

Session 2: Introduction to GGOS & GGOS-Africa: summary notes

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Moderator: Jack Radcliffe

Written from the Zoom transcript. Audience speakers' names are given only where they could be identified with reasonable confidence. Please check against the recording before quoting anyone.

Key points

- **“Without Africa, GGOS is not global.”** GGOS sees GGOS-Africa as a partner for expertise, observations and leadership.
- **The draft GGOS-Africa Terms of Reference were presented for comment.** Membership works through National GGOS Focal Points, under a Steering Committee and an Extended Steering Committee. The draft will be shared in full (via Zenodo) and is open for comments.
- **GGOS-Africa coordinates; it does not decide.** It will not take over GGOS core-site approval, and it must avoid duplicating AFREF and RCMRD.
- **Open issues from the floor:** an African data repository and analysis centres, technical working groups, institutional sustainability without donor dependence, and the role of regional centres and the African Space Agency.

Talks

Laura Sánchez: Global Geodetic Observing System (online)

- **Origins.** The Brundtland report (1987) put sustainable development at the centre of policy, and the Rio Earth Summit (1992) and Agenda 21 called for systematic Earth monitoring. Ocean (GOOS) and climate (GCOS) observing systems followed. The IAG began work on a geodesy-based observing system in 1995.
- **Design principle.** GGOS does not install instruments or launch satellites. It relies on infrastructure, data and expertise voluntarily shared by countries and organisations, and coordinates them for the long term (research-funded infrastructure is often removed when a project ends).
- **The IAG's history:** 1862 Central European Arc Measurement; the IAG named 1886; part of IUGG since 1919. It now has 12 services that turn observations into free, openly available products.
- **The observation chain:** observe, process with consistent standards and a common reference frame, combine techniques to detect biases, model and interpret, then communicate.
- **GGOS structure:**
 - Bureau of Networks and Observations, which monitors infrastructure and simulates new stations.
 - Bureau of Products and Standards.
 - Coordinating Office, which runs outreach and the GGOS Portal.
 - Focus areas: geohazards, geodetic space weather, AI for geodesy.
 - **Affiliates:** Japan, D-A-CH, Iberian-Atlantic and now Africa.
- **Current work:**
 - **Essential Geodetic Variables**, modelled on the essential climate and ocean variables, to reach the policy arena.
 - The **GGOS Portal**, a one-stop shop for geodetic data and products.
 - Supporting the supply chain with UN-GGCE.
- **Why affiliates matter:** they bring regional needs and expertise into GGOS, strengthen two-way communication and support capacity building. A declining workforce makes attracting young people essential.
- Outreach resources, including the recent cartoon competition, are on the GGOS website.

Q&A

- **Elfuraha Saria (Tanzania)** asked whether GGOS standards cover instrument quality, since some (for example Chinese) receivers cannot be processed in GAMIT or Bernese. Sánchez said GGOS promotes common processing standards and models. GGOS is characterising product accuracy requirements by application, from about 1 mm for deformation monitoring to metres for navigation.

- **Saria also asked** why affiliates are national or sub-regional rather than continental, for example “GGOS-Europe”. Sánchez said affiliates form around regional needs. GGOS-Japan, for example, supports technology development such as SLR. D-A-CH focuses on combining techniques. Iberian-Atlantic focuses on infrastructure.

