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METEOR-M AND ELEKTRO-L DATA ACCESS

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Summary and Purpose of Document

This document outlines the current status of Meteor-M № 1 and Electro–L № 1 missions and also gives information on MSU-MR/Meteor-M, MSU-GS/Electro-L data dissemination.

ACTION PROPOSED

The sixth session is invited to take note of the information provided in this report along with the specification of MSU-MR, MSU-GS data and products to be disseminated.

METEOR-M AND ELEKTRO-L DATA ACCESS

1. Current status of Meteor-M and Electro-L

The first one in the Meteor-M series of new Russian polar-orbiting meteorological satellites, Meteor-M №1 was successfully launched on 17 September 2009 from Baikonur. It is now on a sun-synchronous orbit (820 km, equator crossing time ~9:30min, inclination 98.79°). The satellite is considered experimental.

Payload of Meteor-M №1 consists of:

- the scanning radiometer MSU-MR (low-resolution multichannel scanning unit, 6 channels, VIS & IR);
- the visible spectrum scanning imager KMSS (3 cameras with 3 channels each, spatial resolution 50 and 100m);
- X-band side looking radar Severjanin (with 500 and 1000 m resolution);
- the microwave imager-sounder MTVZA-GY (module for temperature and humidity sounding of the atmosphere, 26 channels, 10.6-183 GHz);
- the heliogeophysical instrument collection GGAK-M;
- the data collection system.

Meteor-M №1 has three downlink radio lines: 2-channel SHF-band radio link (8.192 GHz and 8.320 GHz) with 122.88 Mbps data transmission rate; UHF-band radio link (1.7 GHz) with 665.4 Kbps data transmission rate; VHF-band radio link (137 MHz) with 80 Kbps transmission rate (LRPT data transmission).

Due to some instrument failures now only the MSU-MR data and products are available for dissemination by Roshydromet (with limitations).

The new geostationary meteorological satellite “Electro-L”№1 was successfully launched on 20 January 2011. The satellite is about to finish its commissioning phase.

Besides standard meteorological communication package (the DCS and the re-transmitters) the key payload consists of imager MSU-GS that provides image data in three visible and seven IR channels. The spatial resolution in sub-satellite point is 1 km for visible and 4 km for IR channels. The period between scanning sessions for all channels is 30 min and in more frequent regime every 15 min. The 7.5 GHz channel with data rate of 30.72 Mbps is used for transmitting the raw MSU-GS data.

The sub-system for data retransmission consists of: the channel for collecting and transmitting data from DCP network to the ROSHYDROMET centers; the channels for dissemination the MSU-GS data in HRIT and LRIT formats; etc.

The current status of Electro-L № 1 is as follows:

- The MSU-GS instrument has some problems with calibration and a noise level of IR channels. The calibration procedures are still considered as unfinished. The WV channel is not functional because of excessive noise. All visible channels are fully functional.
- The DCS is fully functional (300 national channels and 30 international channels);
- The HRIT/LRIT channels are now being tested to organize a regular transmission.

2. MSU-MR/Meteor-M data and products dissemination

Direct broadcast:

MSU-MR instrument data is currently disseminated at 1.7 GHz band in direct broadcast mode (HRPT). The MSU-MR HRPT data format description is published at SRC Planeta website http://planet.iitp.ru/English/spacecraft/meteor_m_n1. structure_eng.htm

This format was also provided to WMO.

Global data access
Global MSU-MR data can be accessed on demand via FTP, e.g. for calibration/validation purposes.

MSU-MR products access
Some products that are regularly generated by SRC Planeta from MSU-MR data can be accessed on demand via FTP (after the specification of products list).

3. MSU-GS Electro-L data and products dissemination

Direct broadcast
HRIT/LRIT data dissemination in test mode is about to be finished this year. The official dissemination of MSU-CS HRIT/LRIT data is scheduled for January 2012.

Data format description for MSU-GS HRIT/LRIT will be published on the SRC Planeta website http://planet.iitp.ru/english/index_eng.htm in January 2012 as well as will be provided to WMO.

Data access via Internet
LRIT data dissemination via Internet is also planned for the beginning of 2012.

MSU-GS products access
Some products that are regularly generated by SRC Planeta from MSU-GS data can be accessed on demand via FTP (after the specification of products list).

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