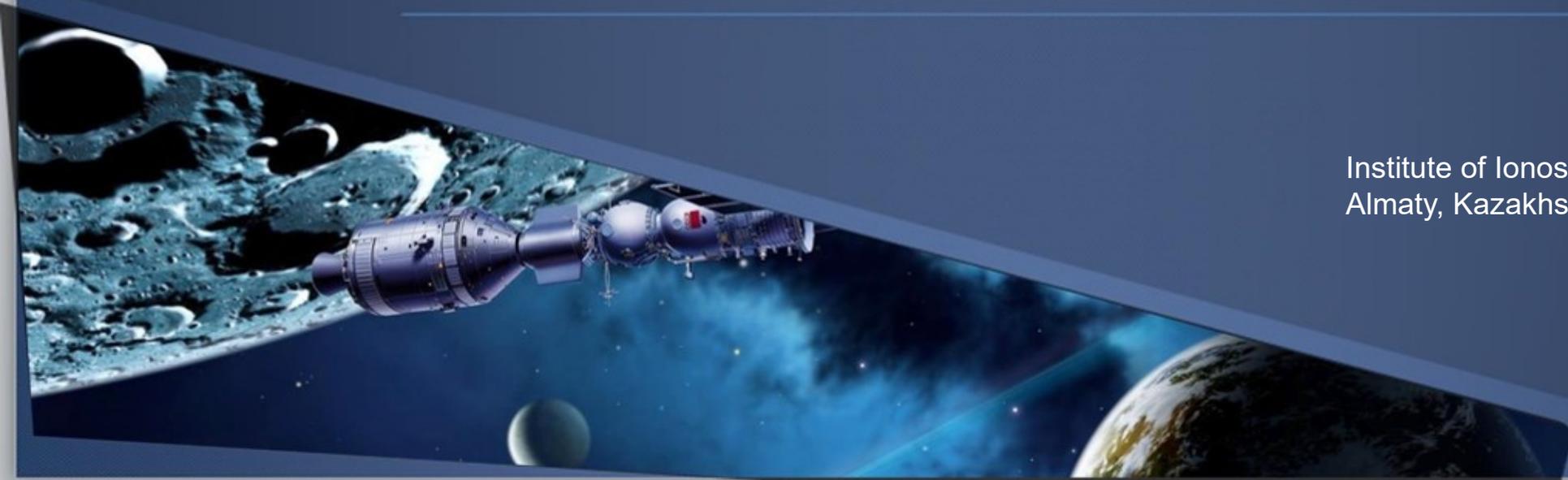


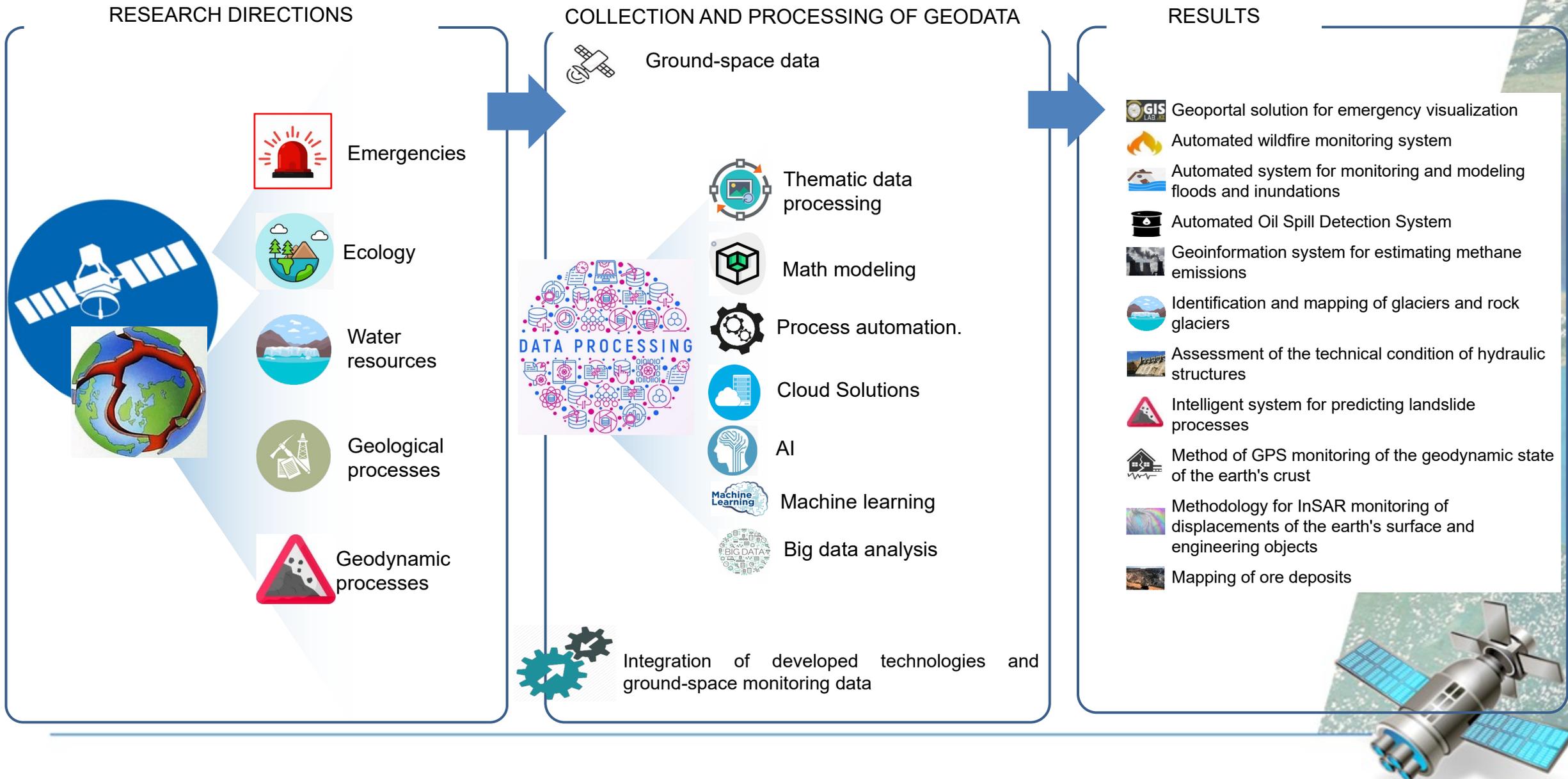


MULTI-PURPOSE AEROSPACE MONITORING SYSTEM AND SERVICE FOR PROMPT PROVISION OF EMERGENCY SITUATIONS DATA

Institute of Ionosphere,
Almaty, Kazakhstan

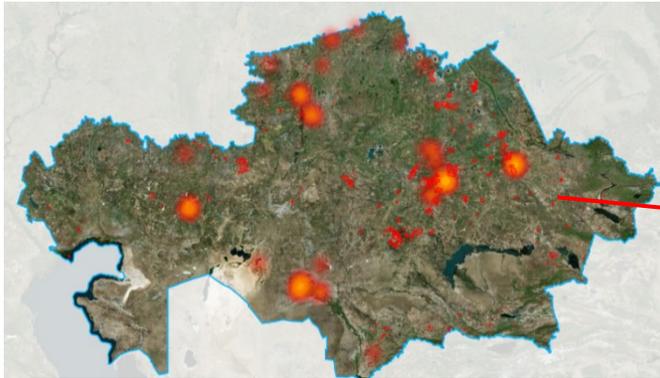


MULTI-PURPOSE AEROSPACE MONITORING SYSTEM AND SERVICE FOR PROMPT PROVISION OF EMERGENCY SITUATIONS DATA



