

Saturday, July 13

Dinner (6:00)

Icebreaker (7:00)

Sunday, July 14

Morning Session

ISOTOPIC RECORDS - Paul Wilson and Ken MacLeod)

8:30 Welcome, logistics, format of meeting

8:45 H. Jenkyns and H. Tsikos, *The Cenomanian-Turonian Oceanic Anoxic Event: crystallizing the concept*

9:05 S. Schouten, E. Hopmans, and J. Sinninghe Damsté, *A new organic paleothermometer for the mid-Cretaceous green-house world*

9:25 H. Fricke, *Late Cretaceous variations in $\delta^{18}\text{O}$ of precipitation and $\delta^{13}\text{C}$ of organic material over North America and their paleoenvironmental interpretations*

9:45 L. Pratt, T. Hasegawa and D. Finkelstein, *Carbon isotopic variation in woody, lacustrine, and marine organic matter as records of source and concentration of atmospheric CO_2 through the Cretaceous*

10:05 Break

10:25 P. Wilson, *Testing the greenhouse hypothesis and latest Albian oceanic anoxic event*

10:45 R. Norris, K. Bice, P. Wilson and B. Huber, *Mid and Late Cretaceous SST and CO_2 from exceptionally well-preserved planktic foraminifera*

11:05 Discussion/Overview

11:30 Poster highlights (*Isotopic Records*)

Lunch (12:00)

Afternoon Session

BIOTIC RECORDS - Mark Leckie, Brad Sageman, and Jochen Erbacher

1:00 I. Premoli Silva, *The Early Cretaceous planktonic foraminiferal radiation: Paleooceanographic implications*

1:20 A. Holbourn and W. Kuhnt, *Benthic foraminiferal extinctions across mid Cretaceous OAEs: Evolutionary turn-over or rock record bias?*

1:40 C. Fisher, *Water mass dynamics of the Western Interior Seaway based on planktic foraminiferal porosity*

2:00 S. Meyers and B. Sageman, *Analysis of sediment/geochemical accumulation rates and molluscan evolutionary rates during the Cenomanian-Turonian biotic crisis, Western Interior Seaway*

2:20 Break

2:35 C. Johnson, *Tropical environmental dynamics inferred from biotic dispersion patterns*

2:55 P. Markwick and P. Valdes, *A quantitative evaluation and application of the results of a Maastrichtian coupled ocean-atmosphere model experiment using the HadCM3 AOGCM*

3:15 P. Wilf, K. Johnson and B. Huber, *Integrated terrestrial and marine climate history of the terminal Cretaceous*

3:35 Discussion/Overview

3:50 Poster highlights (*Biotic Records and Consequences of LIPs*)

POSTER SESSION I (4:15-6:30)

Dinner (6:30)

POSTER SESSION 1 (4:15-6:30)

Posters - Isotopic Records

Late Cretaceous, Western Interior Basin Cold-Seep Mounds (Tepee Buttes): Geographic, Stratigraphic, and Age Distribution in North America

Metz, Cheryl L., Texas A&M University, geomama@att.net

Paradox of the Late Turonian Record at DSDP Site 511 (60°S paleolatitude)

Bice, Karen L., Woods Hole Oceanographic Institution, kbice@whoi.edu; Norris, Richard D., Woods Hole Oceanographic Institution, rnorris@whoi.edu; Huber, Brian T., Smithsonian Institution, huber.brian@nmnh.si.edu

Globally synchronous long-term climate changes during the mid- to Late Cretaceous?

Clarke, Leon J., University of Wales Bangor, U.K., l.clarke@bangor.ac.uk

Quantifying Precipitation Flux Changes of the mid-Cretaceous (Albian) Greenhouse World: Isotope Mass Balance Approach Constrained by Sphaerosiderite Oxygen Isotope Composition

Gonzalez, Luis A., The University of Iowa, luis-gonzalez@uiowa.edu; Ludvigson, Greg, A., U. Iowa, Geoscience, gregory-ludvigson@uiowa.edu; Ufnar, David, F., U. Iowa, Geoscience, dufnar@cadet.com; Brenner, Robert, L., U. Iowa, Geoscience, robert-brenner@uiowa.edu; Witzke, Brian, J., U. Iowa, Geoscience, brian-witzke@uiowa

