current spectrum, reducing the need for new allocations.

Fixed Wireless Access (FWA) - This type of system, also called “Wireless Local Loop” (WLL), includes radio systems which provide the “last mile” interconnect between customers and copper-based (cable and wire) signal distribution systems. It is used to connect telephones to the local central office, eliminating the costs of cable installation and maintenance. It is used also for broadband signals, with television and computer networks being typical applications. There is considerable pressure to create allocations for this type of system at WRC-2000.

Spectrum Affected - IMT-2000 and some types of FWA require spectrum with propagation characteristics typical of frequencies in the range of several hundred to several thousand MHz. The meteorological bands which have been mentioned for this use include 1670 - 1710 MHz and 2700 - 3000 MHz, the latter commonly used for meteorological radars and air traffic control.

### **OTHER SPECTRUM REQUIREMENTS**

As at WRC-2000, the MetSat community hopes to expand its access to bands required for passive sensing above 71 GHz. In some cases, this is to be done by expanding existing

allocations and in others, by removing little-used allocations to other services which, if they are later brought into heavy use, could interfere with spaceborne passive sensing operations.

56 MHz, 118 MHz and 183 MHz - These bands will be heavily used by new sensors on coming generations of MetSats. Passive sensing bands in the 56 GHz region were thought to be protected by sharing rules set up with the Fixed service, but it is now seen that the industry's plans to use these bands for High Density Fixed Service (HDFS) operations will make sharing impracticable. Efforts are underway to modify the allocations at WRC-2000. For the two higher bands, the perceived threats are from the Inter-Satellite Service (ISS) as well as from fixed and mobile; reallocations are being considered.

18.6-18.8 GHz - This band is required for passive sensing operations but is also allocated to terrestrial systems (Fixed and Mobile) and to the Fixed Satellite Service. Efforts are being made within ITU-R to develop sharing criteria that will allow passive sensing to succeed without needlessly hindering the other allocated services.

## **OTHER ISSUES**

Satellite Network Cost Recovery (SNCR) - In recent years, the ITU has concluded that the cost of registering satellites is placing a significant and inappropriate financial load on those of its members who do not operate satellite systems and on the ITU itself. Accordingly, it has decided to recover the cost of administering the satellite registration program. The details and scheduling of this recovery effort are currently under discussion, and decisions will be made at WRC-2000. Among the outstanding issues is whether exemptions from recovery will be made for satellite networks which serve certain non-commercial purposes; amateur satellites and meteorological satellites have been suggested as appropriate categories for exemption. To date, support for a MetSat exemption has been weak at best, and future support from a variety of countries would be helpful.

## **CONCLUSION AND RECOMMENDATIONS**

The proliferation of new commercial services is causing an increased demand for spectrum and, given the limited supply, this demand is often met by taking it from those who already have it. The uniform worldwide allocations now held by meteorology are particularly desirable for global commercial services, and meteorological bands are thus a favored target of industry.

CGMS members can help resist this commercial pressure in several ways. One is to participate in the technical studies now ongoing in ITU-R. These studies seek to determine, *inter alia*, whether bands can be shared in some non-confiscatory way between the existing meteorological users and new services. Studies in the WMO are conducted to determine the spectrum needs of meteorology and the extent to which met operations can be accommodated in smaller bandwidths. Members are also encouraged to participate in WRC preparatory activities at

national, regional and ITU levels. Administrations frequently discuss spectrum needs with their citizens in preparation for a WRC. Industrial organizations are well represented at these sessions, and the scientific and educational communities should participate as well. Regional organizations such as CITELE in the Americas, CEPT in Europe and APT in the Asian-Pacific region prepare regional positions and frequently determine block votes, so it is important that these groups be lobbied in support of meteorological needs. Participation in Conference Preparatory Meetings (CPM) for WRCs is essential for the same reason.

Whether or not participation in studies or international meetings is a realistic possibility, every CGMS member can help by ensuring that the needs and positions of meteorology are made known to his own nation's delegation to the WRC. It would be most helpful to have representatives of meteorology join the delegation itself. Failing this, members should take every opportunity to seek out WRC delegates and educate them on the concerns of meteorological science. Industry spares no effort to make its views known, and science cannot afford to do less.