EMERGENCY MONITORING

AUTOMATED WILDFIRE MONITORING SYSTEM

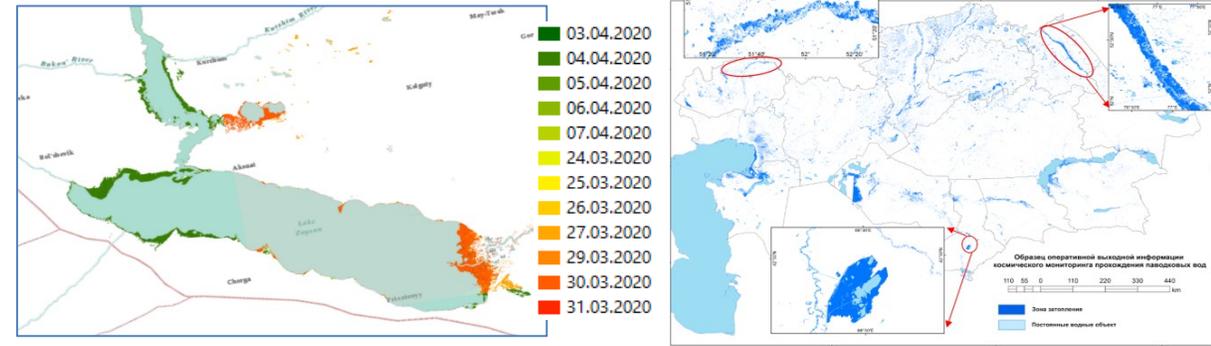


Map-scheme of fires



Hot Spots

AUTOMATED SYSTEM FOR MONITORING AND MODELING FLOODS AND INUNDATIONS



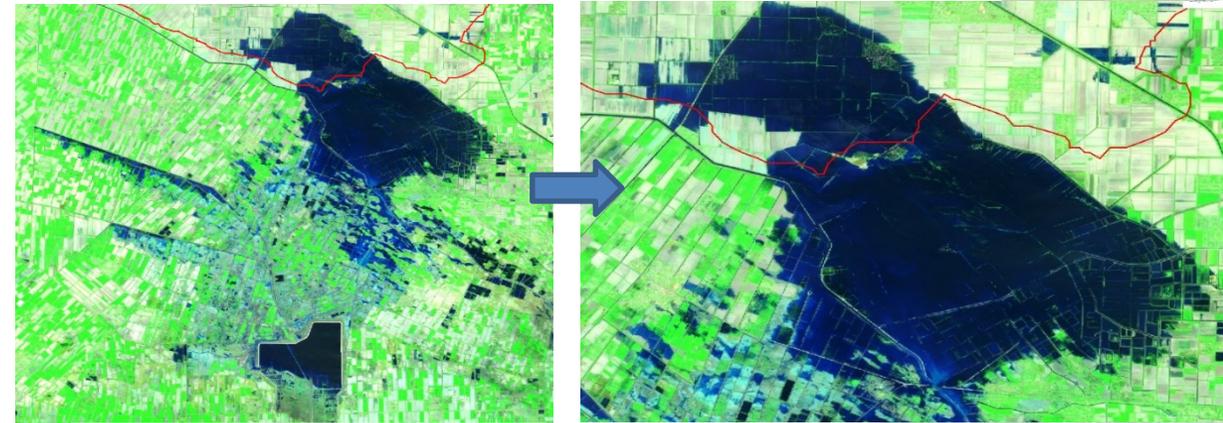
Sample operational output from space monitoring of the passage of flood waters



Dynamics of the spread of fire in the territories of the Abay region from 06/08/2023 to 06/12/2023



Burnt areas in the territories of the Abay region

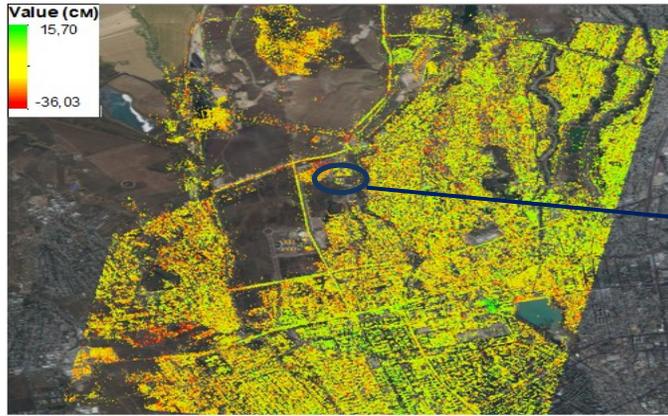


Monitoring of the territory in the area of the Sardoba reservoir according to Sentinel 2 data for May 4, 2020

