

Φ-lab

In collaboration with



World Food
Programme



Save the Children

3RD GRAND MARATHON

Mapping Cropland Abandonment Across the Conflict-Affected Sahel

APPLY NOW

POWERED BY



ESA Φ -lab explores innovative technologies to revolutionise and accelerate the future of Earth Observation

ESA Φ -lab provides an open and dynamic innovation ecosystem designed to transform visionary ideas into market-ready solutions, enhancing Europe's global competitiveness.

Φ -lab accelerates the future of Earth Observation (EO) through disruptive innovation & commercialisation actions by managing the full innovation cycle, from nurturing blue-sky concepts to delivering tangible impact across commercial, scientific, and NGO communities.

By offering financial, technical, and business support, Φ -lab helps to bridge the gap between innovative ideas and the market by helping to scale up the commercialisation potential of projects.

What is the Grand Marathon?

The ESA Φ -lab Grand Marathon is an innovation challenge inviting participants to harness **Earth Observation to detect, map, and understand rainfed cropland abandonment in conflict-affected regions (with a focus on Sahel).**

Running from October 19th 2026 to November 2027, the Grand Marathon follows a milestone-based progression:

Km 0-10

Applicants submit a concise, 5-page idea outline proposal including a Lean Business Plan.

Km 10-30

The 3 runners develop a detailed, 25-page proposal with a comprehensive business plan.

Runners propose novel EO concepts leveraging event-based sensing + AI computing, displaying them at an upcoming Official ESA Event.

Km 30-40

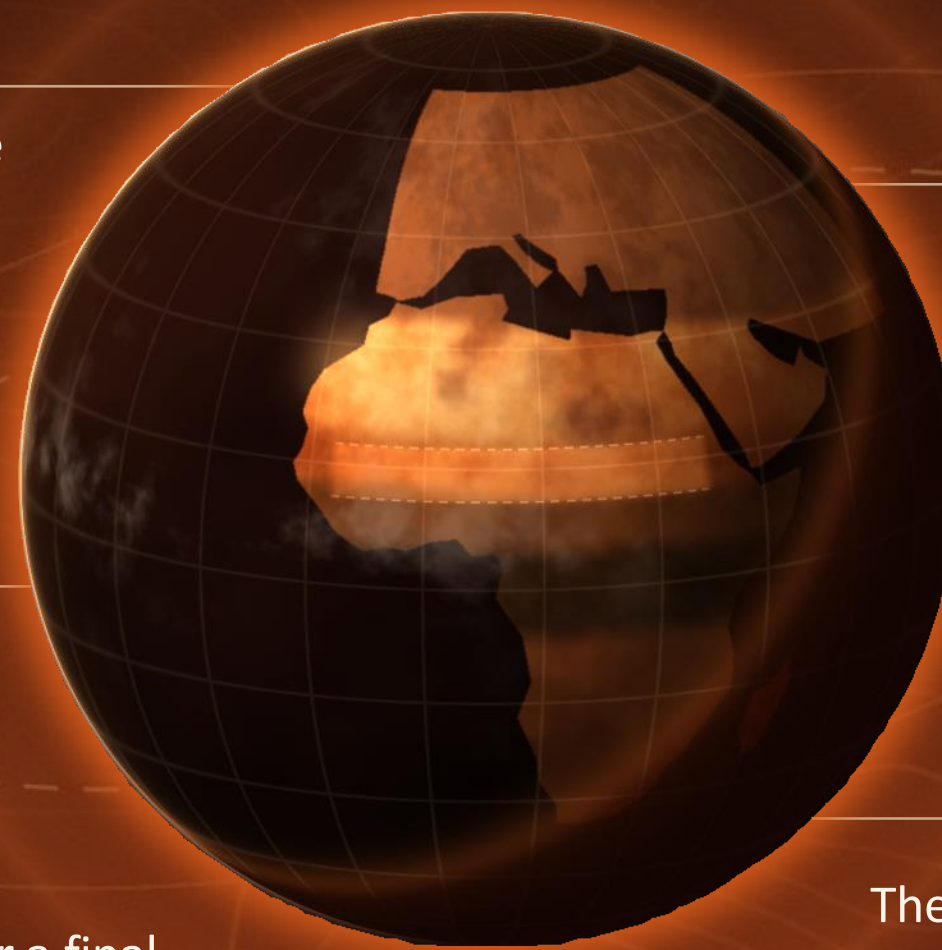
The 2 Finalist further develop the proposed concepts using Earth Observation test data & develop a first MVP.

The Grand Winner will be nominated after a final pitching session at The Hello Tomorrow Summit in Amsterdam (2nd-3rd June 2027).

