The Tithonian/Berriasian stage boundary and the base of the Cretaceous System

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Past decisions state that a Berriasian GSSP should be defined in Tethys, the largest geographical entity at that time. In 2007, the Berriasian WG (ISCS) agreed to initiate a new phase of activity, refining Tithonian-Berriasian correlations, partly directed at fixing a J/K boundary (WIMBLEDON et al., 2011). The J/K interval lacks any marked chemostratigraphic event that helps fix a boundary. The WG has concentrated on the detailed documentation of key sites, calibrating magnetostratigraphy with fossil range data, and prospective primary marker levels for a boundary (including the bases of the Jacobi Sbz., the calpionellid Alpina Sbz., of M18r, and the Grandis Sbz.). Many localities, from California to Tibet and the Russian Far East, have been assessed, and putative J/K levels have been better documented, but long-range correlation to some remote boreal regions, with impoverished, endemic biotas (*vis a vis* Tethys), and extensive non-marine basins, remains approximate. We have highlighted the absence of '*Berriasella' jacobi* in the lower nominal Jacobi Sbz. (FRAU et al., 2016) (and the predominance of *Delphinella*, e.g. France & Ukraine), and the species has been ruled out as a GSSP marker, as has the Grandis Sbz's base. Also, lack of biotic events near the base of M18r makes it an unsuitable alternative. J/K correlation had by 2007 already shifted away from a concentration on ammonites, with endemism repeatedly recognised as an obstacle, even in western Tethys. Calpionellids have been seen as the most useful J/K fossil group by many authors, and the turnover from *Crassicollaria* to small orbicular *Calpionella alpina,* (+*C. parvula* & *T. carpathica*) documented as a consistent and widespread marker in mid M19n.2n. A formal ballot of the Berriasian WG in June 2016 led to a decisive vote (76 %) that selected the Alpina Subzone base as the primary T/B boundary marker. Nannofossil FADs bracket this calpionellid turnover: the FADs of *Hexalithus strictus* [=*H. geometricus*], *Cruciellipsis cuvillieri* and *Nannoconus globulus globulus* occur a little below this event, and the FAD of *N. steinmannii minor* immediately above it (Puerto Escano; but just below it at Rio Argos (HOEDEMAEKER et al., 2016)). The FAD of *N. wintereri* occurs just below the Alpina Sbz's base (e.g. Puerto Escano: SVOBODOVA & KOSTAK, 2016) or just above (e.g. Strapkova). *N. kamptneri minor* appears in M19n.2n (e.g. Theodosia: BAKHMUTOV et al., 2016), and in M19n.1r (e.g. Puerto Escano) (WIMBLEDON, 2016). The core area with precise correlations has been expanded by recent studies: with the unambiguous application of the 'W.Tethyan' calpionellid scheme to Mexico (LOPEZ et al., 2013), Arabia, N. Iraq and Iran, finds of lower Berriasian nannofossil markers in N. Africa, Yemen, Iraq, Tibet and the Andes, and magnetostratigraphy extended to California, the Andes and N. Africa for the first time. Better resolution shows that the bases of the Alpina and Jacobi subzones do not coincide, and the Elliptica Sbz. base is below the Occitanica Zone. Definite calpionellid records in Australasia and Argentina await fuller investigation, as do problematic nannofossils and radiometric dates in southern Tibet. Work must now focus on expanding efforts to identify proxies for the *C. alpina* level in austral and little studied boreal areas (e.g. belemnites – Siberia/Pacific), and on better targeting of magnetostratigraphy (SCHNABEL et al., 2015).