

Russian meteorological polar satellite Meteor-M N2: instrument performance assessment and data applications

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METEOR-M General Design

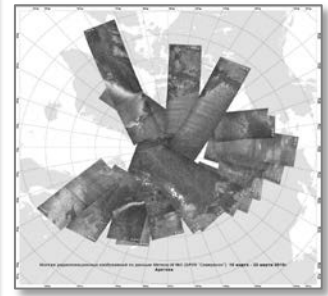
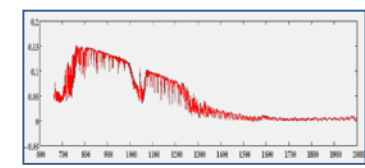
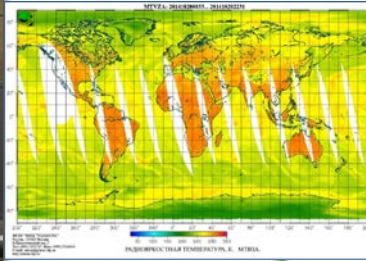
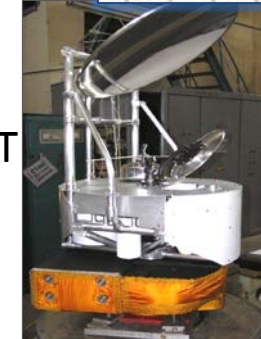
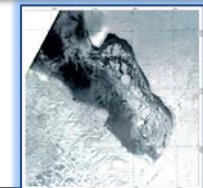
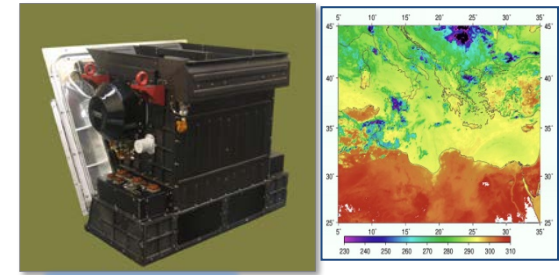
In-orbit mass – 2700 kg
 Payload mass – 1200 kg
 Lifetime – 5 years
 Orbit – Sun-synchronous
 Altitude – 830 km
 Data dissemination format – HRPT/LRPT

Meteor-M №№ 2, 2-1, 2-2, 2-3, 2-4, 2-5 Basic Instruments Specifications

Instrument	Application	Spectral band	Swath-width (km)	Resolution (km)	Status for Meteor-M N2
MSU-MR Low-resolution multi-channel scanning unit	Global and regional cloud cover mapping, ice and snow cover observation, forest fire monitoring...	0,5 – 12,5μm (6 channels)	3000	1 x 1	Functional
KMSS Visible spectrum scanning imager	Earth surface monitoring for various tasks (floods, soil and vegetation cover state, ice cover)	0,4-0,9 μm (3+3 channels)	450/900	0,05/0,1	Functional
MTVZA-GY Imager-sounder (module for temperature and humidity sounding of the atmosphere)	Atmospheric temperature and humidity profiles, sea surface wind	10,6-183,3 GHz (26 channels)	2600	12 – 75	Functional
IRFS-2 Advanced IR sounder (infrared Fourier-spectrometer)	Atmospheric temperature and humidity profiles	5-15 μm	2000	35	Functional
“Severjanin-M” Synthetic aperture radar	All-weather Ice coverage monitoring	9500-9700 MHz	600	0,4 x 0,5	Limited
GGAK-M Heliogeophysical instrument suite	Heliogeophysical data providing				Functional
BRK SSPD Data Collection System	Data retransmission from DCP				Limited

Post-launch characterisation of Meteor-M N2 instruments

1. MSU-MR: operational. On-orbit radiometric calibration accuracy, NE Δ T meet specifications. Cal/val procedures have been performed using comparisons with SEVIRI/Meteosat-10 and RTTOV simulations. Data is available to direct broadcast users in HRPT format.
2. KMSS: operational within design specifications. Instrument is working in on-demand mode.
3. MTVZA-GY: operational. Calibration coefficients from TDR to SDR were updated, but the process is ongoing. Biases between measurements and simulations are air-mass dependent. The data will be provided to EUMETSAT for evaluation and further distribution to user community.
4. IRFS-2: operational. Instrument performance was assessed by comparisons with IASI/Metop, LBLRTM simulations. With the regular cal/val procedures, the data can be used for remote atmospheric sounding applications.
5. SAR "Severjanin-M": limited functionality. Operated in on-demand mode. The data from this instrument is affected by the low signal/noise ratio, but can be used in some applications.



Thank you!

