About AfricaArray

AfricaArray is a long-term (20 years) initiative to promote, in the full spirit of NEPAD (New Partnership for Africa's Development), coupled training and research programs for building and maintaining a scientific workforce for Africa's natural resource sector.

The name "AfricaArray" refers to an array of training programs, an array of scientific observatories, scientists across the continent working on an array of projects, and above all, a vision that Africa will retain capacity in an array of scientific fields vital to the development of its natural resource sector.

Vision

Africa's natural resource sector (petroleum, minerals, and water, in particular) is a major driving force for economic development. Africa is a primary source of strategic and base metals for the world market and a significant portion of the world's petroleum production comes from Africa.

AfricaArray has been established to create a pool of highly trained African professionals to be employed across the continent, in industry, government and academia, to help manage and develop Africa's natural resource sector, and to assist in mitigating related natural hazards (e.g., mine seismicity, tectonic earthquakes, volcanoes, tsunamis).

AfricaArray's initial focus is in geophysics and is designed to:

- Obtain geophysical data, through a network of shared observatories, to study scientific targets of economic and societal importance, as well as fundamental geological processes shaping the African continent.
- Support: AfricaArray is a public-private partnership supporting capacity building for Africa’s natural resource sector.
- Advance education and research opportunities in the natural resource sector. The “AfricaArray” model of promoting capacity building through tightly coupled training and research activities will also be propagated to other science fields vital to the development of Africa's natural resources, and will include adding additional monitoring equipment to the scientific observatories.

Degree Programme

The geophysics training programme is based in the School of Geosciences (www.wits.ac.za/geosciences) at the University of the Witwatersrand (Wits), Johannesburg, South Africa. The university has an enrollment of 25,000 students and is one of Africa's top universities with a long and distinguished tradition of supporting quality education and research. Geophysics degrees are offered at the B.Sc. (honours; 4th year), M.Sc. and Ph.D. levels.

AfricaArray Science

The geophysics science theme for AfricaArray is "4D Imaging of the African Crust and Mantle". Within the African continent, there are many geological targets of economic, academic and societal importance ranging from extremely old (Archean) to recent (active volcanoes), from very large (sub-continental scale) to very small (faults within a basin or mine), from very deep (lower mantle) to very shallow (near-surface aquifers). AfricaArray scientists will investigate a wide range of targets spanning much of geologic time and many spatial scales using data from the AfricaArray scientific observatories, plus geophysical, geochemical, and geological data available from other sources. The scope of AfricaArray science will expand over time to include other themes relevant to the development of Africa's natural resource sector.

Organisation

AfricaArray has been established through a partnership of four founding organizations: The University of the Witwatersrand (Johannesburg, South Africa), the Council for Geoscience (Pretoria, South Africa), The Pennsylvania State University (University Park, PA, USA), and the Incorporated Research Institutions for Seismology (IRIS). The partnership base has rapidly expanded to include many other organizations.

Implementation

AfricaArray is being built on existing programs and expertise within the partner institutions and is being implemented in three phases. During Phase 1 (1/2005 – 12/2007), the educational program at the University of the Witwatersrand is being expanded and improved to provide B.Sc., M.Sc., and Ph.D. degree training in geophysics. Seismic stations are being built to form a network of shared scientific observatories, and data from the observatories are being used for student research projects.

During subsequent phases, training opportunities and the network of scientific observatories will be expanded, sustainable centers of excellence in geophysics will be established at other African universities, and a secondary school outreach program will be set up with a focus on natural hazards, mine safety, and career opportunities in the natural resource sector.

A public-private partnership supporting capacity building for Africa’s natural resource sector.

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