CGMS-XXIX
WMO WP-3
Prepared by WMO
Agenda item: G.1
Plenary

MATTERS RELATED TO APT AND WEFAX AND CONVERSIONS

(*Submitted by the WMO*)

Summary and purpose of document

This document describes the status of activities related to the conversion of the APT/WEFAX services from analogue to digital scheduled to occur during the decade and a new technical document on the migration of satellite receiving stations.

ACTION PROPOSED

CGMS Members to update the Status for LRIT/LRPT conversion for satellites in polar and geostationary orbit as contained in the Appendix as well as to note the status of the new technical document on the migration of satellite receiving stations. Additionally, CGMS satellite operators to develop a coherent and practical approach for data dissemination from AM and PM satellites in order that the user communities could benefit from the available data without the need to purchase and maintain multiple receiving stations.

Appendix: Status for LRIT/LRPT conversion for satellites in polar and geostationary orbit

DISCUSSION

APT/WEFAX Conversion

1. The Appendix shows the latest status for LRIT/LRPT conversion for satellites in polar and geostationary orbit. The tables were reviewed at the twenty-eighth session (October 2000) of CGMS where the satellite operators discussed the dates when the new digital services would commence for their satellite systems and the duration of a transition period when both analogue and digital services would be available. The tables are available on Internet through the WMO Satellite Activities home pages at <http://www.wmo.ch/hinsman/APT_WEFAXstatus.html>.

2. An analysis of the Appendix for LRIT conversion indicates that in WMO Regions I (Africa) and VI (Europe) there will be a fifteen-month overlap starting in October 2002. WMO Regions II (Asia) and V (Southwest Pacific) will have a two-year overlap starting in 2003. For WMO Regions III and IV (South, Central and North America including the Caribbean) during November 2002, GOES-East will be converted from WEFAX to LRIT transmission and will cease transmitting WEFAX data. The conversion of GOES-West to LRIT will be based on the needs of the users. The date for GOES-West conversion will be announced as soon as practical. The Indian Ocean area (RA II) appears to have no overlap starting in 2002. It should be recalled that CGMS Members have already indicated to WMO their intention to provide for a three year overlap.

3. An analysis of the table for LRPT conversion shows that the morning (AM) satellite will start LRPT in 2006 while the afternoon (PM) satellite will transmit two data streams (AHRPT and X-band) starting in 2010. The FY-3 series will only transmit CHRPT starting in 2004. METEOR 3M N2 will transmit LRPT starting in 2003. There will be no transition period for the AM orbit or PM orbit separately and the present combined CGMS satellite operators' plans indicate that it may be necessary to have at least three different receiving stations to receive AM and PM satellite data. Thus, it is strongly recommended that the CGMS satellite operators, as a matter of urgency, develop a coherent and practical approach for data dissemination from AM and PM satellites in order that the user communities could benefit from the available data without the need to purchase and maintain multiple receiving stations. The recommendations contained in WMO Working Paper 6 should be a starting basis for such discussion and in particular the use of alternative telecommunications services (paragraph 4) and the recommendations for commonality of user stations (paragraph 10).

Technical document on the Migration of Satellite Receiving Stations

4. The second session of the CBS OPAG IOS Expert Team on Satellite System Utilization and Products took place in Melbourne, Australia, 25-29 October 1999. The second session recalled that the Expert Team Meeting in Locarno, Switzerland had discussed the migration from analogue to digital services (APT/WEFAX to LRPT/LRIT). The Locarno meeting had recommended the development of a technical document describing how to exploit the new digital services. It agreed upon the outline and schedule for such a technical document. The second session was informed that a consultant had developed a draft technical document based on materials provided by CGMS satellite operators guided by the prescribed outline. The second session reviewed the draft technical document and provided input to allow the completion and publication of the technical document prior to the delivery of the LRIT service from JMA's MTSAT which was then expected in mid-2000. The session also noted that the new technical document would be available in both hard copy and accessible via the WMO web pages.

5. The second session strongly supported the development and publication of the technical document. Whilst recognizing the primary focus of the new technical document, the session was also of the opinion that it should be expanded at its next revision to include similar information for the high resolution services HRIT (High Rate Information Transmission) and AHRPT (Advanced High Resolution Picture Transmission). Since these areas were already of value to WMO Members, the session confirmed that the Table of Contents already included references to the high-resolution services with the expectation that the appropriate materials would be added to the technical document

at a future update. The Table of Contents would also list other possible digital services.

