



CGMS-39 ROSH/ROSC -WP-03

Prepared by ROSH/ROSC
Agenda Item: B.2
Discussed at Plenary Session

STATUS OF GEOSTATIONARY METEOROLOGICAL SATELLITE ELECTRO-L №1

Summary and purpose of the WP

The new geostationary meteorological satellite “Electro-L”№1 was successfully launched on January, 20, 2011. The satellite is about to finish its commissioning phase. The working paper contains the satellite payload description and status.

Action proposed: none

Status of geostationary meteorological Satellite Electro-L

1 INTRODUCTION

According to Russian Federal Space Program 2006-2015 the geostationary meteorological satellite "Electro-L" №1 has been successfully launched on January, 20, 2011 from Baikonur and placed on 76E. It is now finishing its flight tests and commissioning phase.

The satellite is manufactured by Lavochkin Association and has a three-axis stabilized platform.

2 Payload and functionality

Primary objectives of the "Electro-L" №1 mission:

- Continuous observation of the Earth within a radius of 55-60 degrees centred at the sub-satellite point;
- Simultaneous images of cloud cover and the Earth's surface in 10 spectral channels of visible and infrared range;
- The development and maintaining of national data collection system (DCS), collection of the hydrometeorological data from national and international platforms (DCPs);
- Retransmission of the data from ROSHYROMET regional centers;
- Heliogeophysical measurements at geostationary orbital altitude;
- Dissemination through the satellite of various output information products (including data in HRIT/LRIT formats) to national and foreign users' receiving stations.

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 subsatellite 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. JSC "Russian Space Systems" is a developer of this instrument. The 7.5 GHz channel with data rate of 30,72 Mbps is used for transmitting the raw MSU-GS data.

The heliogeophysical complex GGAK provides monitoring of the electromagnetic solar radiation variations, corpuscular radiation fields and variations of the Terrestrial magnetic field. The 1.7 GHz channel (1.2 Kbps data rate) is used for the GGAK data transmitting.

Subsystem for data retransmission consists of:

- The channel for collecting and transmitting data from DCP network to the ROSHYDROMET centers;
- The channel for hydrometeorological data exchange between ROSHYDROMET centers;
- The channels for dissemination the MSU-GS data in HRIT and LRIT formats;
- The transponder for the geostationary Search & Rescue service of the COSPAS/SARSAT.

3 STATUS

During the commissioning phase of the first 6 months the testing of the payload and ground segment has been performed.

The current status is as follows:

- The three-axis stabilized space platform “Navigator” and Ground Segment flight tests are completed;
- 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 data exchange between ROSHYDROMET centers is successfully tested;
- The COSPAS-SARSAT system is working;
- The GGAK instrument is functional with limitations;
- The HRIT/LRIT channels are now being tested to organize a regular transmission.