

Österreichische Akademie der Wissenschaften
Schriftenreihe der Erdwissenschaftlichen Kommissionen

Band 15

Aspects of Cretaceous Stratigraphy and Palaeobiogeography

Proceedings of the 6th International Cretaceous Symposium
Vienna, 2000

edited by
Michael WAGREICH



Verlag der Österreichischen Akademie der Wissenschaften
Wien 2002

British Library Cataloguing in Publication data
A Catalogue record of this book is available from the British Library

[Title picture: *Eupachydiscus isculensis* (REDTENBACHER, 1873) from the Santonian Gosau Group of Bad Ischl (Upper Austria). Holotype of the type genus; under care of Oberösterreichisches Landesmuseum, Linz; photo by W. J. Kennedy, 1986.]

Alle Rechte vorbehalten
ISBN 3-7001-3089-9
Copyright © 2002 by
Österreichische Akademie der Wissenschaften
Wien
Gesamtherstellung: Crossdesign Weitzer, A-8042 Graz
Printed and bound in Austria

Contents

Preface.....	7
Sedimentology, Geochemistry and Geoevents.....	9
AHMED E. A. & KURZWEIL, J.: Sedimentological, mineralogical and geochemical characteristics of Upper Cretaceous Egyptian phosphorites with special reference to the microbial role in phosphogenesis	11
HART, M. B., MONTEIRO, J. F., WATKINSON, M. P. & PRICE, G. D.: Correlation of events at the Cenomanian/Turonian boundary: Evidence from Southern England and Colorado	35
WRAY, D. S. & WOOD, Ch. J.: Identification of a new bentonite in sediments of Mid-Turonian age from Lower Saxony, Germany and its correlation within NW Europe	47
Palaeobiogeography and Palaeoclimate	59
BENIAMOVSKII, V. N. & KOPAEVICH, L.: Late Cretaceous palaeobiogeography and migrations of Foraminifera in western Eurasia	61
DULIĆ, I. Middle Cretaceous palaeophytogeography of the Central Tethys and geodynamic implications	79
HERMAN, A. B., SPICER, R. A. & KVACEK, J.: Late Cretaceous climate of Eurasia and Alaska: a quantitative palaeobotanical approach	93
KIEL, S.: Notes on the biogeography of Campanian-Maastrichtian gastropods	109

KOPAEVICH, L. & KUZMICHEVA, T.:	
The Cenomanian-Turonian boundary in southwestern Crimea, Ukraine: Foraminifera and palaeogeographic implications	129
SEELING, J. & BENGTON, P.:	
Palaeobiogeography of the upper Cenomanian–lower Turonian macroinvertebrates of the Sergipe Basin, northeastern Brazil	151
Palaeobiology and Palaeocommunities	169
DOGUZHAeva, L. A.:	
Pre-mortem septal crowding and pathological shell wall ultrastructure of ammonite younglings from the lower Aptian of Central Volga (Russia)	171
LUKENEDER, A., & HARZHAUSER, M.:	
Paleoenvironmental analysis of a new occurrence of <i>Rhynchoteuthis gibber</i> (TILL, 1907) in the Alpine Lower Cretaceous (Cephalopoda, Valanginian, Northern Calcareous Alps, Upper Austria)	185
OVECHKINA, M. N. & ALEKSEEV, A. S.:	
Quantitative analysis of Early Campanian calcareous nannofossil assemblages from the southern regions of the Russian Platform.	205
PODOBINA, V. M. & KSENEVA, T. G.:	
Changes in foraminiferal associations of Western Siberia, Russia, at the Cretaceous/Paleogene boundary	223
PODOBINA, V. M., TATYANIN, G. M., LESHCHINSKIY, S. V., VORONKEVICH, A. V. & FAINGERTS, A. V.:	
A review of the Early Cretaceous fossil vertebrates of the Shestakovo Assemblage (south-east Western Siberia, Russia)	239
SVOBODOVA, M., LAURIN, J. & ULIČNÝ, D.:	
Palynomorph assemblages in a hemipelagic succession as indicators of transgressive-regressive cycles: example from the Upper Turonian of the Bohemian Cretaceous Basin, Czech Republic	249
YAZYKOVA, E., ZONOVA, T. & KAZINTSOVA, L.:	
Campanian integrated biostratigraphy and palaeocommunities of Sakhalin Island (Far East Russia)	269
Biostratigraphy	293
BODROGI, I. & FOGARASI, A.:	
New data on the stratigraphy of the Lower Cretaceous of the Gerecse Mts. (Hungary) and the Lackbach section (Austria)	295

