Updates on ARCSSTE-E’s Activities (1998 – 2017)

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Meeting of the Directors of the Regional Centres for Space Science and Technology Education (Affiliated to the United Nations)

Held on the margins of the 60th Session of the Committee on the Peaceful Uses of Outer Space
Vienna, Austria, 13-14 June 2017
Vienna International Centre, Room C0431
ARCSSTE-E
- Established 15 September 1998

ARCSSTE-E also serves as NASRDA’s Centre for Space Science and Technology Education (CSSTSE)
Directors of ARCSSTE-E

Prof. E. E. Balogun  

Prof. O. O. Jegede  
(2005 – 2009)

Prof. Joseph O. Akinyede  
(2009 – 2013)

Dr Ganiy I. Agbaje  
(2015 – to date)

Late Dr. A. O. Fashade  
• **Duration**: 9-month Post-graduate Diploma Programme in five key areas of Space Science and Technology (SST) Education

• **International Participants** are offered full scholarship covering: - Tuition Fee, Accommodation, Medical Services, Travel Ticket, etc.

* 17 of the 24 Countries have participated in the PGD Programme to date
Distribution of PGD Participants by Course Options [2001-2016]

Satellite Communication 29% (124)
Satellite Meteorology 3% (10)
Basic Space Science 5% (22)
GNSS 2% (10)
Remote Sensing & GIS 61% (262)

- ARCSSTE-E Regional Biennial Alumni Conference

2016 Graduation Ceremony
**ARCSSTE-E Core Activities II**

**MTech. (Space Science & Technology)**

**AFRICAN REGIONAL CENTRE FOR SPACE**
**SCIENCE AND TECHNOLOGY EDUCATION -**
**ENGLISH, OAU CAMPUS, IFE**

**THE FEDERAL UNIVERSITY OF TECHNOLOGY**
**AKURE**

- **Duration:** 18-month MTech. (SSTA) in five key areas of Space Science and Technology (SST) Education

- **Collaborating University:** Federal University of Technology, Akure (FUTA)

**Commenced:** 2013 with 18 Students
- 2014: 15 Students
- 2015: 20 Students
- 2016: 27 Students
ARCSSTE-E has developed curricula for space science education in primary and secondary schools in Nigeria.
Space Education Outreach Programme

- Premiere Nigerian Robotics Team
- World Robot Olympiad
- United Arab Emirates 2011
- Robots for Life Improvement
- **Participants** - students and teachers drawn from 32 public and private Secondary Schools in Kwara State.

- 6 students and 2 teachers from ARCSSTE-E technical staff carried out presentations in various field of space science and technology.
2017 Space Generation Advisory Council (SGAC)/Centre for Atmospheric Research/ARCSSTE-E Outreach Programme:

‘WHY SPACE?’ - Space Exploration: A Step into the New Frontier

University of Benin, Nigeria; Date: 16th of May, 2017
The establishment of a system of information is vital in order to accurately assess the processes that lead to desertification and droughts, and to build a framework for environmental accounting.

OBJECTIVES

i. Continuously measure parameters (Pressure, temperature, humidity, wind - velocity and rain rate);

ii. Analyse data obtained and ascertain if desertification is occurring or not;

iii. Model possible rate, volume and direction of future encroachments; and generate a hazard map for affected regions.
ARCSSTEE - as Regional Activity Centre (RAC) for the ECOWAS region (REC) to implement the Pan-Africa/European Union program – GMES for Africa. Proposal meetings on-going in line with ‘2006 Maputo Declaration’. Grant Estimate €36M

ARCSSTEE on Strategic Partnerships for Higher Education Innovation and Reform (SPHIER) Partnership funding for E-Learning for Space Science and Technology Education in Nigeria. Grant Estimate: £2.6M
International Training Workshop on GNSS
in collaboration with RCSSTEA and Beihang University, Beijing, China (August, 2016)

Bi-Annual Alumni Conference – an avenue to foster Regional Collaboration
7th Governing Board Meeting

26th April 2017

Member States in Attendance

i. Ghana  
ii. South Africa  
iii. South Sudan  
iv. Ethiopia  
v. Egypt  
vi. Liberia  
vii. Uganda  
viii. Cameroon  
ix. Nigeria
**GEONetCast** is a global network of Satellite-based data dissemination systems providing environmental data to a world-wide user community.

**Data:** MeteoSat, GOES East & West image data; EUMETSAT & NOAA-NESDIS metrological data; Sea surface temperature and Vegetation Data; etc.

**Licence** granted & Installation (95% completed)

**On Completion** of the Earth Station the Centre will be poised to provide real-time world class data to support the Postgraduate programmes and collaborative research.
Infrastructure Deficit

Yellow House
Obafemi Awolowo University
Ile Ife, Osun State, Nigeria.