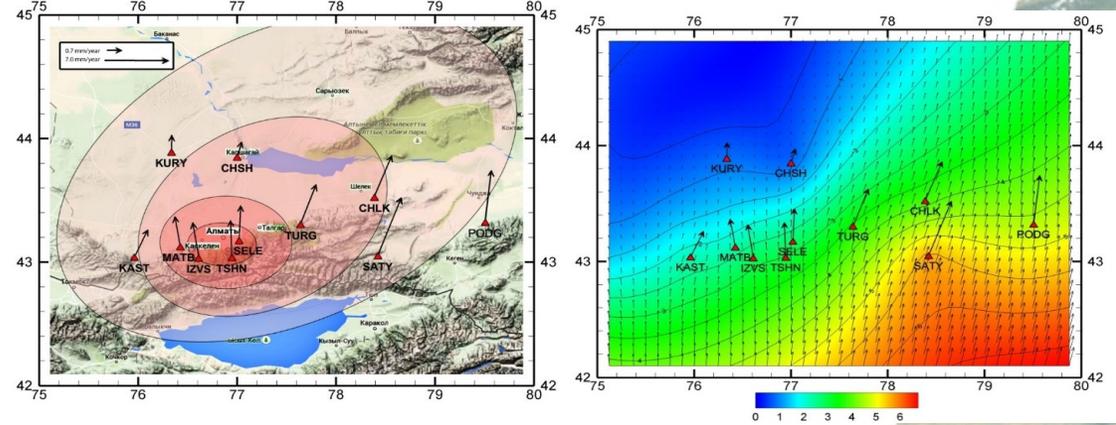


InSAR AND GEODYNAMIC PROCESSES MONITORING

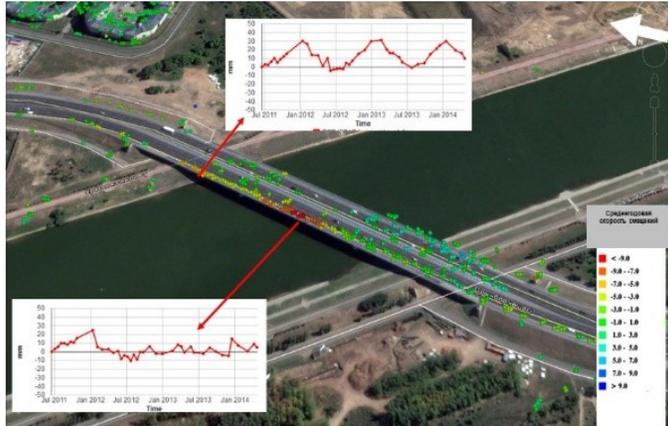
MONITORING OF DISPLACEMENTS OF THE EARTH'S SURFACE AND ENGINEERING OBJECTS



Almaty, 9-storey apartment buildings



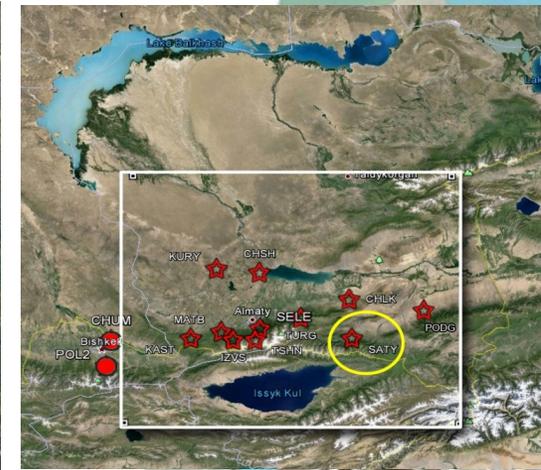
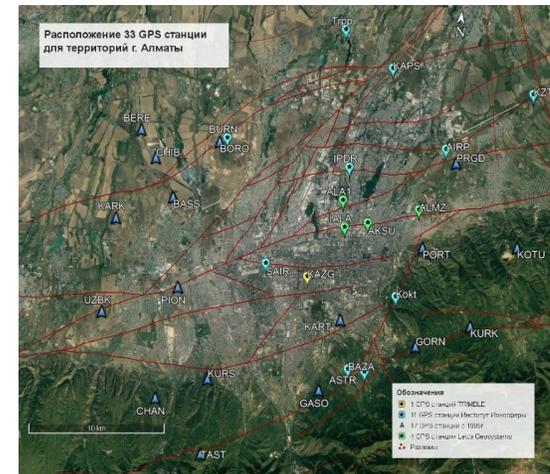
Map of the direction of velocity vectors of reference GPS stations on the territory of the Northern Tien Shan (mm/year)



