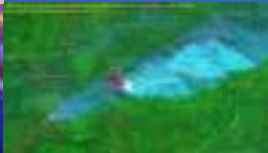
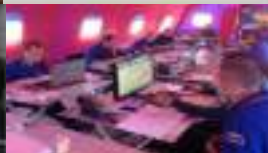
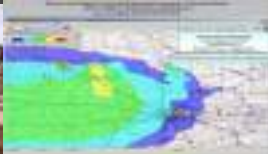


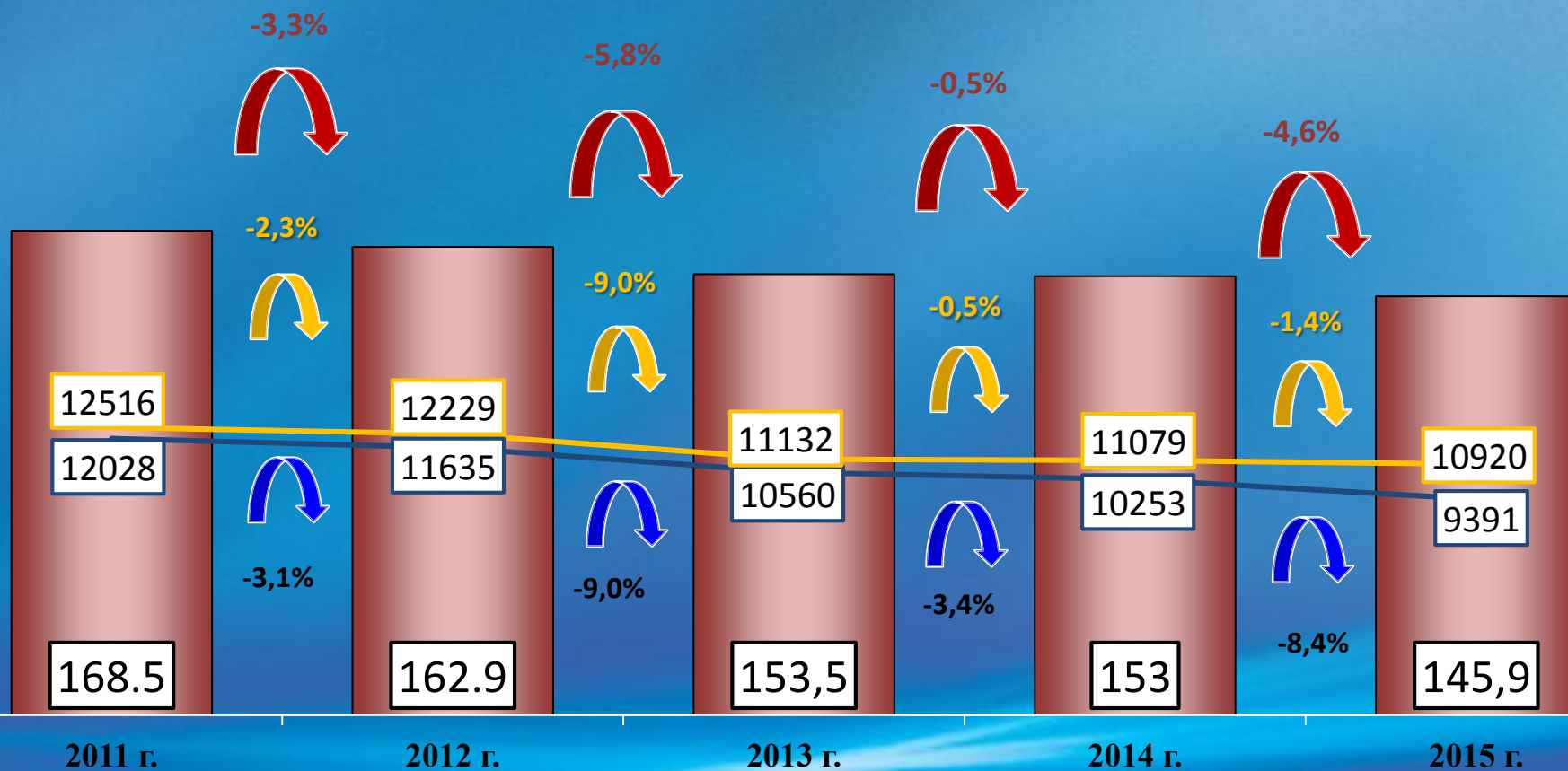


«FORECASTING, PREVENTION, PROTECTION OF FLOODS AND FIRES, WITH THE USE OF SPACE MONITORING SYSTEM»



