

Jurassic magnetostratigraphy from the Northern Apennines (Italy)

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Abstract: The investigation of the Jurassic magnetostratigraphy represents a challenging but interesting issues that may be understood by studying land sections characterized by well-preserved primary magnetization, high sedimentation rates and good biostratigraphic markers. All of these conditions are satisfied by the pelagic sequences exposed in the 130-m-thick Salto del Cieco section (Northern Apennines, Italy) that encompass the Pliensbachian to the J/K boundary. Here, a total of 435 cylindrical samples have been collected with a sampling resolution of 30 cm and stepwise analysed through thermal cleaning. Although the sedimentation rate is lower than expected for this depositional environment, it is higher than for most of the European sections, and allowed defining: 1. a continuous record of polarity chrons from M19 to M25n that fully matches the sequence of M-polarity chrons inferred from oceanic magnetic anomaly analysis and other European land sections; 2. Absence of correlation during a period of 17 Myr (Early Kimmeridgian-Early Bajocian) because of a combination of low sedimentation rates and high frequency of reversals; 3. A good correlation with the Geomagnetic Polarity Time Scales in the Toarcian-Aalenian; 4. A good correlation for the Carixian interval only with similar condensed land sections. Furthermore, the combined use of magnetostratigraphy and biostratigraphy constrains the J/K boundary at 55% of the M19, corresponding to the “explosion” of *Calpionella alpine*. In addition, we found a possible geomagnetic excursions in chrons M20r and M21n.

Keywords: Jurassic, Jurassic/Cretaceous boundary, magnetostratigraphy, polarity chron.