

AN ARGO CAPACITY BUILDING WORKSHOP FOR THE ATLANTIC COUNTRIES OF AFRICA

DETAILED PROPOSAL

A workshop in Ghana is proposed for 2006 to address issues relating to regional capacity to use newly available Argo float technology to monitor, predict and mitigate the adverse impacts of variations in ocean temperatures, salinity and currents on the Atlantic countries of Africa (Morocco south to South Africa). Ocean variability in the eastern tropical and South Atlantic has been shown to directly impact on both the rainfall variability of western Africa and regional fisheries and therefore it impacts directly on the water and agricultural resources of these regions of Africa, their food security, land use, ecosystems and biodiversity and to the impacts of climate change and variability on these areas and their potential adaptation to it. Therefore, the workshop is directly relevant to all the themes listed in the START Call for Proposals.

Specifically, the workshop will:

- Address the integration of Argo data with other satellite and in-situ observations to fully utilize the ocean observing system
- train participants from 10 or more western African countries in Argo float technology and its application to monitor conditions in the eastern Atlantic
- train participants in data management, quality control and reporting to international Argo standards
- review the availability of temperature and salinity profile data for ARGO calibration and QC purposes
- encourage data collection and collation (SST, SSS, T and S profile data) through guidance from regional center and provision of data products.
- demonstrate tools for the integration of SST, SSS, T and S profile and surface current from Argo data and other in situ (e.g., XBT, CTD) and satellite (e.g., altimetry, SST, ocean color) data collected in the region to generate operational data products,
- enhance both human and infrastructure capacity of local scientists in operational oceanography
- provide inputs to policy makers with respect to coastal and shelf sea management in the region
- assess capacity needs and assist with capacity building (including cross-training and technology transfer).
- make recommendations to regional operational centres in Africa (meteorology and oceanography) about applications of Argo data combined with other oceanographic observations to climate variability and change, climate prediction and oceanic analyses (e.g., for Red Tide forecasts)
- targeted towards scientists at operational centres and relevant research institutions in East and southern Africa

To achieve these aims, the workshop seeks to use a team of several international experts who will present a set of core lectures on Argo float technology, implementation and application in conjunction with a set of workshop exercises that will address the specific issues listed above. Focus will be placed on the eastern Atlantic (farther south to include the coastal upwelling, red tide, etc.) region to take advantage of existing and ongoing cruises in the region which are part of international research programmes attached to AMMA (EGGE, TACE).

Participants

The invited lecturers will be drawn from experts in Argo, AOML and operational centers. Specifically, AOML will provide speakers on data management of Argo measurements, integration of Argo data with other observations and generation of product for operational uses. AOML will contact U.S operational centers to seek speakers or presentations on using ocean products for climate and eco-system prediction purposes.

It is envisaged that of order 20-30 participants from operational meteorological and oceanographic agencies in the Atlantic rim countries of Africa (i.e.. Morocco south to South Africa) as well as participants from appropriate research institutions will attend the workshop. However, the exact numbers of students will depend to some extent on the number of invited lecturers so that an efficient and appropriate staff/student ratio is maintained.

At least one, if not two, attendees from each of the roughly 20 African countries bordering the Atlantic Ocean will be sought. In order to facilitate as widely as possible the benefits of the workshop, every effort will be made to ensure that each country is represented before considering whether a second attendee from any given African country can be accommodated.

Funding

A workshop such as this would require of order USD 100k assuming 30 students and several international lecturers. Certain items such as the venue hire, local secretarial support will be almost the same regardless of the numbers and therefore there is not a linear relationship between participant numbers and costs. At this stage, NOAA has indicated that they may be willing to provide some funding and we are seeking of order USD 25k from START to contribute towards the required funding. Funding requests will also be made to IOC and to regional bodies.

AOML has received support for participation of laboratory personnel in the workshop.

Work Plan

A set of core lectures on regional African oceanography, its variability and on the ability of Argo observations combine with other in situ and remote data to assist with ocean

monitoring and detection of climate variability and change will be presented. Details of Argo float technology, deployment, data quality control and management will be covered. In addition, other observations routinely collected in the region and how they can be combined with Argo data to generate improved characterizations by policy makers will be discussed by other experts.

Time Line

The workshop is envisaged to be held in 2006 in Accra, Ghana. The University of Ghana has agreed to act as the local host for the workshop.

