

# MONITORING WEATHER AND CLIMATE FROM SPACE



## EUMETSAT Third-party Data Services

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# Third-party data services at EUMETSAT

- EUMETSAT makes use of existing infrastructure, technical expertise and international partnerships in order to deliver data from third-party agencies to its Member States, ECMWF and other users
- By acting as a redistribution hub for multiple users, the number of users accessing the external agency is reduced
- By accessing third-party data via EUMETCast, end users do not need to maintain multiple external interfaces
- Data can be tailored according to end user needs (reformatted, thinned, etc) as it passes through EUMETSAT

# Examples of currently implemented services

Service type	Description	Example
I - Data relay	Data pass through unaltered	SMOS/MIRAS
II – Data re-packing	Data put in new files with new names	S-NPP/ATMS SDRs
III – Data reformatting	Data format is changed, eg HDF to BUFR	GCOM-W1/AMSR2
IV – Data tailoring	Data are thinned by region, channel, etc	Aura/MODIS L1
V – Data processing	Data are re-projected, merged, etc	SNPP VIIRS/CrIS
VI – Data production	Third-party system is used to derive products	Oceansat-2/OSCAT
VII – SAF production	Third-party data processed at SAFs	HSAF precipn DMSP

- Since the demise of the Oceansat-2 OSCAT there are currently not Type VI services in operation. A similar system may be implemented for ScatSat.

# 3PDS with Roshydromet

- Despite loss of attitude control on **Electro-L N1**, some images are still taken and look to have the same quality as before. Attempts to recover the mission are ongoing as of April 2015.
- **Meteor-M N2** launch and commissioning are going well. Once the data are available, it is intended to provide sample data to Member States to allow assessment of quality and suitability for the potential definition of a future data service (IKFS-2, KMSS, MSU-MR, MTVZA)

# Electro-L N1

Data provided by ROSHYDROMET

Images every ½ hour in HRIT format

Final channel selection on EUMETCast (as of 16 January 2014):

VIS 0.9

IR 3.8

IR 8.0

IR 9.7

IR 10.7

IR 11.9

Data were available with timeliness of ~22 mins from October 2013 until March 2014

Since March 2014 no further data have been available due to a failure with the satellite's attitude control system.

As of 2 February 2015 some image data were available on the ROSHYDROMET/Planeta website, but no committed service yet

# Electro-L N1 – images from 2 February 2015



ФЕДЕРАЛЬНАЯ СЛУЖБА ПО ГИДРОМЕТЕОРОЛОГИИ И МОНИТОРИНГУ ОКРУЖАЮЩЕЙ СРЕДЫ  
ФГБУ "НАУЧНО-ИССЛЕДОВАТЕЛЬСКИЙ ЦЕНТР КОСМИЧЕСКОЙ ГИДРОМЕТЕОРОЛОГИИ "ПЛАНЕТА"

