

Space for Early Warning in Africa (SEWA) at ECMWF

Role of ECMWF and outline of funding opportunities

Stijn Vermoote – Head User Outreach and Engagement Section

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ECMWF support on weather and environmental data uptake in Africa

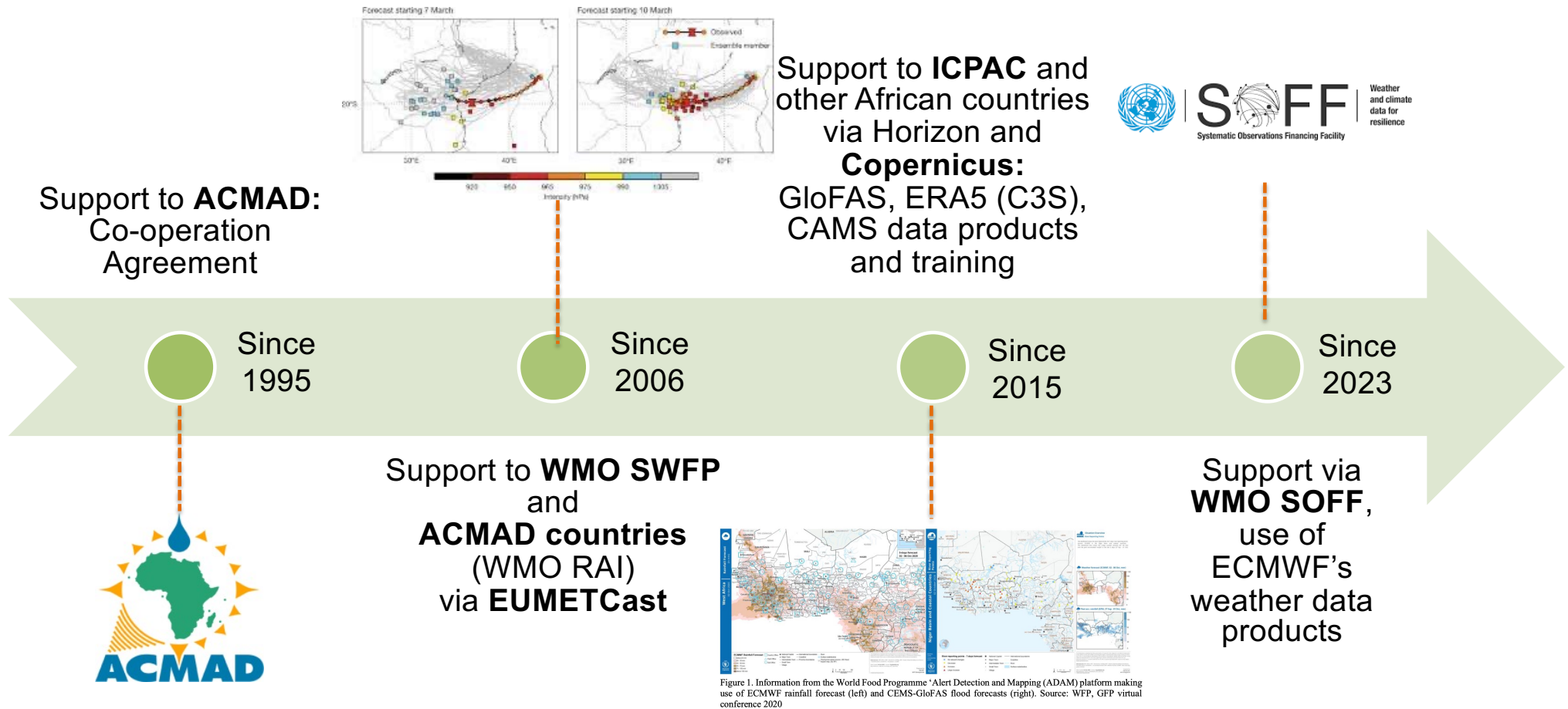


Figure 1. Information from the World Food Programme 'Alert Detection and Mapping (ADAM) platform making use of ECMWF rainfall forecast (left) and CEMS-GloFAS flood forecasts (right). Source: WFP, GFP virtual conference 2020

