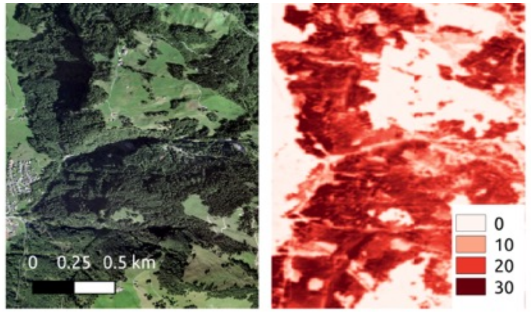
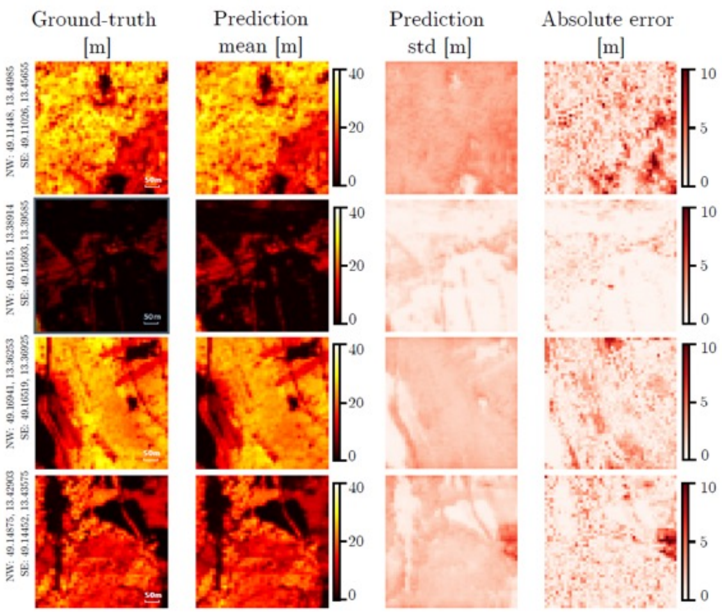
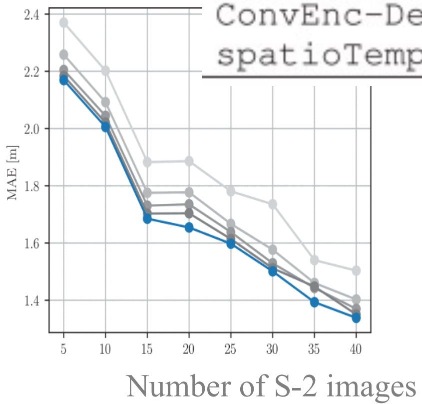
Canopy height service



