

## A REVISED AMMONITE BIOSTRATIGRAPHY FOR THE UPPER TURONIAN– LOWER CONIACIAN OF THE SERGIPE BASIN, BRAZIL

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The upper part of the Cenomanian–Coniacian depositional sequence of the Sergipe Basin in northeastern Brazil was first subdivided with ammonites by G. Beurlen in 1970, followed by P. Bengtson, in 1983, and Smith and Bengtson, in 1991. The Turonian–Coniacian (T–C) boundary was then by most workers positioned at the level of first occurrence (FO) of the ammonite *Forresteria* (*Harleites*) *petrocoriensis* (Coquand), a species closely related to forms occurring in Sergipe, where species of *Barroisiceras*, *Forresteria*, *Solgerites* and *Prionocycloceras* were taken as ammonite markers for the Coniacian. However, *F. (H.) petrocoriensis* is a relatively rare species, and the concept of this species varies from author to author. This makes identification controversial, in particular when dealing with poorly preserved material, which results in uncertainties in positioning the T–C boundary. In the past decades, inoceramid bivalves have emerged as superior chronostratigraphic tools for the Turonian–Coniacian interval. At the Second International Symposium on Cretaceous Stage Boundaries, in Brussels, 1995, the Coniacian Working Group voted in favour of a candidate Global boundary Stratotype Section and Point (GSSP) for the base of the Coniacian in the inoceramid-rich Salzgitter-Salder quarry in Lower Saxony, Germany, at the level of FO of a form currently referred to *Cremnoceramus deformis erectus* (Meek). This level lies well above the FO of *F. (H.) petrocoriensis*, the traditional ammonite boundary marker. Along the western margin of the South Atlantic Ocean, the Turonian–Coniacian boundary appears to be exposed only in the Sergipe Basin. Recent work on the Turonian inoceramid succession of the basin by one of us (E.J.A.) has yielded the topmost Turonian species *C. waltersdorfensis waltersdorfensis* from a level above beds with *Forresteria* (*Solgerites*), overlying the lower Coniacian *Barroisiceras onilahyense*–*Forresteria* zone of Smith and Bengtson. The middle Coniacian *Solgerites armatus*–*Prionocycloceras lenti* zone of Smith and Bengtson was found to be composed of two stratigraphically distinct assemblages, a *Prionocyclus*/*Prionocycloceras* assemblage below the *B. onilahyense*–*Forresteria* zone and an upper *F. (Solgerites)* assemblage above this zone. The lower, *Prionocyclus*/*Prionocycloceras* assemblage contains typical “Coniacian” *Prionocycloceras* together with the uppermost Turonian marker species *Prionocyclus germari* (Reuss), which casts doubts about the taxonomic separation of the two genera. As a result of the inoceramid criteria to be formally introduced with the ratification of the proposed GSSP (FO of *Cremnoceramus deformis erectus* as the T–C boundary marker), the stage boundary will shift upwards stratigraphically in the Sergipe Basin and the lower–middle Coniacian belt reduced to a narrow strip. A revised ammonite zonation for the upper Turonian–lower Coniacian interval of the basin is proposed on the basis of the stratigraphic succession of the ammonite genera *Subprionocyclus*, *Prionocyclus*/*Prionocycloceras*, *Barroisiceras*, *Forresteria* (*Harleites*), *Forresteria* (*Solgerites*), and *Peroniceras*. Only the *Peroniceras* assemblage and possibly the youngest representatives of *F. (Solgerites)* can be referred to the Coniacian.