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Discovery of calcispheres from Upper Triassic pelagic limestone in Kutajima Island, Japan, and its paleoceanographic implications

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The paper described the stratigraphy and microscopic characteristics of the Upper Triassic siliceous micrite in Kutajima Island, southwest Japan. Investigated was an upper Carnian to lower Norian siliceous micrite succession of the Sambosan accretionary complex, defined as a Late Jurassic to Early Cretaceous subduction-generated accretionary complex. The examined succession comprises a lower siliceous micrite unit (ca. 14 m thick) and upper siliceous micrite unit (ca. 7 m) with minor dolomite. The siliceous micrite comprises radiolarian remains and filamentous shells of thin-shelled bivalves disseminated in a micritic matrix. Thin-section analysis and SEM observation recognized globular calcitic particles (100-200 microns) embedded in a micritic matrix. These particles have an affinity most likely to calcareous dinoflagellate cyst described from Upper Triassic micritic limestone in Northern Alps, Timor, and northwestern Australia. The biotic constituents and lithologic properties of the Sambosan siliceous micrite indicate that the accumulation of deep-water pelagic carbonates in the Panthalassa Ocean occurred in response to the evolution of calcareous dinoflagellate in Late Triassic time.