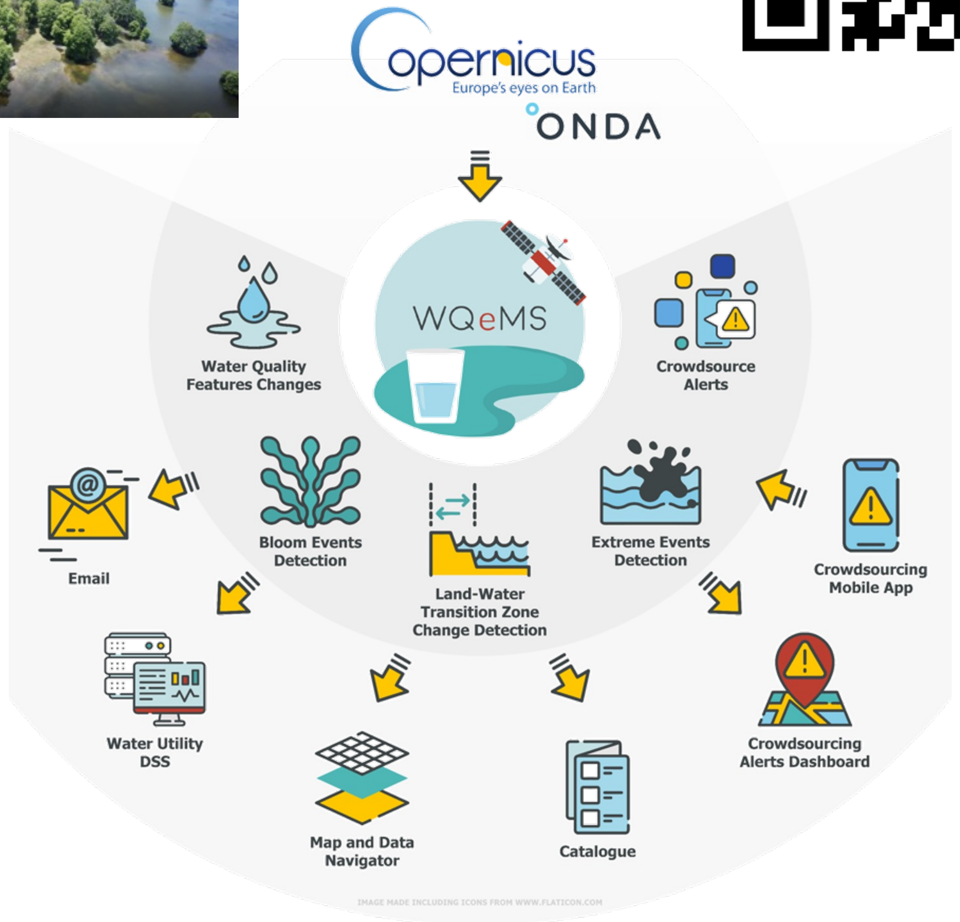


Method	Location	Area	MAE [m]	RMSE [m]
Lang et al. [8]	Switzerland	91Mpx	1.7	3.4
Lang et al. [8]	Gabon	25Mpx	4.3	5.6
ConvEnc-Dec [10]	BF	9.4Mpx	2.29	3.15
ConvEnc-Dec-mean40	BF	9.4Mpx	2.04	3.05
spatioTempCHM	BF	9.4Mpx	**1.29**	**1.87**



L. Alagialoglou, I. Manakos, M. Heurich, J. Cervenka, A. Delopoulos, A learnable model with calibrated uncertainty quantification for estimating canopy height from spaceborne sequential imagery, 2022, IEEE Transactions on Geoscience and Remote Sensing, DOI: 10.1109/TGRS.2022.3171407

Water quality monitoring



L. Alagialoglou, I. Manakos, S. Papadopoulou, R. Chadoulis, A. Kita, Mapping underwater aquatic vegetation using foundation models with air- and space-borne images: the case of Polyphytos Lake, 2023, Remote Sensing, Special Issue: Remote Sensing and Artificial Intelligence in Inland Waters, DOI: 10.3390/rs15164001

A. Kita, I. Manakos, S. Papadopoulou, I. Lioumbas, L. Alagialoglou, M. Katsiapi, A. Christodoulou, Land–Water Transition Zone Monitoring in Support of Drinking Water Production, 2023, Water MDPI, DOI: 10.3390/w15142596

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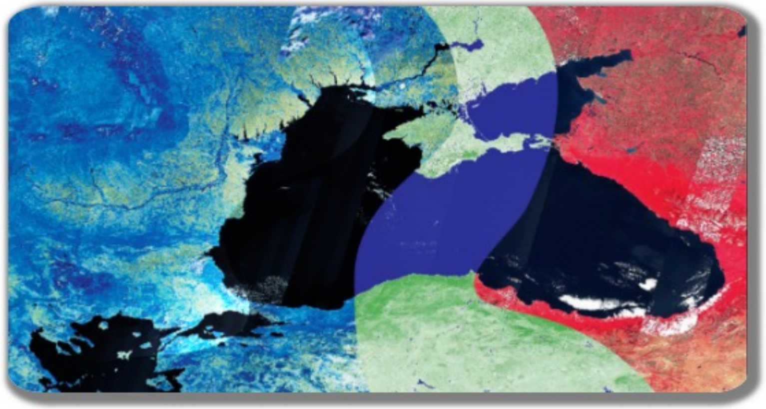

