

THE NEOPROTEROZOIC PALEO-ASIAN OCEAN: AGE OF INCEPTION AND THE RODINIA BREAK-UP

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The Paleo-Asian Ocean whose fragments are found in Urals-Mongolian foldbelt, existed throughout the Neoproterozoic early and middle Palaeozoic. The first event related to the formation of the ocean occurred 1100-1000 Ma ago. This period characterises the development of passive continental margins on the Siberian, Tarim, North China and Kazakhstan cratons, most likely to be Rodinia fragments. Evidence for active margins first appeared at about 1000 Ma. Fragments of N-MORB type oceanic crust (1000 Ma) with tholeiitic basalts ($\epsilon_{\text{Nd}} = +6.9$) are located in Baikal-Muya zone. This zone also contains volcanic arc fragments (825-880 Ma) and complexes of back-arc basins. The Dunzhugur complex (East Sayan) contains full ophiolite sequence (U-Pb, Pb-Pb and Sm-Nd ages 1010-1020) with mantle tectonites, layered complex, sheeted dike complex and lavas. Associated volcanics show supra-subduction geochemical fingerprints. For the interval 850-530 Ma obtained in the last time the most considerable amount of geochronological data. These data show that during this time a large intercontinental Paleo-Asian ocean basin existed between Baltica, Siberia, Kazakhstan, Tarim and North China. This oceanic basin, its size and complicated structure may be compared with the modern Indian and Pacific oceans. The existence of the ocean is confirmed by Circum-Siberian belts of ophiolites and subduction related volcanics with ages of 1000, 850-830, 670-640, 570 and 530 Ma, younging to the South and West (in modern coordinates). The determination of the age of these complexes has a notable importance for the reconstruction of Rodinia break-up.