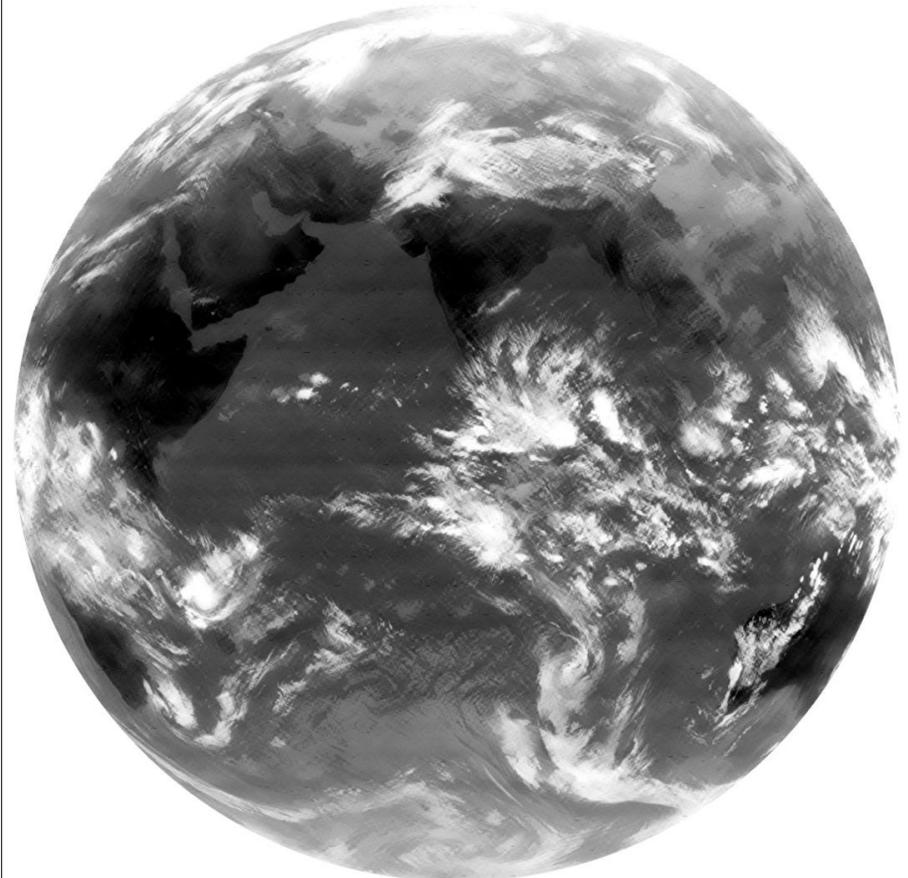


Электро-Л №1  
Нормализованная геостационарная проекция  
1 канал (0.5 - 0.65) мкм  
2.02.2015 8:00 СГВ

ФГБУ "НИЦ "Планета"  
Россия, 125042 Москва  
Б. Прядечинский пер., 7  
Тел.: (499) 2523717  
Факс: (499) 2520610  
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<http://planet.itp.ru>  
<http://planet.rssi.ru>



ФЕДЕРАЛЬНАЯ СЛУЖБА ПО ГИДРОМЕТЕОРОЛОГИИ И МОНИТОРИНГУ ОКРУЖАЮЩЕЙ СРЕДЫ  
ФГБУ "НАУЧНО-ИССЛЕДОВАТЕЛЬСКИЙ ЦЕНТР КОСМИЧЕСКОЙ ГИДРОМЕТЕОРОЛОГИИ "ПЛАНЕТА"