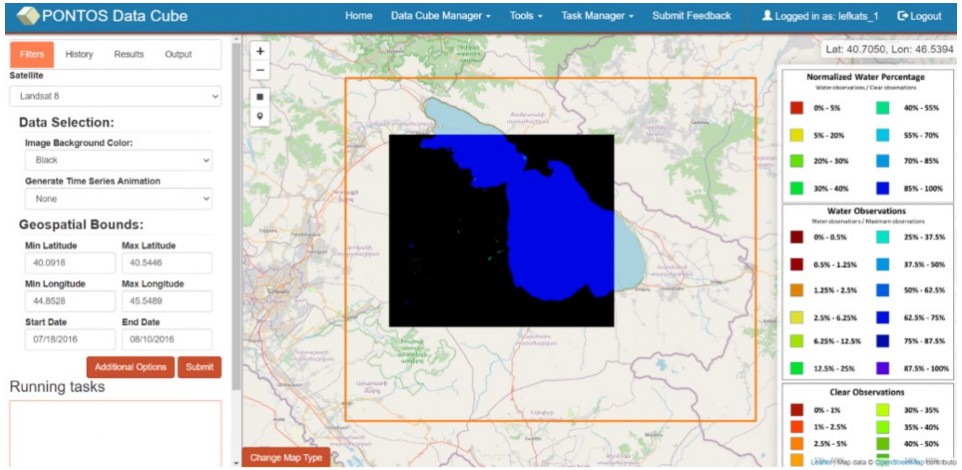

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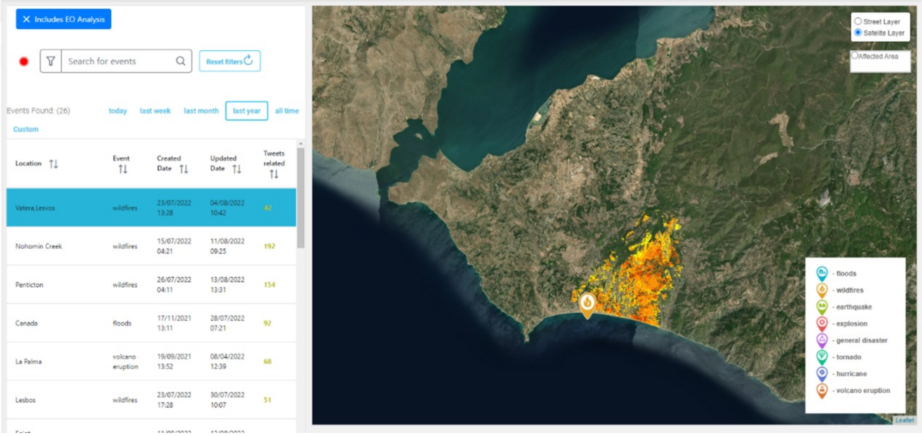
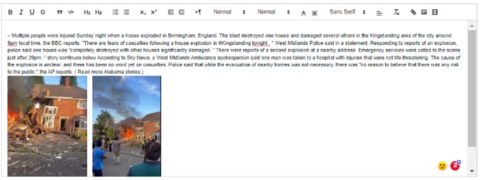
L. Alagialoglou, I. Manakos, E. Katsikis, S. Medinets, Y. Gazyetov, V. Medinets, A. Delopoulos, Machine Learning for Identifying Emergent and Floating Aquatic Vegetation from Space: A Case Study in the Dniester Delta, Ukraine, 2024, SN Computer Science, DOI: 10.1007/s42979-024-02873-7.

EO in Journalism





M. Sismanis, R-T. Chadoulis, I. Manakos, A. Drosou, An Unsupervised Burned Area Mapping Approach Using Sentinel-2 Images, 2023, Multidisciplinary Digital Publishing Institute - Land, 12(2), 379, DOI: 10.3390/land12020379

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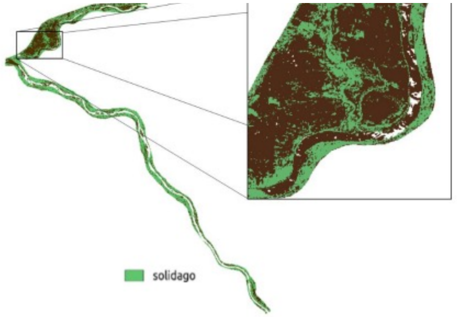
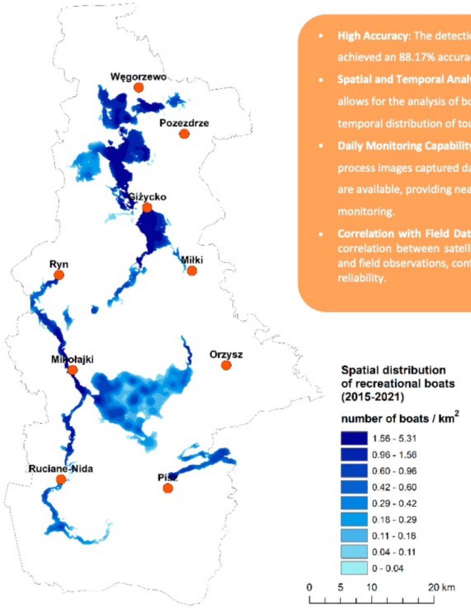
EO for ecosystem services monitoring

Continuous learning program based on virtual courses on Remote Sensing, Ecosystem Research, Modelling and Computer Science, addressed to the CBK PAN staff within the EOTIST project (Earth Observation Training in Science and Technology at the Space Research Centre of the Polish Academy of Sciences).

