



# AMGC News

## Director General's Message



Capacity building in the form of short courses being the major activities of AMGC, promotion of the training list for the 2018/19 is one of the activities carried out during the month of August. For this year, we have made emphasis in the demand of the clients and some of the courses are redesigned to accommodate these demands. New training courses were also introduced. The Resource/Reserve Estimation

course which was introduced as component of the Development Minerals training programme attracted interest of several people attended the courses as well as other who heard about it. Therefore, we designed and introduced a new two weeks training course on "Mineral Exploration and Practical Resource Estimation".

Other new training courses introduced for this year was the short courses realized through new collaboration with an Egyptian Petroleum Consulting Company called EREX. These series of courses are organized at AMGC or/and Cairo with experts of EREX would come and conduct the training courses.

During the month of August, AMGC received various visitors including University of Dar es salaam delegation, College of Natural & Applied Sciences with a mission of lessons learning on setting up of modern laboratory and an independent consultant for a mission of mid-term evaluation of the PanAfGeo project.

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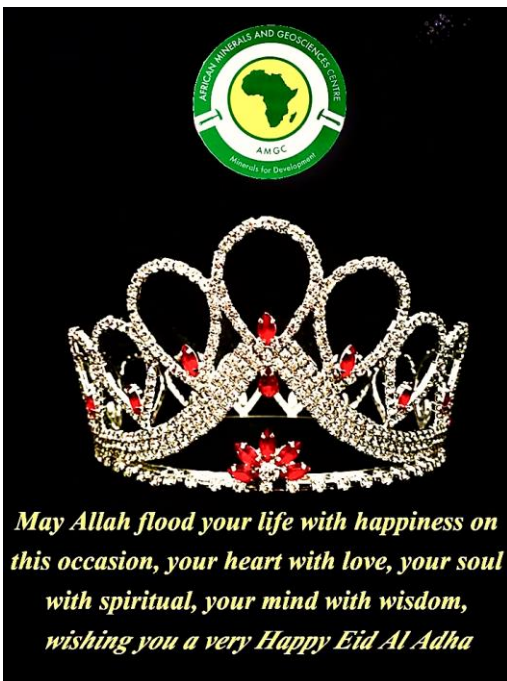


## Visit of Delegation of the College of Natural and Applied Sciences-UDSM at AMGC



Four members of the College of Natural and Applied Sciences (CoNAS) of the University of Dar es Salaam visited the Centre. The visitors were Dr Charles Messo of Geology Department, Dr. Lutufyo Mwamtobe of Chemistry Department, Dr. Godfrey Kimaro of Botany Department and Dr. Mohamed Mazunga of Physics Department. The purpose of the visit is experience sharing on the laboratory facilities AMGC has which could help CoNAS in its plan to establish a new central laboratory at the College

## A Visit from the Deputy Minister of Education, Zanzibar



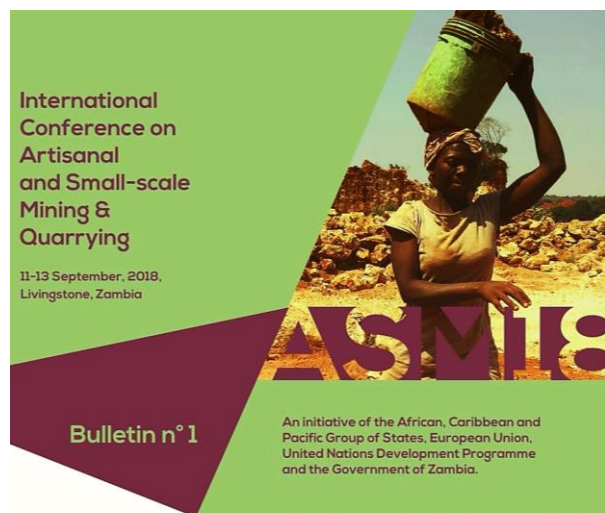
AMGC Director General Mr. Ibrahim Shaddad was honored by a visit from Hon. Mmanga Mjengo Mjawiri, the Deputy Minister of Education & Vocational Training of Zanzibar Government in Panorama Hotel, Pemba Island. The Hon. Deputy Minister was interested to know the activities of the AMGC in empowerment and building skills of women and youth in gems cutting and simple ceramic technology. The Hon. Deputy Minister expressed his appreciation for the suggestion by the Director General of AMGC for establishment of an Extractive Industry Department with emphasis on fossil fuel in the Zanzibar University. The Centre is looking forward for a formal visit by the Hon. Deputy Minister accompanied by top officials to AMGC premises at Kunduchi Beach area, Dar es Salaam.

