



Stratigraphy and geochemistry of an Early Campanian transgression (Gosau Group, Austria)

M. Wagneich and S. Neuhuber

Department of Geological Sciences, University of Vienna, Austria

(michael.wagneich@univie.ac.at)

The Bibereck Formation of the Schmidsippl section in the type area of the Gosau Group (Northern Calcareous Alps, Austria) records a transgression and deepening of the depositional area from shallow neritic to bathyal depths. The Bibereck Formation overlies sandstones of the Upper Santonian Hochmoos Formation (Sandkalkbank Member). It is characterized by sandy to silty grey bioturbated marls and marlstones, including minor amounts of mollusc debris, overlain by grey marls and marly limestones. The lower part of the Bibereck Formation indicates a deepening to nearshore-offshore transitional areas. Higher up, the marls indicate offshore deposition of fine-grained mud at palaeowater depths of about 50 to 150 m, overlain by marly limestones with more than 90% of planktonic foraminifera which point to a bathyal depositional environment.

Biostratigraphic dating indicates that the whole sampled interval belongs to the *asymetrica-elevata* Zone of the planktonic foraminifera zonation, defined by the concurrent range of *Globotruncanita elevata* and *Dicarinella asymetrica*, and nannofossil standard zone CC17b/UC12 with the marker species *Calculites obscurus*, *Lucianorhabdus cayeuxii* (both normal and curved forms) and *Arkhangelskiella cymbiformis*, which can be correlated to the early Early Campanian.

The plot of Ca/Al and Ca_{tot} over depth shows that the influence of marine derived Ca is close to zero between 0 and 5 m and increases significantly up section. $(\text{Fe}/\text{Al})/\text{calcite}$ display two peaks of more reducing conditions, one at 4 m and the second at 10 m. The decrease in K/Al is interpreted as a shift towards more humid conditions. Ba increases in the upper part of the profile indicating a shift towards lower primary production. Terrigenous minerals stay fairly constant above 7 m and decrease

further towards the top of the profile.

Biostratigraphic data indicate a duration of less than 500.000 years for the sedimentation of the Bibereck Formation, during which a deepening of the sedimentation area from a few meters water depths to about 800 to 1500 m is recorded. Geochemistry identifies two pulses of sea level change over the profile. These data give a base for comparison with overlying oceanic red beds.