An oceanographic EGEE/AMMA cruise is planned for May-July 2006. The Argo workshop is planned to coincide with this cruise.

Relationship to START research themes

The workshop clearly falls directly within the Climate Variability & Climate Change theme of START as well as has direct relevance to the Climate Change and Water Resources, Climate and Global Change-related Impacts, Land Use and Biodiversity themes. The workshop will also lead to the understanding of regional marine diversity resources in Africa.

Capacity Building

Around 20-30 participants from African operational agencies and research institutions will be invited to attend, to improve their capabilities in applications of Argo floats to the eastern Atlantic Ocean, ocean and climate variability diagnostics, ocean and climate prediction, and assessing the predictability of various important components of the regional climate system. These participants are expected to take the knowledge and skills acquired at the workshop and implement it in their home centers. Follow-up activities and contacts will be maintained to help ensure that the capacity building emanating from the workshop is ongoing.

International collaboration

The workshop will facilitate contacts, and research and operational science developments between about twenty African countries and between these countries and international experts from the U.S. and Europe.

Scientific Contribution of Participant Investigator

The PI will be one of the invited experts and will contribute lectures, supervise student exercises at the workshop, mentoring and post-workshop follow up of activities.

Links to policy

The workshop attendees will be mainly drawn from government operational agencies in oceanography and meteorology. Many of these attendees participate in regional climate outlook fora at which the seasonal forecasts are issued that are used by other government agencies for policy making relating to food security, water resources, agriculture, health and other aspects, contingency plan implementation and the mitigation of natural disasters (e.g., flood, droughts).

Relationship to Global Change Research Programmes

The workshop is fundamental to the CLIVAR programme of the WCRP and is also of relevance to IGBP and IHDP. It will be held under the auspices of the CLIVAR Variability in the African Climate System panel and will attempt to link in with the activities of other related bodies such as GCOS, GOOS, NEPAD.

Previous or Current START Awards

A training/ attachment Sponsored by Global Change System For Analysis, Research and Training (START) of International Geosphere-Biosphere program (IGBP).

The program comprised a six-month attachment/training at the Land Ocean Interaction in the Coastal Zone (LOICZ) Core project Office in Texel, The Netherlands. I worked using Geographic Information System (GIS) and development of skills in data management, manipulation and presentation of results in respect of the LOICZ Core project Coastal typology. February-July 1997.

Related Research Work

- Darwin Initiative Project on Marine Biodiversity of West Africa, a DFID project. Participating countries were Sierra Leone, Cote d'Ivoire, Ghana, Togo, Benin, Nigeria and Cameroun
- Research work on various aspects of water quality and pollution including assessment of heavy metal pollution in coastal marine organisms,
- Integrated Coastal Zone Management (ICZM) and mangrove biodiversity component of the Gulf of Guinea Large Marine Ecosystem Project (GOG/LME) executed by the United Nations Industrial Development Organization (UNIDO), UNEP and NOAA . Involving Sierra Leone, Cote d'Ivoire, Ghana, Togo, Benin, Nigeria and Cameroun

Appendix 1

- Department of Oceanography & Fisheries, University of Ghana, Legon.;
- Université IBNOU ZOHR, Faculté des Sciences, Département de biologie Laboratoire d'Océanographie & Limnologie, Morocco;
- De recherche au Centre IRD ex ORSTOM (Laboratoire d'Océanographie Physique Pointe-Noire)/Université laboratoire de Géographie Physique, Brazzaville.
- Fisheries and Oceanologic Benin Research Centre (CRHOB), Republic of Benin
- Nigerian Institute for Oceanography and Marine Research

Appendix 2

CURRICULUM VITAE

NAME: FOLORUNSHO, Regina
PRESENT ADDRESS: Nigerian Institute for Oceanography and Marine
Research, P.M.B. 12729, Victoria Island
Lagos.

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HOME ADDRESS: Nigerian Institute for Oceanography and Marine Research,
Staff Quarters, Wilmot Point Rd., Victoria Island, Lagos.

PERSONAL DATA

DATE OF BIRTH: 29th March 1959
HEALTH: Excellent
NATIONALITY: Nigerian
MARITAL STATUS: Married with 2 children

EDUCATIONAL CAREER

- 1) Mawuli Secondary School, Ho, Ghana. School Certificate. (1972-1977). “O-Levels
- 2) Accra Academy, Sixth Form, Accra, Ghana. (1977-1980). “A-Levels”
- 3) University of Lagos, Department of Geography, (1982-1985). B.Sc. Geography 1985.
- 4) University of Lagos, Department of Geography (1991-1992). M. Sc. Geography 1992.

