

## The preservation of radiolarians across the Jurassic-Cretaceous (J/K) boundary in the Bosso Valley section, Central Italy

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The Bosso Valley section is located near the Pianello-Cagli road and follows the Bosso River in the Umbria-Marche area of the Central Italy. The pronounced increase in abundance of *Calpionella alpina* documented at the base of *Calpionella* zone was accepted as the Jurassic–Cretaceous boundary (JKB) indicator in the Bosso Valley section. The magnetostratigraphical record of the JKB has been correlated with the *Calpionella* zone. The JKB is placed between Beds 77 and 78 (Housa et al. 2004). The Maiolica Formation, which crosses the JKB, is characterized by whitish, beige to gray colored, well-bedded limestones with abundant black to gray chert layers and chert nodules and marly intervals. Certain horizons in the Bosso Valley section yield well-preserved radiolarians, significant for the correlation of deep marine sediments. In order to establish radiolarian biostratigraphy across the JKB, detailed study was conducted to elucidate relationship between lithology and preservation of radiolarians in the Bosso Valley section.

Thin sections of 19 samples were observed to elucidate the relationship between lithology and preservation of radiolarians. Three samples of micritic limestone below the JKB (Beds 73, 75, and 77) and two samples above the JKB were collected for analyzing. The limestone samples were immersed in 10% hydrochloric acid for 30 to 60 minutes, then washed, dried and examined under a binocular microscope and a scanning electron microscope.

Radiolarians are abundant both in the chert bands or nodules and in the limestone. Preservation of radiolarians varies in different parts because of the diagenesis. Surfaces of etched limestone are observed and divided into different parts, based on the preservation of radiolarians. Radiolarians are generally calcified in the pure lime beds. Radiolarians are generally bad preserved in the chert bands or nodules. Well-preserved radiolarians are located inside the lime part near the chert bands or nodules. Primary results of radiolarian assemblages near the JKB are proposed. Limestones near chert layers or nodules in the Bosso Valley section enable radiolarian biostratigraphic study across the JKB.

Keywords: preservation, radiolarians, Jurassic-Cretaceous (J/K) boundary