

AI For Good Challenge

Ground cover height estimation using Sentinel images with Geospatial Foundation Models

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Challenge: Ground Cover Height Estimation

Predict ground elevation — both Digital Surface Models (DSM) and Digital Terrain Models (DTM) — using only Sentinel-1 and Sentinel-2 satellite images.

Task:

Use open-source imagery with Geospatial Foundation Models to estimate the **height at pixel-level**

This task tests geospatial foundation models on a regression challenge with real-world sustainability applications.

Estimate Digital Surface Models (DSM) and Digital Terrain Models (DTM) – in other words, **height at pixel level** – using only **Sentinel-1 and Sentinel-2 imagery**.

Dataset

- **Training:** High-resolution DSM/DTM and Sentinel-1/2 imagery over the **Netherlands**.
- **Testing:** Performed on **undisclosed regions** to assess **out-of-domain generalization**.

- Use any backbone (preferably **Geospatial Foundation Models**)
- **PANGAEA** codebase strongly encouraged
- Submit: **code and predictions**

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💡 Why This Task Matters



- **Technical Relevance:** Most GFMs are benchmarked on classification/segmentation. Applying them to **regression** tasks like height estimation is a novel challenge.
- **Application Impact:** Elevation estimation has a wide range of real-world uses aligned with **SDGs**, including priorities of the **ITU**.

- Kick-off: **ESA Φ -lab Φ nnovation Summit** (28–30 October 2025) [ESA - Phinnovation Summit](#)
- Prizes: **3 cash awards**, plus potential **paper co-authorship** and **visiting period** with Φ -lab

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