

## **MATTERS RELATED TO APT AND WEFAX AND CONVERSIONS**

*(Submitted by WMO)*

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### **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.

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### **ACTION PROPOSED**

CGMS Members to update the Status for LRIT/LRPT conversion for satellites in polar and geostationary orbit as contained in the Appendix.

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

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## DISCUSSION

### APT/WEFAX Conversion

1. The Appendix shows the latest status (5 December 2001) for LRIT/LRPT conversion for satellites in polar and geostationary orbit. The tables were reviewed at the twenty-ninth session (October 2001) 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](http://www.wmo.ch/hinsman/APT_WEFAXstatus.html)>.

2. An analysis of the Appendix for LRIT conversion indicates in WMO Regions I (Africa) and VI (Europe) that there will be a fourteen-month overlap starting in October 2002. However, it is anticipated that MSG-1 will only achieve operational status and commence the LRIT service in October 2003 thus there could be only a two month overlap. 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 2003. 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 AHRPT and X-Band 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.

4. A more detailed discussion on the transitions in polar orbit can be found in WMO WP-18 including the issue of equator crossing times. Additionally, WMO WP-22 contains the latest status in the development of the concept for Alternative Dissemination Methods (ADM). The growth in data volume and use of X-Band by polar orbiting satellite operators strongly supports use of ADM.

5. It should be noted with both sadness and pride that NOAA N' will provide the last APT service starting in 2007. For more than forty years, APT has been one of the best Ambassadors the satellite community has had. The transition to digital broadcasts is a necessity but the meteorological community at large will long remember the workhorse in space called APT.

**STATUS FOR LRIT CONVERSION, SATELLITES IN GEOSTATIONARY ORBIT**  
(updated 5 December 2001)

Operator	Satellite	Launch (M/Y)	Service	Start	Stop
<b>EUMETSAT</b>	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
<b>India</b>	INSAT I-d	06/1990	None		
	INSAT II-a	07/1992	None		
	INSAT II-b	07/1993	None		
	INSAT II-e	---	None		
<b>Japan</b>	GMS-5	03/1995	WEFAX	06/95	2003
	MTSAT-1R	2003	WEFAX LRIT	2003 2003	2005 2008
	MTSAT-2	2004	LRIT	2008	2013
<b>USA</b>	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		
<b>Russian Federation</b>	Elektro-1	11/94	WEFAX		
	Elektro-2	2003	WEFAX		
	Elektro-3	TBD	LRIT		
<b>China</b>	FY-2B	06/00	WEFAX	01/01	
	FY-2C	2004	LRIT	2004	
	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 5 December 2001)

<b>Operator</b>	<b>Satellite</b>	<b>Launch (M/Y)</b>	<b>Service</b>	<b>Start</b>	<b>Stop</b>
<b>EUMETSAT</b>	Metop-1	12/2005	LRPT	2006	
	Metop-2	12/2009	LRPT	2010	
	Metop-3	06/2015	LRPT	2015	
<b>USA</b>	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			
<b>China</b>	FY-1C	05/1999	No APT or LRPT. CHRPT only		
	FY-1D	05/2002	No APT or LRPT. CHRPT only		
	FY-3A	2004	AHRPT and X-band only		
	FY-3B	2006	AHRPT and X-band only		
<b>Russian Federation</b>	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	