## Training on Gemstones



**Certificate Ceremony of Mr. Francis Musau a self-employed from Kenya who has just finished a training in Gemstones value addition for two weeks at the African Minerals & Geosciences Centre (AMGC) in Dar es Salaam, Tanzania**

## AMGC Participation in ASM18



African Minerals and Geosciences Centre (AMGC) team, comprising of Mr. Ibrahim Shaddad, the Director General and Mr. Kamina Chororoka, Senior Geologist, will attend the International Conference on Artisanal and Small-scale Mining & Quarrying (ASM18) to be held in Livingstone, Zambia, 11-13 September 2018. During the event, the Director General of AMGC will contribute as a presenter among others at 16.00-17.30 in a session Day 1 /Session 4 Supporting Artisanal and Small-scale Mines and Quarries with Geological Services to discuss the ways in which government agencies, universities, mining associations, consulting companies and other institutions can support artisanal and small-scale miners and quarry companies with the provision of geological information, skills and advice. On the other hand, Mr. Kamina chororoka will be a panelist among others, in day 2 session 4 (16.00-

17.30 to discuss the Regional Approaches to ASM policy. ASM has major implications for regional policy across a wide range of areas, but the regulation occurs predominantly at the site and national level. Different representatives from national and regional institutions will try to address these challenges and advancing the opportunities of the sector to greater regional cooperation

## PanAfGeo Project Evaluation Mission

Dr. Georg Petersen from HYDROC Consult visited the Centre on 23<sup>rd</sup> August 2018 with a mission of evaluation of the PanAfGeo Project. As it may be recalled, AMGC is a member of the advisory board of the project and hosted two training programmes of the project on Geo-information management and Geohazards. As part of the monitoring and evaluation of the progress of the project, EU, the financier of the project appointed a consultant for an independent evaluation of the project at mid-term period and Dr. Petersen is part of the evaluation team assigned to visit the Centre to enquire on the activities of the project where AMGC has been part of. The PanAfGeo project coordinators at AMGC, Ms. Lilian Moshi and Mr. Mesfin W. Gebremichael, for the Geohazards and the Geo-information Management, respectively, provided the necessary information to the consultant on the implementation of the two training courses.

## New Training Courses on Petroleum Geosciences

AMGC is happy to announce new training courses on Petroleum Geosciences in collaboration with an Egyptian Petroleum Consultant, Earth Resources Exploration (EREX) Company. A memorandum of Understanding was signed between AMGC and EREX for collaboration on capacity building in the fields of petroleum geoscience field to be carried out at AMGC premises and/or EREX office in Cairo, Egypt. EREX is a consulting company with extensive experience in oil and gas exploration and production in Africa and Middle East. The joint training courses will pave the way for establishment of a Fossil Fuel Department in AMGC.

### SHORT TRAINING COURSES (5 Days)

SOFT SKILLS AND MANAGEMENT TRAINING COURSES:		GEOLOGICAL AND GEOPHYSICAL TRAINING COURSES:	
➤ Professional Ethics and Code of Conduct.		➤ Application of Structural Geology in Seismic Interpretation	
➤ Guidelines for Procurement and Procurement Planning		➤ Prospect Risking, Volumetrics & Play Assessment.	
➤ Procurement of Goods, Work and General Services		➤ Depositional Environment from Wireline Logs	
➤ Building and Managing People		➤ Development Geology	
➤ Strategic Human Resources Management.		➤ Sequence Stratigraphy of Sandstone Reservoirs	
➤ Talent Management & Retention in the Oil & Gas Industry		➤ Depositional Environments & Reservoir Characterization	
➤ Budgeting and Cash Flow Management.		➤ Seismic Integration & Inversion.	
➤ Budgeting and Budgetary Control.		➤ Structural Interpretation in Exploration and Development.	
➤ Logistics and Supply Chain Management		➤ Petrophysical Log Analysis	
➤ Project Risk Analysis & Management		➤ Petroleum Economics for Geoscientists & Engineers	
		➤ Characterization of Carbonate & Sandstone Reservoirs	
		➤ Facies Modeling For Reservoir Simulation.	
		➤ Seismic in Oil Industry for Geologists and Engineers.	
PETROLEUM ENGINEERING TRAINING COURSES:			
➤ Production & Test Separation System		➤ Petroleum Refining Process.	
➤ Reservoir Management & Monitor		➤ Wireline & Slickline Fishing	
➤ Open Hole & Cased Hole Logging Data Acquisition and Integration		➤ Sand Production Management	
➤ Oil Processing and Conditioning		➤ Well Test Analysis	
➤ Piping and Pipeline design, Maintenance & Operation		➤ Completion & Well Testing	
➤ Mud Logging Surface Gas Measurement and Fluid Characterization		➤ Enhanced Oil Recovery	
➤ Oil Spill Response & Control		➤ Water Flooding for Enhanced Hydrocarbon Recovery.	
➤ Safety Shutdown System		➤ Exploitation of Unconventional Oil & Gas	
➤ Transfer pricing in the Oil & Gas Industry		➤ Formation Damage and Chemical Stimulation.	
➤ Well Design and Construction Engineering		➤ Work Over and Completion.	
➤ Oil & Gas Industry: Project Management, Economic Decision Analysis and Risk Management.		➤ Hydraulic Fracturing for Hydrocarbon Optimization.	
➤ Advanced Phase Behaviour & PVT Properties		➤ Reservoir Simulation.	

