



## **CURRICULUM VITAE (CV) – PROF. NORBERT OPIYO AKECH (FGSK)**

---

**Born - 8th April 1954**

**PRESENT ADDRESS:** Dept of Geology, University of Nairobi  
Mobile: 0722768535  
E-mail: opiyo-akech@uonbi.ac.ke

### **Key Qualifications:**

I hold a Ph.D. degree from the University of Leicester in Geochemistry (1988). I have since then been engaged in teaching, and research at the Department of Geology, University of Nairobi.

I have been Dean, Faculty of Science and Dean, School of Physical Sciences, University of Nairobi (2003-2007). I have since 2007 represented Africa in the technical working group (WGB) of the International Monitoring Stations for the Comprehensive Nuclear Test-Ban Treaty Organization (CTBTO). In this capacity I am the Task leader for National Data Centers (NDCs) worldwide.

I am also currently the Chairman of the Board of Governors (BOG) for Ramogi Institute of Advanced Technology (RIAT), a tertiary college under the Ministry of Higher and Technical Education.

I have also been the Manager of International Monitoring Stations for the Comprehensive Nuclear Test-Ban Treaty Organization (CTBTO) Stations in Kenya. I have also managed several other projects including being the Editor-In-Chief of the African Journal of Science and Technology (AJST).

I have been actively engaged with the oil exploration industry and mining industry, having carried-out environmental assessments and audits for several companies and organizations.

I have worked with the international organizations and was country representative Regional Integrated Information and Monitoring for Community-Based Environmental Coastal Management (LOICZ-Project). We developed remote sensing, Geographic Information Systems (GIS) databases. I was also a member of a UNEP/UNIPAC team charged with the task of looking at the effects of climate change at the coastal zone. He was charged with the task of quantifying the effects in both the groundwater systems and surface water. I was also the head of the task team on the UNEP/HABITAT sponsored Nairobi waters project, that was looking at the major pollutants into the Nairobi rivers.

## **UNIVERSITY ADMINISTRATION**

### **(2003- 2007) Dean, Faculty of Science**

During this period I was responsible for Academic Programs in the Faculty. To this end we worked very closely with CEES to develop new Science based Bachelor of Education (Science) and Bachelor of Science by distance learning. These programmes were successfully launched during my tenure and are ongoing.

During this period I represented the University in several task forces as chairman and in other capacities. During this period I was a member of the University Senate and chaired the Senate Research Grants Committee.

I was a member of the College Management Board and Chairman of the Faculty Boards and a member of all other Statutory Boards in the college. I actively participated in its deliberations representing the Faculty and steered development of the Faculty. These included student welfare and examinations. The post-graduate degree programmes were streamlined,

from which I chaired a large number of MSc and PhD thesis defences. I have also acted as the Principal of the College and before becoming the dean of the faculty I had in many occasions acted as the chairman of the department of Geology.

### **Other Administrative Duties.**

#### **(2001 – ongoing) CTBTO - Project Manager**

Monitoring of Nuclear Activities in the region (2001-Present) Project. This is a project that monitors seismic activities throughout the region and the rest of the world. I am currently the Team leader for all issues related to National Data centres.

#### **Steering Committee on Science and Industrial Parks. –**

This is a Kenya Government Initiative on the formation of Science and Industrial Parks. This is a project under the UNESCO country to country bilateral arrangements. Our task is to bring together all the stake holders in research and industry.

#### **Joint project with the University of Cape Town;**

This was a joint project involving student training. From this project Dr. Simon. Onywere (UoN) was trained on Development of Geographical Information Systems (GIS) technology and database for the Eastern and Southern Africa for Geologic information and applied it on his project around Lake Naivasha, and Dr. Spath (UCT) got his PhD on the study of the Geochemistry of the Chyulu hills.

#### **Formulation of Project RAF/8/048 for Africa**

Wrote concept note and was invited to Vienna to write the project proposal on Building Capacity in Support of Regional and sub-Regional Water Resources Planning Development and Management in Africa (AFRA).