Space Museum Building
International Collaborations

1. **GEO**, Geneva, Switzerland
   - Participating Organisation (PO) status

2. **International Committee on GNSS**, UN-OOSA, Vienna

3. **RCSSTEAP**, China

4. **EUMETSAT** on GEONetCast
   - establishment of

**Planned Collaborations**

- **China-Brazil Earth Resources Satellite (CBERS)**
  - Ground Receiving Station (educational)

- **ESRI Educational licensed products** e.g. ArcGIS

- **Samara State Aerospace University**, Russia

- **Others welcome!**
Challenges

- Inadequate funding for improved ICT infrastructure for learning
- Funding from Member States has been nil since inception
- Establishment of Ground Receiving Station facilities for teaching and research
- Signing of the MoU
- Infrastructural Facilities
- Centre’s Diplomatic Status
- Regular Annual Governing Board meeting
- Member Countries’ Institution Point of Contact
- Mobilisation Visits to Member Countries
- Selection of PGD participants from Member countries through Foreign Affairs and Equivalent Ministry handling Science and Technology Affairs.
Recommendations

- Establishment of E-learning facilities in collaboration with other Regional Centres and International Institutions in Member countries;
- Staff Internship and Secondment/Exchange in collaboration with other Regional Centres/International Institutions [including Member countries] and Network with UN University;
- Financial commitment of Member States to the Regional Centres must be rekindled; Permanent Reps in Vienna, & Ambassadors engaged.
- Regional Centre’s Directors meetings, on the edges of COPOUS meeting;
- Collaboration in research and support for teaching facilities;
- Incubation of best practice from industries and other major players through UN_OOSA;
- Linkages with Regional Organisations e.g. AARSE, UNECA, etc. for effective utilisation of the Centre for Capacity Building.
Conclusions

➢ The applications of SS&T to socio-economic development within the African region are gaining wide acceptance with the emergence of more countries pursuing the development of one form of SS&T programme or the other, depending on the individual country’s level of investments.

➢ There is a clear evidence of the impact of the UN-assisted capacity building programme which has already produced appreciable number of trained personnels as revealed in ARCSSTE-E’s programme implementation and its achievements since its inception in November, 1998.

➢ New strategies for capacity building at the formal and informal levels of education to train a sizeable number of experts to ensure meeting up the SDGs 2030 are evolving in line with advances in technologies.

➢ Indigenous Skill Acquisition in Space Science & Technology especially is key to the Socio-Economic Sustainable Development of any nation.
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Recommendations – General Discussion

- GB Members Contribution
  - Financial (AUC Formula) and in-kind
  - Adequate Personnel - Point of Contact

- Involvement of Regional Bodies – ECOWAS, AUC, IGAD, CEMAC, etc.

- Roadshow – on the Centres

- UNOOSA Reps in attendance during GB meetings, Graduation, etc.

- Linkages between Regional Centres, UN University Campus

- Available Minimum infrastructures for teaching and learning; support for teaching aids and facilities from Members in developed countries, etc.

- Certificates – designed to be similar and appropriately signed by UNOOSA Director/Rep

- Attendance of Permanent Missions in Vienna at Directors’ meeting

- OOSA to ensure that staff of the Regional Centre participate in UN-OOSA sponsored workshops and conferences

- Access to data for teaching and research purposes and other relevant educational materials through OOSA
Regional Centres Alliance

Objectives

➢ To make the Regional Centres more cohesive and united in pursuit of their mandates

➢ Share experiences and lessons learnt and enable concrete strategies that will be beneficial in their various endeavors in building capacity for their respective regions.

➢ Building institutional capacity of the Regional Centres and enabling them to keep pace with the fast changing and dynamic technological advancement in training and research, especially in space science and technology applications and other relevant areas.

Strategies

➢ Staff Exchange, Visiting Lecturers, etc.

➢ Involvement in Curriculum Review

➢ Jointly present project proposals to source for grant from donor agencies and regional organization such as ECOWAS, African Union (AU), etc.

➢ Be provided with state-of-the-art academic facilities for hands-on to enhance teaching, learning and research undertakings
**Strategies Contd.**

- It is expedient for UNOOSA to maintain high standard of delivery of all its educational programmes
- UN Joint Research proposal focused on Regional Issues for implementation as contribution by Centres
- Linkages between Regional Centres, UN University Campuses
- Regional Centres must be developed and equipped with adequate facilities essential to sustained growth
- Certificates – designed to be similar and appropriately signed by UNOOSA Director/Rep
  - Type and quality of certificate being awarded to participants and the need to ensure its authentication by relevant authorities.
- Regular Annual Directors’ meeting – rotation by Centres location