



CGMS-39 JMA-WP-02
Prepared by JMA
Agenda Item: B.2
Discussed in Plenary, WGI

MULTI-FUNCTIONAL TRANSPORT SATELLITE (MTSAT) STATUS

In response to CGMS Permanent Action 1 and Action 37.37 and 38.15 and 38.51

MTSAT-2 (145°E) is now operational in imaging over the West Pacific region, and MTSAT-1R (140°E) serves as its backup. MTSAT-1R has continuously performed the services of MTSAT-2 imagery dissemination and data collection even since the switchover of the imaging function on 1 July, 2010. The DCS (data collection system) of MTSAT-1R has been functioning properly since the satellite began operations.

In June 2011, JMA started MTSAT-1R small-sector observation around Japan at five-minute intervals during the daytime. The data collected are provided to aeronautical users for monitoring of severe weather conditions around airports and in airspace.

JMA was designated as the GISC for Tokyo, and MSC was selected as a DCPC at the 16th WMO Congress in May 2011. JMA officially started GISC and DCPC operations on 1 August, 2011.

This document also outlines responses to CGMS Actions 38.15, 38.51 and 37.37.

Note:
MTSAT: Multi-functional Transport Satellite

MULTI-FUNCTIONAL TRANSPORT SATELLITE (MTSAT) STATUS

1 INTRODUCTION

JMA operates two geostationary satellites: Multi-functional Transport Satellite-1R and Multi-functional Transport Satellite 2 (MTSAT-1R and MTSAT-2). The operational use of MTSAT-1R's imaging function was switched over to MTSAT-2 on 1 July, 2010, as MTSAT-1R's earth imaging sensor had reached the end of its five-year design lifetime. The current status of the two satellites is outlined below.

2 CURRENT MTSAT STATUS

2.1 MTSAT-2

MTSAT-2 was launched on 18 February, 2006, and placed in geostationary orbit at 145 degrees east. It was the backup satellite for MTSAT-1R from September 2006, and now acts as an operational satellite for observation over the West Pacific region.

No significant spacecraft anomalies on MTSAT-2 have occurred since CGMS-38. The satellite provides 24 full-disk images, 24 Northern Hemisphere images and 8 Southern Hemisphere images a day. Operational information can be accessed on JMA's Meteorological Satellite Center website at <http://mscweb.kishou.go.jp/operation/index.htm>.

MTSAT-1R took over the imaging operations of MTSAT-2 on 7 October 2010 due to the MTSAT-2 ground system malfunction.

These MTSAT-1R operations lasted until the end of annual ground system antenna maintenance on 22 December 2010.

Another MTSAT-2 ground system issue occurred on 3 August, 2011, and MTSAT-1R imaging backup operation was conducted until 16 August, 2011.

In 2011, MTSAT-1R imaging backup operation is again scheduled for the period from early November to late December due to annual ground system antenna maintenance.

2.2 MTSAT-1R

MTSAT-1R was launched on 26 February, 2005, and placed in geostationary orbit at 140 degrees east. It has acted as a backup satellite for the imaging function of MTSAT-2 since 1 July, 2010. During annual antenna or ground system maintenance, or in the event of problems with MTSAT-2, MTSAT-1R will take over its observation duties until recovery is secured. MTSAT-1R has continuously performed MTSAT-2's image dissemination and data collection services even since the switchover.

In June 2011, JMA started MTSAT-1R small-sector observation around Japan at five-minute intervals during the daytime (from 00 UTC to 09 UTC). The data collected are provided to aeronautical users for monitoring of severe weather conditions around

airports and in airspace. As the MTSAT imager is now being used beyond its design lifetime of five years, this operation is limited to the summer period from June to September.

2.3 DCS (Data Collection System)

MTSAT-1R's International Data Collection System (IDCS) has been functioning properly since the satellite started operation. Although harmful interference was frequently observed on IDCS channel 33 from August 2010 to July 2011, there was no negative effect on operation because no International Data Collection Platform (IDCP) is registered on this channel. IDCPs were registered on 5 out of 33 MTSAT-IDCS channels as of 31 July, 2011. Further information regarding MTSAT-IDCS is available on the Monthly Operations Report section of the MSC website at http://mscweb.kishou.go.jp/operation/opr_report.htm.

