

CGMS-XXX JPN-WP-02
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Agenda Item: B.2
Discussed in Plenary

STATUS OF GEOSTATIONARY METEOROLOGICAL SATELLITE

This document reports on the status of Geostationary Meteorological Satellite-5 (GMS-5).

CGMS Members are invited to take note this document.

No action is required on this subject

STATUS OF GEOSTATIONARY METEOROLOGICAL SATELLITE

1 INTRODUCTION

Since the launch in March 1995, GMS-5 has been operated at 140E degrees of the geostationary orbit, beyond its designed lifetime of 5 years.

2 CURRENT STATUS OF GMS-5

2.1 Visible and Infrared Spin Scan Radiometer (VISSR)

The motor torque of the VISSR scanning mirror unit increased gradually and reached the criterion for the operation change due to the lubricant build-up. According the observation area was reduced for the southernmost latitudes on 5 June 2000.

Even after this measure, the motor torque around the south end of the observation increased steadily. And as the torque reached the said criterion again, the further reduction of the VISSR observation of the GMS-5 was carried out on 4 July 2001.

Since then, VISSR has been operated under the following condition:

- (1) The number of the observation is 28 times a day
- (2) The number of full disk observation is 16 times a day, and the south edge is 49S degrees.
- (3) The number of Northern Hemisphere observation is 12 times a day, and the south edge is 10S degrees
- (4) 3-hourly full disk observations and 6-hourly observations for wind derivation are continued as they were.
- (5) The range of mirror scanning is slightly changed in each observation to avoid the increase of the lubricant build-up due to the observations.

2.2 Remaining Propellant

The remaining propellant is 8.71kg as of 27 June 2002. The change of the remaining propellant is shown in Attachment-1. At present, the North-South maneuver won't be carried out because of the lack of the fuel. The change of the orbit inclination is shown in Attachment-2. On the other hand, we will operate the East-West maneuvers, Spin rate maneuvers and Attitude maneuvers as scheduled.

2.3 Solar array panel power

In these two years, the solar array panel power of GMS-5 decreased by approximately 2% of the nominal value in July 2000, 1.7% in November 2000, 0.8% in September 2001 and 2.8% in November 2001 due to the solar flare, then, the power level decreased 24W in total. In spite of these decreasing, the solar array of GMS-5 has enough level of the power as of August 2002.

The solar array panel power is predicted to be 284 (W) at the summer solstice of 2003. It is more than 257W which is the required load power for normal operation except for the maneuver. As long as any large-scale flares don't happen, the expecting power level will be sufficient for the operation at least through 2003. The change of the solar battery is shown in Attachment-3.

