

Embed2Scale Reaches Major Project Milestone as Core Use Cases Near Completion and Customer Validation Webinars are Announced

The Horizon Europe-funded Embed2Scale project marks a major technical milestone, announcing that all four of its primary Earth Observation use cases are approaching completion and scheduling a month-long series of public validation webinars throughout November 2026.

Following its initial launch under the European Union's Horizon Europe programme, Embed2Scale is transitioning from technical development to end-user validation. Set to take place across four dedicated sessions in November 2026, these validation webinars will directly engage domain customers, operational users, and sector practitioners to demonstrate and validate the real-world performance, operational efficiency, and data-compression capabilities of Embed2Scale's geospatial foundation model solutions.

The Copernicus Programme produces petabytes of free, open-access satellite imagery daily. However, transferring, storing, and analyzing these massive volumes—a challenge known as “data gravity”—creates significant processing bottlenecks and inflates compute costs for downstream users. Instead of running resource-heavy computations on raw satellite files, Embed2Scale leverages foundation models like IBM and the European Space Agency's TerraMind as universal data compressors. By converting massive raw imagery into low-dimensional, highly compressed latent-space representations (embeddings), the project enables near real-time analytics at up to 100 times less data volume. With the underlying models and pipelines now mature, the November webinars serve as the formal validation stage with end-users across four key operational domains. Each webinar in the November series is designed to present completed use-case workflows, share

benchmark results, and collect direct feedback from target user communities.

Maritime Domain Awareness - European Union Satellite Centre

This session validates the Maritime Domain Awareness use case, focusing on vessel detection and maritime tracking across the Mediterranean Sea using Sentinel-1 Synthetic Aperture Radar (SAR) imagery. The Embed2Scale team will demonstrate how compressed latent embeddings achieve a 0.95 ROC-AUC score for vessel detection and precise localization, while drastically cutting data transmission overhead and bandwidth requirements for remote or bandwidth-constrained processing environments. Target users include maritime security analysts, coast guards, and defense agencies.

Date and Time: November 10, 2026 | 10:00 CET

Crop Stress and Yield Early Detection - Jülich Supercomputing Centre

Focusing on agricultural monitoring, sustainability, and food security, this webinar presents the results of compressing multi-temporal optical satellite time series into lightweight, reusable embeddings. The session demonstrates how neural representations enable large-scale crop stress identification, anomaly detection, and end-of-season yield forecasting at a fraction of the computational and storage costs associated with



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traditional high-resolution image processing. The session is geared toward agricultural analysts, environmental policy officers, and researchers and developers working on real-time agricultural monitoring.

Date and Time: November 12, 2026 | 10:00 CET

Neural Compression for Cloud Analytics - University of Oxford

This webinar focuses on the challenge of processing vast volumes of global weather and Earth Observation data and presents progress on how Embed2Scale methods enable the coupling of atmospheric models and satellite data through deep neural embeddings. Presented by project partner University of Oxford, it will demonstrate how atmospheric embeddings guide the generation of meso-scale cloud patterns, help characterize long-term cloud statistics over 25 years, and predict land cover, the session validates neural compression techniques as a key solution to overcome cloud storage and bandwidth bottlenecks. Target users include cloud architects, remote sensing data engineers, climate researchers, and AI developers working on large-scale cloud-native geospatial infrastructure.

Date and Time: November 16, 2026 | 15:00 CET

Forest Biomass Disturbance Monitoring - University of Zurich

This final session explores multimodal forest monitoring by integrating Sentinel-1 SAR and Sentinel-2 optical time series with a new machine-learning-ready benchmark dataset. The webinar demonstrates how neural embeddings track sudden and gradual biomass loss caused by storms, wildfires, pest outbreaks, and timber harvesting, establishing scalable workflows for long-term canopy and carbon stock evaluation. Stakeholders involved in forest biomass disturbance monitoring include forestry management authorities, carbon market auditors, and land-use analysts.

Date and Time: November 19, 2026 | 16:00 CET

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A Strategic Step Toward Operational Adoption

The upcoming validation phase represents a critical bridge between academic research and operational deployment. By demonstrating that small, downstream task models can run rapidly on pre-processed embeddings, Embed2Scale is equipping end-users with actionable insights without requiring them to manage petabytes of raw satellite data.

These validation sessions will allow commercial partners, institutional actors, and potential adopters to directly critique performance metrics, explore integration pathways, and help shape the final deployment phase of the project.

Registration for all four validation webinars is open to stakeholders and the public free of charge. Full schedules and registration details are available at embed2scale.eu/events.

About Embed2Scale: Embed2Scale is a 3-year (2024–2026) Research & Innovation project funded by the European Union's Horizon Europe programme under Grant Agreement number 101131841. The consortium consists of 10 institutions across 6 European countries: University of Oxford, European Union Satellite Centre, Sinergise, Forschungszentrum Jülich, HisdeSAT, University of Münster, IBM Research, University of Zurich, The German Aerospace Center, and Martel Innovate. The project combines expertise in Earth Observation, artificial intelligence, data science, and geospatial technology to build a federated, embedding-driven geospatial data ecosystem.

FOR MORE INFORMATION ABOUT THE VALIDATION WEBINAR SERIES:

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