KÜCHLER, Th.:	
Additional microfossil biostratigraphic data on the Upper Coniacian and Santonian of the Olazagutia, Iturmendi and Zuazu sections in the Barranca (Navarra), northern Spain	315
KÜCHLER, Th. & WAGREICH, M.:	
Santonian - Campanian boundary in Navarra and Alava, northern Spain. A multistratigraphic approach.....	333
MELINTE, M. C. & LAMOLDA, M. A.:	
Calcareous nannofossils around the Coniacian/Santonian boundary interval in the Olazagutia section (N. Spain)	351
PEZA, L. H. & MARKU, D.:	
Lower Cretaceous in the Munella Mountains (Mirdita Zone, northeastern Albania)	365
SUMMESBERGER, H., WAGREICH, M., TRÖGER, K.-A. & SCHOLGER, R.:	
The Upper Cretaceous of Piesting (Austria): Integrated stratigraphy of the Piesting Formation (Gosau Group)	373
VAN DEN AKKER, T. J. H. A., KAMINSKI, M. A. & GRADSTEIN, F. M.:	
Campanian and Maastrichtian biostratigraphy in the Foula Sub-Basin, west of the Shetland Islands (UK)	401

Preface

The 6th International Cretaceous Symposium, held from August 26th to September 4th, 2000, at the Geocenter of the University of Vienna, was a successful meeting of earth scientists interested in all aspects of the Cretaceous. The meeting followed the tradition of the first five Cretaceous Symposia, starting in Münster (1978), followed by the meetings in Munich (1982), Tübingen (1987), Hamburg (1992) and Freiberg (1996), and it was the first Cretaceous Symposium held outside of Germany.

About 180 participants from 22 countries attended the meeting, which was organized by Heinz A. Kollmann, Herbert Summesberger (both Natural History Museum Vienna) and Michael Wagreich (Institute of Geology, University of Vienna). Many students and colleagues from the involved institutions helped in the preparation and during the meeting. Thanks are due to the Vienna Tourist Agency, the Austrian Academy of Sciences, the Austrian Geological Society, the Austrian Palaeontological Society and the Geological Survey of Austria, which financially supported the symposium.

Both the two pre-Symposium excursions to Moravia (leaders Z. Stráník & L. Svabnická) and Slovakia (leader J. Michalík) and the 4 days post-Symposium excursion through eastern Austria (leaders H. A. Kollmann, D. Sanders, H. Summesberger & M. Wagreich) were attended by a lot of participants and brought intensive and lively on site discussions on various aspects of the Cretaceous in central Europe.

This Proceedings Volume of the 6th International Cretaceous Symposium gathers together 23 contributions from authors of 15 countries. I like to thank all the people which helped during the preparation of this volume, especially my colleagues H. A. Kollmann, W. E. Piller and H. Summesberger. Publishing would have been impossible without the help of the Austrian Academy of Sciences, which is gratefully acknowledged. This Proceedings Volume thus stands in the tradition of the successful proceedings of the former Cretaceous Symposia.

The editor is especially grateful to the reviewers whose comments and recommendations were invaluable in bringing this volume forth. They are: F. Allemann (Kirchlindach), H. Bailey (Hertfordshire), M. Caron (Fribourg), W. K. Christensen (Copenhagen), J. Crampton (New Zealand), A. Dhondt (Brussels), D. Donavan (London), H. Egger (Vienna), P. Faupl (Vienna), D. K. Ferguson (Vienna), J. Gallemi (Barcelona), S. Gier (Vienna), K.-U. Gräfe (Bremen), M. Hart (Plymouth), W. Herngreen (Utrecht), L. Hradecká (Prague), F. Koller (Vienna), H. A. Kollmann (Vienna), J. Lees (London), A. Lukeneder (Vienna), S. Lüning (Bremen), H. Meon (Lyon), D. Nagel (Vienna), D. Peryt (Warszawa), P. Rawson (London), H. Rice (Vienna), W. Riegraf (Münster), F. Rögl (Vienna),

D. Sanders (Innsbruck), K. von Salis (Zürich), J. Schönfeld (Kiel), H. Summesberger (Vienna), L. Svabenická (Prague), M. Svobodova (Prague), K. Tanabe (Tokyo), S. Voigt (Köln), F. Wiese (Berlin), J. A. Wolfe (Tucson) and Ch. Wood (Surrey). Special thanks are due to Chris Wood and Hugh Rice for their linguistic corrections and for many suggestions to improve the manuscripts.

In the end we like to thank again all the people who helped in preparing the meeting and who supported the publication of this volume and wish the organizers of the 7th Cretaceous Symposium 2005 in Neuchatel a successful meeting.

Wien, am 1. Mai 2002

Michael Wagreich