2.4 Other instruments

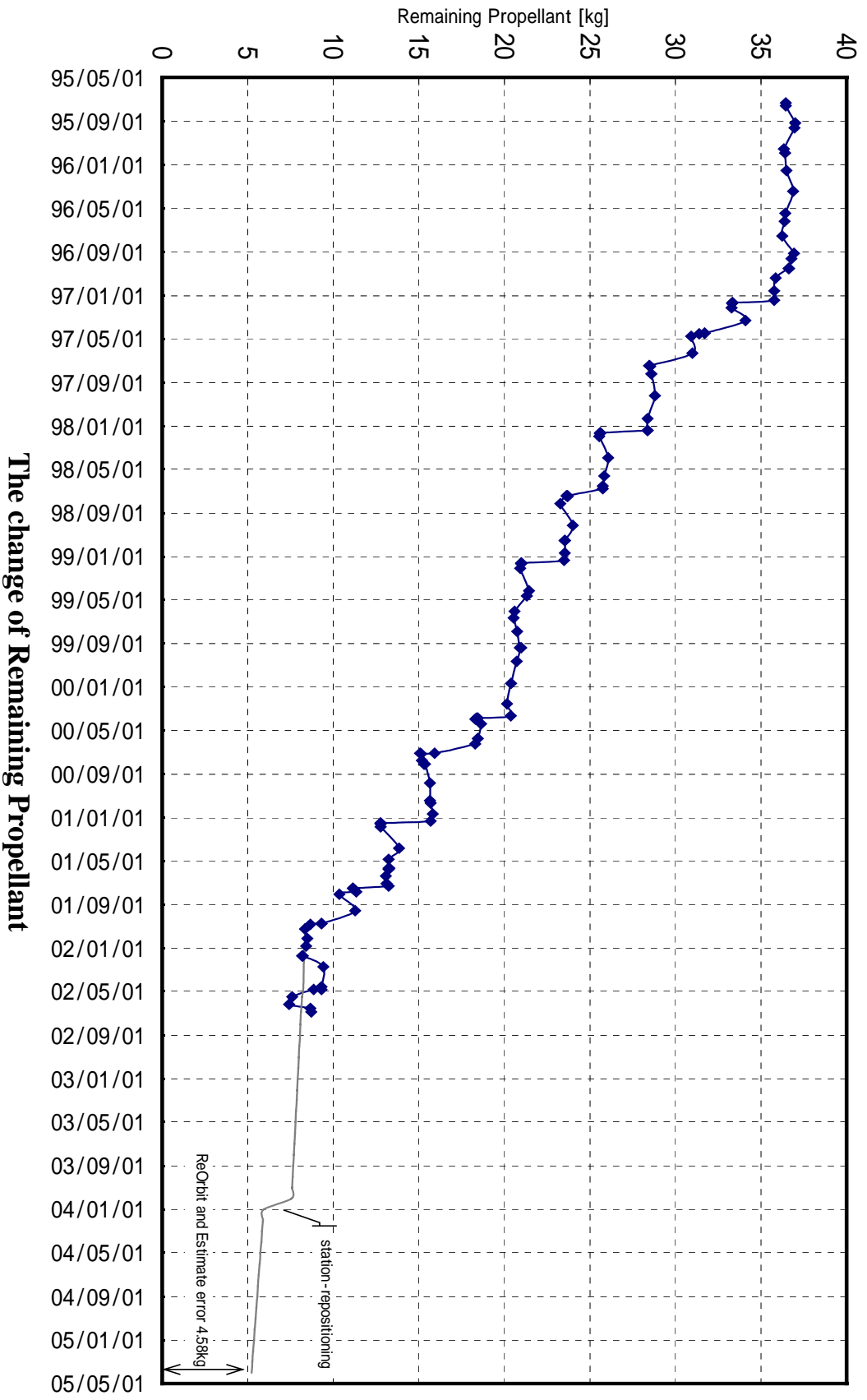
As of 1 August 2002, all the instruments on board GMS-5 other than VISSR and Solar array panel are satisfactorily functioning.