## **EDUCATION AND QUALIFICATIONS**

### **University Education**

- 1984 -1988:** Ph.D - Geochemistry (University of Leicester, UK).
- 1978 -1981:** MSc. - Field Geology (University of Nairobi). Courses taken at Colorado School of Mines, USA as part of the MSc. Programme.
- 1975 - 1978:** BSc. - Geology (University of Nairobi)

### **Tertiary and Primary Education**

- 1969 - 1974:** Lenana School. - Cambridge School Certificates (Ordinary and Advanced levels)
- 1962 - 1968:** Kibuye Boys School. - Certificate of Primary Education (C.P.E)

### **Other Post-graduate Courses Attended**

- Jan-Oct, 1980** - Colorado School of Mines, Golden, Colorado, U.S.A. Advanced courses in Field Techniques, Analytical techniques, Petrology, Photogeology and Remote Sensing.
- March, 1982** - Regional Centre for Services in Surveying, Mapping and Remote Sensing, Nairobi. (RCSSMRS) 3 weeks workshop on Remote sensing for geological application.
- April, 1983** - Siversprings Hotel, Nairobi, Kenya (Sponsored by UNESCO), 2 Weeks workshop on Rocks as building materials.
- April, 1985** - University of Leeds, England. 3 week Workshop on Isotope geology and rock dating techniques.

- Sept., 1986** - University of Edinburgh, Scotland.  
3 week Workshop on Field technique on working with high grade rocks.
- Dec. '92-Feb. 93** - Council for Geosciences, Pretoria, South Africa. Advanced courses in Analytical techniques. (XRF, XRD, Microprobe)

## **OCCUPATION AND RESPONSIBILITIES**

**October, 1978:** Selected and joined the University of Nairobi on the Staff Development programme and a DAAD (German Academic) scholarship.

**1981-1983: Research assistant**

Assisting in Laboratory practicals and field courses.

**1983-1988: Tutorial Fellow**

(Ph.D. student at Leicester): Assisting in Laboratory practicals.

**1989-1995: Lecturer** Teaching and research (undergraduate and post-graduate). (Earth processes, Field geology, Igneous petrology, Geology and the Environment, Photogeology and Remote Sensing)

Supervision of post-graduate students

**1995-2001: Senior Lecturer** Teaching and research (undergraduate and post graduate)

(Earth processes, Field geology, Igneous petrology, Environmental geology, Photogeology and Remote Sensing), Supervision of post-graduate students

**2001 to present: Associate professor**

Teaching and research (undergraduate and post graduate) (Earth processes, Field geology, Igneous petrology, Environmental geology, Photogeology and Remote Sensing) Supervision of post-graduate students

## RESEARCH ACTIVITIES

- 1) **Project Leader:** - A look at the petrology, geochemistry and petrogenesis of the Archaean greenstone belt of western Kenya (1992 to present).

*Sponsored by the Deans Committee grant, University of Nairobi.*

*Refereed papers produced.*

- 2) **Co-Project Leader:** - Development of Geographical Information Systems (GIS) technology and database for the Eastern and Southern Africa for Geologic information. A **joint** project with Prof. M de Wit of the University of Cape Town (1993 to present) (*Joint project involving student training*). 1 Ph.D thesis (Dr. S. Onywere) and papers published and some submitted to refereed Journals.

*Financial assistance from USHEPIA funding.*

- 3) **Project Leader:** - A study on the Emplacement and genesis of the mafic and ultramafic intrusive bodies within the Mozambique rocks of Kenya (1994 to present).

*(IGCP 254 project) - 1 Ph.D thesis (Dr. C. Nyamai) and*

*papers published from project. More papers in preparation.*

- 4) **Team Leader** - Geological and soils study Group (July - Dec., 1993) - Bura Irrigation Project. A Kenya government project to evaluate the Tana river waters for irrigation of the Bura flatlands.

- 5) A study of volcanism in the Chyulu hills, South Eastern Kenya: A **joint** project with Prof. Anton le Reoux, University of Cape Town (1994 to present).