Emphasis: Climatology and Remote Sensing

5) University of Lagos, Department of Geography (1996 to 2004). Ph. D.
Climatology (2004)

Emphasis: Climatology and Oceanography.

Thesis: Environmental Consequences of Meteorological Factors Affecting Ocean
Dynamics Along the Gulf of Guinea Coast.

PROFESSIONAL TRAINING

1. Certificate of Participation in Radar Observers' Course, Lagos. August to September 1988.

2. Certificate of Participation in Physical Oceanographic Survey, Hydrographic Department, Maritime Safety Agency, Japan. November 1990 to March 1991.

3. Certificate of Participation in Sustainable Development and Implementation of Agenda 21 in the Exclusive Economic Zone, Halifax, Canada. June to August 1993.

4. Training on Remote Sensing Applied to Coastal and Marine Science Nairobi Kenya February to March 1995.

5. Geographic Information System Training in ARC-INFO and ARCVIEW at the Environmental System Research Institute Incorporated Vienna USA. National Oceanographic and Atmospheric Administration (NOAA) Washington DC. July-September 1995.

6. Six-month attachment/training at the Land Ocean Interaction in the Coastal Zone (LOICZ) Core project Office in Texel, The Netherlands. Worked on Geographic Information System and development of skills in data management, manipulation and presentation of results in respect of the LOICZ Core project Coastal typology. February-July 1997. A training/ attachment Sponsored by Global Change System For Analysis, Research and Training (START) of International Geosphere-Biosphere program (IGBP).

7. 10-days training on Offshore CTD measurements and the use of Acoustic Doppler Current Profiler (ADCP) measurement of current intensities of Rivers, at RD INSTRUMENTS Office in San Diego, USA.

8. 3 weeks CARIS LOTS training on Article 76 at the Seaforth office in Dartmouth. Nova Scotia Canada 30 September to 18th October 2002.

9. 3 weeks Advanced CARIS LOTS training on Article 76 at the Seaforth office in Dartmouth. Nova Scotia Canada 2nd December to 20th December 2002

AFFILIATIONS

- i. African Association of Remote Sensing
- ii. Nigerian Association of Meteorologist
- iii. Nigerian Association of Oceanographers
- iv. International Coastal and Ocean Organization

PRESENT POSITION

Chief Research Scientist (Marine Geology Geophysics Division)

RESEARCH AREAS

- i) Climatology, Remote Sensing/Geographic Information System
- ii) Coastal Erosion and Ocean Dynamics Studies.
- iii) Marine Geology of the Nigerian Continental Shelf.
- iv) Global Climate Change and Sea Level Rise Studies.
- v) Integrated Coastal Zone Management

RESPONSIBILITIES

- Project leader: Use of remote sensing and GIS to assess shoreline changes between the Lighthouse and Victoria Island beaches
- Assistant Project Leader: Beach erosion, coastal zone management and ocean dynamics studies (Assistant project leader 1983 to 1990, Project leader 1990 to present)
- Member, Technical group on Nigerian Extended Shelf Project. Assignment: GIS and CARIS LOT data Input.

INTERNATIONAL ASSIGNMENTS AND ACTIVITIES UNDERTAKEN

- Member of the Management Committee of the Joint Commission on Oceanography and Marine Meteorology, (JCOMM). February 2002 to present.
- Member of the Capacity Building Coordinating Group of the Joint Commission on Oceanography and Marine Meteorology (JCOMM) June 2000 to present
- Assistant Chief Editor, UNESCO African OCEAN PORTAL
- Assistant National Coordinator: Oceanographic Data and Information in Africa (ODINAFRICA)

- Assistant Head Intergovernmental Oceanographic Commission of the Central Eastern Atlantic (IOCEA –UNESCO) Project Office Lagos. (IOCEA PROJECT OFFICE)
- Resources Person to the Core Team: Global Programme of Action (GPA) Task team on the Development of a National Plan of Action (NPA) for the development and Protection of the coastal and Marine area of Nigeria. A United Nations Environmental Programme (UNEP/GPA) funded Project Under the Federal Ministry of Environment (April 2002 –April 2003).
- National Contact person for team Activity III ICAM in ODINAFRICA
- Member of the International Committee of the Committee on Space Research (COSPAR) in Africa.

