MAC
Short Course Series #46
2015

MAC/SGA CO-SPONSORED

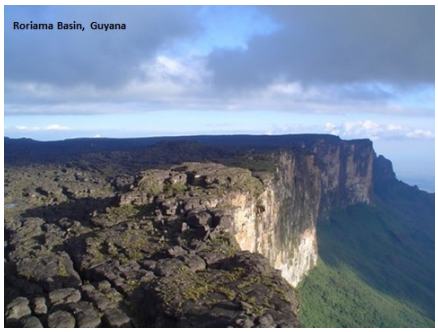
Uranium Short Course

The Geology and Geochemistry of Uranium and Thorium Deposits

Coordinators and Speakers: Michel Cuney (CNRS) and Kurtis Kyser (Queen's University)
Sponsors: Mineralogical Association of Canada and Society for Geology Applied to Ore Deposits
Date: Friday & Saturday, May 1–2, 2015
Prior to the AGU-GAC-MAC-CGU Joint Assembly
Duration: 1.5 days
Location: The Palais des congrès de Montréal
Contact: Kurtis Kyser
Email: kyser@geol.queensu.ca
Included:

- A copy of the short course volume
- Two coffee breaks and lunch

Costs: $500 professional and $100 for students
Registration: Will occur through the Joint Assembly Montreal 2015 website at: ja.agu.org/2015/

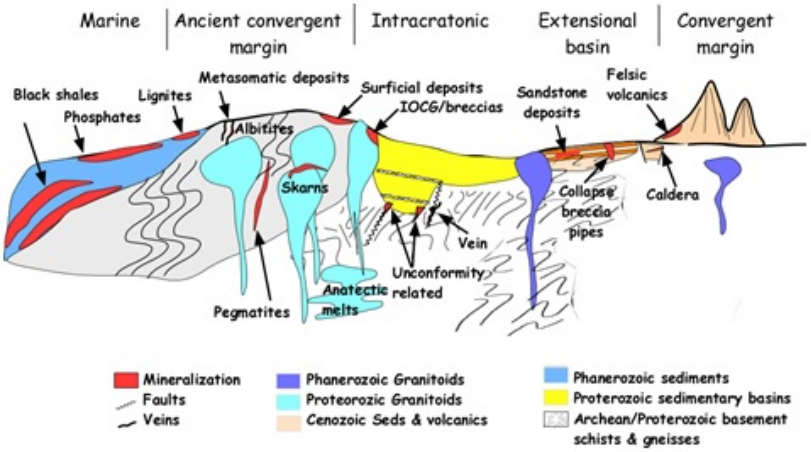


Overview

Despite the lack of interest in uranium as a commodity during the past few years and the loss of expertise during the previous downturn beginning 30 years ago, new ideas and technologies developed over the past 7 years have resulted in an enhanced understanding of the formation of uranium deposits. These have allowed researchers to quantify models for all types of deposits and, thus to re-classify deposits in relation to both their occurrence and likely genesis. The purposes of this short course are to highlight the research that can be integrated into refining exploration strategies for uranium and also discuss new developments in thorium deposits as a future energy resource as it will become an increasingly important by-product of REE mining. The short course will consider geotectonic contexts and models of different types of uranium deposits and the mechanisms that control their genesis, relating source, transport, driving forces deposition and preservation, and how these can be used in more efficient uranium exploration and remediation.

Topics covered in this short-course include:

- Nuclear fuel cycles and the economics of uranium and thorium fuels
- New classifications of deposit types
- Distribution and evaluation of global resources and mining techniques
- Geochemistry and mineralogy of uranium and thorium
- Heat production and flux, radiation and natural reactors
- Magmatic processes involved in deposit formation
- Metasomatism and metamorphism in the production of uranium deposits
- Basins and uranium deposits
- Deposits related to low-temperature processes
- New ideas about controls on grade and size of deposits
- Exploration strategies and techniques—what works and what doesn't
- The future of uranium and thorium as energy resources



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