CGMS-XXXI JMA-WP-05 Prepared by JMA Agenda Item: C.2 Discussed in Plenary

MTSAT-1R Observation and Dissemination Schedule

This paper reports on the observation and the dissemination schedule for SDUS/MDUS of MTSAT-1R, which JMA will start its operation in the spring of 2004.

MTSAT-1R Observation and Dissemination Schedule

JMA plans to start the operations of MTSAT-1R, the successor of the GMS-5, in the spring of 2004. _The meteorological functions of MTSAT-1R will be improved in comparison with that those of GMS-5..., namely, MTSAT-1R has an additional infrared channel with wavelength $3.7\mu m$ (IR4) will be onboard, and the quantization level of image data is to will be improved enhanced.

Draft <u>A draft</u> version of MTSAT-1R observation schedule and dissemination schedule for Small-scale Data Utilization Station (SDUS) and Medium-scale Data Utilization Station (MDUS) are shown in Figure 1. <u>This schedule will be valid until March 2005</u>.

In March 2005, Weather Facsimile (WEFAX) service for SDUS will be terminated, and <u>at the same time</u> High Rate <u>information_Information</u> Transmission (HRIT) for MDUS will be introduced. <u>The draft schedules shown in Figure.1 are valid until the change in March 2005</u>. The dissemination schedules for these services are under preparation and will be duly announced to the users when determined.

1. OBSERVATION SCHEDULE

MTSAT-1R daily observation is basically comprised of hourly <u>Full_full-Disk_disk</u> observations (FD) and <u>subsequent_supplemental_Northern_northern-Hemisphere_hemisphere</u> observations (NH). _Three_successive_half-disk_images_of_NH and Southern Hemisphere observation (SH) are also observed every <u>Every 6</u> hours (00, 06, 12, 18 UTC)ly, two northern-hemisphere observations and two southern-hemisphere observations are performed before and after the full-disc observation respectively to obtain three successive 15 minute-interval half-disk images used to in order to derive satellite wind motion vectors, i.e. 2 NH + 1 FD + 2 SH. A draft version of observation schedule is shown in Figure 1.

2. DISSEMINATION SCHEDULE FOR SDUS

The Low Rate Information Transmission (LRIT) is <u>employed as a new digital</u> data dissemination <u>service</u> <u>measure of MTSAT-1R</u> for SDUS and will be introduced when MTSAT-1R is in operation in the spring of 2004. The data dissemination by LRIT will start in the spring of 2004 concurrently with other services of MTSAT-1R. Until March 2005, both LRIT and tThe current dissemination service of WEFAX are will be continued available in the same frequency band and time-sharing with LRIT until March 2005 taking account of users' smooth transition to the LRIT reception. The parts indicated by "SDUS" in the Figure 1 shows the according to a time-sharing dissemination schedule to allow SDUS users to prepare their receiving facilities. A draft version of dissemination schedule for SDUS is

shown in Figure 1 of LRIT and WEFAX until March 2005.

·LRIT

The <u>planned</u> contents of LRIT dissemination will be limited to MTSAT-1R images only. There will beare the full earth's disk of normalized geostationary projection and three different areas of polar-stereographic projection, i.e. a) East Asia, b) the northeast of Japan and c) the southwest of Japan. Figure 2 shows the area in of each image._

The document on of "JMA LRIT mission Mission specific Specific implementation

Implementation" is available on the following JMA web page.

http://mscweb.kishou.go.jp/general/future_plan/LRIT.pdf

·WEFAX

Although WEFAX service will <u>be</u> continue<u>d</u> when <u>MTSAT-1R</u> is in <u>the</u> operation <u>of</u> <u>MTSAT-1R</u>, its dissemination time will be about 10 minutes later than the present one due to the <u>time-time-sharing</u> dissemination with LRIT. This service will be terminated in March 2005. It contains four-sectorized <u>the earth's</u>-full-disk_<u>earth</u>-images and polar-stereographic projection images over the Far East area including Japan. The area of each image is shown in Figure 3.

3. DISSEMINATION SCHEDULE FOR MDUS

The current Stretched-VISSR (S-VISSR) dissemination will be replaced with the High Resolution Imager Data (HiRID) dissemination for MDUS when MTSAT-1R is in operation in the spring of 2004 concurrently with the start operation of MTSAT-1R. All full disk images and northern/southern hemisphere images will be disseminated in the HiRID dissemination. The parts indicated by "MDUS" in the Figure 1 shows the A-draft version of its dissemination schedule is also shown in Figure 1of HiRID.