Implementation Outputs of ECMWF in SEWA

Outputs	Role EUMETSAT	Role ECMWF	Role AUC
2.1 Improved access, processing, applicability and use of data and services for Early Warning	Shared	Shared	Support
2.2 Established and operated African Meteorological Satellite Application Facility (AMSAF)	<u>EUMETSAT lead</u>	/	Support
2.3 Enable co-design and delivery of Impact Based Forecast services & tools	/	<u>ECMWF lead</u>	Support
2.4 Enhanced coordination with institutional framework and shared knowledge across regions	Support	Support	<u>AUC lead</u>
2.5 Strengthened human capacities, knowledge and community shaping	Shared	Shared	Support



Implementation through close partnerships

Creation of African ownership

Focus at regional level: Eastern Africa (ICPAC); Western Africa (AGRHYMET); Southern Africa incl. Indian Ocean Islands (SADC-CSC); Central Africa (CAPC-AC).

Close engagements with **ACMAD** for inputs on all four regions

Each RCC would take the role to engage other essential African entities, incl. **RSMCs / selected African NMHSs**

Mandate NMHSs on issuing EW to be respected in line with WMO 1947 UN Convention of the WMO

African Union Commission: central role in governance.


Enable European meteorological capacity

European NMHSs and related partners active in the domain of Early Warnings are expected to play central role to team up with African RCCs to implement regional pilots on impact-based forecasts and the training activities.

Use of **European Weather Cloud infrastructure:** capitalize on European investment to serve both African and European communities.

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Facilitate access to Cloud computing resources, outputs on ECMWF and Copernicus data products and provision of linked expertise and support

1. ECMWF to **provide access to the CCI-EWC** 'Common Cloud Infrastructure - European Weather Cloud' for demonstration tools and application developments as selected in Output 2.3
2. ECMWF to prepare and facilitate access to a package of **ECMWF weather and Copernicus data products** to accommodate for the implementation of tasks under Output 2.3. on the four regional pilots countries
3. ECMWF to complement the provision of Cloud resources with **dedicated support and expertise** on the set-up of data interfaces, user documentation and provide guidance on interoperability aspects and based on specific user requirements and needs

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Co-Designed and Delivered Impact- Based Forecasts (IbF) Services & Tools

1. Conduct an **in-depth scoping study** to map existing initiatives and data interfaces on early warning, collect user requirements, identify priorities and develop an action plan
2. Engagement with AUC on the Africa Multi-Hazard Early Warning and Early Action System (**AMHEWAS**) to identify further investments in line with relevant user community needs
3. **Co-design pilots on Impact Based Forecast (IBF)** and support the development of early warning tools for hazardous Weather and Climate events in each of the four African regions

In-depth scoping study

Funding Opportunity

Mechanism	Competitive procurement via an Invitation To Tender (ITT) with aim to award one contract
Max. budget	~450kEUR
Planning	Launch ITT in May 2025, start implementation study in Q4 2025

Scope and objectives

- Map existing regional and international initiatives and data interfaces on early warning within sub-Saharan Africa. Aim is to minimize duplication and maximize benefits of SEWA investment
- Identify initial user requirements from African stakeholders (RCCs, RSMCs, etc.), grouped per region and topic
- Identify priorities and develop an action plan for targeted actions to fill gaps and to complement with demonstration tools and applications.

Coordination via a Working Group with representatives from EUMETSAT, WMO and AUC.