Dynamics of the bridge subsidence in Astana



Stable points, Astana

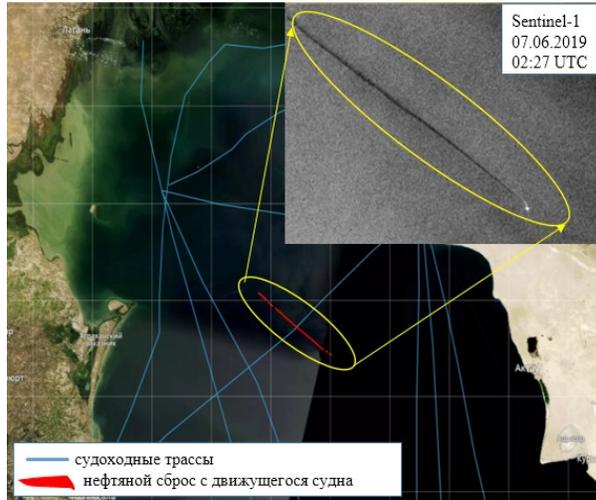


Regional network of 11 GPS stations for the Northern Tien Shan: Institute of Ionosphere

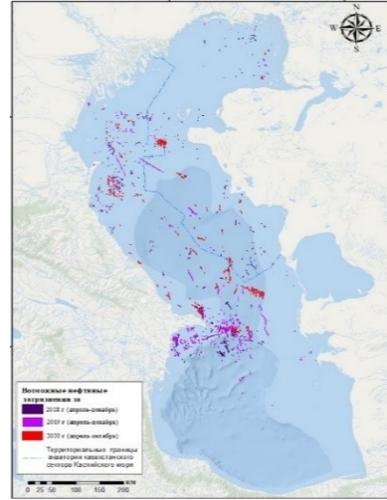
MONITORING ECOLOGICAL PROBLEMS

SPACE MONITORING OF OIL SPILLS

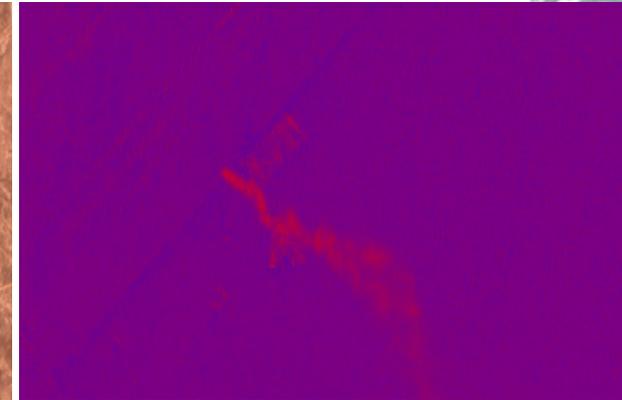
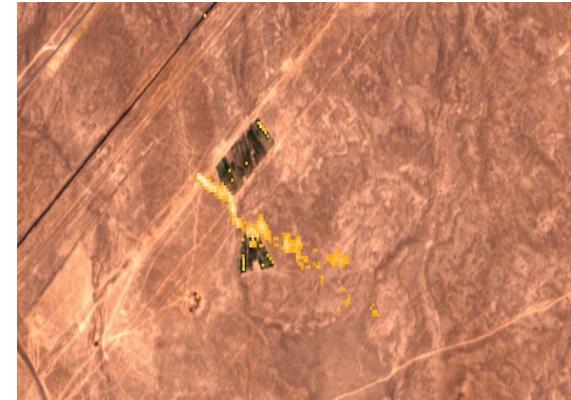
SPACE MONITORING OF METHANE LEAKS



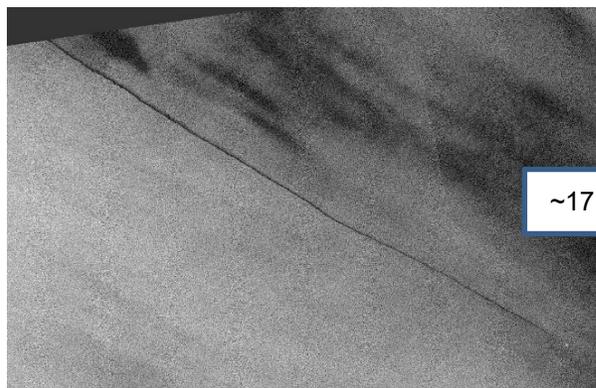
Highlights on the Sentinel-1 SAR image of a spot formed as a result of leakage and discharge from ships



