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Dr. Jeremy P. Richards,
 Professor
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 University of Alberta, Canada

Dr. M. Tahir Shah
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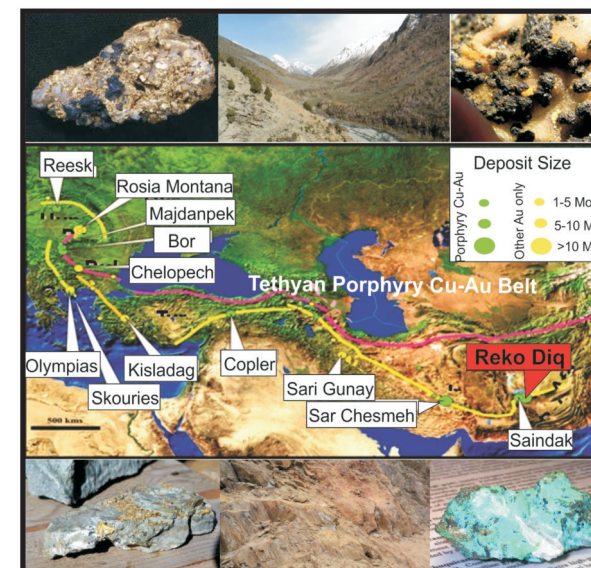
VENUE

Seminar Hall
 National Centre of Excellence in geology
 University of Peshawar

Sponsored by
 Higher Education Commission of Pakistan (PAK-US collaboration program)
 NCE in Geology, University of Peshawar

Workshop On Tectonomagmatic Controls on Porphyry and Epithermal Mineralization

(June 26, 2013)



Organized by



**National Centre of Excellence in Geology
 University of Peshawar**

The ore deposits around the world have been investigated in the context of plate tectonic and it was found that the deposits formed in the specific type of tectonic environment have certain common characteristics. These characteristics are providing potential guides for exploration of such types of mineral deposits. The porphyry type deposits and the associated epithermal mineralization are generally occurring in the island arc type of settings. These are low grade, large disseminated ores formed in the shallow porphyritic intrusive and also in the country rocks adjacent to these intrusives. The diagnostic features of these types of ore deposits include the fracturing of the host rock and the pervasive wall rock alteration.

The geo-tectonic history and the development of various types of tectonic settings in Pakistan are indicative of the occurrence of various types of ore deposits related to these settings. In Pakistan, the Kohistan-Ladakh island arc and the Chagai-Raskoh arc are the classical examples where there are greater chances of occurrences of porphyry type deposits and associated epithermal mineralization. Therefore, the knowledge of ore forming process for the development of porphyry system associated with arc magmatism is of greater importance for exploration of mineral deposits in any region of the world.

This workshop has been arranged to highlight the various aspects of formation of porphyry type deposits and epithermal mineralization in the context of plate tectonics. A world renowned Economic Geologist, **Dr. Jeremy P. Richards**, Professor at the Department of Earth & Atmospheric Sciences, University of Alberta, Canada, has consented to be the Resource Person for this workshop.

TOPICS TO BE COVERED

1. Arc Magmatism

Petrogenetic and metallogenic processes in arc magmatism are reviewed, and the suggested role of adakites (slab melts) in porphyry Cu genesis is critically examined. Alternative models of crustal interaction (e.g., MASH processes) are presented in the context of northern Chilean magmatism and porphyry Cu formation

2. Arc Tectonics and Magma Emplacement

Magma buoyancy and tectonic stress conditions constrain the way in which arc magmas first pool at the base of the crust and then rise towards the surface. Pre-existing structures may localize the ascent and emplacement of magmas in the upper crust under transpressional (or transtensional) stress fields. Examples from Chile and Argentina are reviewed.

3. Upper Crustal Magmatic Processes

Mid-to-upper crustal magma chamber processes that result in formation of shallow-level apophyses and the focusing of volatile release are reviewed. The scale of magmatism required to supply metal to large porphyry Cu deposits is examined, and compared with observations from active and fossil magmatic systems. The role of volcanism is considered.

4. Porphyry Cu-forming Processes

Processes of volatile exsolution and release in the cupola zone are reviewed, and the resultant processes of hydrothermal alteration and mineral deposition are examined.

5. Epithermal and Post-Subduction Deposits

The link between porphyries and shallow-level epithermal and fumarolic systems is explored. Porphyry and epithermal ore formation in post-subduction settings is



REGISTRATION FORM

Name:

Designation:

Address:

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Telephone:

Fax:

Email:

Date:

Signature

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Nominating Authority (if any):

Last date of the submission of Registration Form is June 24, 2013.