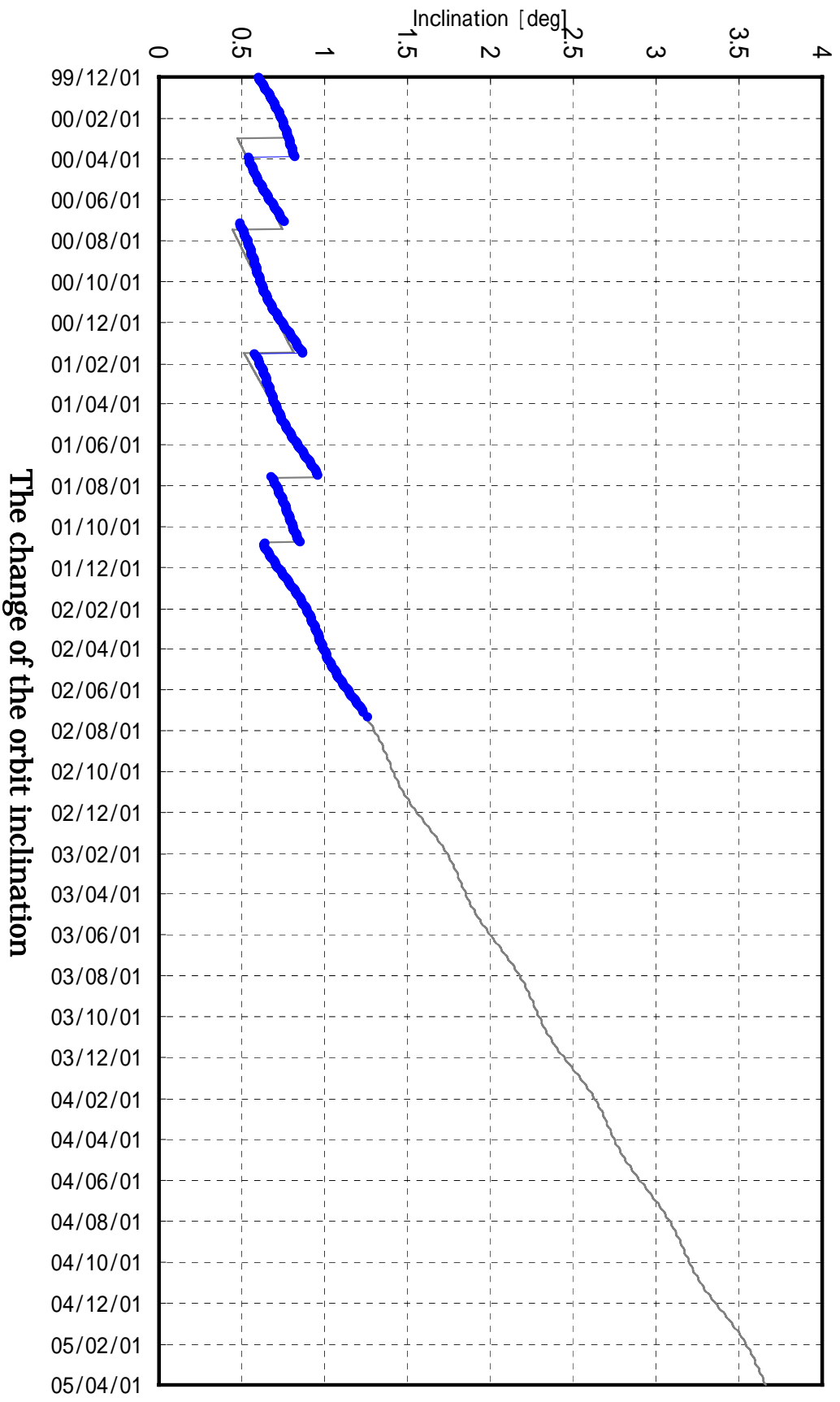
3 SUMMARY OF GMS-5 OPERATION

The monthly statistics of the GMS-5 operations are summarized in Attachment-4.

