CGMS-XXXIY ROSS-WP-02
Prepared by Russia
Agenda Item: C1

Future Polar Orbiting Meteorological Satellite Systems

The METEOR-M-based polar orbit meteorological satellite system

Summary and purpose of the WP

As stipulated in the Federal Space Programme, the Russian Federation has been creating the METEOR-M spacecraft (SC) – a new generation of hydrometeorological polar-orbit satellites.
METEOR-M #1 is to be manufactured in 2007 and launched by the end of the same year.
The launch of METEOR-M #2 is planned for the end of 2008.
METEOR-M #3 is to be designed as oceanography satellite. The SC payload is currently under consideration. The launch of METEOR-M #3 is planned for the end of 2010.

Action proposed: no action required

The METEOR-M-based polar orbit meteorological satellite system

As stipulated in the Federal Space Programme, the Russian Federation has been creating the METEOR-M spacecraft (SC) – a new generation of hydrometeorological polar-orbit satellites.

METEOR-M #1 and #2 are designed to:

- acquire multispectral images (including radar ones) and the 'earth surface – atmosphere' outgoing radiation data in various energy distribution spectrum bands in terms of absolute energy values;
- obtain helio-geophysical information;
- collect and transmit data from independent measuring platforms (ground, ice and drift ones).

METEOR-M data are to be used for solving the following main tasks:

– regional and global weather analysis and prediction;
– analysis and prediction of the sea and ocean water areas condition;
– analysis and prediction aircraft flight conditions;
– analysis and prediction of the helio-geophysical situation in near-earth space and the state of ionosphere and Earth's magnetic field;
– climate and global changes monitoring;
– monitoring of emergency situations;
– ecological monitoring of environment.

METEOR-M SC are to be put in sun-synchronous orbit with the following parameters:

– orbit mean altitude at the equator	832 km
– inclination	98.068 deg.
– orbital period	101.306 min.

The Information Complex of METEOR-M SC is to include the following devices:

1. Low Resolution Multispectral Scanner (MSU-MR);
2. Onboard Radar Complex (OBRC);
3. Medium Resolution Multi-channel Spectral Imaging System (KMSS);
4. System for acquiring the atmosphere thermodynamic parameters which includes:

- the atmosphere temperature and humidity sounding module (MTVZA) – microwave radiometer;
- equipment for atmosphere temperature and humidity sounding in IR-band – Fourier spectrometer;

Note: Fourier spectrometer is to be installed on METEOR-M starting from #2.

5. Helio-geophysical observation facility.
6. Onboard radio complex for collecting and transmitting data from ground observation platforms.
7. Onboard Radio Line:

7.1. SHF band radio line

Frequency band	8025 - 8400 MHz;
Carrier frequency nominal	8128 (T1); 8320 (T2) MHz;
Data rate	15.36, 30.72, 61.44, 122.88 Mbps

7.2. UHF band radio line (HRPT format)

Frequency band	1.69 – 1.71 GHz;
Carrier frequency nominal	1.7 GHz;
Data rate	665.4 kbps

7.3. VHF band radio line (LRPT format)

Frequency band	137.025 – 137.975 MHz;
Carrier frequency nominal	137.1, 137.9 GHz;
Data rate	80 kbps

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