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Integrated stratigraphy and eustatic sea-level fluctuations around the Santonian-Campanian boundary interval

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The Gosau Group successions in the Northern Calcareous Alps of Austria and Germany provide sections that allow the integration of various stratigraphic signals from macro- and microfossils to chemostratigraphy and magnetostratigraphy. Sections in the area of the Gosau valley, e.g. the Postalm section (Upper Austria - Salzburg) expose a Santonian to Maastrichtian succession of neritic to bathyal sediments. At the Postalm, the Santonian-Campanian boundary interval comprises a deepening succession from a sandy conglomerate with a hardground on top, overlain by grey to yellowish shelf marls grading into red marly limestones. The base of the Campanian can be defined by magnetostratigraphy, i.e. the reversal from Chron C34n (the Long Cretaceous Normal Polarity-Chron) to C33r. An interval of ca. 80 cm of undetermined magnetostratigraphy between clearly normal and clearly reversed polarities is present. A 1 m thick interval of unusual high magnetic susceptibility values is present at the end of chron C34n (latest Santonian).

Two of the main suggested plankton biomarkers to pinpoint the Santonian-Campanian boundary, i.e. the first occurrence of the nannofossil *Broinsonia parca parca* and the last occurrence of the planktonic foraminifer *Dicarinella asymerica* occur in close proximity to the reversal. Strontium isotope stratigraphy indicates a value of 0.707532 for the base of the Campanian in the Postalm section. Carbon isotopes show a positive excursion near the boundary, i.e. the Santonian-Campanian carbon isotope event.

Oxygen isotopes show a negative excursion slightly below the Santonian-Campanian boundary, followed by a trend to more positive values. Together with the magnetic susceptibility data, sequence stratigraphy interpretations and global correlations a sea-level lowstand can be inferred to occur just at the boundary, preceded by a rather short-duration sequence of late Santonian age, and a longer sequence of early Campanian age. The inferred lowstand at the Santonian-Campanian boundary, at the base of chron C33r, is also characterized by a significant rudist extinction event.