6. The technical document was distributed to CGMS Members as well as WMO Members in mid 2001 with updated information (See WMO WP-8 for more details on the new publication).

STATUS FOR LRIT CONVERSION, SATELLITES IN GEOSTATIONARY ORBIT
(updated 17 August 2001)

Operator	Satellite	Launch (M/Y)	Service	Start	Stop
EUMETSAT	Meteosat 5	03/1991	WEFAX	03/91	
	Meteosat 6	11/1993	WEFAX	11/93	
	Meteosat 7	02/1997	WEFAX	07/97	12/03
	MSG 1	1/2002	LRIT	10/02	2007
	MSG 2	2003	LRIT	2004	2010
	MSG 3	2008	LRIT	2008	2013
India	INSAT I-d	06/1990	None		
	INSAT II-a	07/1992	None		
	INSAT II-b	07/1993	None		
	INSAT II-e	---	None		
Japan	GMS-5	03/1995	WEFAX	06/95	2003
	MTSAT-1R	2003	WEFAX LRIT	2003 2003	2005 2008
	MTSAT-2	2004	LRIT	2008	2013
USA	GOES - 8	04/1994	WEFAX	11/94	
	GOES - 9	05/1995	WEFAX	01/96	
	GOES - 10	04/1997	WEFAX	06/97	
	GOES - 11	05/2000	WEFAX	09/00	
	GOES - M	08/2002	WEFAX	10/02	
	GOES - N	2002	WEFAX/LRIT	See footnote	
	GOES - O	2005	WEFAX/LRIT		
Russian Federation	Elektro-1	11/94	WEFAX		
	Elektro-2	2003	WEFAX		
	Elektro-3	TBD	LRIT		
China	FY-2B	06/00	WEFAX	01/01	
	FY-2C	2003	LRIT	2003	
	FY-2D	2006	LRIT	2006	
	FY-2E	2009	LRIT	2009	

Footnote: In the January 2002 time frame, a LRIT test signal will be provided for a few weeks through a GOES spacecraft other than the operational GOES-East and GOES-West. During that period, GOES-East and GOES-West will continue to provide routine WEFAX data. This LRIT test signal will allow users to test new or modified receiver equipment without disrupting normal WEFAX transmissions. Around November 2002, GOES-East will be converted from WEFAX to LRIT transmission and will cease transmitting WEFAX data. The conversion of GOES-West to LRIT will be based on the needs of the users. The date for GOES-West conversion will be announced as soon as practical.

STATUS FOR LRPT CONVERSION, SATELLITES IN POLAR ORBIT
(updated 17 August 2001)

Operator	Satellite	Launch (M/Y)	Service	Start	Stop
EUMETSAT	Metop-1	12/2005	LRPT	2006	
	Metop-2	12/2009	LRPT	2010	
	Metop-3	06/2015	LRPT	2015	
USA	NOAA-9	12/1984	APT	12/84	08/95
	NOAA-12	05/1991	APT	05/91	
	NOAA-14	12/1994	APT	12/94	
	NOAA-15	08/1997	APT	08/97	
	NOAA-16	09/2000	APT	09/00	
	NOAA-M	04/2001	APT	04/01	
	NOAA-N	12/2003	APT	12/03	
	NOAA-N'	07/2007	APT	07/07	
	NPOESS-1	2010	Tentative: AHRPT and X-band		
	NPOESS-2	2011	Tentative: AHRPT and X-band		
	NPOESS-3	2013	Tentative: AHRPT and X-band		
	NPOESS-4	2015	Tentative: AHRPT and X-band		
	NPOESS-5	2017	Tentative: AHRPT and X-band		
	NPOESS-6	2018	Tentative: AHRPT and X-band		
China	FY-1C	05/1999	No APT or LRPT. CHRPT only		
	FY-1D	12/2001	No APT or LRPT. CHRPT only		
	FY-3A	2004	AHRPT and X-band only		
	FY-3B	2006	AHRPT and X-band only		
Russian Federation	Meteor 2-21	08/1991	APT	08/91	
	Meteor 3-5	08/1991	APT	08/91	
	Resourse-01-N4	----	APT		
	Meteor 3M-1	2001	APT		
	Meteor 3M-2	2003	LRPT	2003	