Oxygen isotopic reconstructions of middle Cretaceous precipitation: model-data comparisons for North America

White, Timothy S., USGS/EMS Environment Institute (Penn State), tswhite@essc.psu.edu; Pollard, D., EMS Environment Institute, Penn State, pollard@essc.psu.edu; Barron, E., College of Earth and Mineral Sciences, Penn State, eric@essc.psu.edu

Warming in the subtropical Western Atlantic during Maastrichtian cooling: Hot tropics and latitudinal temperature gradients

MacLeod, Kenneth G., University of Missouri, macleodk@missouri.edu; Huber, Brian, T., Smithsonian Institution, Huber.Brian@NMNH.SI.EDU

Landscape denudation as a link between wildfires and bacterially dominated lake ecosystems of the Late Cretaceous Fort Crittenden Formation, southeastern Arizona

Finkelstein, David B., Biogeochemical Labs, Department of Geological Sciences, Indiana University, dafinkel@indiana.edu; Pratt, Lisa M., Biogeochemical Labs, Department of Geological Sciences, Indiana University, prattl@indiana.edu

The Terrestrial Stable Isotopic Record of Aptian-Albian OAE1b in Palustrine Carbonates of the Cedar Mountain Formation, Utah: Implications for Continental Paleohydrology

Ludvigson, Greg A., Department of Geoscience, University of Iowa, gregory-ludvigson@uiowa.edu; Gonzalez, Luis, A., Univ. Iowa, luis-gonzalez@uiowa.edu; Kirkland, Jim, I., Utah Geological Survey, nrugs.jkirkland@state.ut.us; Joeckel, Robert, M., Univ. Nebraska-Lincoln, rjoeckel3@unl.edu.

Cycle stratigraphy and chemostratigraphy of Cenomanian-Turonian (Late Cretaceous) shallow- through deep-marine carbonates and siliciclastics, southern Mexico

Elrick, Maya B., University of New Mexico, dolomite@unm.edu; Molina, Roberto, S., Universidad Nacional Autonoma de Mexico (UNAM), rmolina@unicit.unam.mx

Posters - Biotic Records

Transfer of Carbon from Surface to Deep Ocean in a Greenhouse World

Thomas, Ellen, Wesleyan University, Department of Earth and Environmental Science, ethomas@wesleyan.edu

Climatic forcing of nannoplankton evolution during Oceanic Anoxic Event 1-d

Watkins, David K., University of Nebraska, dwatkins@unl.edu

High stress paleoceanographic conditions during the last 700 kyr of the Maastrichtian in the eastern Tethys (Tunisia, Egypt and Israel)

Keller, Gerta, Princeton University, gkeller@princeton.edu; Abramovich, S., Princeton University, Adatte, T., Geol. Institut, University of Neuchâtel, Stueben, D., Berner, Z.A., Meudt, M., and Kramar, U., Mineral.& Geochem. Institut, Univ. Karlsruhe

Cretaceous nannoplankton evolution and diversity

Bown, Paul R., Geological Sciences, University College London, p.bown@ucl.ac.uk

Nannofloral biogeographic patterns illustrate long-term climate change: warming/cooling trends in the Late Cretaceous Indian and Pacific Oceans

Lees, Jackie A., Geological Sciences, University College London, j.lees@ucl.ac.uk

Planktic foraminifer bioevents within Cenomanian-Turonian boundary interval at Pueblo, Colorado

Nebragic, Dragana D., University of Texas at Dallas, dragana@utdallas.edu

An integrated calcareous microfossil biostratigraphic and carbon isotope stratigraphic framework for the La Luna Formation, western Venezuela

de Romero, Linda M., University of North Carolina at Chapel Hill, deromero@email.unc.edu; Truskowski, Irene M., Petroleos de Venezuela, TRUSKOWSKIMI@pdvsa.com; Bralower, Timothy J., Univ.of NC, bralower@email.unc.edu; Odreman, Oscar, Univ. de Los Andes, Venezuela; Zachos, James C., Univ. of Calif. at Santa Cruz, jzachos@emerald.ucsc.edu

The Late Valanginian Event: Productivity and Ecological Changes

Tremolada, Fabrizio, Dipartimento di Scienze della Terra, fabrizio.tremolada@unimi.it; Erba, Elisabetta, Dipartimento di Scienze della Terra, Milano, elisabetta.erba@unimi.it; Stoll, Heather, Department of Geosciences, Williams College, Heather.M.Stoll@williams.edu; Arevalos, Alicia, Department of Geosciences, Williams College.