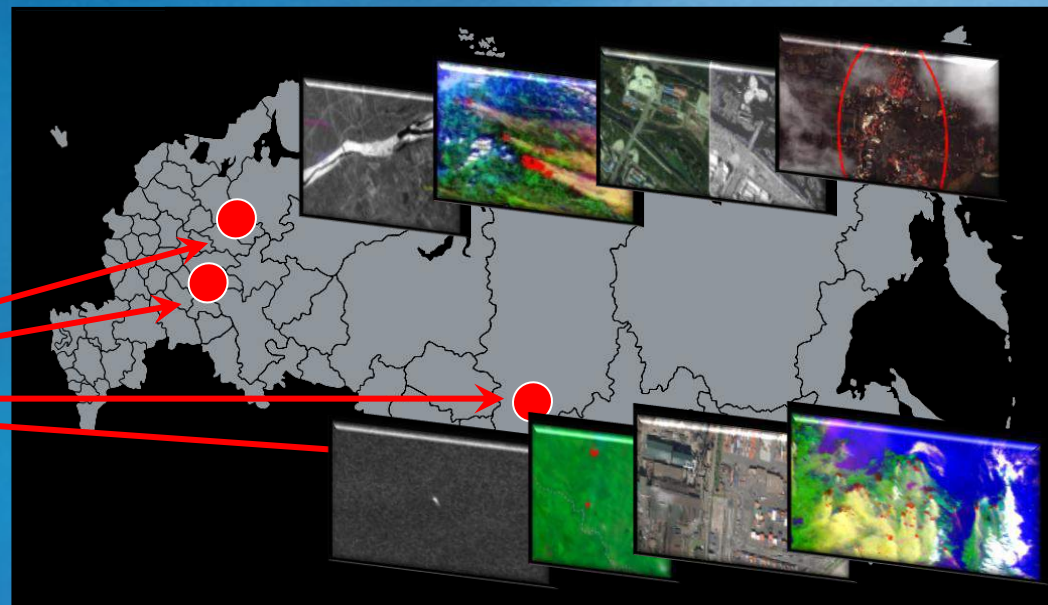
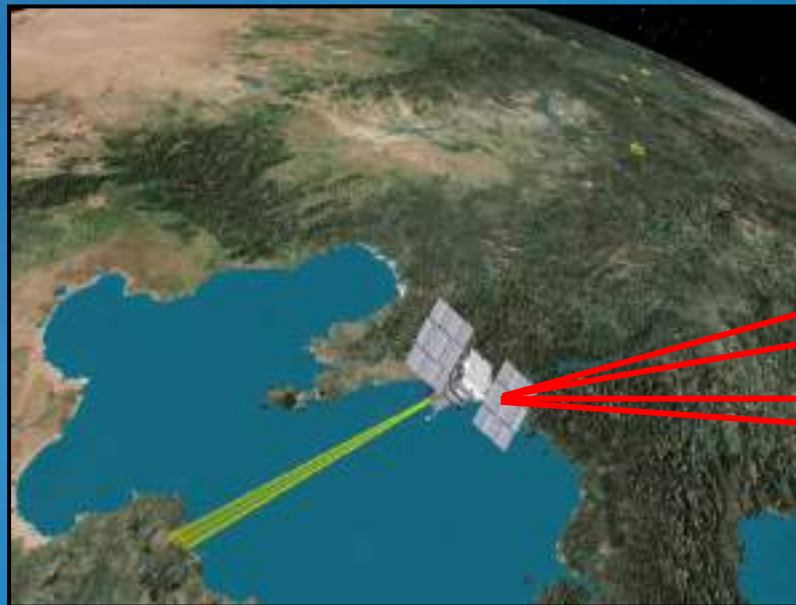