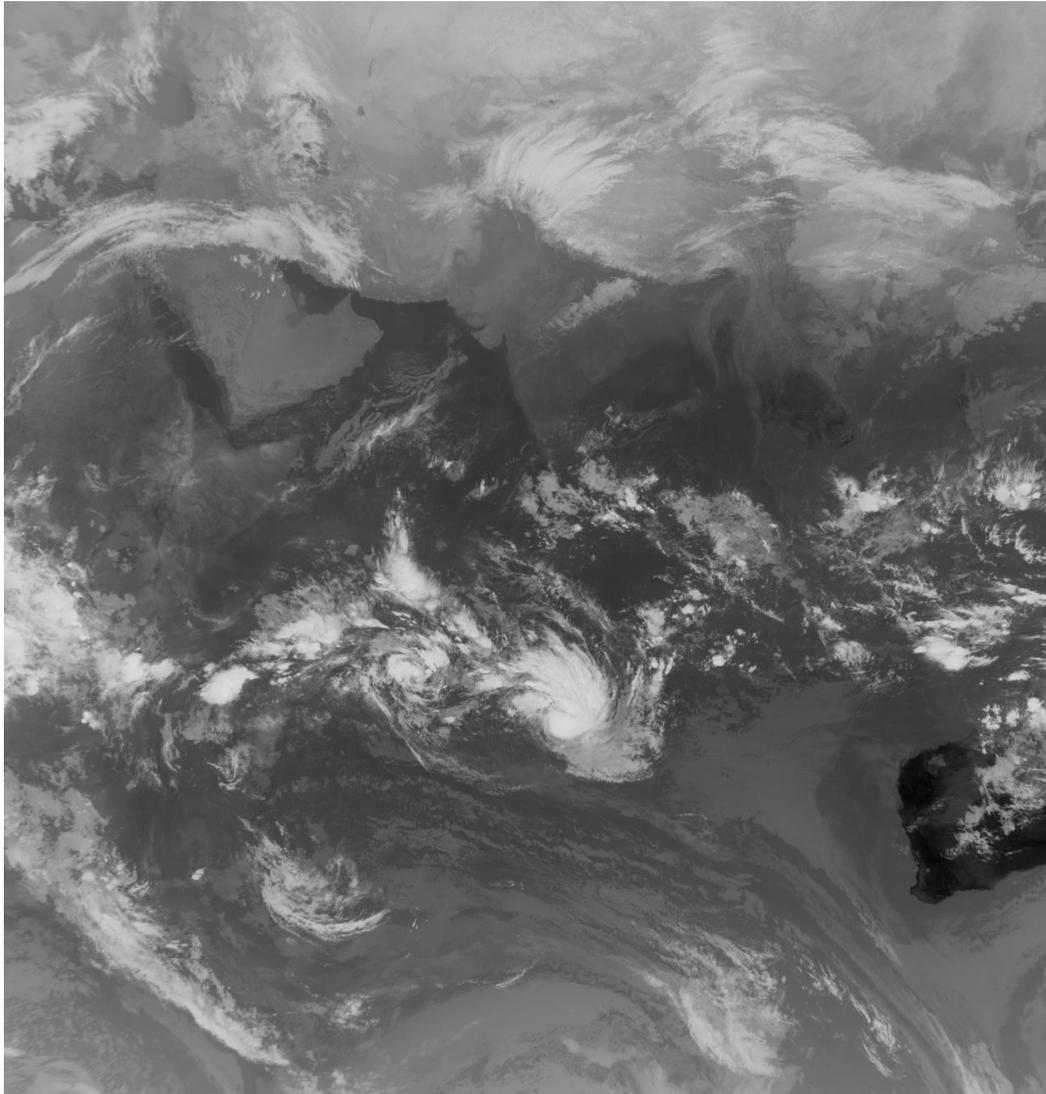
Электро-Л №1  
Нормализованная геостационарная проекция  
9 канал (10.2 - 11.2) мкм  
2.02.2015 8:00 СГВ

ФГБУ "НИЦ "Планета"  
Россия, 125042 Москва  
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Тел.: (499) 2523717  
Факс: (499) 2520610  
E-mail: [asmus@planet.itp.ru](mailto:asmus@planet.itp.ru)  
<http://planet.itp.ru>  
<http://planet.rssi.ru>

# 3PDS with the Indian Space Research Organisation

- A provisional **INSAT-3D** service based on L1C data was agreed in March 2015. The characteristics of the link from India to EUMETSAT are being evaluated during April for a potential service implementation in Q3 2015.
- **SAPHIR** L1A2 data from **Megha-Tropiques** converted to BUFR before redistribution via EUMETCast
- In support to NOAA, transfer of native HDF **SAPHIR** L1A2 data from started in December 2014
- Investigation into provision of **ScaRaB** L2 data to NOAA ongoing
- **Oceansat-2** stopped after instrument failure

# INSAT-3D – image from 27 January 2015



Proposed service comprising L1C data every 30 minutes

Channels	Range ( $\mu\text{m}$ )	Resn (km)
VIS	0.55 – 0.75	1
WIR	1.55-1.70	1
MIR	3.80-4.00	4
WV	6.50-7.10	8
TIR 1	10.3-11.3	4
TIR 2	11.5 – 12.5	4

L1B data are ~450 MB in HDF5, with full explicit geolocation

L1C data are ~90 MB in HDF5, with projection details (50N to 50S, 20E to 150E)

# 3PDS with the Chinese Meteorological Administration

- Data from polar satellites **FY-3B** and **FY-3C** in native HDF via EUMETCast (**MWHS**, **IRAS**, **MWRI**)
- Corresponding BUFR data was also started in November 2014.
- Image data from **FY-2D** and **-2E** geostationary satellites redistributed via EUMETCast
- Regional data services based on **FY3** satellites across the EARS network is in the approval process. The proposed services, initially based on the **FY3-C** satellite, include a Sounder Service planned to start in the second half of 2015, based on **MWHS-II** and **IRAS** instrument data, and an imagery service planned to start in 2016, based on the **MERSI-I** imager.

