größerer vertikaler Distanz zu den Vorflutern auf.
General wird angenommen, dass sich „alte Landschaften“ durch eine kontinuierliche Entwicklung seit dem Miozän gebildet haben und glazial geprägt wurden, während die „jungen Landschaften“ erst seit dem Holozän existieren. Neue Studien zeigen, dass die Bildung der „junge Landschaften“ deutlich vor dem Holozän begann. Im Zuge von diesem Projekt dokumentieren wir alte und neue Landschaften im Einzugsgebiet der Salzach (Ostalpen) und verwenden diese Daten um Aspekte zum Alter und Zeitpunkt der Bildung der jungen Landschaft abzuleiten.
In dieser frühen Projektphase präsentieren wir Konzepte, erste Daten und neue numerische Werkzeuge zur Bestimmung von Raten der Landschaftsentwicklung für unterschiedliche räumliche und zeitliche Skalen. Auf der Skala von alpinen Einzugsgebieten und Zeitintervallen von 1 a - 10.000 a wird der diskontinuierliche Prozesscharakter von Einzelereignissen (Hochwasser und Erosion, Muren, Steinschlag) berücksichtigt. Basierend auf der numerischen Beschreibung von Einzelereignissen können kontinuierliche Langzeitmodelle zur Landschaftsentwicklung für unterschiedliche Klimaszenarien kalibriert und in einen tektonischen und klimatischen Rahmen gesetzt werden.

Monitoring of moisture in alpine rock walls and its effects on weathering

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The detachment of rock fragments from alpine rockwalls is mainly assigned to frost weathering. However, the actual process of frost weathering as well as the contribution of further weathering processes (e.g. hydration, thermal fatigue) is poorly understood. Rock moisture distribution during freeze-thaw events is key to understanding weathering. For this purpose different measuring systems are installed in two study areas (Dachstein, a permafrost area, and Gesäuse, a non permafrost area, both in Styria) within the framework of the research project ROCKING ALPS. (1) small-scale 2D-geoelectric survey lines in north and south expositions and (2) high temporal resolution temperature and moisture sensors. The determination of moisture is done by resistivity measurements, which are difficult to calibrate, but provide good time series. Additional novel moisture sensors were developed using the heat capacity of the surrounding rock which is governed by water content. These sensors give point readings from a defined depth and are independent from soluble salt contents. Pore water pressure occurring during freeze-thaw events is recorded by means of pressure transducers (piezometers). The extrapolation from point readings to areal information is done by infrared photography. These results are cross-checked by simulation calculations. Based on meteorologic and lithologic input values, the simulation routine calculates, in an iterative procedure, the hourly energy and water transport at different depths, the latter in the liquid and in the vapor phase. The calculated profile lines and chronological sequences of the rock moisture allow - in combination with temperature data - the detection of active weathering periods. First simulated results at the Gesäuse show, that the thresholds of the – classical - frost shattering theory (a high amount of freeze-thaw cycles and 90% pore saturation) are achieved predominantly in spring and autumn and in north-facing rock walls. Maximum values of pore saturation occur from May to September.

Facies studies on deep-water sandstones of the Altlengbach Formation (Upper Cretaceous, Rhenodanubian Flysch Zone) - outcrop analogues for hydrocarbon reservoirs in the Vienna Basin

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The Rhenodanubian Flysch Zone comprises Alpine deformed deep-water strata within thrust units at the northern margin of the Eastern Alps of Austria and continues into the basement of the Neogene Vienna Basin where they form potential (fractured) reservoirs.
Outcrop analogues of sandstone-prone potential reservoirs have been investigated within the Wienerwald area to the west of Vienna. Here, within the main flysch thrust unit (Greifenstein Nappe), the Altlengbach Formation crops out within several abandoned quarries. Quarries around St. Veit/Gölsen (Lower Austria) have been used to investigate the facies and reservoir properties of the Altlengbach Formation (Upper Campanian-Paleocene). The formation comprises four members: a lower member up to 400 m in thickness rich in thick sandstone intervals, a marl-rich member, an upper sandstone-rich member, and a clay-rich member of early Paleocene age. The lower