Geofluids

Special Issue on

Evolution of Basinal Fluids during Midcontinental Rifting

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CALL FOR PAPERS

Continental rifts are widespread structural features developed in a variety of geotectonic settings. There are a wide complexity and variability in development of the rift systems, and each system has certain particularities regarding rate of drifting, tectonism, dynamics of doming, and magmatism. One of the critical phenomena which participate in the rifting and its metallogeny is basinal fluids. There are numerous examples from Archeozoic to Cenozoic with rifting processes and ore deposits derived from different type of fluids from melt derivates to aqueous solutions, like iron cherty formation, a result of exhalative activity in developing rifts (Algoma type, BIF), Kiruna type iron-apatite deposits with ambiguous stratiform/hydrothermal origin, copper deposits in the Keweenawan rift province, rift related molybdenum deposit of the climax type, rift related stratiform copper deposits Kupferschiefer type, and the Zambian copper belt, rift related magmatic copper-nickel deposits of the Noril'sk type.

The primary goal of the special issue is focused on the evolution of basinal fluids in intracontinental rifts with emphasis on the ore formation.

Potential topics include but are not limited to the following:

- Basin analyses, Wilson cycle, mechanism of rifting, tectonic subsidence, fluid flow, intraplate stress, and thermal subsidence. Evolution of basinal systems with related phenomena includes a wide plethora of ore forming fluids with P-T-X conditions which constrain processes as deep-shallow, kata-meso-epithermal, and magmatic-meteoric
- World-class ore deposits, basin types, fluid characteristics, iron chert formation, and deposition controlled by evolving ocean-atmosphere system. Beside meteoric impacts, mantle plums or lithosphere controlled processes might be a promotor of colossal extrusion in the rift environment
- Pb-Zn deposits in carbonates, links between deep seated metalliferous brines and hydrocarbon rich fluids, originated within boundary of the rift system, establishing relationship between SEDEX-MVT deposits. Recent studies recognize mixing of two type of fluids, connate basinal brines of high temperature and salinity with metals and sulphate ions, and low salinity, hydrocarbon rich ones
- Sabkha type peritidal deposits, Kupferschiefer, African copper belt, and exploration potential. There is evidence for presence of evaporites in the immediate stratigraphic section. The source of metal, sulphur, metal zoning, paleoshoreline relative position to the active rift system, and epigenetic-syngenetic sedimentary or sedimentary exhalative origin. All items still seek firm ground for correct interpretation of genesis
- Kiruna type deposits, stratiform versus hydrothermal origin. Numerous evidences *pro et contra* for this contrasting genetical solutions still have not been enough convincing for definite answer
- Computer modelling techniques, study of active hydrothermal systems, and large scale studies of ancient hydrothermal systems. The challenge for geological exploration is to find cost-effective ways of locating high quality geothermal and mineral resources
- Applications of microanalytical techniques to mineralizing processes, geochronology, radiogenic isotopes, stable isotopes, elemental analyses, fluid inclusion analyses destructive, and nondestructive methods

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