Summary map of the Caspian Sea oil pollution for the period from April 1, 2018 to October 25, 2020



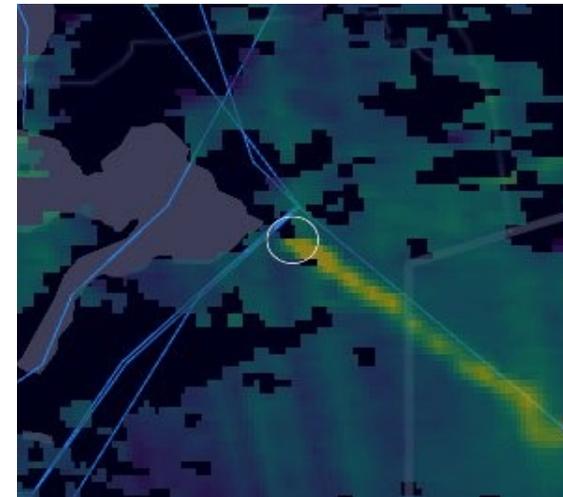
Detected CH4 leak based on medium resolution data (10-20 m) in Mangistau region



Sentinel-1 SAR image taken on June 7, 2019 at 14:37.

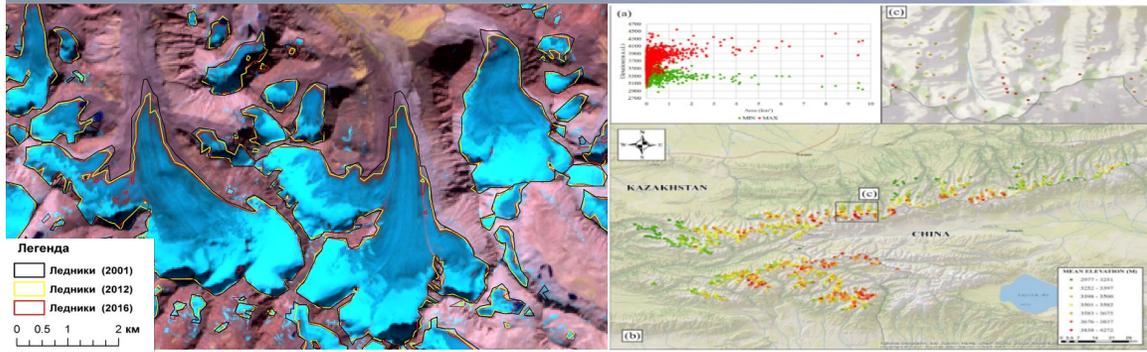


Optical image of Sentinel-2 taken on June 8, 2019 at 07:36.



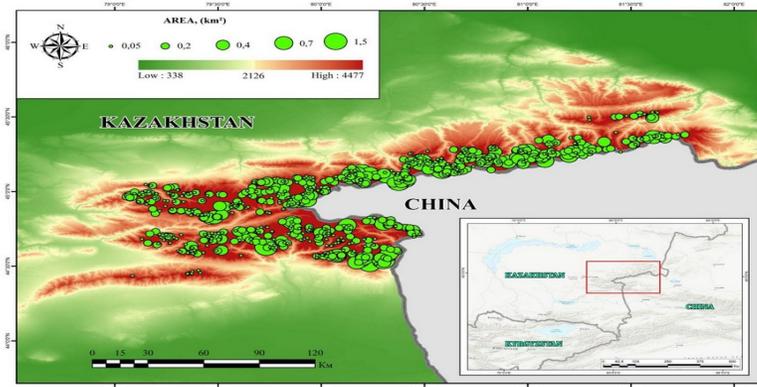
MONITORING OF WATER RESOURCES

MAPPING OF GLACIERS AND ROCK GLACIERS

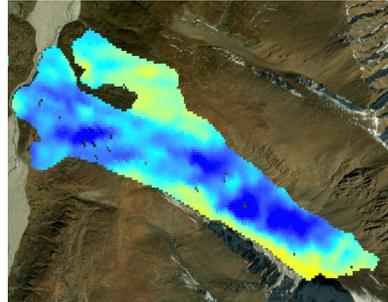


Glaciers area changes dynamics of the Zhetysay Alatau (2001-2016)

