

# African Research Programmes and the African Geophysical Society

Paul Baki

Technical University of Kenya

Email: [Paulbaki@gmail.com](mailto:Paulbaki@gmail.com)

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# Background

- IHY Meeting in Addis Ababa, Ethiopia (2007)
- Subsequent identification of potential equipment hosts and deployments
- Conversion of senior physicists from their primary fields into Space weather scientists.
- Key players and equipment providers and facilitators: Keith Groves (AFRL), Kiyohumi Yumoto (Kyushu University), Patricia Doherty (Boston College), Sandro Radicela (ICTP), Nat Gopalswamy (NASA), Joe Davila (NASA), Endawoke Yizengaw (Boston College), Christian Monstein (ETH Zurich), Christine Amory Mazaudier (France) among others.

# Research Programmes

Thematic Areas- driven by availability of infrastructure and data.

- Ionospheric Physics
- Heliospheric Physics
- Geomagnetism
- Geomagnetically Induced Currents
- Field Aligned Currents
- Other

# Enabling Infrastructure

Infrastructure so far deployed in the continent includes inter-alia:

- SCINDA-GPS, Other GNSS
- Magnetometers: MAGDAS, AMBER, INTERMAGNET etc
- Ionosondes
- NHF Receivers
- Satellite Beacon Receivers
- CALLISTO
- SID Monitors
- AWESOME
- All Sky Imager

## Capacity Building Modes

- Training Workshops- training of trainers and students: Boston College/ ICTP, SCOSTEP, UN Space Weather Workshops on data reduction and analysis, MAGDAS Workshops .
- Provision of Textbooks, softwares
- Short term research visits: ICTP, SCOSTEP, SANSA Space Science (formerly Hermanus Magnetic Observatory).
- Co-supervision of Masters and Ph.D. students: Intra-Africa, Beyond Africa with experts from various institutes.
- Scholarships to institutes abroad.
- Conferences

# Key Outcomes

- Less brain drain
- Research collaborations amongst African researchers
- Joint research proposals for funding- enables hosting of principal investigators and their students
- Co-supervision of students and thesis examinations by African experts
- Increased number of reviewers from Africa, of high impact journals in the space weather and related fields
- Satimay and Sunanda Basu Early Career Awards: John Bosco Habarulema , 2014 (uganda/South Africa); Joseph Olwendo, 2016 (Kenya). Also African Award for Research Excellence in Space Science : John Bosco Habarulema, 2016 (Uganda/South Africa); Melesew Nigusie, 2017 (Ethiopia).
- Establishment of the African Geophysical Society (AGS)
- Increased participation of African scientists in many global space weather initiatives.

## African Geophysical Society

- Forum for African geophysicists from a broad spectrum of geophysical fields: mentoring, collaborations, Intra-Africa conferences etc
- Partnering with other societies/ scientific organizations to promote space weather science.
- Promoting mobility grants/funds to senior researchers and students
- Recognition of key personalities who have impacted space weather science in Africa ( awarded fellowship of the Society).

## Concluding Remarks

- More opportunities available in Africa for equipment deployment
- Scholarships for Masters and Doctoral studies critically needed.
- Sandwich programmes highly encouraged.
- Mentoring/twinning of institutions encouraged.
- Joint curriculum development welcome.

**THANK YOU**