

SATELLITE GROUND RECEIVING DATABASE

(Submitted by WMO)

Summary and purpose of document

WMO WP-2 informed CGMS on the status of the satellite ground receiving database maintained by WMO. CGMS noted the recent change to the goals for implementation of the ground segment for the space-based subsystem of the GOS.

PROGRESS/ACTIVITY REPORT

Background

1. Since CGMS-XXIII held in May 1995, a permanent action item has existed that "CGMS Members should provide information for WMO database for satellite receiving equipment, as appropriate".
2. The WMO Secretariat has developed and continues to maintain a database that contains information related to satellite receiving equipment. The purpose of this development was to identify the number and geographic distribution of satellite receiving equipment. Some applications of the database included: assisting the WMO Technical Commissions and Regional Associations in identifying where adequate reception equipment or gaps exist; assisting donors in determining where best to allocate resources; assisting the CBS Open Programme Area Group on Integrated Observing Systems in providing advice to CBS on ways to improve the utilization of satellite data; assisting the satellite operators in identifying users; providing an impetus to register satellite receiving equipment with national telecommunication administration; informing WMO Members as to the distribution of receiving equipment within each country; and informing ITU as to the utilization of frequencies allocated to environmental satellites.
3. Recently, the database has been used to assist in the development of the Regional ATOVS Retransmission Service (RARS) Network. An in-depth status and progress report for the RARS Network can be found in WMO WP-28.

Previous implementation goals

4. The database is also used to monitor the rate of implementation of the ground segment by WMO Members. The following goals have been established for the ground segment of the space-based sub-system of the GOS. At the national level, satellite data requirements vary greatly from country to country. It is desirable that each NMHS should receive frequent high and low resolution satellite information in order to maintain surveillance over global, synoptic, mesoscale and small-scale atmospheric processes in their respective areas. The goals for the percentage of implementation for WMO Members equipped with satellite receiving equipment were 100% for polar-orbiting satellite data receivers (either APT or HRPT) and 100% for geostationary satellite data receivers (either WEFAX or HR). This meant that each WMO Member should be equipped with at least one polar-orbiting satellite data receiver and one geostationary satellite data receiver. In order to identify and prioritize WMO Member needs towards achieving the goals, the following priorities have been utilized:

- Priority 1 (Highest) - Satellite receivers for those Members without any receivers;
- Priority 2 (High) - Satellite receivers for those Members without a polar-orbiting receiver or a geostationary receivers;
- Priority 3 (Medium) - Satellite high resolution receivers for those Members with only low resolution polar-orbiting receiver or only low resolution geostationary receivers;
- Priority 4 (Lowest) - Satellite receivers for those Members already exceeding the WWW goal.

New implementation goals

5. With the development of WMO's Integrated Global Data Dissemination Service (IGDDS) that utilize Advanced Dissemination Methods (ADM) and their associated ground receiving stations, it is appropriate to further expand the database. It has also been necessary to refine the

goals and Priorities described in paragraph 4 above as described in paragraph 6. These revised goals and priorities have been proposed for consideration at the forthcoming Extraordinary Session of the Commission for Basic Systems meeting to be held 9-16 November 2006 in Seoul, Korea.

6. It should be noted that the APT and WEFAX services have been replaced by the digital LRPT and LRIT services. Additionally, IGDDS provides for a concentration of LEO, GEO and appropriate R&D data streams into a single data dissemination service for data delivery through ADMs. Thus, the goal for each WMO Member is to have access to satellite data and product from LEO, GEO and R&D data streams through either:

- ADM receiving equipment for LEO, GEO and appropriate R&D data streams;

or

- Direct Broadcast (DB) receiving equipment for polar-orbiting satellite data receivers (either APT/LRPT or HRPT/AHRPT); and,
- DB receiving equipment for geostationary satellite data receivers (either LRIT or HRIT).

7. The GOS implementation goal is 100% of WMO Members satisfying the above goal.

8. As noted in paragraph 4, the WMO goals for Members equipped with meteorological satellite receiving equipment had been 100 per cent for polar-orbiting satellite data receivers and for geostationary satellite receivers. The Commission for Basic Systems should agree on the following guidelines for the allocation of priorities for satellite data receiving systems:

- (a) Highest priority for a multipurpose telecommunication satellite receiving system providing space-based observation data and products (ADM) if the WMO Member is within the area covered by such a dissemination system;
- (b) Second highest priority for meteorological satellite direct broadcast receivers for those Members who are not within the area covered by a telecommunication satellite dissemination system providing satellite data and products (ADM), and who are without any direct broadcast receiver;
- (c) High priority for direct broadcast geostationary or polar-orbiting receiver for those Members who are not covered by any ADM system and who have either no geostationary or no polar-orbiting satellite receiver respectively;
- (d) Medium priority for high resolution satellite direct broadcast receiver for those Members who have only low resolution direct broadcast receivers and cannot be covered by any ADM system;
- (e) Low priority for satellite direct broadcast receivers for those Members who are in an area covered by an ADM system.

9. The current database is now maintained in a Microsoft Access 2000 running under Windows 2000 although the WMO Secretariat will soon upgrade to Windows XP. The database is made up of tables, queries, forms, reports, modules and macros. The tables store all basic information regarding satellite receiving station; and others such as queries serve as analysis or presentation tools, taking appropriate data from the tables that match given conditions.

10. At present, there is a single table for satellite receiving equipment containing information from NMHS, Vendors, RIG, Individuals, EUMETSAT, JMA and NOAA. Most of the records in the table contain the station name, city and latitude/longitude. Some records contain mailing addresses, telephone numbers and email addresses. Each record in all tables contains specific

information related to WMO Member name, Regional Association, type of low-resolution receiver (APT or WEFAX) and type of high-resolution receiver (HRPT or HR). A new category for direct broadcast from the R&D satellites has been added through the provision of information on reception sites from NASA for direct reception stations for EOS.

11. The database contains 11,580 stations that are operational as of October 2006.

12. It is WMO's intention to update the database in 2006 through contact with WMO Permanent Representatives as well as other cited sources. A consultancy has been established with a specific task to update both the database and produce an associated WMO Space Programme Technical Document.