High Rate information Transmission (HRIT) dissemination will be introduced in addition to HiRID in March 2005 with time-sharing method. Dissemination schedule after the introduction of HRIT service is under preparation and will be duly announced when determined.

·HiRID

HiRID is new data format for MDUS. The dissemination data format of HiRID is designed to have upper compatibility with S-VISSR in order to reduce the impact for the receiving system of MDUS users. The new infrared channel image data (IR4, 10bits)-_and the lower 2 bits of the other infrared channels are added to the end of HiRID-S-VISSR format. <u>By-Appropriate modifying-modifications to</u> the hardware and software appropriately, will allow-the users will be able to utilize the additional IR4 channel data and more precise infrared data with the level resolution of 10-_bit_quantizations. The document on MTSAT HiRID technical information can be downloaded from the following JMA web page.

http://mscweb.kishou.go.jp/general/future_plan/MTSAT_HiRID_Technical_Information.pdf

 \cdot HRIT

HRIT will be introduced in order to disseminate image data at original resolution and at original quantization level to MDUS._-

The document <u>on of</u> "JMA HRIT <u>mission Mission specific Specific</u> <u>implementation Implementation</u>" is available on the following JMA web page. <u>http://mscweb.kishou.go.jp/general/future plan/HRIT 1.pdf</u>

UTC (JST)					60
00 (09)	OBS	S00 S0	DOS	F01	
	MDUS	HiRID	HiRID	HiRID	
	SDUS	FT-00 H-00	I-00 A,B,C,D	-00 FW-00	FD- 01
01	OBS	N01		F02	
(10)	MDUS	HiRID		HiRID	
	SDUS	FT-01 H-01	I-01 K,L,M,N-	-00 ND -01	FD- 02
02	OBS	N02		F03	
	MDUS	HiRID		HiRID	
	SDUS	FT-02 H-02	I-02 M/T	ND -02	FD- 03
UTC			20 30		60
(JST) 03				F 04	
(12)	OBS	NU3		FU4	
	MDUS	HiRID			ED-
04	SDUS	FT-03 H-03	I-03 A,B,C,D-		04
(13)	OBS	NU4		FU5	
	MDUS	HiRID	1.04		FD-
05	SDUS			-04	05
(14)	OBS		NUSS	FUb	
	MDUS	HIRID	HIRID		ED-
	5005	10	20 30	40 50	Los_ 60
UTC (JST)					
06 (15)	OBS	S06 S0	D6S	F07	
	MDUS	HiRID	HiRID	HiRID	
	SDUS	FT-06 H-06	I-06 A,B,C,D-	-06 FW-06	FD- 07
07 (16)	OBS	N07		F08	
	MDUS	HiRID		HiRID	
	SDUS	FT-07 H-07	I-07	ND -07	FD- 08
08 (17)	OBS	N08		F09	
	MDUS	HiRID		HiRID	
	SDUS	FT-08 H-08 I	I/J-08 M/T	ND -08	FD- 09
UTC		10 [20 3C	9 40 50	60
(JST) 09	OBS	N09		F10	
(18)	MDUS	HiRID		HiRID	
	SDUS	FT-09 H-09 1	I/J-09 ABCD-	-09	FN-
10	OBS	N10		F11	
(19)	MDUS	HiRID		HiRID	
	SDUS	FT-10 H-10	J-10	NN.	
11	OBS	N11	N11S	F12	
(20)	MDUS	HiRID	HiRID	HiRID	
			1		EN
	SDUS		J-11		

Figure 1-1 MTSAT-1R Observation and Dissemination Schedule for 2004 (Draft)

