Radiolarian faunas around the Jurassic-Cretaceous boundary in the Bosso Valley section, central Italy

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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. The formal definition was decided in 2016 to use the base of the *Calpionella alpina* Subzone as the primary marker by the Berriasian Working Group in the International Subcommission on Cretaceous Stratigraphy. The definition is satisfactorily applicable for shallow marine deposits within the western Tethys, north Atlantic and central-south America. Unfortunately, the primary marker taxon cannot be found in the Pacific and circum-Pacific regions because of the limited distribution of *Calpionella*. To determine the base of the Berriasian outside of the *Calpionella* territory, alternative markers are needed.

Radiolarians are good candidates for defining the JKB because they are wide spread and can be found both shallow and deep sedimentary facies. Pelagic sequences across the JKB have been reported in ODP/IODP sites in the western Pacific and land sections in Japan, the Philippines, southern Tibet, Iran and others. Evolutionary lineages of several radiolarian taxa across the JKB are reviewed and suitable bioevents, which are approximate to the JKB, are presented. The *Loopus–Pseudodictyomitra* lineage can be the most important phylogeny for defining the JKB.

The Bosso Valley section in Umbria–Marche, central Italy, is one of potential candidates for GSSP of the JKB. The Maiolica Formation, which crosses the JKB, is characterized by whitish, beige to gray colored, well-bedded micritic limestones with abundant black to gray chert layers and nodules. Calpionellid stratigraphy and magnetostratigraphy have been studied sufficiently in the section. The base of the *Calpionella alpina* Subzone, i.e. the JKB, is placed between Beds 77 and 78. We carried out detailed field observations and careful sample collections in a 4-m interval across the JKB. Acid-etched examination of rock samples revealed that well-preserved radiolarians are recognized inside the lime part near the chert layers or nodules. Several samples of micritic limestone below and above the JKB yield well-preserved radiolarians. The result of radiolarian faunal analysis in the Bosso Valley section is presented.

Keywords: Jurassic–Cretaceous boundary , GSSP, Radiolaria