*PhD thesis (Dr. A. Spath) and papers pulished to refereed Journals.*

- 6) **Team Member:** - The effects of climate change on the environment. A Kenya country study (UNEP/IGBP Kenyan Task team 1993-1994). Involved on the effects of sea level rise at the land/ocean interaction. (*UNDP sponsored project*)
- 7) **Team Member:** - Study on sea level rise and its effects on the Hotel industry and tourism (1994-1995). (*OCA/PAC project*): *Report submitted to UNEP.*
- 8) **Team Leader** - Geological and soils study Group (August - Dec., 1994) - Research Group for the Study of African Indigeneous Cultural and Religious Forests -  
*Principal Investigator - Prof. T. R. Odhiambo.*  
*Study sponsored by EARTHWATCH. Findings published in a book.*
- 9) **Project Leader:** - Pollution Assessment and Monitoring in Nairobi River Basin (1999 to present): Assessment of pollutant sources, pathways and loads in the Nairobi River  
*Project sponsored by Africa Water Network (AWN), UNEP, HABITAT*

## **UNDERGRADUATE RESEARCH PROJECTS:**

Supervised many undergraduate projects and field reports

### ***M.Sc. Students & Research Projects***

Supervised 8 MSc Projects and theses.

### ***Ph. D. Students Successfully Supervised to Completion:***

Successfully supervised 3 PhD graduates

1. Dr. Simon Onywere
2. Dr. Christopher Nyamai
3. Andreas Spath (Co-supervised with Prof Anto le Reuax from Cape Town).

## **Other Professionally related Activities and consultancies:**

- 1) Exploration for Gold in western Kenya, Pokot and Turkana districts on behalf of SEBIMU mining company.
- 2) Geotechnical work for Kengen on the Karura dam project.
- 3) Environmental Audit for diatomite mining and processing in Kariandusi and Soysambu areas, Kenya. Carried out for Diatomite Industries Ltd (ADIL). The work involved carrying out an Environmental Impact Assessment and licence acquisition from NEMA.
- 4) Environmental Impact Assessment and Audit for Athi River Mining Company countrywide. Earthview Geoconsultants Ltd. has concluded a countrywide environmental impact assessment/environmental audit for Athi River Mining Company Ltd. The work involved carrying out an Environmental Impact Assessment and licence acquisition from NEMA.
- 5) Environmental Impact Assessment and Audit for Kenya Flourspar Mining Company. Earthview Geoconsultants Ltd. is in the final stages of concluding the environmental impact assessment and environmental audit for Kenya Flourspar Mining Company Ltd.
- 6) Environmental Impact Assessment and Hydrogeological studies for CNOOC Ltd for Seismic Exploration Oil Prospect Block 9 in the North Eastern Province, Kenya. The work involved carrying out an Environmental Impact Assessment and a Hydrogeological survey for borehole citing and licence acquisition from NEMA and Ministry of Water respectively.
- 7) Environmental Impact Assessment for Central African Exploration and Mining Company (CAMEC) Proposed Oil Exploration in Turkana District. The work involved carrying out an Environmental Impact Assessment and a Hydrogeological survey for borehole citing and licence acquisition from NEMA and Ministry of Water respectively.
- 8) Environmental Impact Assessment for Turkana Drilling Consortium. Proposed Oil Exploration in Turkana District. The work involved carrying out an Environmental Impact Assessment and a Hydrogeological survey for borehole citing and licence acquisition from NEMA and Ministry of Water respectively.



- 9) Environmental Impact Assessment for Lundin BV. Proposed Oil Exploration in Proposed Oil and Gas Exploration in Block 10A, North Horr and Marsabit District. The work involved carrying out an Environmental Impact Assessment and licence acquisition from NEMA.
- 10) Environmental Impact Assessment for SOHI Gas. Proposed Gas and Oil Exploration in Onshore and offshore – Lamu Embayment, Blocks L4 and L13. The work involved carrying out an Environmental Impact Assessment and licence acquisition from NEMA.
- 11) Environmental Impact Assessment for CNOOC Africa Ltd. The work involved carrying out an Environmental Impact Assessment on the potential of Test Drilling for Oil in Isiolo District and licence acquisition from NEMA.
- 12) Environmental Impact Assessment for Gippsland Offshore Petroleum Limited. Proposed Gas and Oil Exploration in Onshore and, Blocks L6 and L15. The work involved carrying out an Environmental Impact Assessment and license acquisition from NEMA.
- 13) Environmental Impact Assessment for Vangold (VANOIL) Proposed Gas and Oil Exploration in Onshore. Blocks L3A and L3B in Northeastern Province. The work involves carrying out an Environmental Impact Assessment and licence acquisition from NEMA.
- 14) Several Environmental Impact Assessment for Tullow Oil Kenya in their oil Blocks . Proposed Oil Exploration in Proposed Oil and Gas Exploration in Block Turkana, Pokot, Baringo and Marsabit counties. The work involved carrying out an Environmental Impact Assessment and licence acquisition from NEMA.
- 15) Environmental Impact Assessment of the proposed Geological core samples retrieval and borehole drilling in Kajiado District.

