cemented by calcite; the grains are well-rounded and well-sorted with grain sizes ranging from medium sand to granule sizes. Based on the areal distribution of the sedimentary structures (e.g., pin stripe lamination, high angle cross bedding), the occurrence of terrestrial gastropod shells and the correlation with almost identical sandstones in the Mediterranean we conclude an eolian origin and a most likely Pleistocene age of these sandstones.
Several vertebrate tracks and trackways have been found in these sandstones. To our best knowledge, this is the first report of vertebrate trackways in Pleistocene sandstones of the Aegean. However, comparable trackways, both in age and size, have been reported on the islands of Mallorca and Sardinia (Fornos et al. 2002, Fanelli et al. 2007). Tracks have been found on bedding surfaces and in cross-section, where tracks are concentrated along certain horizons; the tracks are about 11 cm wide and 4 cm deep. On bedding surfaces at least two distinguishable trackways are recorded. Due to overlapping tracks and weathering, the differentiation between manus and pes impressions is challenging. This, and the relatively short length of individual trackways - the longest traceable trackway is only about 1.50 m long - make stride and pace measurements difficult. The track morphologies (e.g., preservation of a cloven hoof track) and trackway sizes indicate an artiodactylous mammal with the size of a goat, deer or antelope or a comparable sized animal as trackway producer, whereas goats per se are not likely to be the originator of the tracks, as goats were introduced to the Aegean islands by man. It is most likely that the tracks were made by fallow deer, whose remains were also found during the archaeozoological rescue excavation in the Antiparos Cave (Psathi 2006). Also, if we expect the sea level to be approx. 125 meters below the modern day mean sea level during the last glacial maximum in the late Pleistocene (Yokoyama et al. 2000), various land bridges would have developed (Kapismalis 2009) allowing faunal interchange with other Cycladic islands.

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Reconstruction of the autochthonous Upper Eocene depositional environment in the Bad Hall area (Upper Austria)

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Sandstones of the Upper Eocene are the main oil bearing strata within RAG's Upper Austrian concession area. Knowledge of their lateral extent and vertical stacking pattern is of crucial interest for a successful expoloration and production strategy. Facies distribution maps in a regional scale have been provided by L. Wagner in 1980. Recent drilling activities revealed the necessity to elucidate the depositional environment and its extent in the Bad Hall area.
The herein proposed study is integrative in scale and disciplines. The main idea behind is the concept of „Dynamic Stratigraphy“. Examined key cores reveal facies associations, which are interpreted as river-dominated delta. An interpretation of the lateral extent and geometry of the Upper Eocene depositional environment is aided by seismic characterization, using ThinMAN™ broadband spectral inversion. Moreover the sedimentological analysis is supported by a detailed micro-paleontological (palynomophs and foraminifera) and petrographical study.

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Multi-Offset Ground Penetrating Radar (GPR) Investigations of a Snow Pack

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The water equivalent of a snow pack is a crucial information regarding hydrological and glaciological studies. The classic way to gain this information are direct, manual snow density measurements in a snow pit. In the case of a several meters thick snow cover, digging a snow pit is time consuming, extensive work. Caused by enhanced surface melting during summertime, most often a continuous, thick top ice cover evolves in the accumulation area of a glacier. In autumn, when the final field survey for the determination of the annual mass balance is held, this top ice cover represents a hard to penetrate layer. Most often snow density information is only measured for the autumn snow until the summer surface layer, because gathering deeper density information would demand an unreasonable, disproportional amount of work. Snow densities below the summer surface layer are estimated by a best guess.

Since some years Ground Penetrating Radar (GPR) is successfully used to image previous year's summer surface. Thereby a constant-offset geometry is used, yielding no direct GPR propagation velocity information of the snow cover. The propagation velocity of a GPR pulse is a function of the electric dielectricity. For snow the electric dielectricity is correlated to its density and the intergranular, liquid water content. During snow pit investigations, snow density, electric dielectricity and liquid water content data were gathered and an empirical correlation between snow density and electric dielectricity was established (R^2 ~0.7). Before digging the snow pit, multi-offset (CMP and WARR) GPR measurements were made. Gathered snow pit and GPR data sets were analysed for consistency and potential usage of multi-offset GPR data for the determination of density and hence water equivalent of a snow pack.

