

## COMMON SESSIONS

### Mining development in the world, in Africa and in Morocco

The main trends of mining exploration in Africa will be presented. This session will emphasize the results of the West African Exploration Initiative (WAXI) project and its contribution to the revival of mining exploration in Western Africa. Geological units characterizing the African shield spread between Archaean and Neogene with a lot of geodynamics environments. This is highly favourable for potential precious and base metal deposits, REE and industrial materials new developments. A strong focus will be done on RH management in the peculiar environment of African mining industry.

## SPECIAL SESSION 1 Mining exploitation

### 1 - Underground mining.

This session is combined with the visit of the Draa Sfar deposit. Rock mechanics and numerical modelling methods applied to underground excavation stability will constitute some fundamental recalls. They will be completed by case studies on Moroccan deposits examples.

### 2 - Open pit mining

Lectures will emphasize the geotechnical concepts applied to open pit mining, and tailings dam. The visit of the Benguérir phosphate deposit will permit a practical approach for this session.

### 3 - Mining industry and sustainable development

This session is devoted to security and health control throughout mining operations particularly on African mine examples.



## SPECIAL SESSION 2 Metallogeny

### 1 - Mining exploration : new prospective

Technologies for mining exploration showed a important improvement during the last decade. A peculiar focus will be made on hyper spectral remote sensing, mobile ions geochemistry and geophysical methods (infinitem). An important complement in international resources reporting codes will help to assess investments risks in mineral exploration.

### 2 - Orogenic gold deposits

This type of precious metal deposit promises to have a brilliant future in Africa. A new presenter, A.S. André Mayer, is in charge of this section. Her firm experience in African gold deposits will guarantee the success of her presentation.

### 3 - Pb/Zn deposits in sedimentary context.

This lecture is given by one of the best specialist of MVT deposits in Africa, M. Bouabdellah. It is an useful complement to the course done last year in Zambia on the copper belt district.

### 4 - Uranium deposits in Africa

Michel Cuney, SGA-Newmont gold medallist in 2013 will give this presentation. The future of uranium deposits exploration in Africa needs a clarification on fundamentals of these types of deposits. This is the objective of Michel's talk.

## FIELD VISITS

- 1 - The polymetallic Zn-Pb-Cu-Ag of Draa Sfar
- 2 - The open pit phosphate mining of Benguérir
- 3 - The industrial complex of Guemassa : R&D unit, Hydrometallurgy facilities, mining exploration and exploitation services

# Program of workshop courses

- lectures are given mostly in french with english simultaneous translation -

# «Mining in Africa»

## Day 1 Monday 29/09/2014

### Morning

- 1 - Recent mining development in Africa - A. Saquaque and D. Mounji - MANAGEM - Mo
- 2 - Globalisation and world mining industry - A. Cheilletz - GeoRessources - Nancy - Fr
- 3 - Management of human resources in the mining industry of Africa - K. Fahmi - MANAGEM - Mo

### Afternoon

- 4 - The mining sector : which goals for the African continent and the world ? - A. Mouttaqi- ONHYM
- 5 - The WAXI project : main contributions for the West African countries mineral exploration perspectives - A.S. André-Mayer GeoRessources - Nancy - Fr
- 5 - Mineral resources of Morocco - M. Zouhair - MANAGEM - Mo
- 6 - Smart technologies for the mining industry - M. Assarra - MANAGEM - Mo

## Day 2 Tuesday 30/09/2014

- 1 - Visit of the polymetallic (Zn, Pb, Cu, Ag) underground mine of Draa Sfar - MANAGEM - Mo
- 2 - Visit of the industrial complex of MANAGEM, Guemassa's site - Mo

## Day 3 Wednesday 1/10/2014

### UNDERGROUND MINING

#### Morning

- 1 - Background in rock mechanics - T. Verdel and Y. Gunzburger (coord.) - Ecole des Mines de Nancy - Fr

#### Afternoon

- 2 - Mining methods at MANAGEM - M. Sellami - MANAGEM - Mo
- 3 - Numerical modeling for mining - T. Verdel and Y. Gunzburger - Ecole des Mines de Nancy - Fr

### METALLOGENY

#### Morning

- 1 - Exploration modeling - L. Maacha (coord.) - MANAGEM - Mo
  - 1.1 - Resource and reserve reporting codes - S. Ahmed (MANAGEM) - Mo
  - 1.2 - Geophysical exploration : new technologies and methods - M. Jaffal - Cadi Ayad University - Marrakech - Mo
  - 1.3 The use of remote sensing in mining exploration - A. Hamzaoui - ONHYM - Mo

#### Afternoon

- 2 - Orogenic gold - A.S. André-Mayer (coord.) - GeoRessources - Nancy - Fr
- Gold fundamentals - geochemistry of gold, characteristics of gold deposits, gold mining economics

## Day 4 Thursday 2/10/2014

### OPEN PIT MINING

#### Morning

- 1 - Geomechanical design of open pits - J.A. Fleurisson - Ecole des Mines Paris Tech - Fr

#### Afternoon

- 2 - Sustainable mining development - I. Benzakour - MANAGEM - Mo
- 3 - Security and mine design - M. Lbouabi - MANAGEM - Mo
- 4 - Practises in mining activities in Africa - D. Mounji - MANAGEM - Mo

### METALLOGENY

#### Morning

- 1 - Pb/Zn deposits in sedimentary basins - M. Bouabdellah (coord.) - Oujda University - Mo
  - 1.1 - The duality between MVT and SEDEX Pb-Zn deposits: common and distinctive attributes
  - 1.2 - Are the North African MVTs unique ? State of the current knowledge relatively to their geochemistry and genetics models

#### Afternoon

- 2 - Uranium in Africa - M. Cuney (coord.) - GeoRessources - Nancy - Fr
  - 2.1 - Fundamentals in uranium geology
    - U physical and chemical properties
    - Main uranium deposit types
    - Resources, production, U prices evolution
  - 2.2 - African uranium deposits

## Day 5 Friday 3 /10/2013

Visit of The Benguérir open pit mining OCP - Mo