

UNIVERSITY OF NAIROBI
COLLEGE OF BIOLOGICAL AND PHYSICAL SCIENCES
SCHOOL OF PHYSICAL SCIENCES
GEOLOGY DEPARTMENT
ANNUAL REPORT 2013

Contents

INTRODUCTION	2
PROGRAMMES OFFERED	3
STUDENTS IN UNDERGRADUATE AND POSTGRADUATE PROGRAMMES	3
International Student Component	4
Postgraduate – MSc. Geology	4
RESEARCH ACTIVITIES UNDERTAKEN	5
INTERNATIONAL LINKS AND COLLABORATIONS	6
PUBLICATIONS	7
CONSULTANCIES	9
NUMBER OF STAFF AND THEIR DESIGNATIONS	9
Academic	9
Non-academic	9

1. DEPARTMENT OF GEOLOGY

INTRODUCTION

The Department of Geology is one of the oldest in the Faculty of Science and was started in 1956 when the University of Nairobi was the Royal Technical College of East Africa. Initially located in the Gandhi Wing of the Main Campus, the Department later shifted to Chiromo Campus in 1975 together with the other Physical Science Departments, Physics, Chemistry, Mathematics, Meteorology and the Institute of Computer Science.

Geology Department trains personnel in the following major disciplines; mineralogy and petrology (study of minerals & rocks), exploration geochemistry, exploration geophysics, engineering geology, marine geology, environmental geology, structural geology, photogeology and remote sensing, stratigraphy, historical geology, palaeontology (study of fossils), economic geology, petroleum geology, hydrogeology and seismology (study of earthquakes) and in the recent disciplines of medical geology and agrogeology. The Department also offers service courses to the Faculties of Engineering; Architecture, Design and Development (A.D.D) as well as to Agriculture and Veterinary Medicine. The entire student population of the University of Nairobi who study some aspects of Geology are therefore estimated to be about 1000 or more. Under the present day 4 year B.Sc. degree course offered to the 8:4:4 students. The undergraduate students in Geology combine it with two other subjects selected from Physics, Chemistry, Meteorology, Mathematics, Geography and Botany and Zoology during their 1st and 2nd years of study. The students however, later specialize only in Geology during their 3rd and 4th years.

PROGRAMMES OFFERED

1. Bachelor of Science (Geology)
2. Bachelor of Science (Environmental Geoscience)
3. MSc –Geology (Mineralogy & Petrology)
4. MSc. Geology – (Mineral and Geothermal Resources)
5. MSc. Geology (Environmental Geology and Management)
6. MSc. Geology (Engineering Geology)
7. MSc. Geology (Hydrogeology & Groundwater Resource Management)
8. MSc. Geology (Petroleum Geology)
9. MSc. Geology (Marine Geology & Resources)
10. MSc. Geology (Applied Geochemistry)
11. MSc. Geology (Applied Geophysics)
12. MSc. Geology (Seismology)
13. MSc. Geology (Palynology and Micropalaeontology)
14. MSc. Geology (Mineral Exploration)
15. Postgraduate Diploma in Environmental and Natural Disaster Management
16. PhD

STUDENTS IN UNDERGRADUATE AND POSTGRADUATE PROGRAMMES

	Total No. of Students		Module 1		Module 2	
	Male	Female	Male	Female	Male	Female
BSc. Geology						
1 st Year	40	13	34	11	6	2
2 nd Year	21	12	20	9	1	2
3 rd Year	21	12	31	11	1	0
4 th Year	26	10	24	10	2	0
MSc. Geology						
Year 1	4	4				
Year 2	10	4				
Ph.D	3	3				