Examining Glacial Hydrology of a Glacial Lake Outburst Flood at the A. P. Olsen Ice Cap by means of Ground Penetrating Radar Data

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Glacial Lake Outburst Floods (GLOFs) are natural hazards threatening an increasing amount of people living near glaciated areas. Caused by the chaotic characteristics of a GLOF, forecasting is a very challenging business and only a few made the attempt to really quantitatively solve this problem. Comparing GLOF events of different field sites and even of the same field site often give an inconsistent picture indicating the existence of many outburst mechanisms. However, beside the non-linear behaviour of the outburst mechanism itself, the hydrology of a glacier is a key question.
The Austrian IPY contribution FERMAP aimed the East of Greenland. Based at the Danish Research Station Zackenberg (74°28'N, 20°34'W) two adjacent glaciers (Freya Glacier and A. P. Olsen Ice Cap) were of main interest. Ground Penetrating Radar (GPR) was applied to yield snow cover- and ice thickness distribution for the two glaciers. During the gathering of ice thickness data of the South East pointing outlet glacier of the A. P. Olsen Ice Cap (74°38'N, 21°26'W) dominant englacial and subglacial reflections drew attention to itself. Dominant englacial and subglacial reflections are all located downwards in flow direction of the remaining structures of a lake outburst. The glacial stream of the investigated outlet glacier drains into the Zackenberg River, which passes directly the Zackenberg Research Station. In the period of 1997-2008 floods were documented qualitatively by photos and quantitatively by discharge data, showing obvious peaks. Registered floods mostly occurred in the period July-November. Following these observations the noteworthy englacial and subglacial reflections are most likely part of a channel system conducting water of outburst flood through the glacier. Gathered GPR data were analyzed to gain informations about channel dimensions and fillings and englacial/ subglacial pathway(s) of the water. Furthermore the mapped water pathway(s) will be compared with modelled pathway(s).

Identifikation unterschiedlicher Abflusskomponenten in einem Karstgebiet mit allochthoner Neubildung (Lurbach-Tanneben-Karst-System, Österreich)

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Karstquellen werden im Allgemeinen durch hoch durchlässige Karsthohlraumsysteme gespeist. Die Reaktion dieser Quellen auf Neubildungsereignisse liefert Informationen über das gesamte Quelleinzugsgebiet. Meist wird die Analyse jedoch durch mangelnde Informationen über die räumliche und zeitliche Verteilung der Neubildungskomponenten und ihrer physikochemischen Eigenschaften erschwert.
Das Ziel dieser Arbeit ist eine verbesserte Interpretation der Abflussdynamik eines Karstsystems durch eine kombinierte Analyse von mehreren physikochemischen Parametern. Zu diesem Zweck wurde ein Markierungsversuch mit Uranin kurz vor einem Niederschlags- und einem darauf folgenden Schneeschmelze-Ereignis durchgeführt und die natürlichen Tracer ^{18}O, elektrische Leitfähigkeit und Wassertemperatur an verschiedenen Probenahmepunkten im Lurbach-Tanneben-Karst-System (Semriach-Peggau, Steiermark, Österreich) quantifiziert. Das Lurbach-Tanneben-Karst-System entwässert größtenteils über die beiden Quellen Hammerbachursprung und Schmelzbach. Der Karstgrundwasserleiter wird zu einem großen Teil punktuell durch Versinkung des allochthonen Lurbachs alimentiert, dessen Einzugsgebiet den kristallinen Semriach-Talkessel umfasst (Behrens et al. 1992).
Die Ergebnisse zeigen, dass gängige Modellvorstellungen zur Neubildungs- und Entwässerungsdynamik von Karstsystemen zu hinterfragen sind. So wird etwa ein Anstieg der elektrischen Leitfähigkeit kurz nach Einsetzen des Neubildungsereignisses oft durch die Mobilisierung von oberflächennah gespeichertem Epikarstwasser erklärt (Williams 1983). Im Falle des Schmelzbaches wird jedoch zeitgleich ein Anstieg der Wassertemperatur beobachtet, was gegen eine oberflächennahe Komponente spricht. Der Markierungsversuch zeigt ferner, dass der Schmelzbach bei den vorliegenden hydrologischen Bedingungen nur marginal durch die allochthone Lurbachkompenente gespeist wird, obwohl sich Lurbach und Schmelzbach hydraulisch ähnlich verhalten und jeweils stark auf Neubildungsereignisse ansprechen. Dagegen reagiert die Quellschüttung am Hammerbachursprung wesentlich gedämpfter, der Markierungsversuch belegt jedoch einen