Marine Productivity during Oceanic Anoxic Events: A New Outlook

Bralower, Timothy J., UNC-Chapel Hill, bralower@email.unc.edu; Elson, Jason W., Exxon Production Co., Houston, TX; Andrew R. Bowman, UNC-Chapel Hill

Extreme climates recorded in the Cretaceous High Arctic

Tarduno, John A., University of Rochester, john@earth.rochester.edu; Cottrell, Rory D., University of Rochester, rory@earth.rochester.edu; Lippert, Peter, University of Rochester, pete@earth.rochester.edu; Friedman, Matt, University of Rochester

How Consistently Do Regression Models of Foliar Physiognomy Predict Cretaceous Climates?

Scherer, Jacqueline, Southwest Texas State University, gu01@swt.edu; Upchurch, Garland R., and Knaus, Margaret J., Southwest Texas State University, gu01@swt.edu; Mack, Greg H., New Mexico State University

Posters - Consequences of Large Igneous Provinces

Geochemistry of the oldest Pacific and Atlantic oceanic crusts: tectonic and geodynamic implications

Castillo, Pat R., Scripps Institution of Oceanography, UCSD, pcastillo@ucsd.edu

Motion between hotspot groups in the Cretaceous

Tarduno, John A., University of Rochester, john@earth.rochester.edu; Cottrell, Rory D., University of Rochester, rory@earth.rochester.edu; Smirnov, Alexei V., University of Rochester, alexei@earth.rochester.edu

Hydrothermal Links Between Ocean Plateau Formation and Global Anoxia

Snow, Laura J., Oregon State University, lsnow@coas.oregonstate.edu; Duncan, Robert, Oregon State University, rduncan@coas.oregonstate.edu

Evening Keynote Lecture (8:00)

Elisabetta Erba

Cretaceous climate changes: A paleobiological perspective

Monday, July 15

Morning Session

CRETACEOUS OCEAN ANOXIC EVENTS and critical intervals of climate change, organic carbon burial and recycling - Hugh Jenkyns, Lisa Pratt, Wolfgang Kuhnt

- 8:00 S. Brassell, *Molecular markers of plankton preserved in lower Aptian sediments (OAE 1a)*
- 8:20 A. Forster, M. Kuypers, L. Bombardiere, P. Farrimond, H. Jenkyns and J. Sinninghe Damsté, *Investigations of enhanced organic matter burial during the Cenomanian/Turonian boundary event and the related positive carbon-isotope excursion: Implications of OAE 2 for the global carbon cycle?*
- 8:40 W. Kuhnt and A. Holbourn, *Benthic paleoecology during mid-Cretaceous OAEs and in modern oxygen minima: Is the present the key to the past?*
- 9:00 T. Hasegawa, *Cretaceous terrestrial paleoenvironments of northeastern Asia suggested from carbon isotope stratigraphy: increased atmospheric pCO₂-induced climate*
- 9:20 Break
- 9:35 P. Meyers, *High C/N and low $\delta^{15}\text{N}$ values in black shales: Indicators of dysoxia-enhanced productivity?*
- 9:55 J. Erbacher and J. Herrle, *Oceanic Anoxic Event 1b: 45 kyr of orbitally controlled, Tethys-wide anoxia*
- 10:15 T. Wagner, B. Beckmann, S. Flögel, P. Hofmann and J. Sinninghe Damsté, *Coniacian-Santonian (OAE3) black shale formation and African climate variability: a reference section from the eastern tropical Atlantic at orbital time scales (ODP Site 959, off Ivory Coast/Ghana)*
- 10:35 Discussion/Overview
- 11:15 Poster highlights (OAEs and critical intervals and Atmospheric and Ocean Circulation)

Morning Keynote Lecture (11:30-12:30)

Michael A. Arthur

The Cretaceous carbon cycle: Interpreting the carbon isotope record

Lunch (12:30)

