

## Curriculum Vitae (C.V)

**Anwar Elsadat Eltayeb Gasmalla Elmahal, PhD, Postdoc**

*Geoscience Researcher | IM Specialist | GIS/RS /Geo AI Expert*

**Contacts:** Uganda: (+256 7652 68878) | Sudan: (+249 914124886) | WhatsApp: (+249123477303)

**Emails:** [anwareltayeb@gmail.com](mailto:anwareltayeb@gmail.com); **ORCID:** 0000-0002-9189-2045

<https://scholar.google.com/citations?user=2xUksWoAAAAJ&hl=en>

<https://www.researchgate.net/profile/Anwar-Elasadat-Elmahal>

---

### Biodata

**Nationality:** Sudanese

**Date of Birth :** 21/10/1964

**Languages:** English, Arabic, and French/Intermediate.

---

### Professional Summary

With over 20 years of experience in geospatial data systems and humanitarian information management, I specialize in GIS, remote sensing, and cloud-based spatial analysis, applying these tools to hydrology, natural resource management, land use and land cover change, and climate-related hazards, while interlinking geographic and environmental data to strengthen climate change adaptation, disaster risk reduction, and sustainable development planning. I successfully initiated and implemented the Sudan Geoportal in collaboration with the National Information Center and the Central Bureau of Statistics establishing a national framework for integrated geospatial intelligence. For more than a decade, I've taught geoinformatics at the University of Khartoum across the Faculty of Geography and Environmental Sciences and the Faculty of Engineering, focusing on geo-statistics, satellite image processing, and spatial cloud computing using platforms like Google Earth Engine—supported by advanced programming in Python and JavaScript. My technical work includes processing and visualizing global climatological datasets such as ICPAC, CHIRPS, ERA5, MODIS, and GLDAS to support evidence-based planning and climate resilience. At UNICEF, I led the training of implementing partners and produced annual vulnerability mapping analyses that guided humanitarian targeting. I've also collaborated with FAO, the European Commission, and other institutions on programs related to disaster risk reduction, emergency response, and education. Through research, capacity building, and operational design, I continue to develop data-driven decision-support systems that strengthen resilience and impact across Sudan.

---

### Education & Certifications

- **Postdoctoral Fellowship** – University of Khartoum , Faculty of Geography and Environmental Sciences (2023)
  - **PhD in Water Development & Management (GIS/RS Applications)** – , UNESCO Chair in Water Resources, Omdurman Islamic University, Sudan (2013)
  - **MSc in Geographic Information Science (GISc)** – Birkbeck College, University of London, UK (2003)
  - **BSc in Geosciences** – University of Khartoum, Sudan (1987)
  - **Certifications: Higher Education Teaching Certificate,(Harvard), Data Science (Harvard), Information Security (UNICEF), ICT Project Management (IBM), Microsoft Azure, Business Writing (UC Berkeley).**
- 

### Affiliations

- Member of the British Society of Geomorphology, London, Great Britain.
  - Member of the Water for Sustainable Development Initiative, Khartoum, Sudan.
  - Founder of the Sudanese Geoinformatics Society(SGS).
- 

### Experiences Academic

- January,2015- April-2023, worked as a senior lecturer at the M.Sc. Program, University of Khartoum, Faculty of Geography and Environmental Sciences, teaching variety of graduate and undergraduate courses such as Remote

Sensing and GIS applications in Hydrology, Open-Source GIS, Web-GIS, Satellite Digital Image Processing, Geostatistics, Spatial Cloud Computing, and Research Methodologies.

- 2015-April 2023 as a senior lecturer, Geomatics' M.Sc. Program ,University of Khartoum, Faculty of Surveying Engineering, teaching a Syllabus of Advanced Digital Image Processing and Geostatistics.
- 2015 up to April 2023 , worked as a senior lecturer, Geoinformatics', M.Sc. Program, University of El-Neelain mainly teaching a syllabus of Web-GIS.
- Supervised numerous graduate students during the period 2015 up to April 2023 in Remote Sensing, GIS and their Applications in Geoscience.
- February 2016- Up-to-date, GIS Specialist UNICEF, SCO, Planning, Monitoring and Evaluation Section, Khartoum Office.

