

SESSION 8 • HUMAN RESOURCE CAPACITY IN GEODESY

Who will be running Africa's geodetic infrastructure in 2040?

The Pan-African Geodetic Research Consortium — a proposal for the training tier

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This is not an opinion. It is the Centre's own assessment

1.7 / 5

Training and education

Declining university programmes;
reduced formal training

1.3 / 5

Knowledge management

Lowest score in the assessment;
no central repositories

Zero

Workforce data for Africa

No systematic figures on programmes,
enrolment or skill gaps exist

UN Global Geodetic Centre of Excellence, *State of Geodesy 2026* · 58 capabilities assessed · 130+ experts consulted · evidence base thinnest for developing regions

Infrastructure is accelerating. The workforce is not

MOVING

AFREF Working Group re-established

July 2025

Second Continental AFREF Computation

July 2026

GGOS-Africa launched

this week, in this room

NOT MOVING

University geodesy programmes

declining across multiple regions

Specialist expertise

concentrated in individuals near retirement

Doctoral capacity

present in a small minority of African states

A CORS station can be installed in a season. A geodesist takes four years.

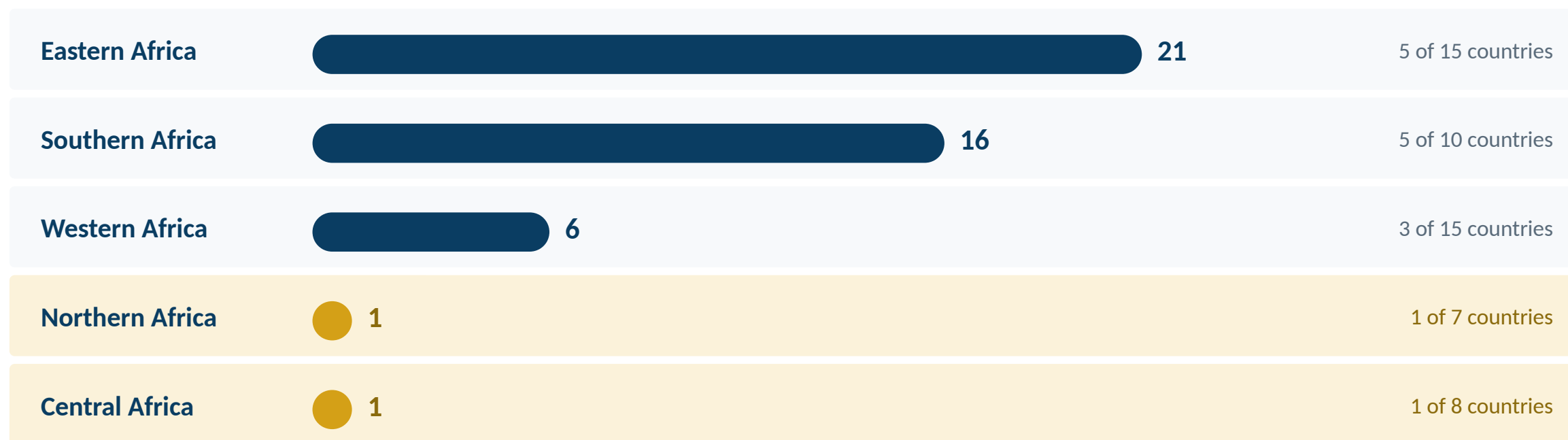
Two of the five regions sent one person each

51 participants

18 countries represented

45 from the five regions

6 international partners



Northern and Central Africa together: two people. The node gap is measurable from this room, not projected.

GGOS-Africa 2026 participant map · Nairobi, 5–7 October 2026

There is a missing tier

1

Professional short courses

RCMRD, AFRIGIST/RECTAS, UN-GGCE, FIG. Working, and at volume.

EXISTS

2

Doctoral and master's research training

Researchers and future supervisors, trained in Africa, retained in Africa.

MISSING

3

Operational analysis centre capability

AFREF and GGOS-Africa analysis centres. Requirements that are, in the end, staffing requirements.

BLOCKED BY 2

What is proposed

10

doctoral
candidates

20

master's
researchers

5

regional
nodes

4

years

Cascading mentorship. Each doctoral candidate leads one research theme and mentors two master's researchers on applied sub-studies. Thirty research-trained geodesists, ten openly licensed tools, and an open knowledge hub — from a budget that funds ten PhDs.

PAGRC would work under the technical direction of AFREF, GGOS-Africa and UN-GGIM: Africa. *It is a training arm, not another coordinating body.*

What each node would actually work on

Eastern Africa

Tectonic and volcanic deformation in the East African Rift

Low-cost GNSS, Sentinel-1 InSAR and seismic data — an open deformation database and early-warning prototype

Southern Africa

Geodetic monitoring for transboundary water security

Zambezi, Okavango and Limpopo — GNSS vertical land motion with GRACE-FO gravimetry and altimetry

Western Africa

Coastal subsidence and dynamic vertical datums

InSAR time-series with tide gauges and continuous GNSS — subsidence risk maps for coastal cities

Northern Africa

Transboundary aquifer monitoring and delta subsidence

GRACE-FO, InSAR, GNSS and levelling — an aquifer and subsidence toolkit for basin authorities

Central Africa

Forest biomass and carbon flux in the Congo Basin

Hybrid geoid and terrain modelling for airborne and UAV LiDAR — carbon stock maps fit for verification

Running across all five nodes: AFREF densification and CORS design · vertical datum and geoid modernisation · analysis centre capability

It does not need the full budget to begin

USD 35,000

12 months

African Geodetic Workforce and Curriculum Survey

The first systematic dataset on African geodesy programmes, enrolment, staffing and skill gaps. Fills a gap the UN-GGCE names in its own recommendations.

USD 240,000

18 months

Foundation phase

Secretariat, two design workshops, two pilot doctoral fellowships, first release of the knowledge hub, node agreements drafted.

USD 2.51m

4 years

Phase 1

The full consortium. USD 2.2 million sought externally across a lead funder and co-funders.

Start at the top. The survey is cheap, deliverable within a year, and makes every later application evidence-based.

Three asks

1

Name it in the resolutions

That research training and workforce development be recognised as a continental priority requiring a dedicated mechanism. It names no institution and commits no one.

2

Expressions of interest from prospective nodes

Universities with doctoral registration capacity. Northern and Central Africa are currently unrepresented and the consortium cannot be continental without them.

3

One conversation about the survey

If you can fund it, host it, or tell me who can — find me before Wednesday closes, or at AARSE in Harare on 26–30 October.

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“Our Hands, Our Mind, Our Destiny”