



A public-private partnership supporting geophysics training and research in Africa
<http://africaarray.psu.edu/>

4th Annual AfricaArray workshop - JUNE 17-18, 2008

School of Geosciences University of the Witwatersrand, Johannesburg, South Africa

MONDAY JUNE 16

5.00 pm Welcoming party - Venue to be confirmed

GLT Lecture Theatre, Geosciences Building, Wits

TUESDAY JUNE 17

08:00-08:45 REGISTRATION

08:45-08:50
5 min WELCOMING REMARKS
Paul Dirks (Univ. of Witwatersrand, SA)

08:50-09:05
15 min AFRICAARRAY STATUS REPORT - Review : development plan and network activities
Andy Nyblade (Penn State Univ., USA)

09:05-09:20
15 min AFRICAARRAY STATUS REPORT - Review : educational activities
Paul Dirks (Univ. of Witwatersrand, SA)

09:20-09:30
10 min AFRICAARRAY ORGANIZATIONAL STRUCTURE – update
Dirks and Nyblade

Theme: Tectonics and Structure of the African Plate

09:30-10:10
40 min KEYNOTE LECTURE: Kinematics of the African plates from the Early Neogene to the present day
Chris Hartnady

10:10 - 10:40
30 min **Tea break**

10:40 - 11:20
40 min KEYNOTE LECTURE: Fault growth and propagation during incipient continental rifting: Evidence from Aeromagnetic and SRTM data
Estella A. Atekwana (Oklahoma State University)

11:20 -11:40
20 min Crustal structure of southern Africa from the joint inversion of receiver functions and Rayleigh wave group velocities
Eldridge Kgaswane (Council for Geoscience, SA / Wits)

11:40 - 12:00
20 min TBA
Tarzan Kwadiba (Geological Survey of Botswana / Wits)

12:00 -12:20
20 min Upper mantle S velocity structure of southern Africa from inverting regional waveforms
Martin Brandt (Council for Geoscience, SA / Wits)

12:20- 2:00pm 100 min	Lunch break
2:00 - 2:20 pm 20 min	TBA Mark Hamilton (<i>School of Cosmic Physics - Dublin Institute for Advanced Studies, Ireland / Univ. of Witwatersrand, SA</i>)
2:20 - 2:40 pm 20 min	Rayleigh wave group velocity tomography for southern Africa Azangi Mangongolo (<i>Geological Survey, Namibia</i>)
2:40 - 3:00 pm 20 min	Rayleigh wave phase velocity tomography of the Kalahari Craton Aubrey Adams (Penn State)
3:00 - 3:20 pm 20 min	Upper mantle structure under southern Africa from S receiver functions Samantha Hansen (Penn State)
3:20-4:00 pm 40 min	Tea break
4:00-4:20 pm 20 min	Heat flow in the Western Rift, Uganda constrained by the depth extent of seismicity Fred Tugume (Geol. Survey of Uganda – Penn State University)
4:20-4:40 pm 20 min	Results of Seismic Refraction survey across Ngami Lake James King (<i>University of Botswana</i>)
4:40-5:00 pm 20 min	Cross-well electromagnetic tomography data inverting Joao Baptista (<i>ANU, Angola/ Wits</i>)
5:00-5:20 pm 20 min	TBA Binyam Beyene (<i>Addis Ababa Univ., Ethiopia</i>)
5:20-6:00 pm	Break
6.00-8.00 pm	POSTERS and RECEPTION (food and drinks provided)

Posters include:

TBD

GLT Lecture Theatre, Wits

WEDNESDAY JUNE 18**Theme: African Seismicity**

08:30 -09:10 40 min	KEYNOTE LECTURE: Current multidisciplinary research projects on volcano and earthquake monitoring in Afar, Ethiopia Atalay Ayele (<i>Geophysical Observatory, Addis Ababa University</i>)
09:10 - 09:30 20 min	Earthquake swarms in northern Tanzania: faulting or diking? Gabriel Daudi (<i>Univ. of Dar es Salaam, Tanzania / Penn State University</i>)
09:50-10:10 20 min	Source mechanisms of mine-related seismicity, Savuka Mine, South Africa Jordi Julia (Penn State)

09:50-10:30 40 min	Tea break
10:30-10:50 20 min	Seismicity in Angola and the Angola Seismic Network Jose-Maria Wanassi (ANU, Angola/ Wits)
10:50-11:10 20 min	Deterministic seismic ground motion modelling of the greater Accra Metropolitan Area, Southeastern Ghana Paulina Amponsah (Ghana Geological Survey)
11:10-11:30 20 min	TBA Maishree Sing (Council for Geoscience, SA / Wits)
11:30-11:50 20 min	Aftershocks/geohazards Thabang Kgarume (CSIR/Wits)
11:50-12:10 20 min	The impact of the Mw = 6.8 earthquake Lake Tanganyika earthquake, December 2005" Richard Ferdinand (U. Dar. Tanzania)
12:10-12:30 20 min	Seismicity in Sudan and the Sudan Seismic Network Nada El Tahir (Sudan Seismic Network)
12:30- 2:00 pm 90 min	Lunch break