**Othe activities;**

- 16) I have also jointly held Exclusive Prospecting Licence for SPL 175. Migori and Rachuonyo Counties.
- 17) I have also mining rights in Taita Taveta county.

## PROFESSIONAL ORGANIZATIONS AND RESPONSIBILITIES

- Fellow** - Fellow of Geological Society of Kenya  
**FGSK - (2011)**
- Member** - Geological Society of Kenya  
- Geological Society of Africa.  
- Kenya National Academy of Sciences
- Secretary** - Geological Society of Kenya, Organising  
Committee **1992-1996**
- Vice President** - Geological Society of Africa  
**(1995 - 2001).**
- Chairman** - Geological Society of Kenya  
**(1996 to 2003).**
- Vice-Chairman** - Vice-Chair, Geologists Registration Board  
**(1998 to 2003).**
- Country Representative** - Land Ocean Interaction at Coastal  
Zone (LOICZ) IGBP core project. **(1997 to 2003).**
- Regional Editor** - Journal of African Earth Sciences  
**(1993-1998)** The official Geological Society of  
Africa Journal  
***Published by Elsevier/Pergamon - ISSN 0899-5362***
- Associate Editor** - Journal of African Earth Sciences  
**(1998 - 2001)** The official Geological Society of  
Africa Journal
- Editor-in-Chief** - African Journal of Science and Technology  
**(1999 to present)** The official Journal UNESCO - ANSTI.

## **Other responsibilities**

- Warden** - Roger Hall (Hall 3).  
**(1993 to 1998)** University of Nairobi
- Acting Chairman** - Department of Geology,  
**(Aug.-Sept. 1995)** University of Nairobi
- Acting Chairman** - Department of Geology,  
**(Jan.- Feb. 1997)** University of Nairobi
- Acting Chairman** - Department of Geology,  
**(July, 1998)** University of Nairobi
- External Examiner** - Department of Geology,  
**(1993-1998)** University of Dar es Salaam, TANZANIA.
- External Examiner** - Department of Geology,  
**(2003-2005)** University of Makerere, UGANDA.
- Chairman (1997 - 2003)** - Faculty Publications and  
Brochures Committee. Faculty of Science, University of Nairobi
- Faculty Representative** - University Publications  
**(1998 to 2003)** Committee, University of Nairobi

## **Conferences and Meetings attended and Papers presented.**

- October, 1989:** Second conference on Archaean Cratonic rocks of Africa, Mbujimayi, Zaire. (IGCP project 273): Geochemical evidences for the Tectono-Magmatic Emplacement of the Kenyan greenstone belt.
- September 1990:** 15th Colloquium of African Geology. Nancy, France: Petrogenesis of the Archaean volcanics from the Maseno area of western Kenya.
- September, 1992:** LOICZ open day meeting (Kenya National Academy of Science): Implications of Sea Level Rise to the geological environments in some Areas of the Kenyan Coast.

- Aug.-Sept., 1992:** The 29th International Geological Congress, Kyoto, Japan: Geochemistry and Petrogenesis of the Archaean Granites from the north of lake Victoria of the greenstone terrain in western Kenya.
- February, 1993:** The 5th GSK conference in Nairobi: Petrogenetic Modelling of some Volcanics from the Maseno area of the Archaean greenstone terrane in western Kenya.
- September, 1993:** 16th International Colloquium of African Geology, Ezulwini, Swaziland: Tectono-Magmatic emplacement and Evolution of the Archaean greenstone Associations from western Kenya.
- April, 1995:** LOICZ open day meeting (Kenya National Academy of Science): Effects of man made coastal protection to the hotel industry at the Kenyan Coast.
- September 1996:** 17th Colloquium of African Geology. Harare, Zimbabwe: EARTH SCIENCE EDUCATION IN KENYA.
- August, 1997:** IGCP Conference, Antananarivo, Madagascar,. Geochemistry and Tectonomagmatic Affinities of the Mozambique Belt Intrusive Rocks in Matuu-Masinga Area, Central Kenya.
- September 1997:** LOICZ 3<sup>rd</sup> Open Science Meeting. (Noordwijkerhout, The Netherlands): LOICZ related activities in Kenya and the way forward.
- July, 1998:** Pan-African Congress on Sustainable Integrated Coastal Management (PACSICOM) meeting (Maputo, Mozambique): Mining in Kenya; Environmental aspects of past mining activities

and expected increased mining activities at the Coastal parts of Kenya.