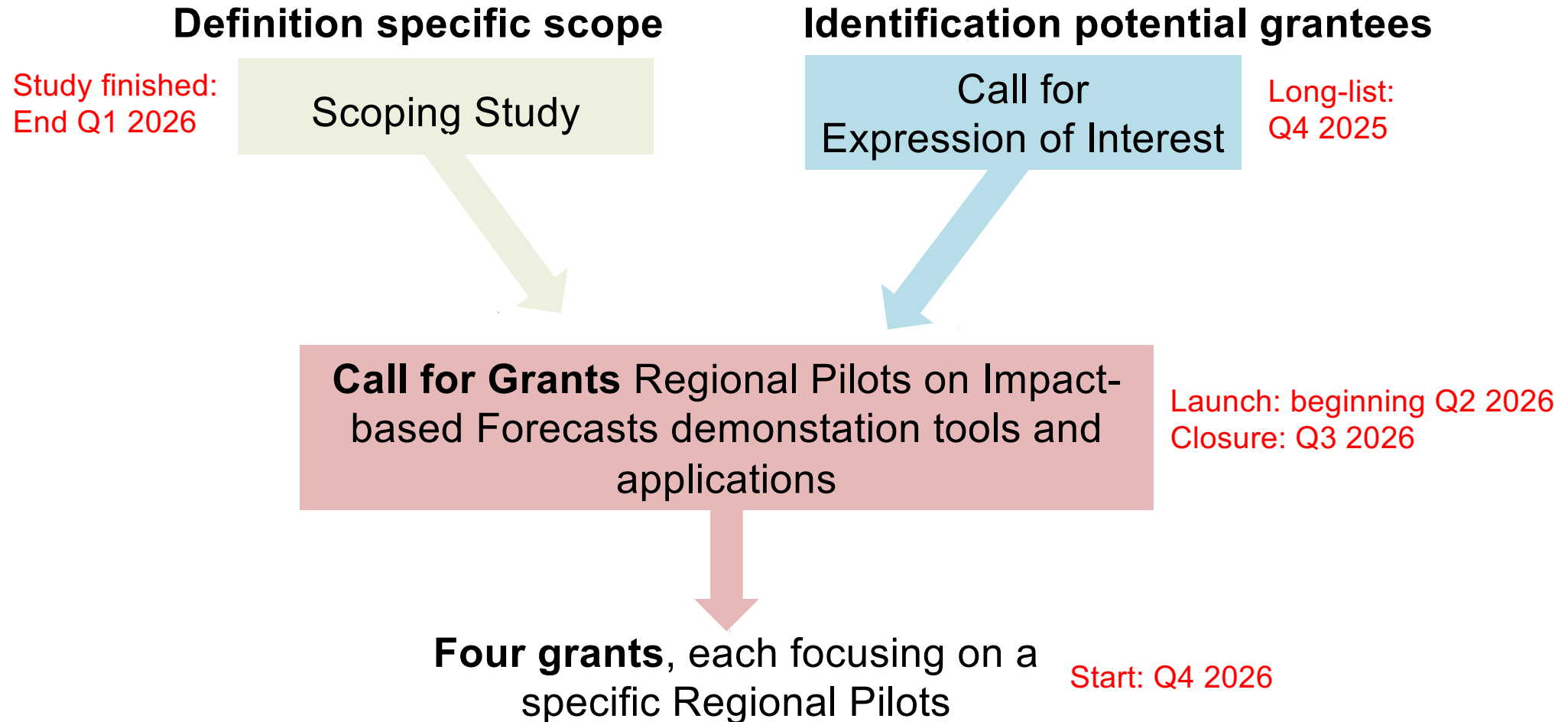


Regional pilots on impact-based forecasts and warning tools for hazardous weather and climate events

Funding Opportunity

Mechanism	Competitive Call for Grants with aim to award 4 grants
Max. budget	~5mioEUR (actual amount can be slightly changed)
Planning	<p>Launch of Call early Q2 2026</p> <p>Start implementation of grants in Q4 2026</p> <p>Each grant is aimed to run for up to 30 months, an interim version of the regional pilots output is anticipated to be ready by Q4 2027.</p>

Process to identify and award grants



Coordination in and between the grants

Grant on Regional Pilot Western Africa

Co-beneficiaries to be included: **AGRHYMET** and **ACMAD**

Grant on Regional Pilot Eastern Africa

Co-beneficiaries to be included: **ICPAC** and **ACMAD**

Grant on Regional Pilot Central Africa

Co-beneficiaries to be included: **CAPC-AC** and **ACMAD**

Coordination on topics of common interest:

- **ECMWF** for technical/scientific aspects
- **AUC** for governance aspects

Grant on Regional Pilot Southern Africa, incl. Indian Ocean Islands

Co-beneficiaries to be included: **SADC-CSC** and **ACMAD**

Each RCC shall take the role to engage the essential African entities in their region, incl. RSMCs