Km 40-42

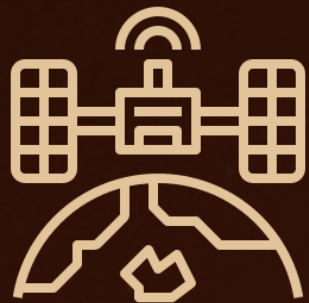
The grand winner delivers a high-fidelity prototype of the full solution, demonstrating real-case scenarios.

The solutions will be showcased at an Official ESA event in Q4 2027.



You are the perfect fit for this opportunity, if

YOU'RE DEVELOPING A SOLUTION TO:



LEVERAGE NEXT-GENERATION EO & AI TO
DETECT GRADUAL, FRAGMENTED
CROPLAND ABANDONMENT THAT
CURRENT MAPS & SURVEYS MISS



ISOLATE THE **IMPACT OF CONFLICT,**
DISPLACEMENT & POLITICAL INSECURITY
FROM RAINFALL VARIABILITY AND OTHER
CLIMATE DRIVERS



TURN SATELLITE DATA INTO **TRUSTED,**
SEASON-BY-SEASON INSIGHTS FOR FOOD-
SECURITY PROGRAMMES, HUMANITARIAN
AGENCIES & NGOs TO ACT ON



You want to tap into a total prize pool of **€255k** while exploring new EO approaches that combine satellite time series, climate data and conflict & mobility information to monitor rainfed agriculture in hard-to-reach areas, going beyond static land-cover maps.



You are working on a project with a **clear humanitarian impact,** scalability and real-world application.*
Solutions with a clear potential for business & real-life applications will be prioritised.

You are developing technologies linked to:

Mapping Cropland Abandonment Across the Conflict-Affected Sahel*

FOCUS RAINFED CROPLAND

Fields watered only by rainfall: small, irregular, often intercropped or dotted with trees, rotated with fallow and rarely mapped. Their green-up follows the rains, so from space a failed season and an abandoned field can look alike.

OBSERVE & MAP - Rainfed fields -

Technologies *finding rainfed fields and tracking whether they are sown*, season after season

- Optical & time series following sowing, green-up & harvest, even through rainy-season cloud
- Field delineation & phenology metrics separating cultivated, fallow & abandoned plots
- Multi-year break detection telling routine fallow apart from persistent abandonment
- EO foundation models fine-tuned with few labels where field surveys are unsafe

EXPLAIN

- Climate or conflict? -

Technologies *telling apart the two main drivers of cropland abandonment*



CLIMATE-DRIVEN ABANDONMENT

Solutions predicting what a season should look like for each rainfed field, spotting dry-spell stress or flood damage.

- Rainfall & soil-moisture baselines for every season
- Rainfall-normalised vegetation indices & “expected cultivation” models showing what a normal season looks like
- Drought, flood & late-onset masks filtering out climate-driven gaps

VS



CONFLICT-DRIVEN ABANDONMENT

Solutions flagging rainfed fields left empty, evidencing insecurity or displacement signals (burned fields, emptied villages, cut-off roads...) or attributing change to its most likely cause.

- Conflict & displacement data fused with signs of human presence: night-time lights, burned areas, settlement change
- Counterfactual methods linking change to conflict & access constraints
- Explainable AI with calibrated uncertainty, stating how confident each attribution is

INFORM

- Decision support -

Technologies *turning attribution into trusted, seasonal information* for food-security, humanitarian & recovery decisions

- Cultivated-area anomalies & production-loss estimates by district or livelihood zone, with confidence levels
- Separate climate & conflict layers, so responses can match the cause (e.g. drought relief vs access & protection support)
- Recovery tracking showing where farmers return to their fields
- Outputs & crop-monitor cycles, aggregated so sensitive maps never expose vulnerable communities

Why should you apply to the program?

Societal Impact:

Develop scalable, impactful solutions leveraging **EO & AI** to reveal where and why farmland is **being abandoned** across the conflict-affected Sahel, delivering trusted insights for food-security, humanitarian & recovery teams.

The Project's winning solutions will collaborate with **ESA Φ -lab**, the **World Food Programme** & **Save the Children** to explore opportunities for implementing these solutions in future initiatives.

Global Exposure:

Pitch on stage at the **Hello Tomorrow Summit** in Amsterdam (June 2nd-3rd 2027).

International Presence:

Showcase your innovative solution at **two upcoming official ESA Events**.

Unparalleled Networking:

Access & Leverage **ESA Φ -lab's** network of Earth Observation experts.

Expert Coaching:

Receive **exclusive coaching** from Hello Tomorrow's experts.