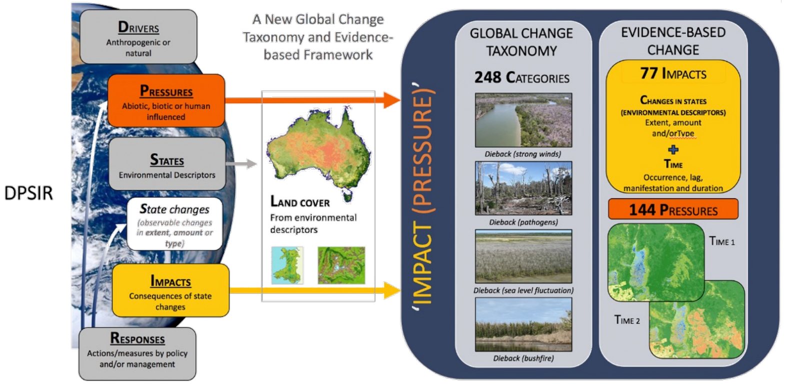


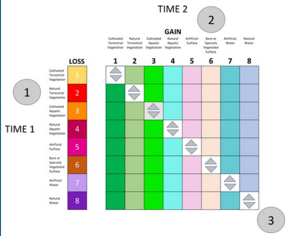


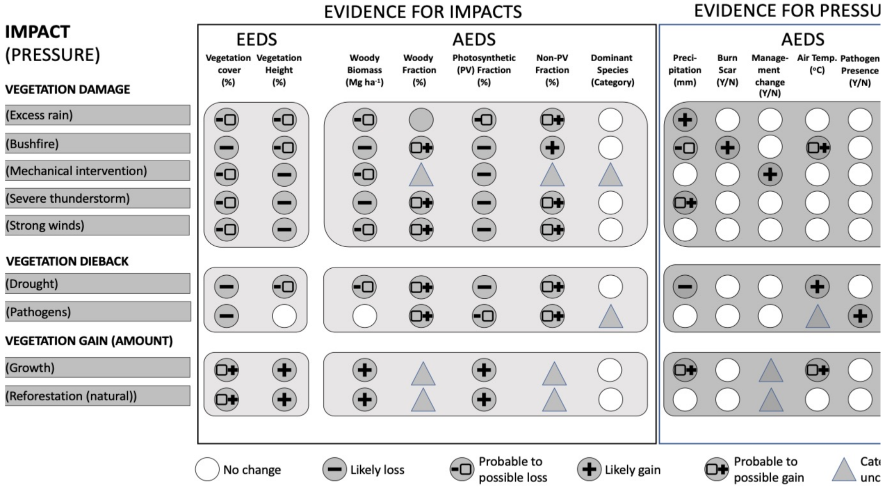
- **High Accuracy**: The detection algorithm achieved an 88.17% accuracy rate.
- **Spatial and Temporal Analysis**: The method allows for the analysis of both spatial and temporal distribution of tourist boat traffic.
- **Daily Monitoring Capability**: The algorithm can process images captured daily, whenever they are available, providing near real-time monitoring.
- **Correlation with Field Data**: There was a 0.76 correlation between satellite-based detections and field observations, confirming the method's reliability.

M. Milczarek, S. Aleksandrowicz, A. Kita, R.-T. Chadoulis, I. Manakos, E. Woźniak, Object- Versus Pixel-Based Unsupervised Fire Burn Scar Mapping under Different Biogeographical Conditions in Europe, 2023, Multidisciplinary Digital Publishing Institute - Land, 12(5), 1087, DOI: 10.3390/land12051087

Evidenced based land monitoring







Term	Definition and associated information
Occurrence	The time span of the actual natural event or process or human activity
Lag	The time between commencement and detection
Manifestation	The time period of detectability
Duration	The time from commencement to completion of a natural event or process or human activity.

1.R. M. Lucas, et al., A globally relevant change taxonomy and evidence-based change framework for land monitoring, 2022, Global Change Biology, 00, 1–25, DOI: https://onlinelibrary.wiley.com/doi/10.1111/gcb.16346

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