



The Late Paleozoic Southern Margin of the Siberian paleocontinent: transformation from an active continental margin to intracontinental rifting

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The large volcanoplutonic belt was formed on the southern margin of Siberian paleocontinent in the Early Carboniferous–Early Permian. Now it's stretched through whole Mongolia and the adjacent region of China. In the belt structure there are defined the successive rock complexes: the older one represented by differentiated basalt–andesite–rhyodacite series and younger bimodal complex of basalt–comendite–trachyrhyolite composition. The granodiorite–plagiogranite and diorite–monzonite–granodiorite plutonic massifs are associated with the former, while peralkaline granite massifs are characteristic of the latter. Geochronological results and geological relations between rocks of the bimodal and differentiated complexes showed first that rocks of the differentiated complex originated 350 to 330 Ma ago at the initial stage of forming of the marginal continental belt, linked with development active continental margin. This is evident from geochronological dates obtained for the Adzh–Bogd and Edrengeyn–Nuruu massifs and for volcanic associations of the complex. The dates are consistent with paleontological data. The bimodal association was formed later, 320 to 290 Ma ago. The time span separating formation of two igneous complexes ranges from several to 20–30 m.y. in different areas of the marginal belt. The bimodal magmatism was interrelated with rifting responsible for development of the Gobi–Tien Shan rift zone in the belt axial part and the Main Mongolian lineament along the belt northern boundary. Loci of bimodal rift magmatism likely migrated with time: the respective magmatic activity first initiated on the west of the rift system and then advanced gradually eastward with development of rift structures. Normal granitoids untypical but occurring nevertheless among the products of rift magmatism in addition to peralkaline massifs are assumed to have been formed, when the basic magmatism associated with rifting stimulated crustal anatexis and generation of crustal granitoid magmas under specific conditions of rifting within the active continental margin.