UTC (JST)				30		
12 (21)	OBS	S12	S12S		F13	
	MDUS	HiRID	HiRID		HiRID	
	SDUS	FT-12 H-12	2 J–12 A,B,C,I	0-12	FW-12	FN- 13
13 (22)	OBS	N13			F14	
	MDUS	HiRID			HiRID	
	SDUS	FT-13 H-1:	3 J-13 K,L,M,N	V-12	NN -13	FN- 14
14 (23)	OBS	N14			F15	
(20)	MDUS	HiRID			HiRID	
	SDUS	FT-14 H-14	1 J-14		NN -14	FN- 15
UTC			20 	30 	40 50	60 60
15	OBS	N15			F16	
(00)	MDUS	HiBID			HiRID	-
	SDUS	ET-15 H-19		CD-15	NN	FN-
16	OBS	N16			-15J F17	
(01)	MDUS	HiRID			HiRID	
	SDUS	ET-16 H-16			NN	FN-
17	OBS	N17	N17S		-16J F18	17
(02)	MDUS	HiRID	HiRID		HiRID	
	SDUS	FT-17 H-1	, I–17		NN	FN-
				l	-17	L <u>18</u>
		10	20	30	40 50	60
UTC (JST)				30	40 50 	
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UTC (JST) 18 (03)	obs Mdus	10 S18	20 S18S HiRID		40 50 F19 HiRID	
UTC (JST) 18 (03)	obs Mdus Sdus	10 S18 HiRID FT-18 H-18	20 S18S HiRID 3 J-18 A,B,0	30 	40 50 F19 HiRID FW-18	60
UTC (JST) 18 (03) 19 (04)	obs Mdus Sdus Obs	10 S18 HiRID FT-18 H-18 N19	20 S18S HiRID 3 J–18 A,B,0	30 	40 50 F19 HiRID FW-18 F20	60
UTC (JST) 18 (03) 19 (04)	obs Mdus Sdus Obs Mdus	10 S18 HiRID FT-18 H-18 N19 HiRID	20 S18S HiRID 3 J–18 A,B,0	30 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	40 50 F19 HiRID FW-18 F20 HiRID	
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UTC (JST) 18 (03) 19 (04) 20 (05)	OBS MDUS SDUS OBS MDUS SDUS OBS MDUS	10 S18 HiRID FT-18 H-18 N19 HiRID FT-19 H-19 N20 HiRID	20 S18S HiRID 3 J-18 A,B,0 9 J-19	30 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	40 50 F19 HiRID FW-18 F20 HiRID NN F21 HiRID	60
UTC (JST) 18 (03) 19 (04) 20 (05)	OBS MDUS SDUS OBS MDUS OBS MDUS SDUS	10 S18 HiRID FT-18 H-18 N19 HIRID FT-19 H-19 N20 HIRID FT-20 H-20	20 S18S HiRID 3 J–18 A,B,0 J–19 J–20	30 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	40 50 F19 F19 FW-18 F20 HiRID F21 F21 HiRID NN→ 20	60
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UTC (JST) 18 (03) 19 (04) 20 (05) 21 (06)	OBS MDUS OBS MDUS SDUS OBS SDUS	10 S18 HiRID FT-18 H-18 N19 HiRID FT-19 H-19 N20 HiRID FT-20 H-20 10 N21	20 S18S HiRID 3 J-18 A,B,0 9 J-19 20 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	30 30 30 30 30 30 30 30 30 30	40 50 F19 F19 FW-18 FW-18 F20 HiRID NN F21 HiRID HiRID 50 1000000000000000000000000000000000	60
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UTC (JST) 18 (03) 19 (04) 20 (05) 21 (06)	OBS MDUS OBS MDUS SDUS OBS SDUS OBS MDUS SDUS	10 S18 HiRID FT-18 H-18 N19 HiRID FT-19 H-19 N20 HIRID FT-20 H-20 10 N21 N21 HIRID FT-21 H-2	20 S18S HiRID 3 J–18 A,B,0 3 J–19 20 1 1–21 A,B,0	30 30 30 30 30 30 30 30 30 30	40 50 F19 F19 FW-18 FW-18 F20 HiRID NN F21 HiRID NN 20 F21 F21 F21 F21 HiRID NN 20 F21 HIRID NN 20 F21 F21 F20 F21 F21 F21 F20 F21 F21 F21 F21 F21 F21 F21 F21	60
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UTC (JST) 18 (03) 19 (04) 20 (05) 21 (06) 22 (07)	OBS MDUS SDUS MDUS SDUS OBS MDUS OBS MDUS SDUS OBS	10 S18 HiRID FT-18 H-18 N19 HiRID FT-19 H-19 N20 HiRID FT-20 H-20 10 N21 N21 HIRID FT-21 H-2 N22 HIRID	20 S18S HiRID 3 J-18 A,B,0 J-19 0 J-20 20 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	30 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	40 50 F19 F19 FW-18 FW-18 F20 HiRID F20 HiRID F21 F21 F21 F21 F21 F21 F21 F21	60
UTC (JST) 18 (03) 19 (04) 20 (05) 21 (06) 22 (07)	OBS MDUS SDUS MDUS SDUS OBS MDUS SDUS OBS MDUS SDUS	10 S18 HiRID FT-18 H-18 N19 HiRID FT-19 H-18 N20 HIRID FT-20 H-20 10 HIRID FT-21 H-21 N22 HIRID FT-21 H-21 N22 HIRID FT-22 H-22	20 S18S HiRID 3 J-18 A,B,0 9 J-19 0 J-20 20 1 1-21 A,B,0 2 I-22	30 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	40 50 F19 F19 FW-18 FW-18 F20 HiRID NN F21 F21 HiRID NN F22 HiRID F22 HiRID F22 HIRID F22 HIRID	60
UTC (JST) 18 (03) 19 (04) 20 (05) 21 (06) 22 (07) 23 (08)	OBS MDUS SDUS SDUS SDUS OBS MDUS SDUS OBS MDUS SDUS OBS MDUS SDUS	10 S18 HiRID FT-18 H-18 N19 HiRID FT-19 H-18 N20 HiRID FT-20 H-20 10 HIRID FT-20 H-20 10 HIRID FT-21 H-22 N22 HIRID FT-22 H-22 N23	20 S18S HiRID 3 J-18 A,B,0 J-19 J-19 J-20 20 1	30 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	40 50 F19 HiRID FW-18 F20 HiRID NN F21 HIRID NN F21 F21 HIRID NN F21 F21 HIRID NN F21 F21 HIRID NN F21 F21 HIRID NN F21 F21 F21 F21 F21 F21 F21 F21	60
UTC (JST) 18 (03) 19 (04) 20 (05) 21 (06) 22 (07) 23 (08)	OBS MDUS SDUS MDUS SDUS MDUS SDUS OBS MDUS SDUS OBS MDUS SDUS OBS	10 S18 HiRID FT-18 H-18 N19 HiRID FT-19 H-19 N20 HIRID FT-20 H-20 10 FT-20 H-20 10 FT-21 H-27 N22 HIRID FT-21 H-27 N22 HIRID FT-22 H-22 N23 HIRID	20 S18S HiRID 3 J-18 A,B,0 3 J-19 0 J-20 20 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	30 30 30 30 30 30 30 30 30 30	40 50 F19 F19 FW-18 FW-18 F20 HiRID NB F21 F21 HiRID F22 HiRID F22 F22 HiRID F22 F23 F23 F23 F23 F00 HiRID	60

