



Palynological criteria to define the base of the Jurassic

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During the Triassic-Jurassic boundary extinction event there were major changes in the terrestrial and marine realm but the exact cause, timing and pattern of the extinction is still not clear. Important questions to answer are: what are the best palynological criteria to define the base of the Jurassic and where to put the Tr-J boundary? We present the results of a high resolution palynological study from two European Tr-J boundary key sections: Hochalplgraben (Austria), and St. Audrie's Bay (UK). Both sections show distinct negative shifts in the carbon isotope record. In the Austrian section, the palynomorph assemblages (e.g. *Ovalipollis*, *Rhaetipollis*) show still a Rhaetian age for the lowermost part of the Tiefengraben Member. Based on changes in assemblages and the first occurrence of *Cerebropollenites thiergartii*, the Tr-J boundary may be drawn in the middle part of the Tiefengraben Mb where also the oldest Jurassic ammonite enters the record. Also in St. Audrie's Bay the FO of *C. thiergartii* appeared to be suitable to indicate the base of the Jurassic. In both sections pollen assemblages below the initial negative carbon excursion show an assemblage dominated by pollen (e.g. *Classopollis*). Just after the initial shift both sections show a distinct increase in spores and a decrease in the amount of *Classopollis*. However, in Austria the dominance of spores persists throughout the section while in St. Audrie's Bay the increase in spores is short-lived and followed by a monotonous assemblage of *Classopollis*. The same pattern as in St. Audrie's Bay has been recognized before in the Newark basin (North America) where the *Classopollis* dominated floras are assigned to the Jurassic. The present study shows that the lower part of the *Classopollis* dominated palynofloras are of late Triassic age which has implications for the placement

of the Tr-J boundary and its relation to the CAMP volcanism.