International Student Component

B.Sc. Geology

Sn.	Reg. No.	Name	Nationality
1.	I13/29906/2009	Ket James Madutwal	South Sudan
2.	I13/29805/2009	Wantlo Nggie	Botswana
3.	I13/40244/2011	Deng Jacob Jok	South Sudan
4.	I13/57051/2012	Abednego Manyiel Maker	South Sudan
5.	I13/52542/2012	Athian Dee Santos	South Sudan
6.	I13/35344/2013	Akei Maketh Ding	South Sudan
7.	I13/34388/2013	Deng Isaiah Ajang	South Sudan
8.	I13/35445/2013	Deng Veronica Chier Chuor	South Sudan
9.	I13/36603/2013	thuch Thuch Garang	South Sudan

Postgraduate – MSc. Geology

Sn.	Reg. No.	Name	Nationality
1.	I56/69084/2011	Duo Lawrence Bholai	Liberia
2.	I56/70141/2011	Nkya Abraham Tumsifu	Tanzania

RESEARCH ACTIVITIES UNDERTAKEN

1. Equatorial Africa Atmospheric Deposition Network (EADN): From April 2010 – March 2014 Headed by: Prof. E. Odada.
2. Mapping the Health Impacts of Geogenic Heavy Metal Pollution in Kilifi District: Policy Regulation and Remediation: 2012 – 2014. Dr. L. Olaka
3. January 2012 to January 2013. TECLEA – Testing Biodiversity Responses to Climate and Land-use Changes Across East African Highlands – Prof. D.O. Olago
4. December 2010 to December 2014. Building Climate Change Adaptation Capacity at African Universities:A Proposal to Establish The Climate Adaptation Research Institute (CARI) at the University of Nairobi - Prof. D. O. Olago
5. CTBTO PROJECT PERIOD COVERED: 2002- Ongoing: Monitoring of nuclear explosions and seismicity using the CTBTO stations PS24 and IS32 – Prof. N.O. Akech
6. IAEA PROJECT CODE: RAF 8048 - PERIOD COVERED: 2009-2013 : Building Capacity in Support of Regional and Sub Regional Water Resources Planning, Development and Management in Africa – Prof. N.O. Akech
7. PERIOD COVERED: 2013-2017 - Integrating isotope hydrology into water resources assessment for the upcoming Lamu Port Infrastructure in the Lower Tana River catchment (Lamu and Tana delta); Kenya – Prof. N.O. Akech
8. Hominin sites and Paleolakes Drilling Project (H.S.P.D.P) – June 2013 – Prof. Olago

INTERNATIONAL LINKS AND COLLABORATIONS

1. MOU between University of Nairobi and Chinese Earthquake Administration
2. MOU between University of Nairobi and Norwegian Petroleum Academy
3. MOU between University of Nairobi and Schlumberger Oilfield Services Limited
4. Memorandum of understanding for Collaboration on "Mount Kenya Lakes Project" between University of Nairobi, Kenya Wildlife Service, and University of Ghent, Belgium.
5. MOU between Arcetormettal Ltd, Liberia and the University of Nairobi
6. MOU between Akita University, Japan and the department of Geology, University of Nairobi.
7. MOU between the National Oil of Kenya and the Department of Geology