# FY-2E

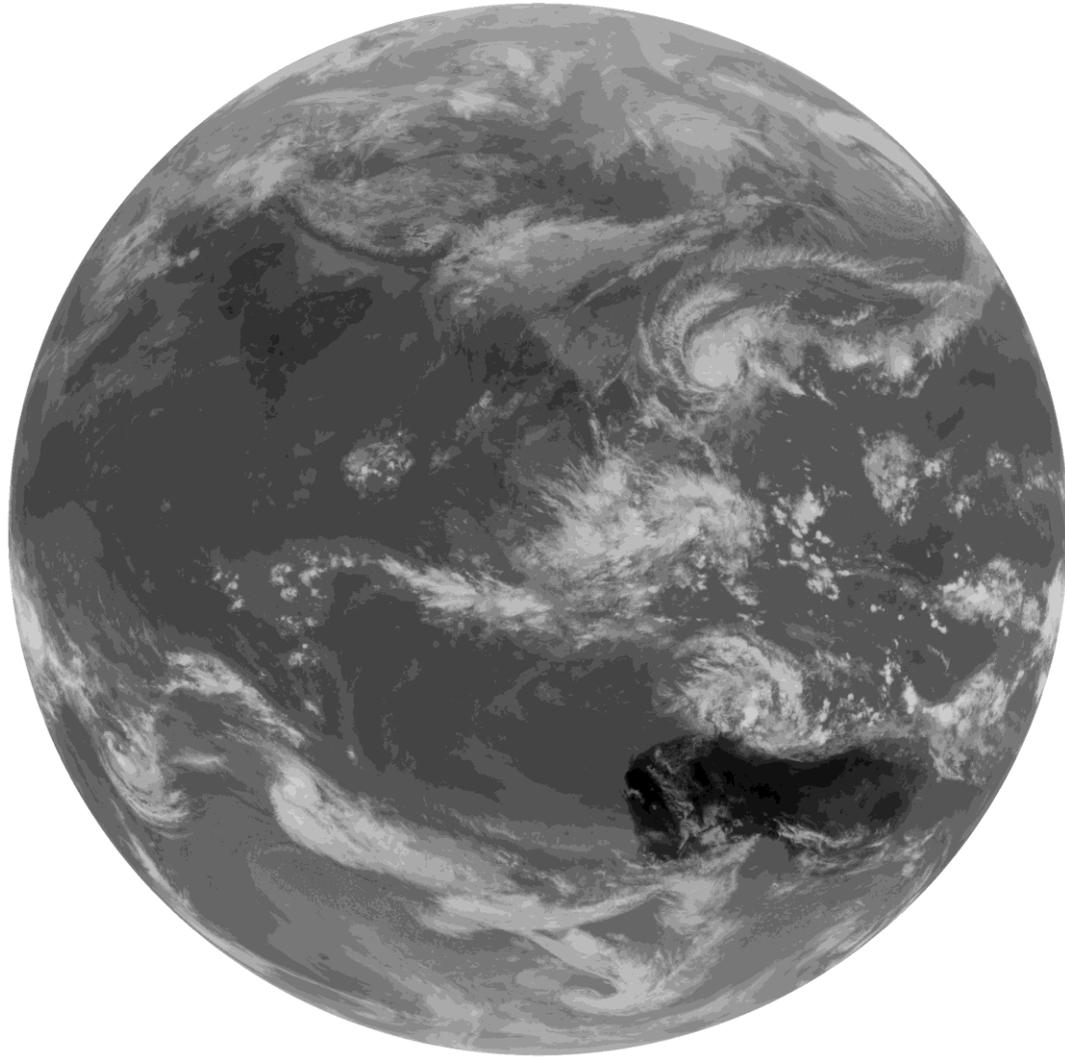
Images every ½ hour in “nom” format (identical to existing data from FY-2D)

