

Latest Jurassic-earliest Cretaceous radiolarian fauna from the Xialu Chert in the Yarlung Zangbo Suture Zone, Southern Tibet: Comparison with coeval western Pacific radiolarian faunas and paleoceanographic implications

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Triassic, Jurassic and Cretaceous radiolarian faunas have been reported recently from pelagic sediments in the Yarlung Zangbo Suture Zone, southern Tibet (Matsuoka et al. 2001, 2002; Wang et al. 2002, Ziabrev et al. 2004). These micropaleontological data can contribute not only to geotectonic history but also to paleoceanographic reconstruction. The Xialu Chert is distributed in the south of Xigatze along the southern margin of the Yarlung Zangbo Suture Zone and represents deep marine sediments between the Indian Block and Lhasa Block. This paper presents a full assemblage of a latest Jurassic (Tithonian)-earliest Cretaceous (Berriasian) fauna of the *Pseudodictyomitra carpatica* (KR 1) Zone (Matsuoka 1995a) in the Xialu Chert and compares it with coeval radiolarian faunas in the western Pacific regions. This paper discusses the depositional site of the Xialu Chert from a paleobiogeographic point of view.

KR 1 radiolarian fauna in the Xialu Chert (Xialu fauna) is composed of about 100 species. Abundant species include *Cinguloturris cylindra* Kemkin and Rudenko, *Emiluvia chica* Foreman, *Eucyrtidiellum pyramis* (Aita), *Loopus nuda* (Schaaf), *Pseudodictyomitra carpatica* (Lozyniak), *Sethocapsa*(?) *subcrassitestata* Aita, *Sethocapsa*(?) *ritteni* (Tan), *Stichocapsa praepulchella* Hori, *Svinitzium pseudopuga* Dumitrica, *Tethysetta dhimenaensis* (Baumgartner), *Tethysetta usotanensis* (Tumanda), and *Tethysetta boesii* (Parona). Dominant genera include *Archaeodictyomitra*, *Hemicryptocapsa*, *Xitus*, and *Zhamoidellum*. The genera *Mirifusus*, *Podobursa*, *Podocapsa*, *Ristola*, and *Syringocapsa* are rare. The *Vallupus* group is absent and *Pantanellium* is not common.

Northern hemisphere Middle-latitude coeval radiolarian faunas are found in the Torinosu Group and its equivalent formations in Southwest Japan. Common species between the Xialu and Torinosu faunas are *Eucyrtidiellum pyramis* (Aita), *Protunuma japonicus* Matsuoka and Yao, *Sethocapsa*(?) *subcrassitestata* Aita, and *Solenotryma*(?) *ichikawai* Matsuoka and Yao. They were originally described as new species from the Torinosu Group. Other common species include *Cinguloturris cylindra* Kemkin and Rudenko, *Emiluvia chica* Foreman, *Loopus nuda* (Schaaf), *Pseudodictyomitra carpatica* (Lozyniak), *Svinitzium pseudopuga* Dumitrica, *Tethysetta boesii* (Parona), and *Tethysetta dhimenaensis* (Baumgartner).

A low-latitude earliest Cretaceous (Berriasian) fauna was reported in a rock sample from the Mariana Trench. The Mariana fauna contains about 400 species and represents the most diversified radiolarian fauna among the Berriasian radiolarian faunas in the world. Dominant genera are *Archaeodictyomitra*, *Hemicryptocapsa*, *Loopus*, *Napora*, *Neorelumbra*, *Obesacapsula*,

Podobursa, *Praecaneta*, *Pseudodictyomitra*, *Saitoum*, *Sethocapsa*, *Svinizium*, *Tethysetta*, *Willriedellum*, *Xitus*, and *Zhamoidellum*. One of the distinctive features of the Mariana fauna is to contain abundant pantanellid taxa including the *Vallupus* group. In spite of diversified nature of the Mariana fauna, species belonging to the genus *Eucyrtidiellum*, common both in the Xialu and Torinosu faunas, have not been found so far. The genera *Cinguloturris*, *Mirifusus*, *Ristola*, and *Solenotryma* are rare.

The faunal comparison among southern Tibet and western Pacific regions revealed that the Xialu fauna is similar to northern hemisphere middle-latitude assemblages represented by the Torinosu fauna. On the other hand, the Xialu fauna is less similar to low-latitude (tropical) assemblages represented by the Mariana fauna. This indicates that the Xialu fauna is regarded as a representative of southern hemisphere middle-latitude faunas. The depositional site of the Xialu Chert in the KR 1 time was outside of the *Vallupus* Territory (Matsuoka 1995b) which is a tropical radiolarian realm in the Late Jurassic-early Cretaceous time. A mirror-image provincialism to the equator in radiolarian faunas is reconstructed for the Tethys-Pacific Ocean in the latest Jurassic-earliest Cretaceous time.

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