JOURNAL AND CONFERENCE PUBLICATION

Folorunsho R., Ojo O., and Ibe, C. E, (1993). Women as a factor of Global Warming and sustainability of coastal resources of west and central Africa. In proceedings Coastlines of western Africa, Coastal zone 93. Pub. American Association of civil engineers N.Y., N. Y.

Kouassi A. M., Addico, M., Diaw, D., and Folorunsho, R. (1993): Integrated Management and Sustainable Development of the west African Coastal Zone. A research paper presented to International Ocean Institute, Canada.

Folorunsho, R., Awosika, L. F. and Dublin-Green, C. O (1994). An assessment of river inputs into the Gulf of Guinea shelf. In Proc. International Symposium on the results of the first IOCEA cruise in the Gulf of Guinea, 17-20 May 1994.

Folorunsho, R. and Awosika, L. F., (1995), Nigerian meteorological induced changes along the Nigerian coastal zone and implications for integrated coastal zone management plan. In Proceedings BORDOMER '95. International Convention on Rational use of Coastal Zone, Bordeaux. 6 February to 10 February 1995.

Folorunsho, R. Awosika, L. F., and Adegbe, A. (1995): Problems and possible Solutions in determining regional Rates of Sea Level Rise Along the Eastern Atlantic. In Proc. Advances in Geodesy and Geophysics Research in Africa. University of Ibadan.

Awosika, L. F., Folorunsho, R., and Adegbe, A.T., (1995): regional and International Efforts at Understanding Land-Ocean-Atmosphere Interaction in the Gulf of Guinea Shelf of the Eastern Tropical Atlantic. In Proc. International Scientific Conference on Tropical Ocean Global Atmosphere (TOGA) Programme. WCRP-91 WMO/TD N0. 717. Vol.I Australia. Pp 205-209

Awosika L. F., Folorunsho, R., Isebor, C., Adegbe A, and Dublin-Green, C. O (1995). 1994 International Beach Cleanup Exercise at the Bar Beach Lagos Nigeria. NIOMR Tech Pub. No. 98. 14p

Folorunsho, R., and Awosika, L. (1997) GIS Mapping of inundation areas due to sea level rise scenario along the Nigerian coastal zone using GIS. In Proc. LOICZ 3rd Open Science Meeting The Netherlands 10-13 Oct 1997.

Folorunsho, R., (1997): Implications of Meteorological forcing on Flooding and erosion Control Measures Along the Nigerian Coastline. In Proc. Coastal Zone '97. Boston Massachusetts, July 1997. Pp 866 – 867.

Awosika, L. F. and Folorunsho, R. (1997). Assessment of Escravos River Estuary (Niger Delta): An example of Land-Ocean Interaction in west African Coastal Estuaries. In Proc. LOICZ 3rd Open Science Meeting. The Netherlands 10-13 Oct 1997.

Awosika, L.F. and Folorunsho, R. (1997): Geographic Information System: A necessary Computer Based Tool for the Development of Integrated Coastal Zone Management Plan in West Africa. In Proc. The Coastal Zone of West Africa: Problems and Management. Accra, Ghana.

Folorunsho, R. and Awosika, L. F. (1998): Impact of Flooding of Lagos Barrier Island and Need for Sustainable Planning Approach of the New Lekki Development Areas. In Working Paper Book, Land and Water Integrated Planning for a Sustainable Future. Portugal Pp.340-343.

Awosika, L.F. and Folorunsho Regina (1999) Coastal erosion and flooding induced by air-ocean interactions along the Nigerian coast: Implications for Integrated Coastal Zone Management. In Proc. National Climate Conference Lagos Nov 29-Dec 1, 1999

Awosika, L.F. and Folorunsho, R (1999): Harbour protecting structures along the Gulf of Guinea coast and resulting coastal hazards. In Proc. COPEDEC V Cape Town 19 – 23 April 1999.

Awosika, L.F. and Folorunsho Regina (1999) Coastal erosion and flooding induced by air-ocean interactions along the Nigerian coast: Implications for Integrated Coastal Zone Management. In Proc. National Climate Conference Lagos Nov 29-Dec 1, 1999.

Awosika L. F. Dublin-Green C.O., Folorunsho R., et al (2000). Study of main drainage channels of Victoria and Ikoyi Islands in Lagos Nigeria and their response to tidal and sea level changes. A report for the Coast and Small Island (CSI) Division UNESCO Paris. 108pgs.