Theme: Linked AFRICAARRAY & AFREF Presentations



2:00-2:40 pm 40 min	KEYNOTE LECTURE: Geodetic constraints on rifting processes in East Africa Eric Calais
2:40-3:00 pm 20 min	Deformation of Torfajokull caldera, Iceland Stephanie Scheiber (Univ. of Witwatersrand, SA)
3:00-3:20 pm 20 min	TBA Georges Mavonga (Centre de Recherche en Sciences Naturelle, DRC / Wits) Rui
3:20-4:00 pm 40 min	Tea break
4:00-4:20 pm 20 min	The IGS and its contribution to GNSS in Africa. Ruth Neilan (Director of IGS)
4:20 - 4:40 pm 20 min	A first computation of fiducial stations for AFREF Rui Frenandes
4:40 – 5:00 pm 20 min	Results from the South African Trignet Rocco Malservisi (Ludwig-Maximilians University)
5:00- 5:30 pm 30 min	AFRICAARRAY BUSINESS MEETING – PARTNER REPORTS : review of where we are headed, challenges for the future etc. Paul Dirks and Andy Nyblade

AFREF Related activities

GEOPHYSICS Honours Room, Wits

WEDNESDAY JUNE 18; AFREF

9:00 – 12:30 Steering Committee meeting

GEOPHYSICS Honours Room, Wits

THURSDAY JUNE 19 AA-AFREF

Combined AFREF-AfricaArray meeting

Preliminary Agenda

08:00-08:30 REGISTRATION

08:30-08:35 WELCOMING REMARKS
5 min **Paul Dirks**

08:35-08:50 Brief outline of the purpose of the combined meeting
15 min **Andy Nyblade/Richard Wonnacott**

08:50-10:00 Brief overview of AFREF, METEO, IHY and AfricaArray networks

- back ground information to each network
- type of GPS data collected/required by each network

10:00 - 10:30 **Tea break**
30 min

10:30 - 12:30 **Models for Co-Location of Instrumentation**

Purpose: define the physical parameters for an "acceptable" station for joint use

- a. Recognition of the Benefits and Limitations of co-locating instrumentation
- b. Sites specifications
 - i. Physical location (including Specific requirements for physical situating of GPS receivers and antennae)
 - ii. Instrumentation
 - ii. Power requirements
 - iii. Data streams and sample rates
 - iv. Power requirements
 - v. Communications requirements
 - vi. Other
- c. Discussion

12:30- 1:30 pm **Lunch break** (*discussion can continue during lunch as people split in smaller interest groups*)
60 min

1:30-3:00 **II. Specific Issues Regarding GPS-based Instrumentation**

- d. Discussion of the unique nature of GPS-based monitoring of the Earth and Environment

- i. Receiver networks for Geodetic Reference Frames
- ii. GPS sounding of the Ionosphere
- iii. GPS-based observations of Atmospheric Water Vapor Content
- iv. Solid Earth research topics that make use of GPS

- e. Viability or necessity of harmonizing data policies across applications
 - iii. Data requirements for each application
 - iv. Typical data file structure and contents
 - v. Sampling rate requirements

- f. Feasibility of adopting common approaches that may serve all applications

3:00 - 3:30 **Tea break**
30 min

3:30-4:30 **Models for network co-ordination, data archiving and data distribution**

Purpose: define a common data policy

- g. Data archiving and distribution parameters
 - i. data formats
 - ii. archiving facility
 - iii. data release policy (immediately open vs. restricted access for some time etc)
 - iv. data distribution
 - v. other things??

h. Discussion

4:30-5:30 **IV Coordination Mechanisms and Organizations required to achieve common goals**

i. Discussion

GEOPHYSICS Honours Room, Wits **FRIDAY JUNE 20 AFREF**

9:00 – 12:30 Follow-up meeting

WORKSHOP(S)

GEOLOGY Honours Room, Wits **THURSDAY JUNE 19 – Saturday JUNE 21**

9:00-5:00 daily Tsunami workshop
Emile Okal (Northwestern University, USA)

Topics to be covered include:

1. Tsunamis: Generalia;
2. Earthquakes: Generalia;
3. Earthquakes: Detection, Location, Focal mechanisms
4. Measuring Earthquake Size; challenges
5. Earthquake Scaling Laws
6. Earthquakes as Tsunami Generators
7. Landslides as Tsunami Generators
8. Numerical Simulations; Principles and Products
9. Tsunami Surveys: Goals, Methods, Results
10. Past Tsunamis, 1700-2007: Scientific Milestones
11. Sumatra 2004: Lessons
12. Tsunami Warning: Algorithms and Modern Improvements
13. The Indian Ocean: Evaluating Future Scenarios