

Intermediate rocks of some Archaean-Quaternary subduction-related and intraplate structures

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Intermediate rocks are of great importance in general tectonics, petrology, metallogeny, even planetary sciences. These rocks are indicators of Earth's evolution (+/- other planets). We present some data on these rocks of convergent, maybe Early Precambrian pseudo-subduction-related and some within-plate structures of the former USSR; Western Baluchestan, Middle East, and NW Algeria (both last regions led by E. Romanko) etc. Andesitic rocks were mostly studied including a literature compilation on them. Some conclusions could be presented as follows:

- the first subduction-related processes were operated in Early Archaean, even maybe earlier. Subductional mechanism of non-steep young (no less than 5 Ma) hot oceanic lithosphere for the depth ca 60 km is used. Tonalite-trondjemite-plagiogranite or TTG-series in Greenland deal with an old subduction after the hydrosphere was created.
- adakites are the products of the slab melting, not mantle wedge versus mostly other arc rocks - an ideal subduction-related zonality could be proposed as follows (from - ocean to a continent/microcontinent, and with an increasing of depth): adakitess - arc tholeiitic - calc-alkaline - +/-back-arc rocks - giant magmatic provinces with boninite-like intrusive rocks, including more deep coronites or drusites (up to 7-9 kb), and extrusive rocks close to an revolutionary AR/PR boundary relates, as proposed, to an energy impulse after a density collapse in a core. Very important that seemed as 'normal' island arc rocks, however, voluminous 2.5-2.4 Ga boninite-like rocks of Northern hemisphere deals with the buried subduction-related old source indeed, mobilized during the back-arc rift events. Interlayering of komatiites and boninite-like rocks is an important in this view too (Boily, Dion, 2002).
- important explanation of very long dyke swarms assuming plate moving with a speed, for example, 5 cm/year for 1 500 km during 30 Ma relate to a large plume, ex., Mackenzie dyke swarm, N. America (Heaman, 1997)
- Cu-mineralization of intermediate subduction-related rocks is stipulated by the role of H₂O-rich fluid, S-activity (subducted sediments, buried fluid etc.). This, could be said, subduction-related Cu-type is characterized by the genetic relation Cu with Au, Ag, As, Hg, Bi, Sb; in lesser extend (mostly granitoids-related), Sn, W and Mo.
- the very andesitic eruptions are the mostly catastrophic being one of the terrible hazards. Serious impact on the world ecology up to several years (in critical events) deals with strong and catastrophic andesitic eruptions mentioned (ex., Krakatoa etc.).

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