## AMGC Training List 2018/19

Chemical and Environmental Services			
Spectrometric Methods	Theory, operation and maintenance Atomic Absorption Spectrometers (AAS), Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) and X-Ray Fluorescence (XRF). It includes aspects of Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) and Scanning Electron Microscope (SEM) applications.	2 weeks	\$800
Analysis of Gold and Other Precious Metals	Various methods of analysing gold and other precious metals with a view to wet and dry techniques.	2 weeks	\$800
Environmental Technologies	Aspects of technological solutions of environmental problems (water, air, soil and noise) and environmental quality assessment in various sectors such as industry, agriculture, mining and water for sustainability.	2 weeks	\$800
Modern Laboratory Management Methods	Techniques for managing laboratories. It covers aspects of digital management of quality control using laboratory information management system (LIMS).	2 weeks	\$800
Field Sampling Techniques for Chemical Analyses	Appropriate techniques of sampling variety of geological and environmental samples for proper analyses.	2 weeks	\$800
Laboratory Sample Preparation Techniques for Chemical Analyses	Analytical preparation techniques needed for conducting a proper chemical analyses. It covers also aspects of wet and dry sample preparation techniques.	2 weeks	\$800
Mineralogy, Petrology and Gemmology Services			
Training Topics	Description	Duration	Fee
Gemstone Characterization and Identification Techniques	Gemstone origin, deposits and mining methods, Physical and optical properties of gemstones, Working principles of gemmological tools and equipment, Description of gemstones, Testing and identification of gemstones, Overview on gemstone cutting, Different treatments on gemstones, Marketing plans and techniques for handling gemstones, Synthetic gemstones	2 weeks	\$800
Gemstone Identification Techniques	Physical and optical properties of gemstones, Working principles of gemmological tools and equipment, Testing and identification of gemstones	1 week	\$400
Gemstone Value Addition Techniques (Gem Cutting)	Rough gemstone sorting and grading, different techniques for gemstone cutting (faceting, cabbing and free form carving), evaluation of cut stones	2 weeks	\$800
Gemstone Cabochon Making & Carving	Gemstone sorting, cabbing, and free form carving	1 week	\$400
Gemstone Faceting	Gemstone sorting, faceting	1 week	\$400
Gemstone Identification and Value Addition Techniques	Physical and optical properties of gemstones, Working principles of gemmological tools and equipment, Testing and identification of gemstones. Rough gemstone sorting and grading, different techniques for gemstone cutting (faceting, cabbing and free form carving), evaluation of cut stones	3 weeks	\$1,200
Petrological Sample Preparation & Analytical Techniques	Thin section preparation, Polished section preparation, Petrographic examination	2 weeks	\$800
Industrial Minerals Application Services			
Pottery for Beginners	Introduction to pottery and ceramics, Classification of pottery and ceramic products, Raw materials used, Identification of raw materials, Raw materials preparation and basic forming methods	2 weeks	\$800
Mould Making	Material used for modelling and mould making, Preparation of plaster of Paris, Shrinkage calculations and drawings enlargement, Model making, Mother mould making, Case mould making	2 weeks	\$800
Forming Techniques	Hand building, Coiling, Slip casting-deflocculants, Solid and hollow casting, Thixotropy, Jigger & Jollying, Pressing, Throwing	2 weeks	\$800
Decorations in Pottery and Ceramics	Understanding ceramic oxides, Colour blending and firing temperature, types of decorations – inlaying, sigraffito, stenciling, Glazing, Decor transfer, Engobe preparations	2 weeks	\$800