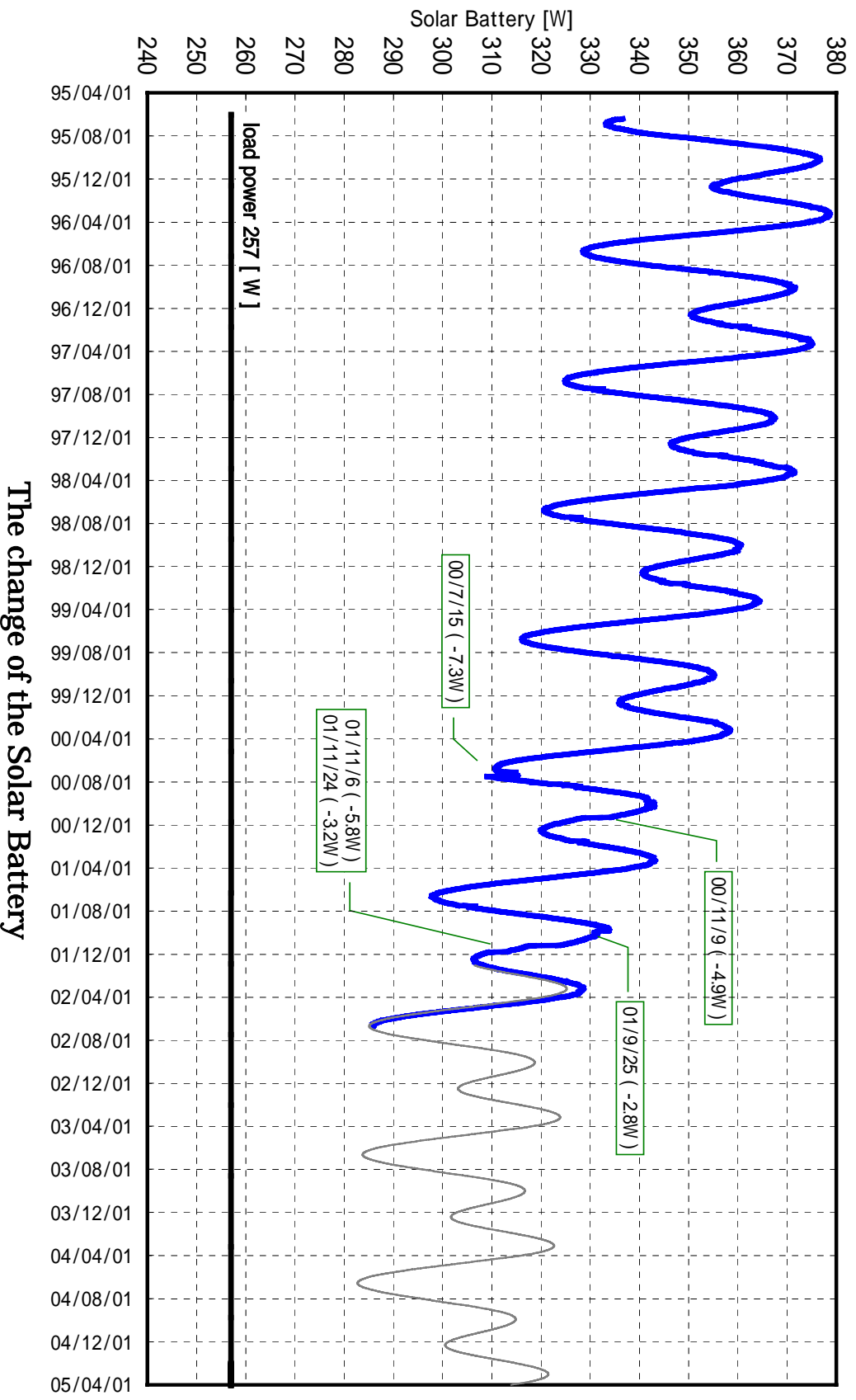
4 FUTURE OPERATION

We will continue the present operation procedure. At the same time, the housekeeping monitoring for GMS-5 will be carefully conducted through the GMS-5 operation, taking into account the possibility of unexpected increase of the motor torque.





The change of the orbit inclination



The change of the Solar Battery

Summary of GMS-5 operations

1. Summary of observations

(From January through December 2001)

2001	ROUTINE OBSERVATIONS	OMISSIONS	CANCELLATIO NS	SPECIAL OBSERVATIONS
Jan.	867	1	0	8
Feb.	774	10	0	0
Mar.	799	69	0	0
Apr.	820	20	0	0
May	867	0	1	8
Jun.	840	0	0	8
Jul.	864	2	2	34
Aug.	853	10	5	38
Sep.	780	60	0	56
Oct.	833	35	0	38
Nov.	840	0	0	12
Dec.	865	3	0	24

(From January through June 2002)

2002	ROUTINE OBSERVATIONS	OMISSIONS	CANCELLATIO NS	SPECIAL OBSERVATIONS
Jan.	861	7	0	2
Feb.	771	13	0	0
Mar.	799	69	0	16
Apr.	821	18	1	0
May	864	4	0	8
Jun.	834	6	0	8

ROUTINE OBSERVATIONS

- Number of Completed Routine Observations.

OMISSIONS

- Number of Canceled Observations by Eclipse, test, maneuver, or maintenance.

CANCELLATIONS

- Number of Canceled Observations caused by troubles in ground sub-systems or trouble of computer system.

SPECIAL OBSERVATIONS

- Number of Typhoon observations or observations for special purpose.

2. Summary of maneuvers

The maneuvers performed between January and December 2001 was as follows,

East-West maneuvers: 25 January, 26 March, 24 May, 10 July, 26 July,
17 September, 7 November, and 25 December.

North-South maneuvers: 15 January, 16 July, and 23 October.

Spin rate maneuvers: 15 January, 21 May, 16 July, and 23 October.

Attitude maneuvers: 9 January, 17 January, 26 April, 21 May, 12 June, 3 July,
19 July, 2 August, 17 September, 25 October,
and 4 December.

The maneuvers performed between January and June 2002 was as follows,

East-West maneuvers: 21 February, 18 April, and 17 June.

Spin rate maneuvers: 21 January, 25 April.

Attitude maneuvers: 21 January, 25 April, 16 May, 6 June, and 27 June.

The orbital inclination angle is 1.19 degrees as of 19 June 2002.

3. Eclipse operation

The eclipse operations performed between January and December 2001 was as follows,

Earth eclipse: between 24 February and 10 April 2001,
between 28 August and 13 October 2001.

Lunar eclipse: 15 December 2001.

The eclipse operations performed between January and June 2002 was as follows,

Earth eclipse: between 23 February and 9 April 2001.

Lunar eclipse: 13 January 2002 and 11 June 2002.