Glacier distribution in the Kazakhstan part of the Zhetysay Alatau

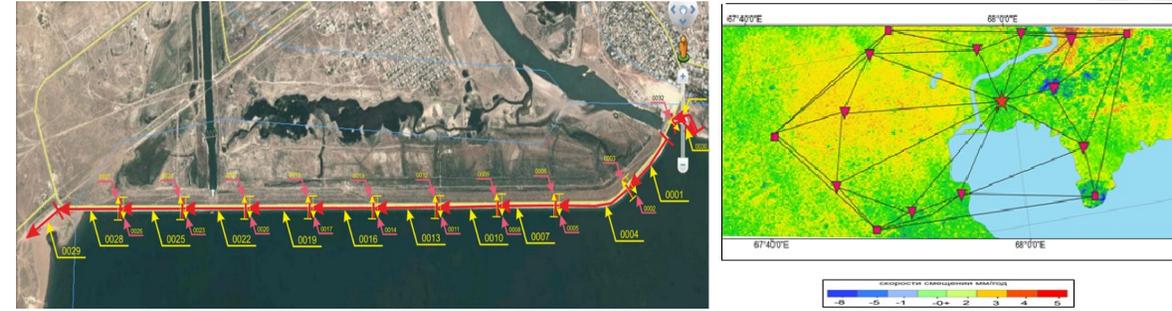


The green circles represent rock glaciers. The size of the circle represents the area of the stone glacier

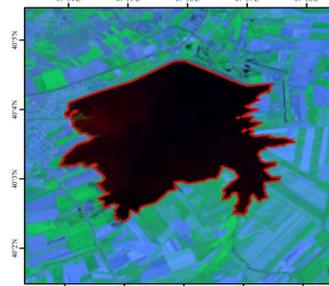


Rock glacier in natural color with deformation areas highlighted

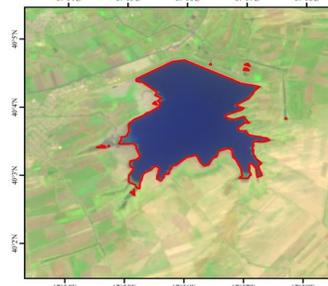
MONITORING OF HYDRAULIC STRUCTURES



Integrated monitoring of the Shardara Hydroelectric Power Plant using GPS, SAR data and georadar sounding

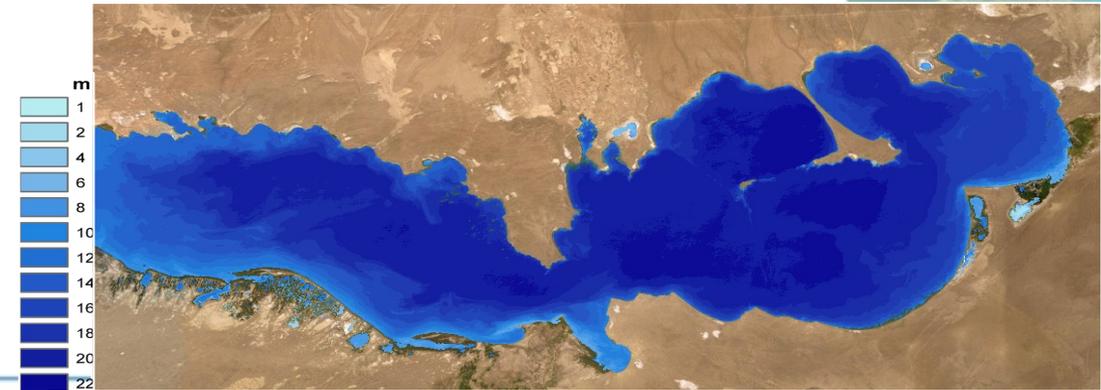


April



October

Seasonal monitoring of the water mirror area of the Jizzakh reservoir



Construction of a bathymetric map of the lake Balkhash using remote sensing data

Thank you for attention!