## AMGC Training List 2018/19 Continues

<b>Industrial Minerals Application Services</b>				
<b>Body Composition Formulation</b>	Single raw material test, Shrinkage test, Porosity test, The function of Alumina & flux in the body, Triaxial blending	2 weeks	\$800	
<b>Glaze Formulation</b>	Introduction to glaze, Glaze components – oxides, alumina & fluxes, What determines glaze firing temperature, Selection of raw materials for glaze, Glazing rules and techniques, Glaze defects and remedies	2 weeks	\$800	
<b>Mineral Processing and Small-scale Mining Services</b>				
<b>Mineral Processing Basics – Beneficiation operations and Metallurgical Processes</b>	The course covers fundamental principles and terminology with broad overview of current technical and operating issues and circuit design considerations. Topics covered include; introduction to mineral processing, comminution and liberation, classification; mineral concentration methods (gravity, flotation and magnetic); and solid/liquid separation. It also covers extractive metallurgy and the classification of metals, their uses and metal production.	2 weeks	\$800	
<b>General Sampling Technics and Sample Preparation for Laboratory Testing</b>	Sampling, sample preparation and analysis of environmental and geological samples. It provides an understanding of the sampling theory, types of sampling and sampling protocols, involved analytical measurement, composition and classification; sampling quality control; and assays methods	2 weeks	\$800	
<b>Artisanal and Small Scale Mining Activities and Related Issues</b>	To provide ASM operators with technical, management and environmental knowledge for sound improvement of their activities. Particular emphasis is on importance of application of improved technics and use of geological data of deposits in environmentally friendly ways for sustainable ASM Activities. Impacts of ASM like mercury pollution, cyanide pollution, direct dumping of tailings and effluents into rivers, threats from improperly constructed tailings dams, river damage in alluvial areas, erosion damage and deforestation, and landscape destruction.	2 weeks	\$800	
<b>Techniques of Gold Cyanidation for Small Scale Mining Operations</b>	Detailed accounting of the usage of cyanide for extraction and recovery of gold, and of cyanide toxicity and chemistry. It covers cyanide leaching techniques and gold purification and recovery from solution methods.	2 weeks	\$800	
<b>The Economics and Evaluation of the Minerals Industry</b>	Fundamental aspects of the evaluation of mineral investments from examining the mining stages with particular emphasis on cash flow models and project acceptance and rejection criteria. This course also examines the basic approaches and methods of developing evaluations for mineral projects and techniques for risk assessment.	2 weeks	\$800	
<b>Metallurgical Balance and Process Control</b>	The distribution of the various products of a concentrator, and the values contained in them. It provides a basis for decisions making about the mineral processing operations since the values of recovery and grade obtained from the accounting procedure are indications of process efficiency	2 weeks	\$800	
<b>Environmental Management in Mining</b>	The negative impacts which could arise from the exploration, operation and decommissioning phase of any mining project small, medium or large scale. It covers topics related to Water Management, Land and biodiversity Management, Waste Management and Air pollution.	2 weeks	\$800	
<b>Geo-information Services</b>				
<b>GIS and Remote Sensing for Mineral Exploration and Geological Mapping</b>	Geological interpretation of satellite images, to enabling the participant to relate the geological structure and lithology with their geomorphological manifestation. Fundamentals of remote sensing including principles of electromagnetic radiation is needed. Various band combination, band ratios and enhancements techniques for visual interpretation and feature extraction by quantitative methods will be deployed to aid in lithology, structures and hydrothermal alteration zones delineation. The project work will use various types of remote sensing data products over different types of terrain, aims at providing high level of confidence to individual trainee to carry out their assignments in the elated fields in their respective countries.	2 weeks	\$800	