CORE INDICATORS OF THE FIRE SITUATION AND IT'S CONSEQUENCES ON THE TERRITORY OF THE RUSSIAN FEDERATION



■ Fires, thousands — Died, people — Injured, people

SPACE MONITORING AND AUTOMATIC SYSTEMS



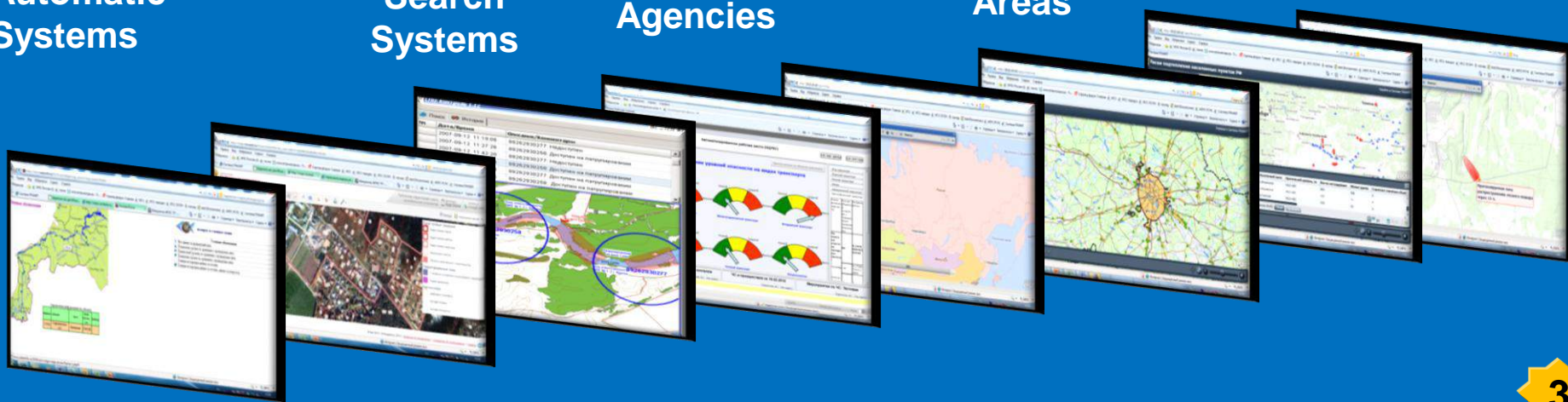
Automatic Systems

Automatic Search Systems

Government Agencies

Flooding Areas

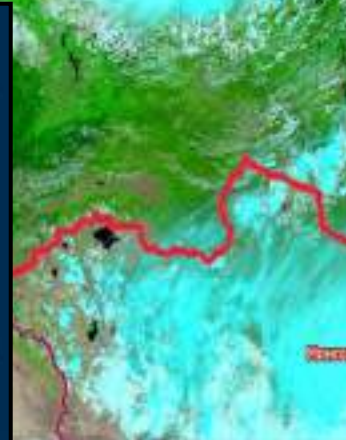
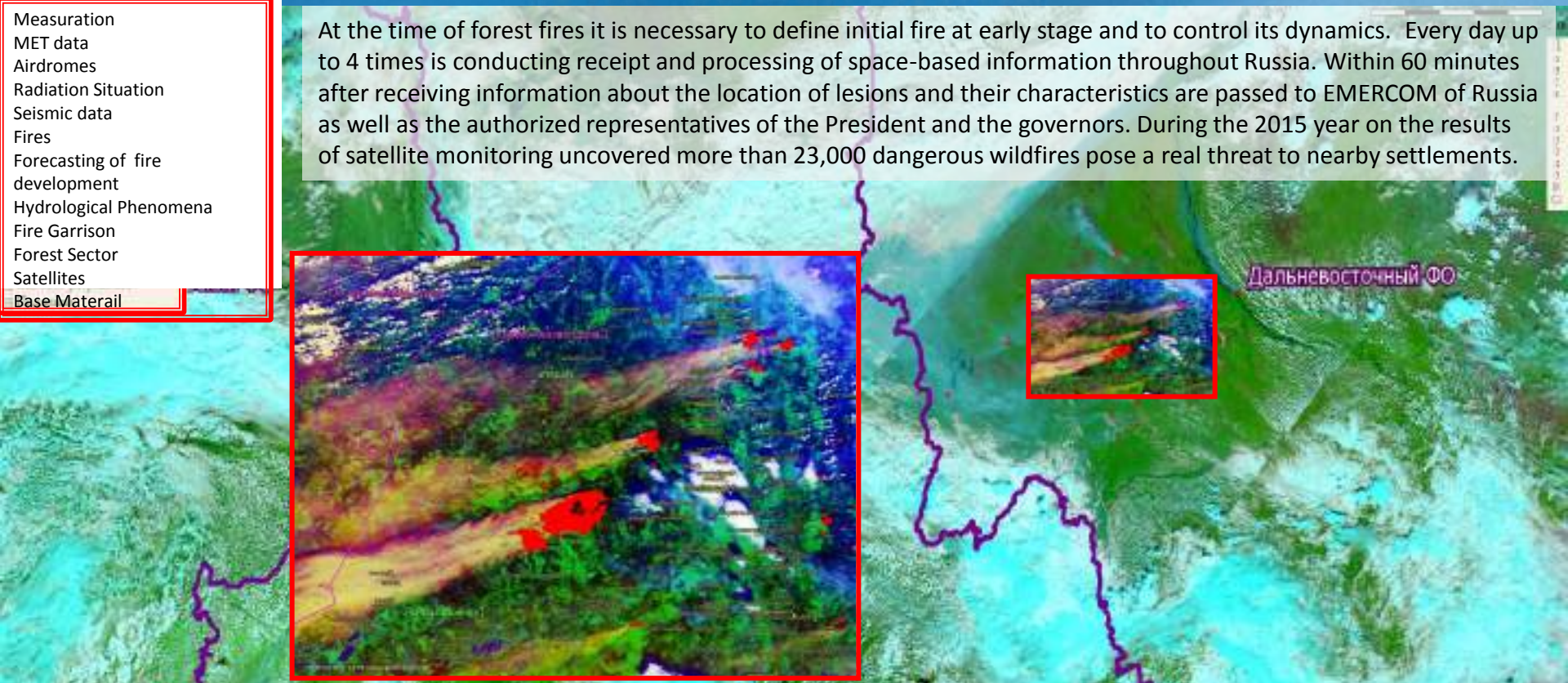
Forecasting Of Natural Fires



DATABASE AND SYSTEMS OF MONITORING FORECASTING OF NATURAL FIRES IN THE "KASKAD" SYSTEM

- Measurement
- MET data
- Airdromes
- Radiation Situation
- Seismic data
- Fires
- Forecasting of fire development
- Hydrological Phenomena
- Fire Garrison
- Forest Sector
- Satellites
- Base Materail

At the time of forest fires it is necessary to define initial fire at early stage and to control its dynamics. Every day up to 4 times is conducting receipt and processing of space-based information throughout Russia. Within 60 minutes after receiving information about the location of lesions and their characteristics are passed to EMERCOM of Russia as well as the authorized representatives of the President and the governors. During the 2015 year on the results of satellite monitoring uncovered more than 23,000 dangerous wildfires pose a real threat to nearby settlements.