Figure 1-2 MTSAT-1R Observation and Dissemination Schedule for 2004 (Draft) (Explanation of acronyms in the schedule is shown in Appendix)

Appendix

Explanation of Acronyms in MTSAT-1R Observation and Dissemination Schedule

- 1) Imager observation
 - F : Full Disk observation
 - N : North Hemisphere observation
 - S : South Hemisphere observation
 - NhhS : North Hemisphere secondary observation at hh UTC
 - ShhS : South Hemisphere secondary observation at hh UTC
- 2) WEFAX dissemination
 - 4-sectorized full disk images
 - $\Box A, B, C, D$: Infrared images (IR1)
 - \Box K, L, M, N :: Water vapor images (IR3)
 - Polar-stereographic projection
 - I : Visible images (VIS)
 - H : Infrared images (IR1)
 - J : Enhanced Infrared images (ENHANCED IR1)
 - M/T : MANAM/TEST pattern
- 3) LRIT dissemination
 - FT : Full Disk images of thermal infrared channel (IR1)
 - FW : Full Disk images of water vapor channel (IR3)
 - FD : Polar-stereographic projection derived from daytime Full Disk images
 - (AT+AW+AV+NV+SV)
 - FN : Polar-stereographic projection derived from nighttime Full Disk images
 - (AT+AL+AW)
 - ND : Polar-stereographic projection derived from daytime North Hemisphere images
 - (AT+AV+NV+SV)
 - NN : Polar-stereographic projection derived from nighttime North Hemisphere images (AT+AL)
 - $\Box AT$: East-Asia area of thermal infrared channel (IR1)
 - AW : East-Asia area of water vapor channel (IR3)
 - AL : East-Asia area of low-level cloud channel (IR4)
 - AV : East-Asia area of visible channel (VIS)
 - NV : Northeast-Japan area of visible channel (VIS)
 - SV : Southwest-Japan area of visible channel (VIS)

4) HiRID dissemination

- F : Full Disk observation
- N : North Hemisphere observation
- S : South Hemisphere observation
- NhhS : North Hemisphere secondary observation at hh UTC
- ShhS : South Hemisphere secondary observation at hh UTC



Figure 2. a) area in the full earth's disk of normalized geostationary projection, and those in the polarstereographic projection covering b) East Asia, c) the north-east of Japan and d) the south-west of Japan in LRIT.



d) the southwest of Japan





a) four-sectorized the earth's full disk



b) the Far East area including Japan

Figure 3. Same as Figure 2 in a) four-sectorized the earth's full disk images andb) polar-stereographic projection images over the Far East area including Japan in WEFAX.