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Susceptibility- and gamma-ray spectrometry-data used for stratigraphic correlations: case study on Upper Triassic beds in Turkey

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A Julian/Tuvalian (=Lower/Upper Carnian) substage boundary within the Kasimlar Formation, recently detected at Aşağiyaylabel (Taurus Mountains, Turkey) by facies analyses and biostratigraphic ammonoid investigations, was additionally detected by magnetic susceptibility (MS) and gamma-ray spectrometry (GRS). The Aşağiyaylabel-sequence, a key section concerning environmental changes during the Early to Late Carnian time, represents a deepening sequence from platform carbonates to pelagic limestones and marls. A positive shift in MS values, from 50×10^{-6} SI up to 250×10^{-6} SI at the boundary layers, as well as in GRS-values, from 21.35 nGy/h at the Lower Carnian sediments up to 100.35 nGy/h at the Upper Carnian sediments, allows a correlation of the Julian/Tuvalian boundary strata over wide areas. A second, smaller positive shift in MS- is observed at the transition from shallow water carbonates of the Kartoz Formation into deeper water carbonates from the base of the Kasimlar Formation (0 to 10×10^{-6} vs. 50 to 80×10^{-6} SI). This study represents the first MS- and GRS-data from Lower to Upper Carnian sediments, which reliably reflect lithological changes and display a direct function of enhanced terrigenous input into marine sediment systems, most probably caused by variations in climatic conditions.