Afternoon Session

THE CRETACEOUS SEA LEVEL RECORD and mechanisms for global eustatic change -

Brian Huber, Mark Leckie, Lonnie Leithold

- 1:30 B. Huber, K. MacLeod and R. Norris, *Cretaceous Marine $\delta^{18}\text{O}$ Cooling Excursions: An Ice Sheet for Every Event?*
- 1:50 J. Hancock, *The Late Cretaceous Sea-level Curves*
- 2:10 A. Gale, *Cenomanian sea-levels and climate: Evidence from SE India and NW Europe*
- 2:30 Break
- 2:45 S. Voigt and A. Gale, *Evidence for rapid climate cooling during positive $\delta^{13}\text{C}$ excursions within the middle and Late Cenomanian derived from oxygen isotope data of brachiopods and belemnites*

3:05 M. Leckie, E. Leithold, N. Tibert, M. McCormick and D. Polyak, *A Possible Record of glacioeustatic sea level changes from the Cenomanian-Turonian Western Interior Basin*

3:25 Discussion/Overview

4:00 Poster highlights (*Sea Level Record and Mechanisms for Global Eustatic Change*)

POSTER SESSION 2 (4:15-6:00)

Posters - OAEs and Critical Intervals

Detailed C-isotope analysis of the Cenomanian-Turonian Boundary Oceanic Anoxic Event and the potential link to methane hydrate dissociation

Bralower, Timothy J., University of North Carolina-Chapel Hill, bralower@email.unc.edu; Bowman, Andrew R., UNC-Chapel Hill; Wright James, Rutgers University

Understanding Abrupt Climatic Disturbance in the Aptian-Albian

Montanez, Isabel P., Dept. of Geology, University of California, Davis, montanez@geology.ucdavis.edu; Osleger, David A., UC-Davis; Bralower, Tim J., University of North Carolina; Montanez, Isabel, UC-Davis; Lehmann, Christoph, BP-Amoco

Production and Preservation in the Cretaceous Western Interior Sea

Sageman, Brad, Northwestern University, brad@earth.nwu.edu; Meyers, Stephen, Northwestern University, meyers@earth.northwestern.edu

Cyclic fluctuations in the composition of organic matter of OAE3 black shales (ODP Site 959, off Ivory Coast/Ghana)

Beckmann, Britta, University of Bremen, Geosciences, bbeckman@uni-bremen.de; Wagner, Thomas, University of Bremen, wagner@uni-bremen.de; Hofmann, Peter, University of Cologne, adg03@uni-koeln.de; Scheeder, Georg, BGR, scheeder@bgr.de; Sinninghe Damsté, Jaap, S., NIOZ, damste@nioz.nl

Sedimentological and Geochemical Expressions of the Mid-Cretaceous OAE 1a in Pelagic and Coastal Settings: A Comparison

Heimhofer, Ulrich, Institute of Geology, ETH Zürich, heimhofer@erdw.ethz.ch; Hochuli, Peter A., Institute of Geology, ETH Zürich, hochuli@erdw.ethz.ch, Burla, Stefan, Institute of Geology, ETH Zürich, stefan.burla@erdw.ethz.ch, Andersen, Nils, Institute of Geology, ETH Zürich, andersen@erdw.ethz.ch, Weissert, Helmut, Institute of

Large perturbation in the global carbon cycle preceding oceanic anoxic event 1b (Pacquier)

Gröcke, Darren R., Department of Geology, Royal Holloway University of London, d.grocke@gl.rhul.ac.uk; Kucera, Michal, Department of Geology, Royal Holloway University of London, m.kucera@gl.rhul.ac.uk

Cenomanian-Turonian Oceanic Anoxic Event (OAE2) at 53° South Latitude: A Progress Report

Wise, Sherwood W., Department of Geology, Florida State University, Wise@gly.fsu.edu; McArthur, John M., U. College London; Meyers, Philip A., U. Mich.; Mohr, Barbara A., Nat. Hist. Mus., Berlin; Petrizzo, Mary R., U. Milano; Wähnert, Veronika, Nat. Hist. Mus., Berlin

Orbitally forced black shale accumulation during Coniacian-Santonian times in the Ivory Coast Basin

Hofmann, Peter M., University of Cologne, adg03@Uni-Koeln.de; Wagner, Thomas, University of Bremen, twagner@uni-bremen.de; Beckmann, Britta, University of Bremen, bbeckman@uni-bremen.de