Working Group to advise on the implementation: WMO AMCOMET, EUMETSAT, EC DG JRC

Scope of grants on regional pilots

- Priorities shall be based on the conclusions of the in-depth scoping study
- For each region, ECMWF, European NMHSs and the African RCCs will select the **two most relevant hazards** to focus on for further deployment in the grant actions

WMO EW4All priority hazards	Other 'Space' relevant hazards
flash floods	wildfires/smoke
drought/dry spells	dust storms
riverine floods	
tropical cyclones	
thunderstorms	
heatwaves	

- Use of data (not exhaustive):
 - **ECMWF data products**
 - **Copernicus** data: C3S, CAMS and CEMS (JRC)
 - **Nowcasting** data as provided through AMSAF (EUMETSAT)
 - **Data from European LAMs** focusing on their specific area of interest in Africa




Output of grants on regional pilots

- A fully operational deployment is **not** the target
- Each of the regional pilots will serve as a ‘**test-bed**’ on a **range of demonstration tools** for selected hazards in support of early warnings as well as the establishment of **documented “best practices”**.
- Development of the demonstration tools in a Cloud environment (**CCI-EWCloud**)

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Deliver training and knowledge transfer activities across the Early Warning value chain, with a focus on Space-based data and technologies

- 1. Support strengthening existing training frameworks** with a curriculum related to space-based EW
- 2. Co-design** training plans, co-organise trainings events for practitioners via **train-the-trainer** events in the entire space-based early warning value chain
- 3. Engage** with regional training centres, universities and other education providers for gender-sensitive education on space-based Early Warning

Grant on training activities

Funding Opportunity

Mechanism	Competitive Call for Grants with aim to award 1 grant
Max. budget	~795kEUR (actual amount can be slightly changed)
Planning	Launch of ITT: Q3 2026 Start implementation of grant: Q1 2027 Expected end date: Q1 2029



Scope of grant on training activities

Funding Opportunity

- Co-design training plans and co-organise trainings events for practitioners via **train-the-trainer events** in the entire 'space-based' EW value chain
- Grant Action to be **coordinated and implemented by a consortium of European and African institutions**, specialised in trainings on impact-based forecasts and early warning on weather and climate hazards as well as the use of Cloud infrastructure.
- The **target trainees** are senior practitioners active in weather forecasts, climate, hydrology and early warning, as agreed by the African RCCs and AUC/AMHEWAS and who are appointed as trainers themselves within their organisations:
 - Through this train-the-trainers approach, **ownership** is created within the African communities to share the gained knowledge with other colleagues.
 - **Gender balance** shall be a criterion for the selection of the practitioners to participate in these train-the-trainers programmes.



Illustration of potential outline train-the-trainers programme

- 1. Training resources:** dedicated training material will be co-designed with ACMAD and the other RCCs and developed and quality checked by specialists. Material will be developed in English, with translations as needed in French and Portuguese. The training resources shall be made available via the e-learning platform on ECMWF's website.
- 2. Five train-the-trainer events:** train-the-trainer events at the training centres at ACMAD and the four other African RCCs. For each region, the aim is to train ~25 trainers. Each train-the-trainer event will be organised between Q1 2027 and Q4 2028 as a one full week of programme, including networking meetings.
- 3. Three additional train-the-trainer events to accommodate additional needs:** including training sessions to cover specific technical topics and/or sub-regions.
- 4. Fellowship programme:** implemented between Q1 2027 and Q1 2029 with the option for up to 6 selected fellows for short-term visits at ECMWF and interested ECMWF's MS NMHSs.
- 5. Evaluation** based on dedicated follow-up meetings with the trainers and survey, to be organised online



Implementation status in Q1-Q2 2025

Start action

Activities started in January 2025, with an implementation period of 50+3 months

Preparatory activities

December 2024 – July 2025: ongoing recruitments of project team at ECMWF

19 March 2025: online Info Session

April 2025: meetings with African RCCs and AUC on partnerships to be established.

May 2025: Publication ITT for the “In-Depth Scoping Study”

June 2025: Launch a Call for Expression of Interest