**Aug.-Sept. 1998:** Coastal Zone Canada 98', Victoria, British Colombia, Canada: Coastal Zone management in Kenya.

**June, 1999:** Geological Society of Africa: 11<sup>th</sup> International Conference, Cape Town, South Africa: Petrology, geochemistry and tectonic setting of the late Archaean greenstone belt igneous rocks from western Kenya.

**September, 1999:** The 6th GSK conference in Nairobi: Got Ramogi: A rare syenetic intrusion into the Archaean western Kenya greenstone belt.

**November 1999:** LOICZ 4<sup>th</sup> Open Science Meeting. (Bahia Blanca, Argentina): Towards Sustainable Management of Groundwater Aquifers: An environmental impact assessment of increased groundwater abstraction at the Kenyan Coast.

**May 2000** Geoluanda 2000: The greenstone associations in Western Kenya.

**June/July 2000** Colloquium on African Geology, Graz, Austria: Petrogenesis of the Archaean greenstone belt igneous rocks from western Kenya.

**August 2000** Afribasins workshop, UNEP, Nairobi, Kenya: HUMAN IMPACT ON GROUNDWATER QUALITY ALONG THE KENYAN COAST: A case study on an un-confined aquifer to the north of the coastal town of Malindi, Kilifi District, Kenya

## **Current Research Interests**

1. Clays and clay minerals in Africa: their geneses and paleoenvironmental considerations, mineralogy, geochemistry and applications. IGCP Project 545: Clays and Clay Minerals in Africa. This project is to run from 2007-2011.
2. A look at the petrology, geochemistry and petrogenesis of the Archaean greenstone belt of western Kenya.
3. Building Capacity in Support of Regional and sub-Regional Water Resources Planning Development and Management in Africa (AFRA) RAF/8/048
4. A study on the Tectonics, Emplacement and Genesis of the mafic and ultramafic intrusive bodies within the Mozambique rocks - A Joint Project with Prof. Wallbrecker, University of Graz, Austria.
5. Environmental Impact studies related to the oil industry and mining areas.

### **PUBLICATIONS**

- Opiyo-Akech (Jan, 1981) - Geology of the Ishiara area, Embu/Meru districts, Kenya. Unpublished M.Sc. Thesis, University of Nairobi. 117p
- Opiyo-Akech, N and Nyambok, I.O. (1984) - Precambrian Geology of the Ishiara area, Kenya. Journal of African Earth Sciences. Vol.2 No.1 pp34-38
- Opiyo-Akech, N (Dec. 1988) - Geology and Geochemistry of the late Archaean Greenstone Associations, Maseno area, Kenya. Unpublished Ph.D thesis, Leicester University, U.K., 146p
- Opiyo-Akech, N (Aug. 1990) - Geochemistry of the Archaean Greenstone Volcanics from the area around Maseno, western Kenya. Nairobi University Geological Magazine. Vol. 1 pp42-47
- Opiyo-Akech, N; Mathu, E.M and Mailu, G.M. (August, 1990) - Post-conference Excursion D Guide - Western Kenya and the Rift

- Valley, 30th August to 1st September, 1990. Regional Seismological Assembly in Africa, Nairobi, Kenya., 12p
- Opiyo-Akech, N (10/13 Sept. 1990) - Petrogenesis of the Archaean volcanics from the Maseno area of western Kenya. (Abstract) 15th Colloquium of African Geology. Nancy, France. p39.
- Opiyo-Akech, N (1991) - Geochemical evidences for the tectono-magmatic emplacement of the Kenyan greenstone belt rocks from the Maseno area, western Kenya. IGCP No. 273 Newsletter/Bulletin, 1, pp69-74.
- Opiyo-Akech, N (June, 1992) - Models for the formation of the origin of the Archaean greenstone metasediments from the area north of Maseno. Discovery and Innovation, Vol.4 No2 pp53-60.
- Opiyo-Akech, N (July, 1992) - Tectono-Magmatic emplacement of the Kenyan Granite Greenstones: Geochemical evidence from the Maseno area, western Kenya. African Journal of Science and Technology, Vol.6 No.2 pp27-33
- Opiyo-Akech, N (July, 1992) - Geochemical evidences for the Emplacement of the Archaean greenstone volcanics from the area around Maseno, western Kenya.: African Journal of Science and Technology, Vol.6 No.2 pp56-63
- Opiyo-Akech, N (Aug/Sept., 1992) - Geochemistry and Petrogenesis of the Archaean Granites from the north of lake Victoria of the greenstone terrain in western Kenya (Abstract). The 29th International Geological Congress, Kyoto, Japan.
- Opiyo-Akech, N (1993) - Petrogenetic Modelling of some Volcanics from the Maseno area of the Archaean greenstone terrane in western Kenya. Proceeding of the 5th conference on the Geology of Kenya, pp85-91.(Edited by N. Opiyo-Akech).