Posters - Atmospheric and Ocean Circulation

Possible Atmospheric CO₂ Extremes of the Mid-Cretaceous

Bice, Karen L., Woods Hole Oceanographic Institution, kbice@whoi.edu; Norris, Richard D., Woods Hole Oceanographic Institution, rnorris@whoi.edu; Huber, Brian T., Smithsonian Museum of Natural History, huber.brian@nmnh.si.edu

Mid-Cretaceous Deposition and Erosion by Deep-Sea Currents Along the Continental Rise, Deep Eastern Gulf of Mexico

Buffler, Richard T., University of Texas Institute for Geophysics, rbuffler@hotmail.com

Flip from dysoxic to oxic state of world oceans during Late Cretaceous

Jansa, Luba F., Dalhousie University, Earth Sciences Department, jansa@agc.bio.ns.ca; lubomirjansa@netscape.net; Chengshan Wang (Chengdu University of Technology, China), Massimo Sarti (University of Ancona, Italy) and R.W. Scott (University of Tulsa, U.S.A.).

Latest Cretaceous Global Vegetation: Current Understanding and Areas for Future Study

Upchurch, Garland R., Southwest Texas State University, gu01@swt.edu; Beerling, David J., and Lomax, Barry H., University of Sheffield, UK, d.j.beerling@sheffield.ac.uk, Bette Otto-Bliesner, National Center for Atmospheric Research, ottobli@ncar.ucar.edu

Cretaceous Ice Sheets: A Modeling Perspective

Deconto, Robert, University of Massachusetts, deconto@geo.umass.edu; Pollard, D., Pennsylvania State University, pollard@essc.psu.edu

The Cretaceous World: Plate Tectonics, Paleogeography, Paleobathymetry and Paleoclimate

Scotese, Christopher R., PALEOMAP Project, Department of Geology, University of Texas at Arlington, chris@scotese.com

Orbital Forcing of the Early Cretaceous Ocean - A Perspective from Mediterranean Tethys

Fischer, Alfred G., University of Southern California, grippo@earth.usc.edu

On the Impact of Milankovitch forcing on the sedimentary record of the Western Interior Seaway

Floegel, Sascha, GEOMAR-Research Center for Marine Geosciences, sfloegel@geomar.de; Hay, W. W., GEOMAR-Research Center, whay@geomar.de; DeConto, R. M., University of Massachusetts, deconto@geo.umass.edu; Soeding, E., GEOMAR-Research Center, esoeding@geomar.de

Posters - Cretaceous Sea Level Record and Mechanisms for Global Eustatic Change

Foraminiferal Assemblages of the Upper Cretaceous Niobrara Cyclothem as Proxies for Sea Level Fluctuations in the Western Interior Sea, Mesa Verde, Colorado

Sterzinar, Erica M., University of Massachusetts-Amherst, ericas@geo.umass.edu; Leckie, R. Mark, University of Massachusetts, mleckie@geo.umass.edu; Snoeyenbos-West, Oona, Smith College, osnoeyen@email.smith.edu

What would a Cretaceous "glaciation" look like?

Bice, Karen L., Woods Hole Oceanographic Institution, kbice@whoi.edu; Pollard, Dave, Penn State University, pollard@essc.psu.edu; Mathieu, Renaud, GEO-RS, Colomiers, France; Norris, Richard D., Woods Hole Oceanographic Institution, rnorris@whoi.edu;

Middle Turonian black shale deposition within the Western Interior Basin (U.S.A.) - an integrated model

Forster, Astrid, Royal Netherlands Institute for Sea Research (NIOZ), forster@nioz.nl; Dean, Walter E., U.S. Geol. Survey, dean@usgs.gov; Schwark, Lorenz, Univ. Koeln, lorenz.schwark@uni-koeln.de; Thein, Jean,

Univ. Bonn, jthein@uni-bonn.de; Trappe, Joerg, Univ. Bonn, trappe@uni-bonn.de; Vondra, Carl, F., Iowa State Univ., cvondra@iastate

Campanian isotope events, sea level and climate change

Jarvis, Ian, Kingston University, i.jarvis@kingston.ac.uk; Lees, Jackie, University College London, j.lees@ucl.ac.uk; Gale, Andrew, University of Greenwich, a.gale@nhm.ac.uk

Relative sea level history of the uppermost Cenomanian of southwestern Utah: evidence for Milankovitch-driven eustasy?