## AMGC Training List 2018/19 Continues

Geo-information Services			
<b>Geophysical and Geochemical Data Processing and Interpretation</b>	Geophysical and geochemical data types, data collection methods, data reduction and processing, interpretation of geophysical and geochemical maps, integration of geophysical and geochemical data with other data sets such as satellite images, geological maps and elevation models for interpretation.	2 weeks	\$800
<b>Data Integration and Mineral Targeting</b>	GIS-based spatial data processing, analysis, visualization, and decision-making. The course includes exercises and case studies with the view to develop skills in data capture, data integration, digital mapping, raster and vector geoprocessing, spatial analysis and modelling, and use of GIS as a data management and decision-making tool in earth science. Use of GIS in site suitability analysis and Mineral Prospectivity Mapping using Boolean, Index Overlay, and Fuzzy Logic overlays	2 weeks	\$800
<b>Geostatistics Application in Geology</b>	Practical experience of using the statistical environment and packages in R for exploratory analysis variogram estimation and modelling and optimal estimation of sample values at unsampled sites using kriging.	2 weeks	\$800
<b>Mineral Exploration and Resource/Reserve Estimation</b>	Introduction to Exploration, Evaluation and Extraction (Mining) of mineral resources. Mineral Exploration Methods, reconnaissance survey, Geological Mapping, Geochemical survey and Geophysical survey. Data integration, analysis and interpretation of results for target areas identification. Resource/reserve estimation with data collection and handling, data quality, data handling and data validation, and data analysis and interpretation. Statistical methods of resource/reserve estimation, generate block model, block size selection, coding block model and block model parameters. Estimation concepts, estimations techniques, grade calculation and model validations. Mineral resource classifications and Reporting. Reporting code, sign off, external auditing and case study.	2 weeks	\$1,500
<b>Web mapping</b>	Preparation of maps for presentation and display on internet. This include designing of web interface, coding and preparation of web maps, web mapping standards, and setting up of web and mapping servers. Different web mapping services: WMS, WFS, WCS using open source mapping applications.	2 weeks	\$800
<b>Geohazards</b>	Natural hazards related to earth phenomenon are intrinsically related with geosciences. Study of these geoscience phenomena is a path to the mitigation and prevention of the hazardous events on our environment. This course details the causes of geohazards, and possible prevention mechanism.	Duration and cost varies on the number of sites to be visited.	
<b>Exploring Geoheritage and geoparks sites of Tanzania</b>	The importance of Geoheritage and its geoscience significance is discussed in this geo-tourism event which describes the different geoheritage sites and geoparks available in Tanzania: the highest peak of Africa (the Kilimanjaro Mountain), The world only carbonatite volcano (Oldoino Lengai), The cradle of mankind (Olduvai Gorge), Ngorongoro crater and others. The even includes visit to these and other sites with scientific and touristic interaction.	Duration and cost varies on the number of sites to be visited.	
<b>Geo-safari &amp; Geo-traverse across the Archean Tanzanian Craton, Early-Middle Proterozoic mobile belts (Kibaran &amp; Mozambique belts), Pan-African Ensimatic Greenstone belts (afro-Arabian Shield), and East African Rift Valley.</b>		Duration and cost varies according to the selected geo-traverse-safari type.	

### Training Course on Mineral Exploration and Practical Mineral Resource Estimation

The Geo-information Department of the African Minerals and Geosciences Centre (AMGC) is pleased to announce the launching of a new training course on Mineral Exploration and Practical Mineral Resource Estimation. This course is organized in collaboration with a qualified Resource/Reserve Estimation consultant, EMR Mineral Resources Consulting (T) Company. This training course is a two weeks course covering a complete mineral exploration theme from early exploration stage until resource and/or reserves are estimated ready for development of the resources.



## August 2018 African Minerals and Geosciences Centre

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## Opportunities

### International Conference on Artisanal and Small-scale Mining & Quarrying

The ASM18, taking place September 11-13, 2018, in Livingstone, Zambia, It will be a space for the voices of ASM to share visions of the future. A wide spectrum of commodities will be discussed ranging from the well-known, such as precious metals and precious stones, to those that have yet to receive due attention, such as Development Minerals, like aggregate and clay. For more information, please visit <http://asmconference.org>

### Processing Technologies, Metal Recoveries & Economic Feasibility of Deep Sea Mining

An international workshop on Processing Technologies, Metal Recoveries & Economic Feasibility of Deep Sea Mining will be held in Warsaw, Poland from 3-6 September 2018. The workshop is jointly organised by the International Seabed Authority, the InterOceanmetal Joint Organization and the Poland Ministry of Environment. For further information, please visit <https://www.isa.org>.

### Uganda Mineral Wealth Conference 2018

Invitation for Annual Mineral Wealth Conference organized scheduled for 2-3 October 2018 at Serena Kampala Hotel, the event is annually organized in partnership with the ministry of Energy & Mineral development through the Directorate of Geological Survey & Mines. For further information and registration please visit <http://ogc2018.ucmp.ug/>

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