Session No. 241 **Wednesday, 21 October 2009**

8:00 AM-12:00 PM, Oregon Convention Center: B116

Copper in Central Eurasia and Russia: Linking Mineral Resource Assessment, Tectonics, and Metallogeny *(Society of Economic Geologists; Centre for Russian and Central EurAsian Mineral Studies [CERCAMS]; U.S. Geological Survey; GSA International Division)*

Jane M. Hammarstrom and Reimar Seltmann, Presiding

Paper #	Start Time	
	8:00 AM	Introductory Remarks
241-1	8:05 AM	PATTERNS IN INDUSTRIAL COPPER CONSUMPTION: **SINGER, Donald A.**, G. S. Geological Survey, 345 Middlefield Rd, MS 901, Menlo Park, CA 94025, dsinger@usgs.gov and MENZIE, W. David, U. S. Geological Survey, 12201 Sunrise Valley Dr, MS 991, Reston, VA 20192
241-2	8:25 AM	PORPHYRY DEPOSITS - A REVIEW WITH EMPHASIS ON DEPOSITS IN CENTRAL EURASIA: **SINCLAIR, W. David**, Geological Survey of Canada, 601 Booth Street, Ottawa, ON K1A 0E8 Canada, sinclair@nrcan.gc.ca
241-3	8:40 AM	ASSESSMENT OF UNDISCOVERED COPPER RESOURCES IN CENTRAL EURASIA AND RUSSIA: **HAMMARSTROM, Jane M.**, U.S. Geological Survey, 954 National Center, Reston, VA 20192, jhammars@usgs.gov
241-4	8:55 AM	PRELIMINARY PORPHYRY CU ASSESSMENT FOR THE CENTRAL TETHYS REGION: **DREW, Lawrence J.**, U.S. Geological Survey, 954 National Center, Reston, VA 20192, ldrew@usgs.gov, SUTPHIN, David M., Reston, VA 20192, BERGER, Byron, U.S. Geol Survey, Federal Center MS964, Denver, CO 80225-0046, MARS, John C., U.S. Geological Survey, 12201 Sunrise Valley Drive, Mail Stop 954, Reston, VA 20192, HERRINGTON, Richard J., Natural History Museum, London, London, SW7 5BD, United Kingdom, BILLA, Mario, BRGM, Orleans, CEDEX2, France, KUSCU, Ilkay, Mugla University, 48100 Kotekli, Mugla, Turkey, MOON, Charles J., Camborne School of Mines, University of Exeter, Penryn, Cornwall, TR10 9EZ, England, and RICHARDS, Jeremy P., Earth and Atmospheric Sciences, University of Alberta, Edmonton, T6G 2E3, Canada
241-5	9:10 AM	A GEOGRAPHIC INFORMATION SYSTEM TO SUPPORT THE MINERAL-RESOURCE ASSESSMENT OF THE CENTRAL TETHYS REGION: **SUTPHIN, David M.**, Reston, VA 20192, dsutphin@usgs.gov
241-6	9:25 AM	COPPER IN CENTRAL EURASIA: LINKING TECTONICS AND METALLOGENY: **SELTMANN, Reimar**, Mineralogy, CERCAMS, Natural History Museum, Cromwell Road, London SW7 5BD United Kingdom, rs@nhm.ac.uk
	9:45 AM	Break
241-7	10:00 AM	COPPER DEPOSITS OF RUSSIA: AN OVERVIEW OF MAJOR MINERAL DEPOSIT TYPES AND MINERAL POTENTIAL: PETROV, O.V.[1], **SHATOV, V.V.**[1], FEOKTISTOV, V.P.[1], and SELTMANN, R.[2], (1) All Russian Geological Research Institute (VSEGEI), 74 Sredny Prospect, VSEGEI, St. Petersburg, 199106, Russia, Vitaly_Shatov@vsegei.ru, (2) Mineralogy, CERCAMS, Natural History Museum, Cromwell Road, London, SW7 5BD, United Kingdom
241-8	10:20 AM	COPPER DEPOSITS OF THE URALS: TECTONIC SETTINGS AND GEOLOGICAL ASSOCIATIONS: **HERRINGTON, Richard J.**[1], MASLENNIKOV, Valeriy[2], HAWKINS, Thomas[3], and ZAYKOV, Victor[2], (1) Natural History Museum, London, London, SW7 5BD, United Kingdom, R.Herrington@nhm.ac.uk, (2) Institute of Mineralogy, Urals Branch of Russian Academy of Sciences, Ilmen Nature Reserve, Miass, 456317, Russia, (3) University of Brighton, Brighton, BN2 4GJ, United Kingdom
241-9	10:35 AM	PORPHYRY COPPER DEPOSITS OF RUSSIA: **CHITALIN, Andrei F.**, BolshayaCheremushkinskaya St, House 19/4, App. 26, Moscow 117447 Russia, achitalin@yandex.ru
241-10	10:50 AM	MAJOR COPPER DEPOSIT TYPES IN TRANSBAIKALIA AND CONTIGUOUS AREAS: RUSSIA, CHINA AND MONGOLIA: **CHECHETKIN, Vladimir S.**, Zabaikalsky Division, Russian Geological Society (RosGeo), Chita, 672090, Russia, sbox@usgs.gov and TRUBACHEV, Aleksey I., Geology Dept, Chita Sta University, Chita, 672090, Russia
241-11	11:05 AM	PALEOZOIC TECTONIC EVOLUTION AND CU-PROVINCES OF KAZAKHSTAN AND TIAN SHAN: **ALEXEIEV, Dmitry V.**, Geological Institute RAS, Pyzhevskiy 7, Moscow, 119017, Russia, dvalexeiev@mail.ru and SELTMANN, Reimar, Mineralogy, CERCAMS, Natural History Museum, Cromwell Road, London, SW7 5BD, United Kingdom
241-12	11:20 AM	REGIONAL ALTERATION MAPPING FOR MINERAL ASSESSMENT IN THE LAKE BALQASH REGION OF KAZAKHSTAN USING ADVANCED SPACEBORNE THERMAL EMISSION AND REFLECTION RADIOMETER (ASTER) DATA: **MARS, John C.**, U.S. Geological Survey, 12201 Sunrise Valley Drive, Mail Stop 954, Reston, VA 20192, jmars@usgs.gov

