FRASNIAN RADIOLARIAN ZONES OF UPPER DEVONIAN

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Studies of Frasnian radiolarian assemblages of the Timan-Pechora Basin, N. Mugodzhary and W. Australia allowed us to distinguish the three radiolarian zones in the Frasnian stage: Helenifore gogoense - Retisphaera concinna zone corresponding to the Lower Frasnian substage, Moskovistella allbororum - Ceratoikiscum ukhtensis zone correlative to the Middle Frasnian and Bientactinosphaera egindyensis - Polyentactinia circumretia zone corresponding to the Upper Frasnian substage.Stratotype of Upper Frasnian zone Bientactinosphaera egindyensis - Polyentactinia circumretia is middle section of the Egindy Formation, outcropping in the Aitpaika River valley of the N. Mugodzhary, Kazakhstan (Nazarov, 1975). This radiolarian zone correlate with conodont zone rhenana - linguiformis. The characteristic species of this zone are Polyentactinia circumretia Naz. et Orm., Bientactinosphaera egindyensis (Naz.), Astroentactinia stellata Naz. Stratotype of Middle Frasnian zone Moskovistella allbororum - Ceratoikiscum ukhtensis is the Domanik Formation of the Timan-Pechora Basin, Russian (Afanasieva, 1997). This radiolarian zone correlate with conodont zone punctata - Early rhenana. The characteristic species of this zone are Moskovistella allbororum Afan., Radiobisphaera menneri Afan., Spongentactinella olafi Afan., Ceratoikiscum ukhtensis Afan. Stratotype of Lower Frasnian zone Helenifore gogoense - Spongentactinia concinna is the Gogo Formation of the Canning Basin, W. Australia (Aitchison, 1993; Won, 1997). This radiolarian zone correlate with conodont zone Lower - Middle asymmetricus. The characteristic species of this zone are Ceratoikiscum echinatum Aitch., Helenifore gogoense Aitch., Stigmo-sphaerostylus hystricuosa (Aitch.), Retisphaera concinna (Aitch.).