- Opiyo-Akech, N (14-16th Sept., 1993) Tectono-Magmatic emplacement and Evolution of the Archaean greenstone Associations from western Kenya (Extended Abstract). 16th International Colloquium of African Geology, Ezulwini, Swaziland) pp264-268.
- Opiyo-Akech, N (Member, UNEP/IGBP Kenyan Task team - 16 scientists), (1994). - Contributions to the report: Implications of Sea Level Rise in Some Areas of the Kenyan Coast.
- Opiyo-Akech N., Mutua, F. M and Thitai, W. N. (1995) - Hydrology and water resources: Implications for the Tourism Industry at the Kenya Coast: Chapter 3, of report to OCA/PAC on: Implications of the Expected Climate Change on some selected Low-lying Coastal parts of Kenya: A case study on tourism and hotel industry.
- Opiyo-Akech, 1997 Changes in Groundwater Resources due to Climate Change UNDP/GEF – Building Capacity in Sub-sahara Africa to Respond to UNFCCC
- Opiyo-Akech, N and J. O. Barongo (1999): Earth Science Education In Kenya: Journal of African Earth Sciences. Vol.28 No.4 pp795-803.
- Opiyo-Akech, N, J. Tarney and Hoshino, M (1999): Petrology and geochemistry of granites from the Archaean terrain north of Lake Victoria, Western Kenya: Journal of African Earth Sciences. Vol.29 No.2 pp283-300.
- Opiyo-Akech, N., Ndege, M. M., Okoth, P. and Omenge, J. (1999). - Geomorphology, Geology and water resources of the Got Ramogi area. In: Prof. T.R. Odhiambo (Editor): GOT RAMOGI SACRED FOREST: Principles of Forest Conservation and Utilization in Tropical Africa.



- Opiyo-Akech N., Olago D, Dindi E, Ndege M.M., and Njue F. (2000) - Investigation of the Impact of Salt and Sand Harvesting Activities on Timboni Wellfield, Gongoni, Malindi District: Journal of Environmental Geology. Vol. 40 (1/2) pp99-110.
- Opiyo-Akech N., Olago D, Dindi E, and Ndege M.M., (2002) – Human impact on groundwater quality along the Kenyan coast: A case study on an un-confined aquifer to the north of the coastal town of Malindi, Kilifi District, Kenya: African Basins, LOICZ Reports and Studies No. 25. pp181-193
- Anyamba E.K. and N. Opiyo-Akech (1995) - Climate Change and Sea Level Rise: Implications for the Tourism Industry at the Kenya Coast: Chapter 2, of report to OCA/PAC on: Implications of the Expected Climate Change on some selected Low-lying Coastal parts of Kenya: A case study on tourism and hotel industry.
- Nyamai C.M., N. Opiyo-Akech, S.J. Gaciri and H. Fujimaki (1999) - Geochemistry and Tectonomagmatic Affinities of the Mozambique Belt Intrusive Rocks in Matuu-Masinga Area, Central Kenya: Gondwana Research V.2 No.3 pp. 387-399.
- Nyamai, C.M., Gaciri, S.J., Opiyo-Akech, N., Johanson, B. and Sato, Y. 1999. Conditions of Pyroxene Crystallization and Thermo-Barometry of the Neoproterozoic Mozambique belt rocks of Matuu-Masinga area, central Kenya. The 8<sup>th</sup> Conference of the Geological Society of Kenya, Abst. Vol. p10
- Nyamai, C.M., Opiyo-Akech, N., Gaciri, S.J. and Fujimaki, H. 1999. Structures, Metamorphism and Geochronology of the Mozambique belt intrusive rocks from Matuu-Masinga area, central Kenya. The 8<sup>th</sup> Conference of the Geological Society of Kenya, Abst. Vol. p11.
- Nyamai, C.M., Opiyo-Akech, N., Gaciri, S.J. and Johanson, Bo . 1999. Mineral chemistry and thermobarometry of the Neoproterozoic Mozambique Belt intrusive rocks of the Matuu-Masinga area, central Kenya. Journal of African Earth Sciences, Vol. 28, No. 4A., 58-60.