Poster Abstracts:

COPPER-BEARING SANDSTONES OF KAZAKHSTAN: Boris Syusura (Mining & Economic Consulting Ltd, 28/17 Gabdullina Street, Almaty 050013 Kazakhstan, boris@2k.kz)

Sediment-hosted copper deposits in Kazakhstan are hosted by red-colored sandstones and shales of Silurian to Permian-Triassic age. All of the mineable deposits (Dzhezkazgan, Zhaman-Aibat, and Zhilandinskaya group) are localized by syndepositional brachy-anticlines within Permian-Carboniferous red-colored formations of the Chu Sarysu basin. The location and paragenesis of these copper deposits is related to the accumulation of petroleum and natural gas. Numerous sediment-hosted copper occurrences in other regions are related to disseminated coalified organic matter in red-colored sedimentary rocks that formed small centers of copper-accumulation and scattered copper mineralization.

MAIN TYPES OF COPPER DEPOSITS IN THE REPUBLIC OF KAZAKHSTAN: Alla Dolgopolova (NHM CERCAMS; allad@nhm.ac.uk), Boris Syusyura (MEC) & Reimar Seltmann (NHM CERCAMS)

Copper mineralisation in Kazakhstan is represented by all of the major mineable and genetic types of copper deposits, including Cu-bearing sandstones, Cu-Mo porphyries, Cu-Pb-Zn massive sulfides, Cu skarns and Fe-Cu skarns. Kazakhstan is also prospective for unconventional types of copper deposits, such as magmatic Cu-Ni-Pt, native Cu, Cu-Au-U veins, Cu pyrrhotite and "manto" type. Within the Shu-Sarysu depression of southern Kazakhstan, deposits of cupriferous sandstones of the Zhezkazgan type (i.e. Zhezkazgan, Zhilandy group, Zhaman-Aybat) are strictly confined to Permian–Carboniferous red sediments. Porphyry copper deposits are associated with intrusive complexes of three volcano-plutonic belts of different ages. Low-grade Cu-Mo ores typical of porphyry deposits related to granodiorite intrusions formed in late Palaeozoic orogenic belts. Higher-grade Cu-Mo-Au ores (Cu 1.5%) formed in Devonian (orogenic) and Caledonian (island arc) volcano-plutonic belts. These higher-grade deposits are typical of porphyry systems related to monzonitic intrusions and contain telescoping zones of supergene secondary enrichment. Cu-Pb-Zn deposits of massive sulfides were explored within volcanogenic complexes of the Rudny Altay, Maykain-Shiderty-Chingiz and South Uralian metallogenic zones. Explored Cu skarn deposits (Sayak group, Eshkeulmes) and Fe-Cu skarn deposits (Irisu, Kacharskoe) are of medium size; their contribution to total copper reserves (1.5%) and production (nearly 3%) in Kazakhstan is insignificant. The potential for unconventional types of copper ores can be assessed preliminarily and their commercial significance should be compared with similar deposit models on a global scale.