

**FUTURE PLANS OF INSAT SATELLITES FOR METEOROLOGICAL
APPLICATIONS**

Future Plans of INSAT Satellites for Meteorological
Applications

CGMS Members are invited to take note.

FUTURE PLANS OF INSAT SATELLITES FOR METEOROLOGICAL APPLICATIONS

INTRODUCTION

Under the INSAT-3 Program, a new Geostationary Meteorological Satellite INSAT-3D is being designed and developed in India. It will have an advanced imager with six channels and a nineteen channel sounder for derivation of atmospheric temperature and moisture profiles. It will provide 1 km resolution imagery in Visible band and 4 km resolution in IR bands. This new satellite is scheduled for launch by end of 2007 and will provide much improved capabilities to the users of meteorological data from satellites.

INDIAN NATIONAL SATELLITE (INSAT) and Kalpana-1 Appendix-A INSAT-3: Geostationary Satellite Series – FUTURE

Satellite	Launch Date	Met. Payload with Wavelength Bands	Major Applications
INSAT-3D	2007	1. Imager Bands: 0.52-0.75 μ m 1.55-1.70 μ m 3.80-4.00 μ m 10.2-11.2 μ m 11.5-12.5 μ m 2. Sounder Bands: 19 channels between 0.69-14.71 μ m	<ul style="list-style-type: none"> • Monitoring cyclones & monsoon • CMV Winds and Water vapour winds • OLR • Rainfall Estimation • Mesoscale features • Flood/intense precipitation advisory • Snow detection • Crop Monitoring cyclones & monsoon • Water vapour Winds • OLR • Rainfall Estimation • Mesoscale features • Flood/intense precipitation advisory • Snow detection • Aerosols studies • Temperature/humidity profile

Table-1**SPECTRUM AND SENSITIVITY****(INSAT-3D SOUNDER WITH IR DETECTORS AT 100K)**

Channel No.	Center Wavelength ($\mu\text{m}(\text{cm}^{-1})$)	Bandwidth $\mu\text{m}(\text{cm}^{-1})$	NEDT at 300 (typical) K
1.	14.71 (680)	0.281(13)	1.5
2.	14.37 (696)	0.268(13)	1
3.	14.06 (711)	0.256 (13)	0.5
4.	13.96 (733)	0.298 (16)	0.5
5.	13.37 (749)	0.286(16)	0.5
6.	12.66 (790)	0.481 (30)	0.3
7.	12.02(832)	0.723 (50)	0.15
8.	11.03 (907)	0.608 (50)	0.15
9.	9.71 (1030)	0.235 (25)	0.2
10.	7.43 (1345)	0.304 (55)	0.2
11.	7.02 (1425)	0.394 (80)	0.2
12.	6.51 (1535)	0.255 (60)	0.2
13.	4.57 (2188)	0.048 (23)	0.15
14.	4.52 (2210)	0.047 (23)	0.15
15.	4.45 (2245)	0.0456 (23)	0.15
16.	4.13 (2420)	0.0683 (40)	0.15
17.	3.98 (2513)	0.0663 (40)	0.15
18.	3.74 (2671)	0.140 (100)	0.15
19.	0.695 (14367)	0.050	0.1% at 100 % albed

INSAT-3D Met Payloads

INSAT-3D to Carry:

Six Channel Imager:

No.	Channel	Resolution
1.	0.52-0.72 μm	1 km
2.	1.55-1.70 μm	1km
3.	3.80- 4.00 μm	4 km
4.	650-7.00 μm	8 km
5.	10.2- 11.2 μm	4 km
6.	11.5-12.5 μm	4 km

Nineteen channel IR Sounder for INSAT –3D (10 km resolution)

1.	Short-Wave IR (3.74-4.57 μm)	Six Channels
2.	Mid-wave IR (6.51-9.71)	Five Channels
3.	Long-wave IR (11.03-14.71 μm)	Seven Channel
4.	Visible (0.67-072 μm)	One Channel

2) DMDD (Digital Meteorological Data Dissemination)

Under DMDD program IMD is planning to install 40 stations in India and neighboring countries in the middle of the year 2007 and the data dissemination recommended by CGMS in LRIT/HRIT data format in L Band in addition to CXS band transmissions. Which will improve the transmission time and its utilization.