Spectral Channels	Range (µm)	Resolution (km)
IR1	3.50 – 4.00	5
IR2	6.30 - 7.60	5
IR3	10.3 - 11.3	5
IR4	11.50 - 12.10	5
VIS	0.55 – 0.99	5
VIS1KM	0.55 – 0.99	1.25

L1 data are ~90 MB in HDF5 (nom format), with projection details

Data are not yet available, agreement is in place

# FY-2E – image from 18 January 2015



- Currently FY-2D is at 86.5E, FY-2E is at 105E, and FY-2G is being commissioned at 99.5E
- If commissioning is okay, FY-2G will move to 105E and FY-2E will replace FY-2D at 86.5E

# 3PDS with the National Satellite Ocean Application Service (State Ocean Administration, China)

- Data from NSOAS' **HY-2A** polar orbiting spacecraft are made available to EUMETSAT Member States and ECMWF by EUMETCast.
- Redistribution of **altimeter** data in its native netCDF format
- Redistribution of **scatterometer** data both in its native HDF format and after conversion into BUFR
- Redistribution of microwave **radiometer** data after conversion to BUFR
- **Altimeter** and **scatterometer** data service began on 11 December 2014
- **Radiometer** data will be made available in April 2015

# 3PDS with Japan Meteorological Agency

- Image data from **MTSAT-2/Himawari-7** available via EUMETCast.
- **Himawari-8** service proposal for approval in May 2015 and service implementation in the summer of 2015.
- Availability of **MTSAT-2/Himawari-7** will cease in November 2015, a period of parallel dissemination together with **Himawari-8** data during the autumn of 2015 has been requested
- 11 channels at 2km resolution every 30 minutes

# 3PDS with Japan Aerospace Exploration Agency

- **GCOM-W1 AMSR2** brightness temperatures in native HDF are converted to BUFR and distributed via EUMETCast to Member State NMHSs (EUMETSAT is a “special user”)
- Successful cooperation with JAXA led to near real-time GHRSSST format SST data from **AMSR2** also being acquired from JAXA and made available via EUMETCast since March 2015

# 3PDS with NASA

- **GPM-Core** Microwave Imager (**GMI**) brightness temperature and precipitation products acquired in native HDF format data from NASA FTP server
- Reformatting into BUFR (brightness temperatures) and subsequent redistribution via EUMETCast. The trial dissemination of these data began in March 2015.
- **AURA MODIS** brightness temperature, precipitable water, fires and chlorophyll alpha – reduced spatially and spectrally before redistribution via EUMETCast

# 3PDS with NOAA

- Global **S-NPP** SDRs (**CrIS** and **ATMS**) and EDRs (**VIIRS** AOT, **VIIRS** cloud data, **VIIRS** polar winds, **VIIRS** SST, and **OMPS** nadir profiles) are sent from NDE to EUMETSAT in near real-time
- **VIIRS** ocean colour is acquired from CoastWatch
- Data are redistributed via EUMETCast after re-packing and renaming
- **VIIRS** cloud EDRs are colocated with **CrIS** SDRs prior to redistribution
- **CrIS** and **ATMS** SDRs, and **VIIRS** polar wind EDRs are also inserted onto WMO's GTS on NOAA's behalf
- ACSPO SST L2P to L3U transition planned very soon
  
- GOES-E and GOES-W image data redistributed via EUMETCast

# Conclusion

- EUMETSAT has agreements with satellite data operators in several countries
- Third-party data services are continually being implemented in response to user requirements
- As necessary, EUMETSAT tailors the data before redistribution to its users
- Third-party data services are currently based on data from Japan (JMA and JAXA), India (ISRO), China (CMA and NSOAS), Russia (Roshydromet) and the USA (NASA and NOAA)