Since the 2004 Indian Ocean Tsunami, the number of DCPs reporting tidal data has increased in MTSAT-1R's DCS. Three DCPs reporting tidal data were operated in 2011. As of 1 September, 2011, tidal data are received from 30 DCPs, and 3 DCPs plan to start operations in the near future. Currently, their data transmission intervals are mostly 12, 15 or 60 minutes. However, the ICG/PTWS* has recommended shorter intervals such as five minutes or less for tsunami warnings and detection. If the interval is five or six minutes, one channel can be allocated to only two or three DCPs. Accordingly, it may be necessary to restructure the allocation of channels, including the IDCS channel, for more efficient frequency usage.

* ICG/PTWS: Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System

3 LIST OF FREQUENCIES USED BY MTSAT MISSIONS (In response to CGMS Action 38.15)

Tables 1 and 2 provide basic information on the frequencies used by current MTSAT missions.

Table 1: Frequencies from earth to space used by the MTSAT system

Satellite	Frequency (MHz)	Direction	Emission ¹	Application	DBIU ²
MTSAT-1R	402.0 – 402.4	E-S	2K00G1D 4K00G1D 6K00G1D	DCP reports	In orbit
MTSAT-1R	2029.1	E-S	6M00G1D	HRIT	In orbit
MTSAT-1R	2033.0	E-S	250KG1D	LRIT	In orbit
MTSAT-1R	2034.2	E-S	300KGXX	TC	In orbit
MTSAT-1R	2034.925 2034.933 2034.974	E-S	6K00G1D	DCP interrogation	In orbit

¹ In accordance with Appendix 1 of the radio regulations

² DBIU: Date of bringing into use



MTSAT-1R	2100.164	E-S	550KGXX	TC, ranging	In orbit
MTSAT-2	402.0 – 402.4	E-S	2K00G1D 4K00G1D 6K00G1D	DCP reports	In orbit
MTSAT-2	2029.1	E-S	6M00G1D	HRIT	In orbit
MTSAT-2	2033.0	E-S	250KG1D	LRIT	In orbit
MTSAT-2	2034.2	E-S	300KGXX	TC	In orbit
MTSAT-2	2034.925 2034.933 2034.974	E-S	6K00G1D	DCP interrogation	In orbit
MTSAT-2	2100.164	E-S	550KGXX	TC, ranging	In orbit

Table 2: Frequencies from space to earth used by the MTSAT system

Satellite	Frequency (MHz)	Direction	Emission	Application	DBIU
MTSAT-1R	468.875 468.883 468.924	S-E	6K00G1D	DCP interrogation	In orbit
MTSAT-1R	1677.0	S-E	10M0G1D	Raw data	In orbit
MTSAT-1R	1687.1	S-E	6M00G1D	HRIT	In orbit
MTSAT-1R	1691.0	S-E	250KG1D	LRIT	In orbit
MTSAT-1R	1694.0	S-E	400KGXX	TM	In orbit
MTSAT-1R	1694.3 – 1694.7	S-E	2K00G1D 4K00G1D 6K00G1D	DCP reports	In orbit
MTSAT-1R	2280.721	S-E	1M10GXX	TM, ranging	In orbit
MTSAT-2	468.875 468.883 468.924	S-E	6K00G1D	DCP interrogation	In orbit
MTSAT-2	1677.0	S-E	10M0G1D	Raw data	In orbit
MTSAT-2	1687.1	S-E	6M00G1D	HRIT	In orbit
MTSAT-2	1691.0	S-E	250KG1D	LRIT	In orbit
MTSAT-2	1694.0	S-E	400KGXX	TM	In orbit
MTSAT-2	1694.3 – 1694.7	S-E	2K00G1D 4K00G1D 6K00G1D	DCP reports	In orbit
MTSAT-2	2280.721	S-E	1M10GXX	TM, ranging	In orbit

**4 NUMBERS OF MDUS/SDUS USERS
(In response to CGMS Action 37.37)**

Table 3 shows the numbers of currently approved MTSAT-1R MDUS/SDUS users.

Table 3: Numbers of MDUS/SDUS users

Station	Number
MDUS	58
SDUS	722

5 DCPC DESIGNATION OF MSC (KIYOSE) (In response to CGMS Action 38.51)

In its role as part of the WMO Information Service (WIS), JMA was designated as a Global Information System Centre (GISC) and the Meteorological Satellite Center was selected as a Data Collection or Production Centre (DCPC) at the 16th WMO Congress in May 2011. JMA officially started GISC and DCPC operations on 1 August, 2011. GISC Tokyo's portal site is now online at <http://www.wis-jma.go.jp/cms/>.