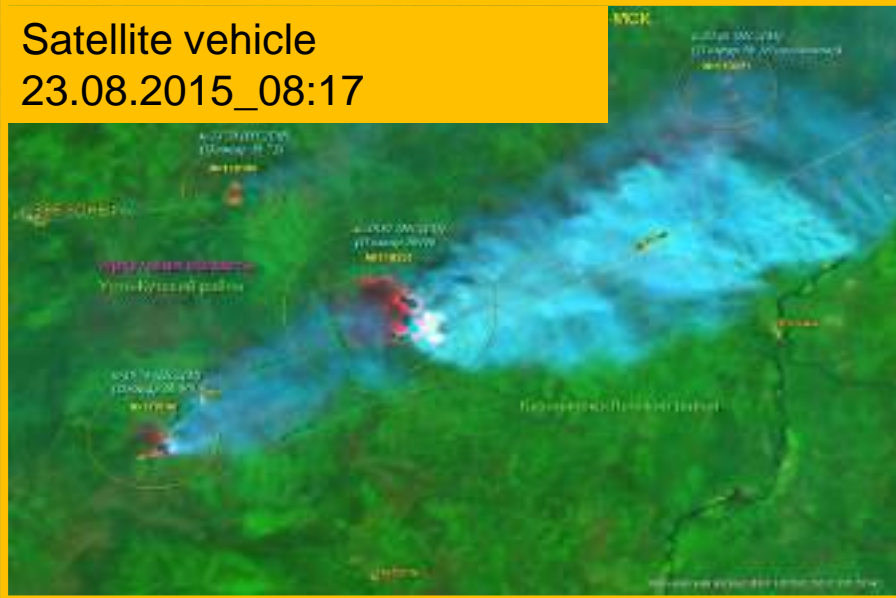


Tasks of Space Monitoring System:

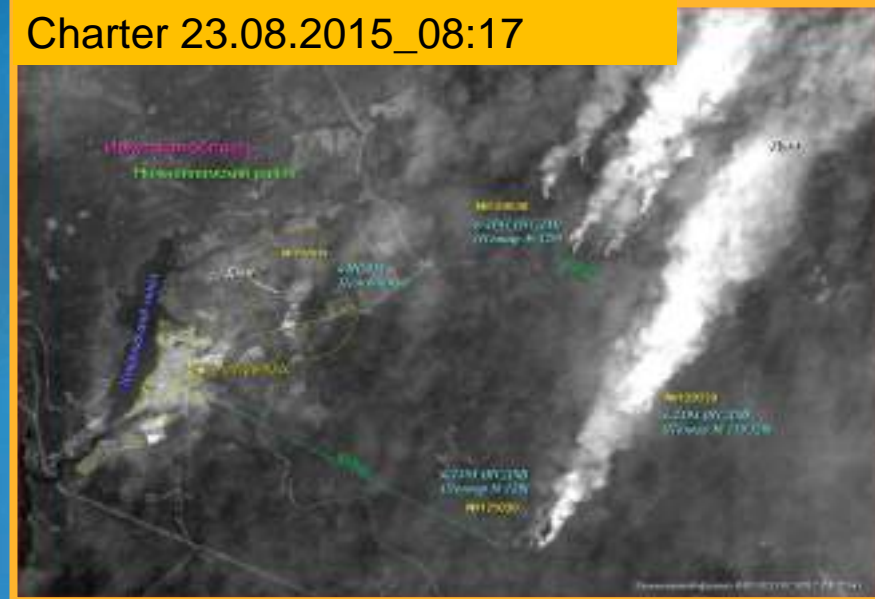
1. Assessment of the situation in the disaster areas, assessment software and territories in high-risk situations;
2. Monitoring of emergencies associated with flood events;
3. Monitoring of natural fires;
4. Assessment of the accidental spills of petroleum products and the dynamics of their distribution;
5. Searching of emergency facilities in distress in remote areas and waters.

SPACE IMAGES OF FIRES

Satellite vehicle
23.08.2015_08:17



Charter 23.08.2015_08:17



International Space Station
23.08.2015_08:17

For 2015 year more than 10 thousands space images were received:
Charter line - more than 800 images
Russian segment of International Space Station – more than 80 images

SPACE IMAGES OF FIRES

Satellite ROS-B, 14.08.2015_10:22

Nesterovo

11 km

Fire location
52°19'18" N, 107°57'23" E

Forest fire



International Space Station
14.08.2015_08:17

Fire location

52°13'37" N, 108°00'33" E

Forest fire

Pribaikalskiy area

The Republic of Buryatia

Type Codes:

Limits of populations center

Initial fire

settlement
settlement
5 km.

