Proposal of Deep Sea Drilling for the Jurassic/Cretaceous boundary in the western Pacific

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The Global Boundary Stratotype Section and Point (GSSP) of the Jurassic/ Cretaceous boundary (JKB) is the last among the GSSPs in the Phanerozoic. It is defined as the base of the Berriasian Stage. Many attempts to define the base Berriasian have been made. The Berriasian Working Group in the International Subcommission on Cretaceous Stratigraphy decided in 2016 to use the base of the *Calpionella alpina* Subzone as the primary marker for the JKB. However, the distribution of *Calpionella* is limited to the western Tethys, north Atlantic and central-south America. To determine the base of the Berriasian outside of these regions, alternative markers are needed. Radiolarians are a good candidate for defining the JKB because they are widespread and can be found both shallow and deep marine facies.

Pelagic radiolarian-rich sequences across the JKB have been reported in ODP/IODP sites in the western Pacific. The most complete section encompassing the JKB is recorded at ODP Leg 129 Site 801 in the central Pigafetta Basin, western Pacific. Unfortunately, the recovery of cores at the site was too poor to clarify the evolutionary lineages of radiolarians. Extremely well-preserved radiolarian fossils together with minor calcareous nannofossils of early Berriasian age were obtained from the outer slope of the Mariana Trench by a dive of "Shinkai 6500" in 1993. The rock sample is not a chert but a tuffaceous clayey radiolarite which contains as many as 400 species of radiolarian shells with opal-A phase. A sequence suitable for radiolarian biostratigraphy around the Jurassic-Cretaceous transition is expected to lie under the deep sea near the Mariana Trench. Deep sea drilling nearby the dive site can contribute to gathering crucial data for selecting the GSSP of the JKB.

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