

Neoproterozoic riftogenic basins in the south-west of Siberian Craton and Break-up of Rodinia

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After tectonothermal event about 850 Ma of final terranes amalgamation in the south-west of Siberian craton the record of breakup of the Rodinia Supercontinent is preserved in Mezoproterozoic belt (Yenisei Ridge). A system of riftogenic basins filled with sedimentary rocks dated 850-600 Ma is present. In the Yenisei Ridge there are two conjugate depressions: Vorogovskaya filled by Vorogovian series (4500 m) and Teisko-Chapskaya filled by Chingasanian series (2000 m). They have been kept as the residual superimposed basins and grabens. The sequences of deposits and the rate of sedimentation, increasingly deepening of the basins and appearance the deep-sea environments and also lateral overlapping sedimentation - all these testify the depressions are to be aulacogene type. The sedimentation was beginning after partial denudation of the Mezoproterozoic ofiolite complex with conjugate terrane related basins and exposure the collisional granitic massifs.

On the example of well investigated sedimentary basins in Vorogovsky aulacogene are defined four stages of the development: (1) graben, (2) proto-gulf, (3) deep-sea basin, (4) shallow shelf of continental embakment. The following depositional systems replaced each other in time: fluvial-deltaic, carbonate platform and marginal carbonate ramp, carbonate-terrigenous turbidites (deep-sea fan), terrigene-carbonate shelf deposits related with tides.

The sedimentary complex of aulacogens was overlapped with slight disconformity by Upper Vendian (Nemakit-Daldynian) supratidal and fluvial deposits.