DETECTION OF THERMOUNIT, FORECASTING OF FIRE DEVELOPMENT

Conclusion from the assessment in forest fire situation

Characteristic of forest fire:

- Type-crown fire
- Forest fire statistics - softwood
- Fire duration - 72 hours
- Fire hazards class-IV-high-fire risk

Weather conditions:

- Wind direction - 270o in azimuth
- Wind speed - 15m/s.

The territory of 3616,8 ha could burn down because of forest fire. Perimeter of fire is 21,3 km. Fire area-0,0 ha.



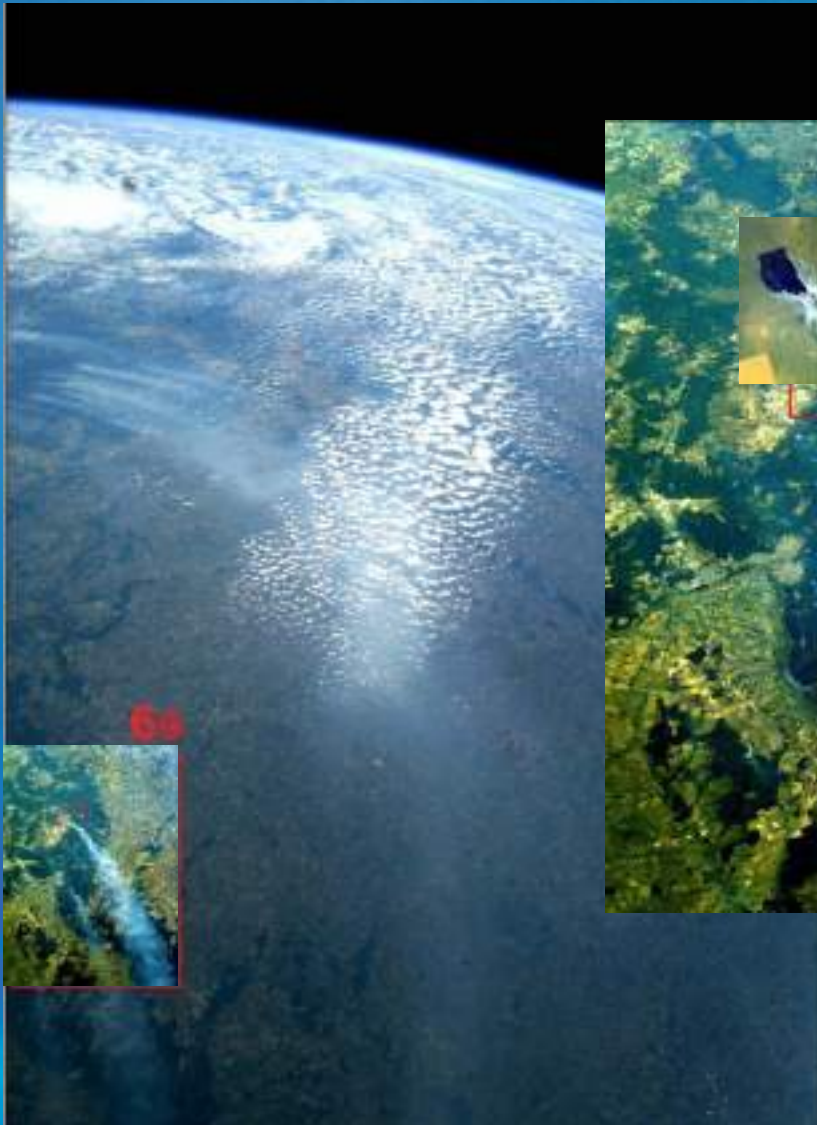
Zeiskoe reservoir

GORNII

Time of fire front rising, hour

0...3	48...60
3...12	60...72
12...24	72...96
24...36	> 96
36...48	

IMAGES OF FIRES FROM INTERNATIONAL SPACE STATION





ON-LINE MONITORING OF FLOOD-PRONE TERRITORY

For 2015 year more than **7000** space images were received and analyzed.

At the base of space images were indentified more than **72** places of ice jams and more than **250** places of saturation of population centers and facilities.





ON-LINE MONITORING TERRITORIES IN HIGH-RISK SITUATIONS