Folorunsho R. Awosika, L. F. (2000: Implications of Accelerated Sea Level Rise (ASLR) for Nigeria: In Proc.SURVAS Expert Workshop on: “African Vulnerability & Adaptation to Impacts of Accelerated Sea Level Rise (ASLR). Middlesex University. Pp41-47.

Awosika L. F. Dublin-Green C.O., Folorunsho R., et al (2000). Study of main drainage channels of Victoria and Ikoyi Islands in Lagos Nigeria and their response to tidal and sea level changes. A report for the Coast and Small Island (CSI) Division UNESCO Paris. 108pp.

Awosika L. F., Folorunsho, R Dublin-Green C. O and Imevbore V.O (2001). Review of the coastal erosion at Awoye and Molume areas of Ondo State. A consultancy report for Chevron Nigerian Limited. 75pp.

Folorunsho R. (2001): Recent Modification of West African Coastal Ecosystems through societal Pressures. In Proc. Challenges of a Changing Earth. The Netherlands 2001.

Awosika, L. F., and Folorunsho, R (2004). Climate change and impact an the coastal environment of Nigeria. In Press: Sustainable Managem,ent of the Nigeria Environement. Ed M. F. A Ivbijaro. University of Ibadan.

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CONSULTANCIES

Awosika, . L. F., Dublin-Green, C. O. Adegbe, A. Folorunsho, R and Ibe, C.E. (1995). Review of Oceanographic parameters in and around Oil Prospecting Licence (OPL) 209 in offshore Nigeria. A Consultancy report for Environmental Resources Managers Limited 44p., January, 1995.

Awosika, L. F., Dublin-Green, C. O. Adegbe, A., Folorunsho, R and Ibe, C.E. (1995). Review of Oceanographic parameters in and around Oil Prospecting Licence (OPL) 210 in offshore Nigeria. A Consultancy report for Environmental Resources Managers Limited 40p., January, 1995.

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Awosika, L. F., Dublin-Green, C. O., Folorunsho, R., and Adegbe, A. (1995). Hydrographic and beach survey of the Victoria beach Lagos prior to the construction of the T-Groin along the Bar Beach Lagos(1995). A project for the Japan International Cooperative Agency (JICA).

Awosika L. F., Dublin-Green, Folorunsho, R . et al (2000b). Oceanographic data and information on the Commodore Channel Lagos. A consultancy report for Nigerian West Minster Dredging and Marine Limited.

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Dublin-Green, C. O., Awosika, L. F., Folorunsho, R., Adekanmbi, A., Adekoya, A., Unyimadu, J.P., Oyewo, E.O. (2001). Nigeria OPTS: Shallow Water Current Measurement. A report of field work conducted by NIOMR.

Awosika, L. F., Dublin-Green C. O, Folorunsho, R. Oyewo, E. O. (2001) Inventory of coastal and oceanographic parameters in and around the proposed Integrated Polymers Complex Project Lekki, Lagos. A consultancy report for Eurochem Technologies Corporation Pte Ltd. Singapore.

Awosika, L.F., Dublin-Green, C. O., Folorunsho, R., Adekambi, M. A and Adekoya E. A (2003) Formating the Next Generation (Tidal and Meteorological) Data for uploading into the Shell Petroleum Developing Corporation (SPDC) Metocean Database. Final Report for SPDC.

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Awosika, L.F., Dublin-Green, C. O., Folorunsho, R. (2005): Dynamics of the offshore/inshore areas of the Mahin mud in Ondo State: Implications of an alleged oil spill from Chevron Nigeria Limited (CNL) offshore facility and its impacts on the surrounding coastline communities. Report no 2 for Ondo State government.

SPECIAL PROFICIENCY

Versatility in the use of micro-computers for word processing, Lotus, Harvard Graphics, Electronic mail communication and Internet, analysis and evaluation of oceanographic data and information (e.g. Ocean-PC, GIS (Arc Info and Arc View, CARIS GIS). Experienced in deployment of buoys, current meters, surface drifters and other oceanographic equipment.

REFERENCES

1. Dr. B. Ezenwa
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Nigerian Institute for Oceanography and Marine Research
Victoria Island
Lagos
2. Professor O. Ojo
Head of Climatological Laboratory
University of Lagos
Akoka-Yaba, Lagos.

