

United Nations • Junior Academy of Sciences Educational, Scientific and • of Ukraine Cultural Organization •

## GIS and Remote Sensing Laboratory

## at the National Center "Junior Academy of Sciences of Ukraine"

Dr. Svitlana Babiichuk,

Junior Academy of Sciences of Ukraine, Kyiv, Ukraine

### Junior Academy of Sciences of Ukraine (JASU)

organized the National Research Paper Defense Competition



Winners of the finals of the National Research Paper Defense Competition (Ukraine, 2018)



Winners of the finals of the National Research Paper Defense Competition held during the COVID-19 pandemic (Ukraine, 2020)



Students of the Junior Academy of Sciences of Ukraine at International Scientific Competitions held during full-scale Russian aggression against Ukraine (2022- 2025)

## Educational Process at GIS and RS Laboratory of JASU





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PEMOTE SEN



International Summer School on Remote Sensing (Ukraine, 2019 - 2021)





International Summer School on Remote Sensing (Ukraine, 2022- 2025)

# Educational Resources from the GIS and RS Laboratory of the JASU



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In English

# The resources that we use in the educational process



Copernicus Browser (ESA) EO Browser (Planet Labs) ArcGIS Online (ESRI) Google My Maps (Google) Google Earth Pro (Google) **EOSDIS Worldview (NASA)** LandsatLook Viewer (USGS) ArcGIS Living Atlas of the World (ESRI) Giovanni (NASA) QGIS (Open Source) Google Earth Engine (Google) etc.



# Education Projects of the GIS and RS Laboratory of the JASU



### Surveys



### Some results



### Some results



How do we organize online support?



### Video courses

Ecoview: satellite data in environmental research



The basics of remote sensing



#### **"ECOLOGICAL RESTORATION OF THE KAKHOVKA TO CREATE A LARGE GREEN MEADOW"**

Research project by Volodymyr Kiriyenko, 11<sup>th</sup> grade student, Kyiv



Sentinel-2 satellite image (true color) 5 June 2023



Sentinel-2 satellite image (NDVI) 5 June 2023



Sentinel-2 satellite image (true color) 20 June 2023



Sentinel-2 satellite image (NDVI) 19 August 2023



Sentinel-2 satellite image (true color) 7 November 2023



Sentinel-2 satellite image (NDVI) 7 November 2023

#### "Melting of Antarctic glaciers" Research project by John Zhernovsky, 3<sup>th</sup> grade student, Odesa





earthobservatory.nasa.gov

#### "ANALYSIS OF THE STATE OF THE OSKILSKE RESERVOIR AFTER THE DAM EXPLOSION"

Research project by Igor Martynenko, 8<sup>th</sup> grade student, Kyiv



Sentinel-2 satellite image (combination of bands B11 – B8 – B2) for 29 March 2022



Sentinel-2 satellite image (combination of bands B11 – B8 – B2) for 18 Oct 2022



mask of two Sentinel-2 satellite images (red - 18 Oct 2022, blue -29 March 2022) QGIS



Gif-video

#### "THE HYDRO-ECOLOGICAL STATE OF THE WATER BODIES IN SUMY AND ITS SUBURBS"

Research project by Ksenia S. Fridaykova, 10<sup>th</sup> grade student, Sumy



Landsat 4-5 satellite image (combination of bands B5 - B4 - B3) for 05 June 1984



Sentinel-2 satellite image (combination of bands B12 - B11 - B04) for 29 May 2023





NDVI (29.05.2023 p.)









Графік інтенсивності нічного освітлення 2012-2021рр.

Light Pollution Map (VIIRS 2012)



Light Pollution Map (VIIRS 2021)



Нічне освітлення м. Сумп



### What do we plan to do next?

• The use of drone aerial photography for studying vegetation processes in agriculture

• Using artificial intelligence to process big geodata

## Thank you for your attention



gis\_rs@man.gov.ua

GIS and RS Laboratory



**Copernicus Academy JASU** 

