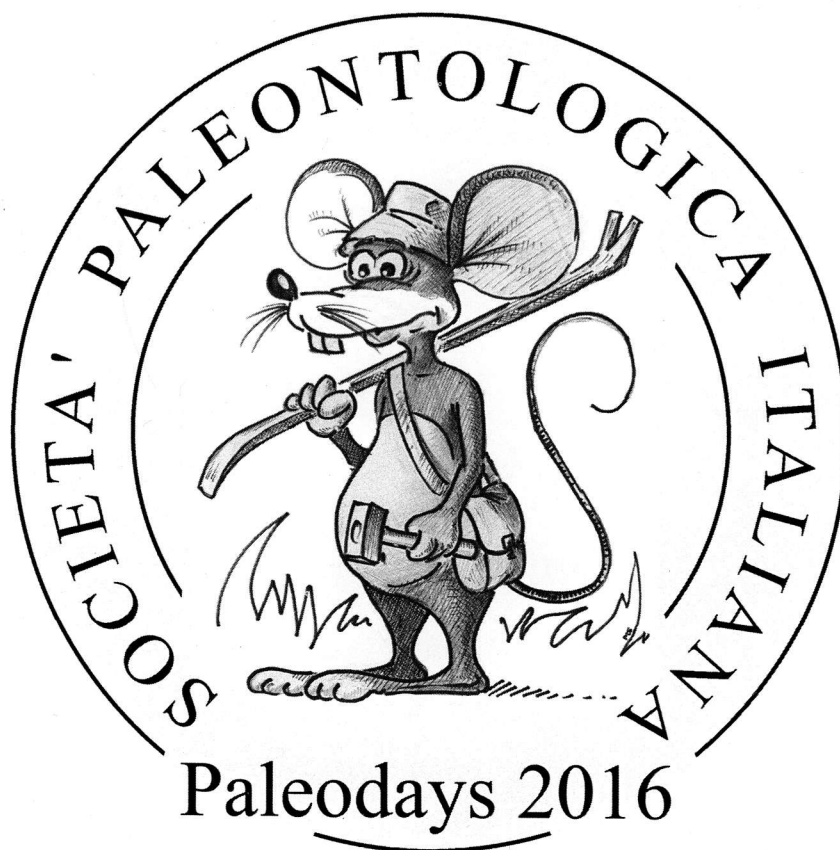


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The Bartonian–Priabonian transition at the Varignano Section (Trento Province, Northern Italy): correlation between shallow benthic and calcareous plankton zones

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Correlation between biotic events from shallow-water environments and deep-water setting is one of the main challenges in biostratigraphy. The Bartonian/Priabonian transition has attracted great attention by biostratigraphers in the last decade in searching for a boundary stratotype section. The current candidate for the Global Stratotype Section and Point (GSSP) of the base of Priabonian is the Alano di Piave section (Agnini et al. 2011, 2014). Unfortunately, at Alano coarse bioclastic levels containing larger foraminifera are limited to an interval well below any of the biotic and magnetostratigraphic criteria proposed to correlate the base of the Priabonian, (Agnini et al. 2011, 2014).

The Varignano section (Trentino region, northern Italy), cropping out ca. 80 km west of the Alano section, provides a unique opportunity for attaining a direct correlation between Shallow Benthic Zones (SBZ; Serra-Kiel et al., 1998) and standard calcareous plankton zones at the Bartonian–Priabonian transition because it preserves several coarse bioclastic levels rich in larger foraminifera. These levels are quite evenly distributed from base to top, and are intercalated with basinal marls, crystal tuff layers, and sapropels. Bioclastic beds derive from the nearby Lessini Shelf, the Paleogene paleogeographic unit rising east of the Lombardian Basin, where the Varignano section was deposited. The study section spans the planktic foraminiferal Zones E12 to lower E14 of Wade et al. (2011), the calcareous nannoplankton Zones MNP16Bc to MNP18 of Fornaciari et al. (2010) and the Chron 18n to 17n.2n. All primary and secondary calcareous plankton bioevents are recorded at Varignano in the same order and stratigraphic position as in Alano.

Our results demonstrate that the Varignano section spans the upper part of SBZ 17 and the lower part of SBZ 18, with the boundary marked by the first occurrence of the genus *Pellatispira*. It occurs ca. 2 m below the extinction of morozovellids and large acarininids, one of the criteria proposed to correlate the base of the Priabonian. This is in contrast with the base Priabonian corresponding to the base of SBZ 19 as traditionally agreed by shallow-water biostratigraphers.

Furthermore, biomagnetostratigraphic data allow us to correlate a prominent crystal-tuff layer outcropping at Varignano with the Tiziano bed, the tuff layer which base has been proposed to designate the GSSP of Priabonian in the Alano section (Agnini et al. 2011, 2014).

The direct correlation of SBZ, calcareous nannofossil zones and planktonic foraminiferal zones together with magnetostratigraphy gives the chance to verify the current biostratigraphic correlation schemes. We here reaffirm the substantial validity of the calcareous plankton correlation, whereas the correlations with SBZ need to be revised.

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