#### **Technical:**

- 2011- 2016, Information Management Specialist, UNICEF, SCO, Child Protection, Khartoum Office.
- 2008 , National GIS consultant for FAO, primarily offering scientific and technical guidance in addition to the capacity building of staff in Remote Sensing and GIS.
- 2008-2011 LESP Project GIS Consultant (European Commission ) , providing the technical supervision concerning the GIS, providing the technical supervision , GIS development and upgrading or reforming GIS units including software, hardware and personnel capability.
- 2008-2009, GIS Lecturer at Alzaim Alazhari University , mainly focused on GIS Applications in Engineering Geology for B.Sc. candidates.
- Jan 2009 up July 2011, General Manager ,GISVISIONS for geographic information consultancies.(Khartoum).
- August 2009 – July 2011, GIS Consultant, Khartoum State Water Corporation KSWC , . July 2006 – August 2009 GIS Manager, Raqem Co , for services and training, Sudan.
- 1990 - 2006 , Ministry of Education, U.A.E, as a science and environmental teacher, mainly teaching a syllabus of environmental sciences. Awarded during this period a certificate of Better Environment Awards (BEA), from Shell company , ministry of education and the federal environmental agency (U.A.E).

---

#### **My Research Interests:**

##### **Remote Sensing & GIS Applications**

- Advanced digital image analysis using Google Earth Engine and JavaScript API
- Spectral mixture analysis (SMA) and change vector analysis (CVA) for land degradation monitoring

##### **Fluvial Geomorphology & Watershed Studies**

- Quantitative morphometric analysis and change detection in Sudanese watersheds
- Impacts of land use and land cover change (LULCC) on watershed hydrology

##### **Spatial Cloud Computing**

- GEE applications in LULC management and hazards control.
- Integration of R packages and cloud platforms for geospatial data processing
- Distributed GIS systems and their challenges/opportunities

##### **Environmental Monitoring & Modeling**

- Soil water dynamics in agricultural schemes
- Vertical accuracy enhancement of digital elevation models.
- Groundwater Tracking using GRACE and GEE in relation to population movement.

---

#### **Published papers**

Publications could be find in Google Scholar under Anwar Elsadat Eltayeb Elmahal or via:

<https://scholar.google.com/citations?user=2xUksWoAAAAJ&hl=en>

---

#### **International Conferences:**

- Geo-Informatics for Environmental Challenges & Sustainability in the Sahel and Sub-Saharan Africa(SSA): Building a Resilient Future. International Workshop on Geospatial Intelligence ,Shaoxing University , China,December 15-17, 2025
- Regular participant in the British Society of Geomorphology's Annual Conferences held in the UK.<https://www.geomorphology.org.uk/>

- Impacts of Land Use Land Cover Change (LULCC) On Flash Floods in Semi-Urban Settings, Regional Symposium on Geospatial Information Exchange and Research, German University of Technology in Oman, Muscat, Sultanate of Oman, March 2023.
- Sabaloka Igneous Complex: Geomorphological evidence of paleotectonic activities, British Society of Geomorphology, Annual Meeting, Northumbria University, UK, Sept 2022.
- Remote Sensing And GIS Techniques For Quantitative Morphometric Analysis And Change Detection: Case Study, Wadi El-Nugaa' Watershed, Almatamah Locality, River Nile State, Sudan. 2015 , ARSGIO , Egypt.
- Impacts of Soil Water Rise On Elzaidab Agricultural Scheme, British Society of Geomorphology, Annual Meeting, University of London, UK, Sept, 2013.

---

#### **Work in progress:**

1. Taming the Wild Waters: Hydrogeomorphological Resilience in the Gash Basin. A Model for Eastern Sudan Recovery and Resilience
  2. Assessment of Groundwater Variability in Sudan: Implications for IDPs and Non-Riverine Agricultural Practices in Arid and Semi-Arid areas, Using GRACE-FO Data and Google Earth Engine.
  3. On the Estimation of Population and Population Dynamics in Darfur using GIS and Remote Sensing Techniques.
  4. Dam Site Selection , Review Study, Sharq Elneel Locality, Khartoum State , Sudan.
  5. On the Origin of the Great Bend of the Nile from a geomorphometric Perspective.
- 

#### **Other National Initiatives:**

- Initiated the Geoscience Research and Innovation Circle , a forum meant to build the capacity of Sudanese Researchers in Geoinformatics and Geo-AI you can see it is objectives and roles in this [LINK](#). It is totally functioning and we managed to address many research problems.
- Led the Sudanese Geoinformatics Initiative, 2015 in which we managed to bring more than 300 GIS experts on boards and discussing contemporary GIS pertinent issues in Sudan and recommending the way forward.
- Led with the central bureau of statistics and the national information center, updating the geographic frame for all the localities/ level 2 in Sudan.
- Led the Sudan Geoportal initiative with the central bureau of statistics and the national information center during the design, planning and the implementation phases and brought it to live. <http://www.geoportal.gov.sd>
- Held many GIS Seminars and workshops in many Sudanese universities and specialized institutes e.g University of Khartoum, University of EL Neelain , Bayan university, Juba university, Alzaeem Alazhari university, DAM implementation unit, desertification research institute and many other Sudanese governmental and non-governmental organizations.