- Nyamai, C.M., Opiyo-Akech, N., Gaciri, S.J. and Fujimaki, H. 1999. Geochemistry and Tectonomagmatic affinities of Mozambique Belt intrusive rocks in Matuu-Masinga area, central Kenya. *Gondwana Research*, Vol. 2, pp. 387-399.
- Nyamai C.M., N. Opiyo-Akech , S.J. Gaciri and H. Fujimaki (2000) - Structures, Metamorphism and Geochronology of the Mozambique Belt Metamorphic and Intrusive Rocks from Matuu-Masinga area, Central Kenya: *African Journal of Science and Technology, Science and Engineering series Vol.1 No.1 pp66-73*
- Onywere S. M., N. Opiyo-Aketch, S. J. Gaciri and M.J de Wit (2000) - A Methodology for Image Analysis and Land Cover Classification of Nakuru-Menengai Area (Central Rift Valley, Kenya) .: *African Journal of Science and Technology, Science and Engineering series Vol.1 No.1 pp18-27*
- Spath A., Anton P. le Roex and N. Opiyo-Akech, (2000) - The petrology of the Chyulu hills volcanic Province, Southern Kenya: *Journal of African Earth Sciences*, Vol. 31, No. 2., 34-92.
- Spath A., Anton P. le Roex and N. Opiyo-Akech (2001) - Plume-lithosphere Interaction and the Origin of Continental Rift-related Alkaline Volcanism - the Chyulu Hills Volcanic Province, Southern Kenya: *Journal of Petrology* Vol.42 No. 4 pp 765-787
- C.A. Hauzenberger, G. Hoinkes, A.H. Bauernhofer, E. Wallbrecher, H. Fritz, J. Loizenbauer, M. Thöni, E.M. Mathu, N. Opiyo-Akech (2001). PTt-evolution of Pan-African Granulites in SE-Kenya. *EUG 2001*.
- Hauzenberger, CA, Hoinkes, G, Bauernhofer, AH, Wallbrecher, E, Fritz, F , Thöni, M, Mathu, EM, & Opiyo-Akech, N (2000): Panafrican High Pressure Granulites, Taita Hill-Tsavo East National Park, Kenya. *18th Africa Kolloquium, Graz,J.African Earth Sciences*, 30, p. 37.

- Bauernhofer A, Hauzenberger CA, Wallbrecher E, Hoinkes, G, Fritz H, Loizenbauer J, Mathu EM, Opiyo-Akech N, & Muhongo S (2000): Strain estimations and kinematic aspects of major tectonostratigraphic units from the Mozambique belt of SE Kenya (Voi district) and NE Tanzania (Pare-Usambara Mountains). 18th Africa Kolloquium, Graz, Graz, J.African Earth Sciences, 30.
- Mulwa, J.K., Gaciri, S.J., Barongo, J.O., Opiyo-Akech,N. and Kianji, G.K. Geological and Structural Influence on Groundwater Distribution and Flow in Ngong Area, Kenya. African Journal of Science and Technology (AJST) Science and Engineering Series Vol. 6, No. 1, pp. 105 – 115
- A. H. Bauernhofer<sup>1</sup>, C. A. Hauzenberger<sup>1</sup>, E. Wallbrecher<sup>1</sup>, S. Muhongo<sup>2</sup>, G. Hoinkes<sup>1</sup>, A. Mogessie<sup>1</sup>, N. Opiyo-Akech<sup>3</sup> and V. Tenczer<sup>1</sup>(2008): Geochemistry of basement rocks from SE Kenya and NE Tanzania: indications for rifting and early Pan-African subduction. International Journal of Earth Sciences.