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iImagine, AI-supported imaging data and services for ocean and marine science

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Aquatic ecosystems are vital in regulating climate and providing resources, but they face threats from global change and local stressors. Understanding their dynamics is crucial for sustainable use and conservation. The iImagine AI Platform offers a suite of AI-powered image analysis tools for researchers in aquatic sciences, facilitating a better understanding of scientific phenomena and applying AI and ML for processing image data.

The platform supports the entire machine learning cycle, from model development to deployment, leveraging data from underwater platforms, webcams, microscopes, drones, and satellites, and utilising distributed resources across Europe. With a serverless architecture and DevOps approach, it enables easy sharing and deployment of AI models. Four providers within the pan-European EGI federation power the platform, offering substantial computational resources for image processing.

Five use cases focus on image analytics services, which will be available to external researchers through Virtual Access. Additionally, three new use cases are developing AI-based image processing services, and two external use cases are kickstarting through recent Open Calls. The iImagine Competence Centre aids use case teams in model development and deployment, resulting in various models hosted on the iImagine AI Platform, including third-party models like YoloV8.

Operational best practices derived from the platform providers and use case developers cover data management, quality control, integration, and FAIRness. These best practices aim to harmonise approaches across Research Infrastructures and will be disseminated through various channels, benefitting the broader European and international scientific communities.