



# ROSCOSMOS PROPOSALS FOR ASIA-PACIFIC PLAN OF ACTION FOR SPACE APPLICATIONS (2018-2030)



## MISSION

In accordance with the international documents and regulations of ESCAP, ROSCOSMOS proposes to provide RS data support for the following needs:

- Emergency monitoring;
- Climate change monitoring;
- Natural resources monitoring;
- Monitoring of transport, industrial and other facilities.

RS data support - products and services made with capabilities of ROSCOSMOS remote sensing constellation and geo-information services.

The exchange of RS data between the ESCAP member countries will boost mutually beneficial cooperation, the creation of unified geo-information services and the provision of products and services based on remote sensing data.



**INFORMATION RESOURCES BASED ON OPERATIONAL SATELLITES**

**Meteor-M**

Launch date – September 17, 2009 (Meteor-M1)  
July 8, 2014 r. (Meteor-M2)

**Electro-L**

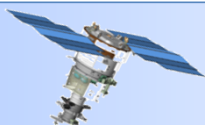
Launch date –January 20, 2011 r. (Electro-L1)  
December 11, 2015 r. (Electro-L 2)

Medium and low resolution space imagerys are publicly available and can be used to provide operational hydrometeorological information, including the prevention and monitoring of emergencies (fires, floods) and climate changes



## INFORMATION RESOURCES BASED ON OPERATIONAL SATELLITES

### Resurs-P



Launch date – June 25, 2013 г. (Resurs-P1)  
December 26, 2014 г. (Resurs-P2)  
March 13, 2016 г. (Resurs-P3)

### Kanopus-V



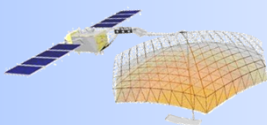
Launch date – July 22, 2012 г. (Kanopus-V1)  
July 14, 2017 г. (Kanopus-V-IK)  
February 1, 2018 г. (Kanopus-V3,4)

The high and ultra high resolution space imageries allow solving tasks of natural resources and infrastructure monitoring



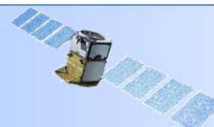
## INFORMATION RESOURCES BASED ON PERSPECTIVE SATELLITES

### Kondor-FKA



Planned launches  
– 2019 (Kondor-FKA1)  
– 2020 (Kondor-FKA2)

### Obzor-R

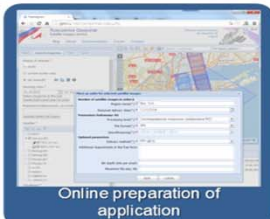


Planned launches  
– 2021 (Obzor-R1)  
– 2023 (Obzor-R2)

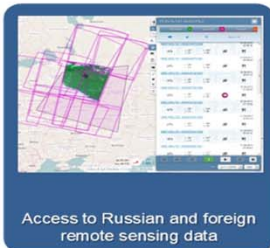
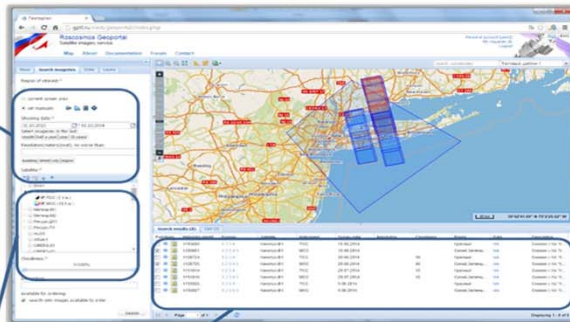
- Global operational all-weather 24-hour monitoring
  - Emergency monitoring
    - Mapping
  - Environmental monitoring
- Control in the field of agriculture and forestry
  - Monitoring the state of the infrastructure
  - Information support of navigation



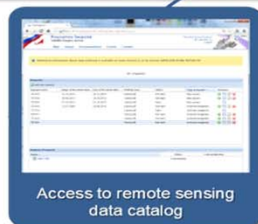
## INTEGRATED SOLUTIONS OF OPERATOR OF REMOTE SENSING SPACE SYSTEMS



Online preparation of application



Access to Russian and foreign remote sensing data



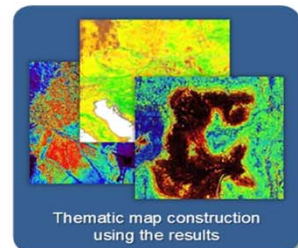
Access to remote sensing data catalog



Connection to users' systems (API)



Remote sensing data processing to formalized levels using automated techniques by request



Thematic map construction using the results



## ROSCOSMOS IN INTERNATIONAL CHARTER ON SPACE AND MAJOR DISASTERS



The activation of the International Charter on Space and Major Disaster mechanism enables the implementation of international resources of multi-purpose space facilities (more than 40 satellites) in crisis and emergency situations including usage for the benefit of friendly nations

**On August 28, 2013**

the procedure of ROSCOSMOS joining the International Charter on Space and Major Disasters was completed.

Research Center for Earth Operative Monitoring was assigned as the ROSCOSMOS' Operator in the Charter.

A specialized hard- and software system was deployed and a division responsible for the Charter activity support in Russia was established at the basis of Research Center for Earth Operative Monitoring





## THE LATEST CHARTER ACTIVATIONS CONTRIBUTED BY ROSCOSMOS

- Hurricane in the Dominican Republic, September 2017;
- Earthquake in Mexico, September 2017;
- Flood in Chile, archive data of May 2017;
- Typhoon in Vietnam, November 2017;
- Earthquake in Iran/Iraq, November 2017;
- Earthquake in South Korea, November 2017;
- Flood in Sri Lanka, May 2018;
- Hurricane in New Caledonia, March 2018;
- Hurricane in Philippines, January 2018;
- Flood in Somali, May 2018.



## ROSCOSMOS ACTIVITIES IN CEOS

### Flood projects with CEOS WG Disasters

In 2017 the representatives of the projects received more than **123 thousand sq. km** of Russian EO data in the frame of flood monitoring over the territory of Australia, Albania, Venezuela, Vietnam, Haiti, Columbia, Madagascar and Panama.

### Integration with CWIC

ROSCOSMOS's geo-information services catalogs were connected in test mode to the CEOS WGISS Integrated Catalog (CWIC)



## INTERNATIONAL EVENTS IN RUSSIA

- The 8<sup>th</sup> Asia/Oceania Meteorological Satellite Users' Conference (AOMSUC-8) was hosted in 2017 in Vladivostok, Russia
- ROSCOSMOS proposes to regularly discuss the use of space technologies for sustainable development at AOMSUC



## PROPOSALS FOR ASIA-PACIFIC PLAN OF ACTION

1. To use mechanisms of International Charter on Space and Major disasters for creation and implementation of new agreements on data exchange for sustainable development between the Russian Federation and countries of the Asia-Pacific region;
2. To conduct open data provision from the Russian RS constellation for solving key issues of regional member states and for improving international cooperation in high-ultra high resolution data exchange between the Russian Federation and countries of the Asia-Pacific region;
3. To establish joined Asia-Pacific virtual RS constellation for data exchange and creation of integrated data-search systems and geo-services on the basis of joined informational resource.

Members of the outlined projects, financial sources and working plans should be discussed in ESCAP working groups.