

biozone are investigated in order to show processes and climate associated controlling factors during the deposition of the lower Albian OAE 1B. The black shale intervals are characterized by the enhanced accumulation and preservation of marine derived organic matter as determined by Rock-Eval pyrolysis and organic petrology. The presence of laminated sediments, the relationships between organic carbon, iron and total sulfur, pyrite size analysis and trace metal enrichment indicate the periodic prevalence of anoxic conditions in the pore waters which may have extended at times into the bottom waters. Changes in the mineralogical composition throughout the OAE 1B interval, i.e. quartz content and clay mineral assemblage, result in the variation of the major element chemistry and are probably related to cyclic climatic changes in Northern Africa combined with a flooding of coastal lowlands during an overall transgressive phase in the lower Albian. The observed geochemical signatures on different scales demonstrate a genetic link between the climate system on land and processes in the deep ocean during the deposition of the OAE 1B in deep water environments of the western North Atlantic.

Organic matter from the ejecta blanket of the Ries crater, southern Germany: Detecting thermal effects related to the impact?

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Organic matter in sediments comprises a sensitive monitor for past thermal conditions. Dispersively distributed particulate organic matter (kerogen) reacts on increasing temperatures through the conversion of solid organic matter into liquids (e.g. hydrocarbons). This transformation process is accompanied by compositional changes of the residual solid organic matter mainly caused by the loss of hydrogen, carbon and oxygen.

The energy released during shock wave metamorphism of sedimentary strata caused by an impact event is known to generate shock induced temperatures ranging from a few degrees centigrade up to 1200 °C, depending on the intensity of shock wave metamorphism. This sudden rise in temperature is expected to leave traces in the residual sedimentary organic matter surviving the impact event.

In order to evaluate temperature induced effects on organic matter in association with an impact event, we investigated organic matter rich clasts from the ejecta blanket of the Ries impact, which occurred approximately 14.7 million years ago.

The sedimentary strata deposited in the Ries area ranges from Permian to Tertiary in age. One stratigraphic interval, the Jurassic Posidonia Shale, which consists of black shales, is known to be particularly rich in organic matter of marine origin. Fragments of the Posidonia Shale were incorporated in the ejecta (polymictic breccia) of the Ries impact. We collected samples of Posidonia Shale fragments of the ejecta blanket, from quarries at Harburg, Aumühle and Gundelsheim, which are located within and close to the impact crater. In addition samples from a natural outcrop of the Posidonia Shale at Hesselberg, near Wittelshofen, approximately 10km outside of the crater rim were studied. The samples were analyzed for organic carbon content, inorganic carbon content and sulfur content. The composition and degree of thermal stress on the solid organic matter was determined by pyrolytic techniques (Rock Eval Pyrolysis).

Our results show a continuous decrease in organic carbon content, carbonate content and sulfur content of the Posidonia Shale samples when comparing results from sampling localities successively closer to the crater center. This decrease in the investigated bulk parameters is accompanied by a drop in pyrolysis yields. We inter-

pret the observed regional pattern as an expression of the temperature field during the impact event.

Sediment transport at the upper slope of the Sesoko fringing reef, Okinawa, Japan

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Living and death assemblages of benthic foraminiferal species were compared at a NW-Pacific island slope. Two transects with different morphology were chosen, one demonstrating decreasing, the other slightly increasing steepness. Intensities of depth transport could be estimated by measuring differences between distribution parameters of living individuals and empty tests in combination with grain-size parameters of other bioclasts. Three factors were shown to induce depth transport:

- 1) traction intensities caused by offshore bottom currents or the frequent tropical cyclones that cross the investigation area.
- 2) slope steepness, and
- 3) differences in test buoyancies.

The complex slope topography in connection with the exposition of the coast to tropical storms leads to sediment input from surrounding shallow areas. Sediment from backreef regions is transported into the fore reef during the waning storm, while relict sediments are reworked in the deeper slope during these episodic events. Both factors, in combination with down-slope transport and slope inclination, can be demonstrated as important factors explaining sediment distribution on a fore-reef slope.

Der Stubensandstein im Süddeutschen Keuper: Reservoir-/Aquifer-Charakterisierung und klimagesteuerte Sedimentationsdynamik

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Das süddeutsche Keuperbecken eignet sich durch seine vom offenen Meer abgeschlossene Lage, sein flaches Relief und durch wahrscheinlich nur geringe tektonische Bewegungen in idealer Weise dazu den Einfluß des Klimas auf die Ablagerungsdynamik zu untersuchen.

Das Arbeitsgebiet umfasst Mittelwürttemberg bis Franken, der Daten-Schwerpunkt liegt dabei in Zentral-Württemberg. Die Datenbasis umfasst 12 Großaufschlüssen mit einer Wandfläche bis zu 20.000 m² pro Aufschluß, 5 Einzelbohrungen, 1 Bohrungscluster mit 6 Einzelbohrungen und 2 Bohrungscluster mit jeweils ca. 20 Einzelbohrungen.

Die Arbeitsweise orientiert sich am Aufschluß-Analog-Konzept, welches seit Jahren in der Erdölindustrie angewandt wird, um in Aufschlüssen Vergleichsdaten für dasselbe Ablagerungsmilieu in tief versenkten, nicht direkt zugänglichen Schichten zu erhalten (z. B. BRYANT & FLINT 1993, MIALL & TYLER 1991). In den letzten Jahren findet dieser Ansatz auch zunehmend Interesse in der Hydrogeologie, die zur Vorhersage von fluid-flow Eigenschaften und für numerische Simulationen präzise Angaben über Heterogenitäten und Verteilung der Porosität und Permeabilität benötigt (z. B. FRASER & DAVIS 1998, KOLTERMANN & GORELIK 1996). Die Poroperm-Eigenschaften lassen sich auf Grund des Verständnisses der Ablagerungsprozesse und durch Charakterisieren der sedimentären Einheiten besser vorhersagen (HORNUNG &