PUBLICATIONS

1. **Mulwa JK**, Mariita NO. "A comparative analysis of gravity and micro-seismic results from Arus-Bogoria geothermal prospect, Kenya." *Scholarly Journal of Scientific Research and Essay (SJSRE)*, ISSN 2315-6163. 2013; 2(6):77-84.
2. Paolo, P., **Olago, D.**, & Omuto, C.T. (2013). *Kenya: A Natural Outlook, Geo-Environmental Resources and Hazards*. In Shroder Jr, J.O. United Kingdom: Elsevier.
3. Mwega BW, Mati B, **Mulwa JK**, GM K. "Identification of groundwater potential zones using remote sensing and GIS in Lake Chala watershed, Kenya." In: Mechanical Engineering Annual Conference on sustainable research and innovation. Jomo Kenyatta University of Agriculture and Technology, Thika, Kenya; 2013.
4. **Aketch, O., & Omumbo, C. A.**(2013).General Geology of Kenya. In Shroder Jr, J.O,*Kenya: A Natural Outlook, Geo-Environmental Resources and Hazards* (pp.3-8).United Kingdom: Elsevier.
5. **Mulwa JK**, Mwega BW, Kiura MK. "Hydro-geochemical analysis and evaluation of water quality in Lake Chala catchment area, Kenya." *Global Advanced Research Journal of Physical and Applied Sciences*. 2013; 2(1):001-007.
6. **Olago, D., & Aketch, O.** (2013).Mineral oil and Gas Resources.In Shroder Jr, J.O,*Kenya: A Natural Outlook, Geo-Environmental Resources and Hazards*(pp. 11-22). United Kingdom:Elsevier
7. **Gichaba. C. M.**(2013).Relief, Physiography and Drainage.In Shroder Jr, J.O,*Kenya: A Natural Outlook, Geo-Environmental Resources and Hazards* (pp.23-30). United Kingdom: Elsevier.
8. Mark SR, Kelly MR, Gheorghe C, Raymond M, Nikolay A, Sansanee C, Navy H, Karen KA, **Odada EO**, Oscar P, Geoffrey P, Sergei R. "Science and Management of Trans boundary Lakes: Lessons Learned from the Global Environment Facility Program.". 2013.

9. **Kuria, Z** (2013). Ground Water Distribution and Aquifer Characteristics in Kenya. In Shroder Jr, J.O, *Kenya: A Natural Outlook, Geo-Environmental Resources and Hazards* (pp.83 - 107). United Kingdom: Elsevier.
10. **Omuombo, C.A., Olago, D., & Odada, E.O.** (2013). Coastal Waters. In Shroder Jr, J.O, *Kenya: A Natural Outlook, Geo-Environmental Resources and Hazards* (pp.109 - 112). United Kingdom: Elsevier.
11. **Nyamai, C.M** in Feyerol J., Giuliani G., Ohrestetter D., Malisa E., Le Goff E., Pardien V., **Ichang'i D.**, Simonet C., Omoto E., Saul M. et al (2003). Worldwide Deposits: New Aspects and perspectives on Tsavorite Deposits. *Ore Geology Reviews* 53 pp 1-25.
12. **Odada, E.O & Cherlet, M.** (2013). Impacts on Climate Variability and Change
13. **Odada, E.O** (2013). Our Freshwater Under Threat-Vulnerability of Water Resources to Environmental Change in Africa.
14. Verschuren D, **Olago DO**, Rucina SM, Odhengo PO. "DeepCHALLA: Two Glacial Cycles of Climate and Ecosystem Dynamics from Equatorial East Africa." . 2013.
15. **Mulwa JK**, Kimata F, Duong NA. "Seismic hazards in Kenya." In: *Developments in Earth Surface Processes*. Amsterdam: Elsevier B.V.; 2013.
16. **Omuombo C, Olago D**, Rucina S, Williamson D. Late Holocene variations from Lake Rutundu, mount Kenya. Goa, India: PAGES; 2013.
17. **Kanoti JR**. Investigation of Ground Water dynamics in the Lake Victoria Basin using Hydrogeochemical and Isotope Hydrology. Nairobi - Kenya: University of Nairobi; 2013.

CONSULTANCIES

1. GIA – Consultancy Training Seminar on Gemology
2. SEUCO – Consultancy Laboratory sessions with students
3. Moi university - Consultancy Laboratory sessions with students
4. UNES- Lab Fee
5. Lake Basin Action Network (LBAN) - Training facilities (GIS Lab) and lab fee

NUMBER OF STAFF AND THEIR DESIGNATIONS

Academic

1. Professor	-	2
2. Associate Professors	-	4
3. Senior Lecturers	-	5
4. Lecturers	-	4
5. Assistant Lecturer	-	1
6. Tutorial Fellows	-	3
7. Graduate Assistants	-	2

Non-academic

1. Chief Technologist	-	1
2. Senior Technologist	-	5
3. Technologist ABC	-	3
4. Technical Assistant IV	-	3