[D3D Project](#) Newsletter — Months 25–32

Period: Months 25–32
Project: *Deep 3D Scattering of Solar Radiation in the Atmosphere due to Clouds* (D3D)
Funded by: Hellenic Foundation for Research and Innovation (H.F.R.I.)

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1. Project Overview — Toward Impact and Exploitation

During Months 25–30, the D3D project entered its final consolidation phase. The scientific framework matured into a stable, validated system with clear potential for operational and societal applications.

Efforts focused on large-scale validation, dissemination of mature results, and preparation for long-term exploitation beyond the project lifetime.

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2. News Highlights (Months 25–32)

- The project showcased its real-time cloud–radiation estimation pipeline in internal demonstration sessions.
- D3D researchers participated in international scientific forums, presenting final methodological advances and application scenarios.

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3. Publications & Dissemination

During months 25–30 the project continued to produce contributions:

Conference Presentations

- EMS Annual Meeting 2024, Barcelona, Spain, 1–6 Sep 2024, EMS2024-944, https://doi.org/10.5194/ems2024-944, 2024.
- Stavros-Andreas Logothetis, Orestis PanagopoulosORCID 0000-0003-0745-143X, Panagiotis Tzoumanikas, Georgios Kosmopoulos, and Andreas Kazantzidis. , Solar radiation modeling under 3D reconstructed cloud fields, EMS Annual Meeting 2024, Barcelona, Spain, 1–6 Sep 2024, EMS2024-944, https://doi.org/10.5194/ems2024-944, 2024.

- Stavros-Andreas Logothetis, Vasileios Salamalikis, Georgios Kosmopoulos, and Andreas Kazantzidis, Aerosol optical depth retrieval using ground-based solar irradiance measurements and machine learning, EMS Annual Meeting 2024, Barcelona, Spain, 1–6 Sep 2024, EMS2024-948, https://doi.org/10.5194/ems2024-948, 2024

4. Research Progress by Work Package

WP1 — Final Dataset Consolidation

The ASI network delivered its complete observational archive.
Data products were curated and standardized for long-term reuse.

WP2 — Robust 3D Reconstruction

Reconstruction methods were stabilized for routine processing, enabling consistent cloud field generation across extended periods.

WP3 — Reference Simulation Library

A comprehensive library of radiative transfer simulations was finalized, serving as a benchmark for future research.

WP4 — Mature Deep Learning Surrogates

Deep learning models demonstrated:

- High accuracy
- Exceptional speed
- Strong generalization

These models are now suitable for operational deployment.

5. Scientific Milestones

- Operational-scale validation of the D3D pipeline
- Demonstration of real-time radiative estimation
- Finalization of benchmark datasets and simulation libraries
- High-impact scientific outputs nearing publication