

# A CAMPANIAN/MAASTRICHTIAN BOUNDARY SECTION IN THE ULTRAHELVETIC ZONE EAST OF ATTERSEE (SALZKAMMERGUT, UPPER AUSTRIA)

## EIN CAMPAN/MAASTRICHT-GRENZPROFIL IM ULTRAHELVETIKUM ÖSTLICH DES ATTERSEES (SALZKAMMERGUT, OBERÖSTERREICH)

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### INTRODUCTION

Fine clastic sediments – mostly variegated marlstones – have been deposited from the Albian on throughout the Upper Cretaceous and the Paleogene in a slope setting to the south of the European Plate (Kollmann, Summesberger 1982). Palaeogeographically this succession of slope sediments of the so-called Ultrahelvetetic Zone or “Buntmergelserie” represents the transition between the Rhenodanubian Flysch basin and the shelf of the European Plate in the north (Butt 1981). The best-studied section is the Rehkogelgraben on mapsheet 167 Grünau (Egger, Rögl 1996), which exposes tectonic slices of the Buntmergelserie from the Late Albian to the Early Campanian. Rögl (in Egger, Rögl) studied the foraminifera of the marl/clayey marl sequence of Rehkogelgraben-section and – based on the plankton-dominated foram-assembly – assumed a bathyal palaeoenvironment above the CCD.

In this paper we describe the Schönbachgraben section. It is situated along a small stream, the Schönbach (see also Švábenická et al. 2002) southeast of Kammer-Schörfling village, respectively east of lake Attersee.

### DESCRIPTION OF THE SECTION

From bottom to the top the well-exposed Schönbachgraben profile shows a thickness of about 13 m. The exposure can be reached by a footwalk of about 50 m from the Schönbach bridge. Five samples have been taken and washed for foraminifera. All samples contain a high diverse and well preserved foraminifera assemblage with abundant planktic and benthic taxa. The Campanian/Maastrichtian boundary is situated probably in the section between the samples SCH-1 and SCH-3. In the following paragraphs the samples and the lithology of the section are described from bottom (sample SCH-5) to the top (sample SCH-2).

#### Sample SCH-5

This sample originates from the lower part of the outcrop, which consists of more than 6 m thick light greyish-green marls, occasionally strongly oxidised.

Very rich foram assemblage, plankton prevails: *Globotruncanita calcarata* - marker for the Upper Campanian (Robaszynski, Caron 1995).

Stratigraphic range: base of Upper Campanian (*G. calcarata* Zone).

#### Sample SCH-4

60 cm dark greyish-green marls, in part with calcite-filled stress zones.

The foram-assembly comprises *Globotruncana falsostuarti*, *Rosita fornicata*, *Pseudotextularia elegans*, *Globotruncana ventricosa*, *Globotruncanita stuarti*.

Stratigraphic range: Upper Campanian (*G. havanensis* Zone)

Above follow about 200 cm of intercalated red and greenish-grey shales, in part strongly tectonized.

#### Sample SCH-3

This sample was taken from the red shales on the top of the intercalated/tectonized sequence.

Foraminiferal assemblage worse preserved, tests are stained by ferruginous minerals:

*Pseudotextularia elegans*, *Rosita fornicata*, *Globotruncana ventricosa*, *Globotruncana falsostuarti*.

Stratigraphic range: Upper Campanian (*G. havanensis* Zone)

Above the intercalated red/greenish-grey shales follow about 4 m of dark grey marls, in part brownish oxidized.

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#### Sample SCH-1

This sample was taken from the central part of the dark grey shales.

Very rich and well-preserved foram assemblage, plankton prevails: *Globotruncanella havanensis*, *Contusotruncana contusa*, *Bolivinoidea draco*, *Ventilabrella glabrata*.

Stratigraphic range: upper part of Lower Maastrichtian (G. gansseri Zone).

#### Sample SCH-2

Sample SCH-2 was taken from the top of the dark grey shales and marks the top of the section.

Very rich foram-assemblage, high diversity, plankton prevails, well-preserved:

*Ventilabrella hexacamerata*, *Globotruncanella stuartiformis*, *Globotruncanella havanensis*, *Globotruncana ventricosa*, *Dorothia bulleta*, *Praebulimina spinata*, etc.

Stratigraphic range: Lower Maastrichtian (G. gansseri Zone)

### PALAEOENVIRONMENT

Abundant planktonic foraminifera species with keeled tests (Globotruncanids) suggest a deposition of the marlstone in a bathyal environment. High diversity of species points to good living conditions in an open marine setting.

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SCHÖNBACHGRABEN	Upper Campanian			L. Maastrichtian	
	G. calcarata	G. havanensis /		G. gansseri?	
	SCH5	SCH4	SCH3	SCH1	SCH2
Gaudryina carinata	x	x	x		
Bathysiphon nodosariaformis		x			
Marssonella oxycona	x			x	x
Tritaxia trilatera				x	x
Ammodiscus cretaceus	x	x		x	x
Haplophragmoides sp.	x				x
Gaudryina cretacea					x
Dorothia bulleta					x
Bolivina incrassata				x	
Vaginulina trilobata				x	x
Stensioeina pommerana			x	x	
Gavelinella rubiginosa				x	
Gavelinella whitei				x	x
Pullenia cretacea	x	x		x	x
Astaculus crepidulus				x	
Bolivinooides draco				x	
Cibicides voltziana	x		x	x	x
Stilostomella pseudoscripta				x	x
Ramulina sp.	x			x	x
Allomorphina sp.				x	
Contusotruncana contusa				x	
Quadrimorphina allomorphinoides					x
Heterohelix striata	x		x	x	
Pleurostomella sp.	x	x			
Fissurina bicornis				x	
Lenticulina sp.	x	x		x	x
Bolivina incrassata crassa				x	x
Reussella szajnochae			x		x
Gavelinella umbilicata				x	
Praebulimina spinata					x
Nodosaria monile					x
Nodosaria aspera					x
Dentalina gracilis	x				x
Angulogavelinella bettenstaedti					x
Gavelinella monterelensis		x			x
Clavulina clavata					x
Rugoglobigerina rugosa	x			x	x
Rosita fornicata	x	x	x	x	x
Globotruncanita stuarti		x	x		x
Globotruncana ventricosa		x	x		x
Globotruncanita calcarata	x				
Globotruncanita stuartiformis	x				x
Heterohelix lata	x	x			x
Globigerinelloides ultramicra	x	x	x		x
Pseudotextularia carseyae				x	
Ventilabrella multicamerata					x
Archaeoglobigerina cretacea			x		
Globotruncana lapparenti	x		x		
Globotruncana arca	x		x		
Globotruncana falsostuarti		x	x		
Globotruncanella havanensis				x	x
Hedbergella sp.	x				
Ventilabrella glabrata				x	
Heterohelix globulosa	x	x	x		
Pseudotextularia elegans	x	x	x	x	x

