The model of the element geochemistry of metamorphic rock in early Precambrian period in Liaoning

LI GONG[1], MA GUANG[1]*, HU SHUNTIAN[2], HE SHIGEN[2] AND GAO ERGEN[2]

[1]Henan Polytechnic University, Henan, 454001, China (*correspondence: maguang5678@163.com)
[2]Institute of Disaster Provention Science Technology, Beijing 101601, China (grg@fzxy.edu.cn)

The established geochemical model is based on the close relationship between the ore-forming and original ore-bearing rocks, the change characteristics of metallogenic materials or elements with the construction of space-time evolution of the original rock and the element abundances and concentration factor of metamorphic rock.

The element geochemical model is to express with the combination of simple style in accordance with its main elements (10^5 order of magnitude / 10^4 order of magnitude). The enrichment patterns of main element are composed of the elements of original concentration factor greater than one and the elements of the same order of magnitude arranged according to content decreasing order. Trace element enrichment patterns consist of the elements of the original concentration factor greater than one and elements of the same order of magnitude arranged according to concentration factor decreasing order.

The model will provides a new way of thinking in the search for buried ore bodies, summary the formation rule of deposits, metallogenic environments and ore-forming geological conditions, etc, and will become another new favorable means of tested on the known deposits and the exploration of unknown deposits.

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Hydroclimatic and geomorphic controls on particulate organic matter in small mountainous rivers

M.A. GONI[1]*, J.A. HATTEN[1], R.A. WHEATCROFT[1], J. BORGELD[2], G. PASTERNACK[3], A. GRAY[3] AND B. WATSON[3]

[1]College of Oceanic & Atmospheric Sciences, Oregon State University, Corvallis, OR 97331, USA (*correspondence: mgoni@coas.oregonstate.edu)
[2]Department of Oceanography, Humboldt State University, Arcata, CA 95521, USA
[4]Department of Land, Air, and Water Resources, University of California, Davis, Davis, CA 95616, USA

Small mountainous rivers (SMRS) are critical drivers for the erosion and transport of continental materials, including particulate organic matter (POM), to the ocean. Worldwide, SMRS are a highly heterogeneous, exhibiting marked tectonic, climatic and vegetation contrasts and highly variable discharges on event, seasonal and inter-annual scales. Here, we investigate changes in concentration and composition of POM as a function of discharge among US west coast SMRS with distinct hydroclimate, geomorphology and land use. Particulate samples collected at different discharges, including several flood events, were analyzed for elemental (C, N), isotopic ($\delta^{13}C$, $\delta^{15}N$, $\Delta^{14}C$), and biochemical compositions. These data are used to compare and contrast the provenance, age, and molecular make-up of materials transported by each river. We evaluate both the processes responsible for these contrasts and their impacts on the delivery and fate of terrigenous POM in the coastal ocean.

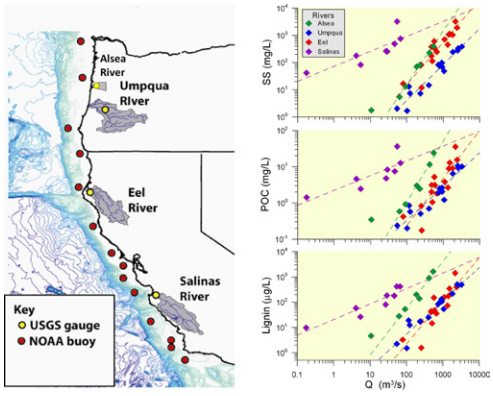

Figure 1: Location of SMRS studied and relationship between river discharge (Q) and concentration of suspended sediments (SS), POC and lignin products.