Laurin, Jiri, Institute of Geophysics, Academy of Sciences of the Czech Republic, laurin@ig.cas.cz; Sageman, B. B., Northwestern University, brad@earth.northwestern.edu; Meyers, S. R., Northwestern University, meyers@earth.northwestern.edu; Waltham, D. A., Royal Holloway University of London, d.waltham@gl.rhbcac.uk

Sea-level and climate fluctuations at the Cenomanian-Turonian Boundary of the Anglo-Paris Basin (Eastbourne) and European Tethyan margin (Cassis and Vergons, southeastern France)

Adatte, Thierry, Geological Institute, University of Neuchâtel, Switzerland, thierry.adatte@unine.ch; Rais, Pauline, University of Neuchâtel; Keller, Gerta and Qi Han, Princeton Univ.; Burns, Stephen, University of Massachusetts; Berner, Zolst and Doris Stüben, University of Karlsruhe, Germany

Early Cretaceous platform drowning events along the northern Tethyan margin

Föllmi, Karl B., Institut de Géologie, Université de Neuchâtel, karl.foellmi@unine.ch

Foraminiferal Paleoceanography of the Cenomanian-Turonian Greenhorn Cycle of the Western Side of the U.S. Western Interior Sea

Polyak, Desiree, University of Massachusetts, depolyak@geo.umass.edu; Leckie, R. Mark, University of Massachusetts, mleckie@geo.umass.edu; Leithold, Elana L., North Carolina State University, leithold@ncsu.edu

Dinner (6:30)

Evening Keynote Lecture (8:00)

Hope Jahren

***Terrestrial linkages between the atmosphere and biosphere:
Cretaceous applications***

Tuesday, July 16

FIELD TRIP (8:00-6:00)

Dinner (6:30)

Evening Keynote Lecture (8:00)

William W. Hay

Speculations on circulation of the Cretaceous Ocean

Wednesday, July 17

Morning Session

ATMOSPHERIC AND OCEAN CIRCULATION in a greenhouse world -

Karen Bice, Chris Poulsen

8:20 E. Barron, *Twenty years of Cretaceous climate modeling*

8:40 B. Otto-Bliesner, E. Brady and C. Shields, *Late Cretaceous ocean: Coupled simulations with the NCAR Climate System Model*

9:00 C. Poulsen, A. Gendaszek and R. Jacob, *Implications of an Atlantic gateway for the Cretaceous thermal maximum and atmospheric dynamics*

9:20 L. Lawver and L. Gahagan, *Cretaceous tectonic events and their influences on ocean circulation*

9:40 Break

Morning Keynote Lecture (10.00-11.00)

Paul Valdes

Coupled ocean-atmosphere-vegetation models of warm climates

(co-author: P. Markwick)

11:00 Discussion

Lunch (12:00)

Afternoon Session

ENVIRONMENTAL AND BIOTIC CONSEQUENCES OF LARGE IGNEOUS PROVINCES: A synthesis of ODP drilling results - Bob Duncan, Tim Bralower

1:00: R. Duncan, *Thermal and Compositional Effects of Ocean Plateau Formation: Consequences for Cretaceous Ocean Anoxic Events*

1:20: G. Ravizza, B. Peucker-Ehrenbrink, J. Blusztajn and T. Abbruzzese, *The Cretaceous marine osmium (Os) isotope record*

1:40: S. Turgeon, H.-J. Brumsack, M. Kuypers and M. Böttcher, *Sediment origin and trace element enrichments in black shales during the Cenomanian-Turonian Boundary Event in the Gubbio Core, central Italy*

2:00: M. Leckie, T. Bralower and R. Cashman, *Oceanic Anoxic Events and plankton evolution: Biotic Response to Tectonic Forcing during the Mid-Cretaceous*

2:20: Discussion/Overview

Afternoon Keynote Lecture (3:00)

Roger L. Larson

Mid-Cretaceous igneous events and geological responses:

The devil is in the details

(co-authors: R. Duncan and E. Erba)

Breakout Group Meetings (3:30)

Dinner (5:30)

Evening Plenary Discussion (7:00)