

GIS and Remote Sensing for Environmental Monitoring on Territories with Mining Activities

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The aim: investigate the dynamics of green plantations state on the typical rock dump territory of the coal mine using remote-sensing and GIS special analyst tools.

ADVANTAGES OF ERS-METHODS USING FOR PLANT STATE ASSESSING (via Fields and LABs)

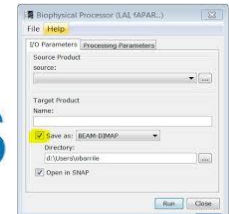
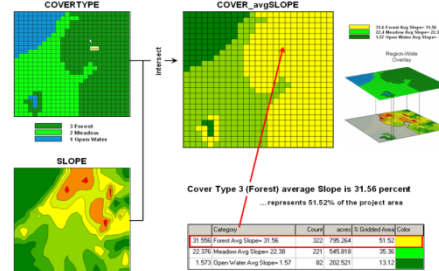
- ✓ Free access to the mid-res multispectral satellite image database (like Copernicus open Hub, USGS, EarthExplorer);
- ✓ Rapid work with the large area of investigation;
- ✓ No material costs for laboratory research;
- ✓ Convenient software for data processing, analysis and visualization based on GIS-technologies

DATA OF INVESTIGATION (INDEXES):

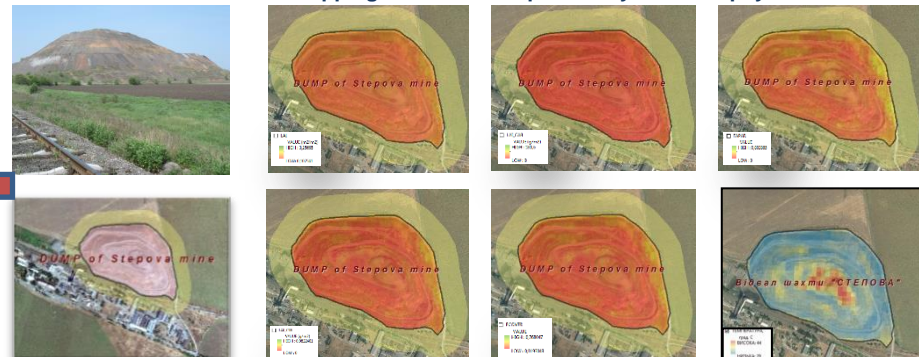
- ✓ Vegetative index (NDVI);
- ✓ Leaf Area Index (LAI);
- ✓ Fraction of Absorbed Photosynthetically Active Radiation (FAPAR);
- ✓ Fraction of vegetation cover (FCOVER);
- ✓ Chlorophyll content in the leaf (Cab)
- ✓ Canopy Water Content (CW)



RESEARCH: DATA PROCESSING SEQUENCE ...



Mapping the Rock Dump Area by Plant Biophysical Values



Zonal-statistical Analyzing Results of Biophysical Plant Measurement

INDEXES	Period	MIN	MAX	RANGE	MEAN	STD	SUM
FAPAR	Last	0,01	0,46	0,44	0,13	0,08	296
	Current	0,03	0,42	0,39	0,15	0,07	359
FCOVER	Last	0,03	0,41	0,39	0,11	0,07	256
	Current	0,03	0,34	0,31	0,12	0,06	293
LAI	Last	0,03	1,02	0,99	0,29	0,18	685
	Current	0,03	0,42	0,39	0,15	0,07	359
LAICAB	Last	0,00	39,81	39,81	11,31	6,55	26613
	Current	2,70	42,40	39,69	14,31	6,12	33677
LAICW	Last	0,00	0,03	0,03	0,01	0,01	17
	Current	0,00	0,03	0,03	0,01	0,01	26

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“EcoMining: Development of Integrated PhD Program for Sustainable Mining & Environmental Activities”