Hubert Mathebula: GGOS-Africa Framework, Objectives and Terms of Reference

- **Background.** The idea came from recognising a gap in continental coordination. UK STFC funding enabled the infrastructure survey. Key individuals lobbied organisations and the response was overwhelming.
- **South Africa’s approach.** It sought government institutional support first and set up the South African Geodesy Working Group, led by DSTI and the Department of Land Reform and Rural Development (two workshops so far). Government-led efforts are “halfway to political support”. Bottom-up national action should run alongside top-down UN processes.
- **Founding Steering Committee:** Rwanda, Kenya, Uganda, Tanzania, Ghana and South Africa. DSTI drafted the founding framework and ToR and submitted the affiliation application, which was accepted in September.
- **Vision:** a coordinated, sustainable and internationally aligned African space-geodetic ecosystem that serves African development and the global supply chain.
- **Objectives:** coordinate African participation in GGOS, improve observation quality, connect Africa to services, strengthen capacity and infrastructure, and support global reference frames.
- **Core functions:**
 - Continental coordination and the interface with GGOS and IAG.
 - Surveys and simulations (infrastructure mapping, capacity assessment, strategic planning).
 - Capacity development, from schools to PhDs, and including policymakers.
 - Data and network coordination.
- **Draft Terms of Reference (10 articles):**
 - **Membership** is open to all AU member states through **National GGOS Focal Points (NGFPs)**. These can be any organised national community (government, industry, academia). They apply to the Secretariat and are approved by the Steering Committee.
 - * Individual professionals can join as non-voting members.
 - * Continental and international bodies can join as observers.
 - **Steering Committee:** up to 14 voting members, including a chair and vice-chair, drawn from NGFP nominees (up to two per country), plus two additional members. It provides strategic oversight and meets quarterly.
 - **Secretariat:** hosted long-term in South Africa (DSTI). It handles administration.
 - **Extended Steering Committee** (Steering Committee plus NGFPs): the highest decision-making body. It admits members, elects the Steering Committee and meets annually, immediately after the **annual GGOS-Africa meeting**, which is open to all members.
 - **Elections:** nominations open in November and elections are held in March. Two-year terms with one re-election (four years maximum). A vacancy stays open until the next election. The vice-chair replaces a departing chair, and interim officers are elected if both leave.
 - **Removal:** after missing two meetings without apology, or four in total, or for acting against GGOS-Africa’s interests.
 - **Decisions** are by consensus, falling back to a simple majority.
 - **Founding phase:** South Africa chairs, Kenya is vice-chair, and South Africa hosts the Secretariat. These arrangements are interim until the ToR is adopted and a Steering Committee is elected.
 - **Funding:** GGOS-Africa is not a funding agency. South Africa contributes in kind, and the UK project currently provides funding. A long-term funding model is still needed.
 - The ToR and founding statement will be reviewed when the Extended Steering Committee is formed.
- **Next steps:**
 - Adopt the ToR and launch GGOS-Africa officially.
 - Countries establish and register their NGFPs.
 - Use the completed survey to set priorities: CORS networks, reference frames and vertical datums, new and upgraded space-geodetic sites, capacity development, and regional and international partnerships.
 - Agree a collectively owned way forward by the end of the workshop.

Interactive discussion

- **Gaps in the framework.** A participant noted three:
 1. No plan for an African **data repository**, which analysis centres need.
 2. No **technical committee**.
 3. No African analysis centres beyond low-capacity university efforts.
 - **Mathebula:** data and analysis centres are a core function, and technical **working groups** will sit under the Steering Committee.
 - **Radcliffe:** a data repository has been discussed with Roelf Botha (SARAO/HartRAO).
- **Why only some countries so far?** Radcliffe explained that the foundational UK-funded project (which funded this meeting) was restricted by the funder to seven countries. GGOS-Africa is two weeks old, and every country is about to be approached to join. Mathebula added that GGOS asked the same question during the application: someone had to start.
- **GGOS candidate and core sites.** A Nigerian participant described Nigeria's GGOS candidate-site approval (around 2011, under the GGOS call), which helped attract a partnership with China. They asked:
 - whether GGOS-Africa will take over site approvals;
 - whether membership will be tiered by capability;
 - whether a GGOS-Africa data repository would conflict with AFREF's data centre (also hosted in South Africa).
 - **Response:** GGOS-Africa is a coordinating forum, not a decision-making body. GGOS core-site standards and approvals stay with GGOS. GGOS-Africa will help countries meet them.
- **Institutional sustainability (André Nonguierma):**
 - African bodies often depend on donors and collapse when funding stops.
 - It must be clear which national institution has the mandate to represent each country.
 - Regional centres (RECTAS, RCMRD and others) and the African Space Agency should have a defined place.
 - He cited a large, well-funded continental programme (heard as "Digital Earth Africa", about US\$24M) that lost momentum after moving between host institutions: "get the institutional part right".
- **Responses:**
 - **Mathebula:** NGFPs should suit each country, not necessarily copy South Africa's model, and GGOS-Africa needs a line of sight to the AU and the African Space Agency.
 - **Radcliffe:**
 - * Sustainability options include public-private partnerships, donor funding and possibly modest member contributions (membership fees risk putting people off).
 - * The ToR deliberately separates the AFREF and GGOS-Africa mandates. RCMRD has a seat on the Extended Steering Committee and will feed into the working groups, with reciprocal agreements to avoid duplication.
 - * The ToR is a draft. It will be shared via Zenodo for comment, and participants can use it to brief their national representatives.

Actions and follow-ups mentioned

- Share the full draft ToR (Zenodo link) with participants for comment.
- Countries to begin forming and registering NGFPs.
- Carry the questions on data repository, analysis centres, working groups and institutional placement into the Wednesday way-forward session.
- Laura Sánchez to join the GGOS affiliates presentation (Session 7, Wednesday).