

Radiolarian chert with striped structure and its paleoceanographic significance

Atsushi Matsuoka[1]; Takashi Nikaido[2]; Tetsuji Onoue[3]; Lawrence R. Zamoras[4]

[1] Dept.Geology, Niigata Univ; [2] Grad. Sch. Sci. & Tech., Niigata Univ.; [3] Earth and Environmental Sci., Kagoshima Univ; [4] none

<http://geo.sc.niigata-u.ac.jp/~earth-history/index.html>

Radiolarian cherts with striped structures are found in pelagic sequences embedded in ancient accretionary complexes. The striped cherts are characterized by having bedding parallel laminae-like sedimentary structures. Both thinning upward and thickening upward sequence in laminae-like structures are recognized in the striped chert.

Striped cherts occur commonly in Jurassic accretionary complexes in the North Palawan Block in the Philippines. Cherts with striped structure are generally thicker than the surrounding bedded cherts. The maximum thickness of the striped chert rarely attains 1 m. More than 100 stripes are sometimes found in a single thick chert bed.

Another example can be seen in the Mino Terrane, central Japan. Our detailed lithostratigraphic and radiolarian biostratigraphic investigations on chert sequences exposed along the Kiso River revealed that a striped chert dominant interval is found in Upper Triassic section where chert sequence is more silica rich than older or younger horizons.

Rhythmical bedding of radiolarian chert is believed to be formed by any global cyclic phenomena such as the Milankovich Cycle. As striped structures are found in a single chert bed, this structure should be related to any periodic events which are smaller in time constant than that of bedding. A combination of two cyclic input with different periodicity in pelagic environments may produce a striped chert within bedded cherts.