Substantial Prize Pool:

Up to:

2nd runner

€60k

Winner

€180k

3rd runner

€15k



Φ -lab



World Food Programme



Save the Children

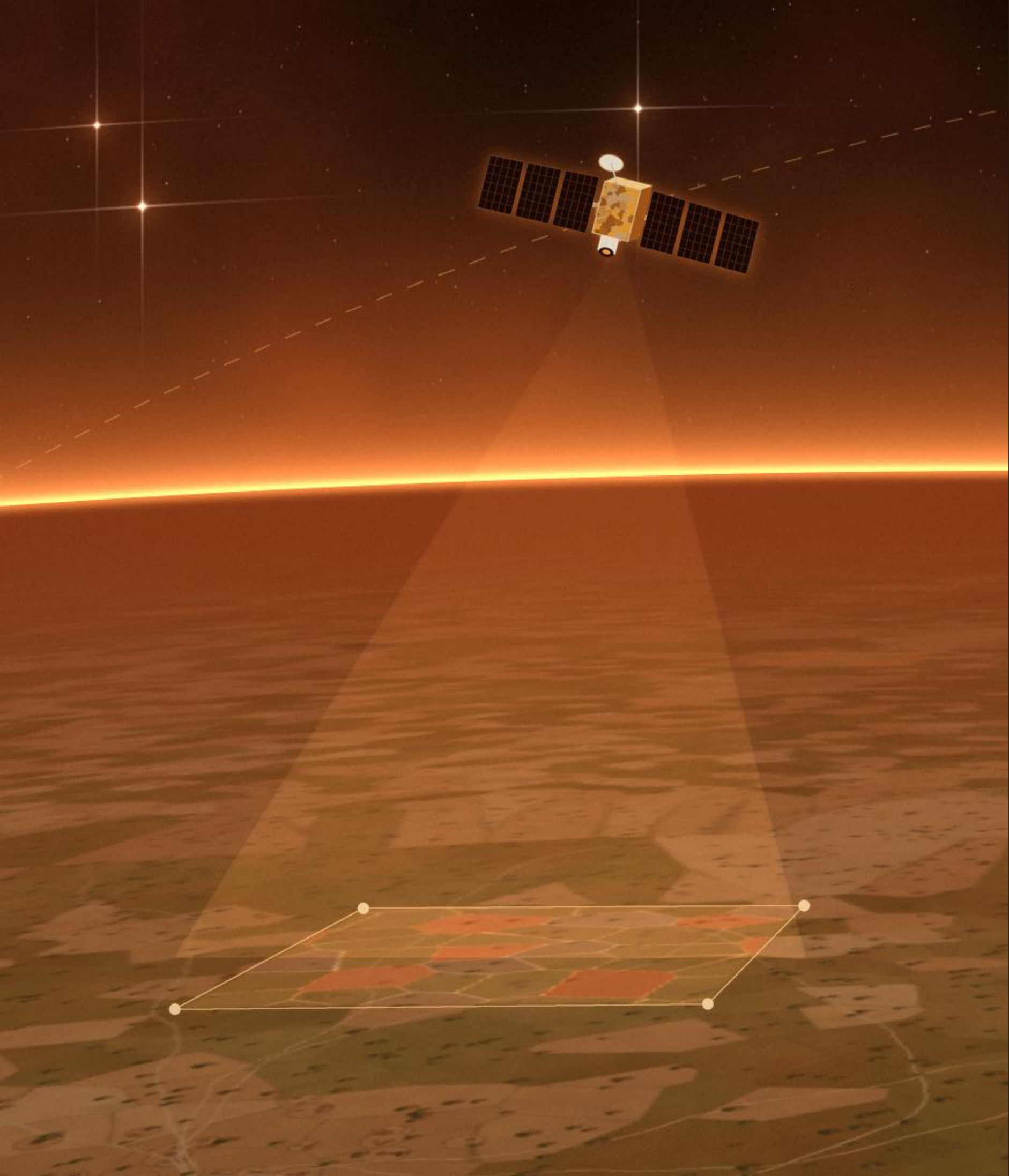
POWERED BY



What's next?

The Grand Marathon is structured as a progressive competition with cumulable prizes, beginning on **October 19th 2026 (Km 0)** and lasting until **November 2027 (Km 42)**. Each milestone marks a new stage of the challenge, just like checkpoints in a marathon.





Join the 3rd Grand Marathon: Mapping Cropland Abandonment Across the Conflict-Affected Sahel

APPLY BY JANUARY 15TH

For more information or for any questions you might have,
do not hesitate to contact:

Federico Mentoni - federico.mentoni@hello-tomorrow.org



Φ-lab



Save the Children



World Food
Programme

POWERED BY

