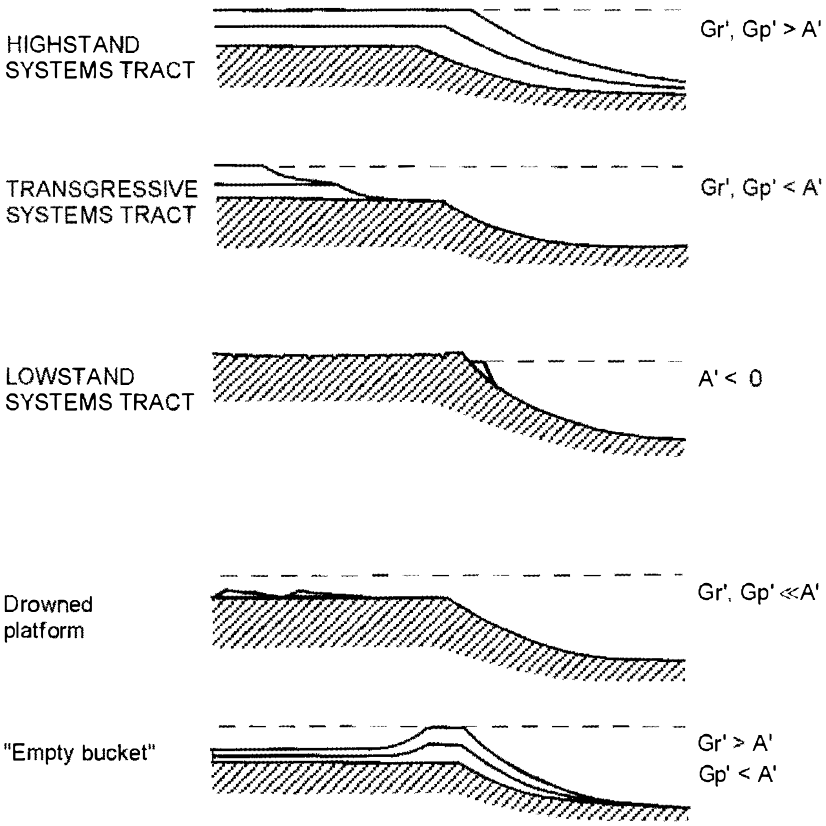

Fig.2: Carbonate systems tracts related to the balance of two rates - dA/dt (= A´), the rate of change of accomodation creation, and dG/dT (= G´), the rate of carbonate growth. The top three panels represent the systems tracts of the standard model of sequence stratigraphy, the lower two panels are specific for rimmed carbonate platforms. Complete drowning occurs when the groth potential of the factory is below the rate of relatve sea-level rise; the empty bucket forms when the rim can keep up with the rise, but the lagoon cannot. After SCHLAGER (1999).

lagoon and towards the basin. This bidirectional progradation is again characteristic of carbonate systems.
Cool-water carbonates follow the standard model more closely than tropical accumulations. They lack rims, have gentle slopes and rework much of their material during lowstands, just like siliciclastics. Mud-mound systems are difficult to fist in the standard model because they normally operate in greater water depth and tend to remain flooded even during lowstands of sea level. Consequently, exposure unconformities that could serve as sequence boundaries are not as distinct as in tropical or cool-water deposits.
The margins and slopes of rimmed carbonate platforms are sedimentologically complex and difficult to image seismically. One imaging problem are the tight curvatures and steep slope angles at the platform margin. Furthermore, platform flanks are prone to developing pseudo-unconformities in seismics – bedding patterns that appear as unconformities in seismic data but are caused by lateral facies changes. Pseudo-unconformities tend to form at the periphery of reefs and carbonate platforms because the carbonate systems produce their own sediment that often interfingers with terrigenous muds on the flank of the build-up. The result are rapid facies changes combined with rapid thickness changes of beds. Near the limit of resolution, the seismic tool may show lap-out patterns (such as onlap or downlap) at facies changes rather than bedding surfaces.

JAMES, N.P. (1997): The cool-water carbonate depositional realm. - (In: JAMES, N.P. & CLARKE, J.D.A., (eds.): Cool-Water Carbonates), SEPM Sp.Publ. **56**: 1-20

LOWENSTAM, H. & WEINER, S. (1989): On biomineralization. - 1-324, (Oxford Univ. Press) Oxford

REITNER, J. & NEUWEILER, F. (1995): Mud mounds: a polygenetic spectrum of fine-grained carbonate buildups. - Facies, **32**: 1-70.

SADLER, P.M. (1981): Sediment accumulation and the completeness of stratigraphic sections. - J. Geol., 89: 569-584.

SCHLAGER, W. (1999): Sequence stratigraphy of carbonate rocks. - The Leading Edge, August 1999, 901-907.

SCHLAGER, W. (1999): Scaling of sedimentation rates and drowning of reefs and carbonate platforms. - Geology, **27**: 183-186.

SCHLAGER, W. (in press): Sedimentation rates and growth potential of tropical, cool-water and mud-mound carbonate systems. - Geol. Soc. London, Spec. Publ.

Stratigraphische Modellierung von miozänen syntektonischen Sedimenten an einer listrischen Abschiebung im Eisenstädter Becken (Burgenland, Österreich)

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Miozäne E-W extensionelle synsedimentäre Tektonik führte zur Anlage einer N-S streichenden, mit 60° nach W einfallenden listrischen Abschiebung, die den Rand des Eisenstädter Beckens zum Ruster Hügelland bildet.
Diese Störung und die daran angelagerten syntektonischen klastischen Sedimente des Sarmatiums (Mactren Schichten) und Pannoniums (Zonen B, C, D und E) sind in der Kiesgrube "Kaufer" südlich von St. Margarethen (Burgenland) in einer *Rollover-Antiklinale* aufgeschlossen. Es kamen schräggeschichtete mittel- bis grobkörnige sandige Kiese, feinkörnige siltige Sande und Silte mit einer Gesamtmächtigkeit von etwa 30 m zur Ablagerung. Die wechsellagernden Straten sind auf einer Strecke von 200 m normal zur Störung aufgeschlossen und zeigen kontinuierlich steigende Schichtmächtigkeiten von W nach E (*growth strata*).
Die Analyse von Störungsmustern in der *Rollover* Struktur entlang einer Kiesgrubenwand zeigt, daß die horizontale finite Ex-

tension 11,6 % beträgt. Die dominierenden syntethischen nach NW einfallenden Störungen nehmen 11,2 %, die nach SE einfallenden antithetischen Störungen nehmen lediglich 0,4 % der horizontalen Extension auf. DECKER & PERESSON (1996) geben aufgrund der geometrischen Verhältnisse der beobachteten Störungsmuster mit der Schichtung ein *fault bend folding* Modell als wahrscheinlichsten Kollapsmechanismus für den hangenden Block an. Eine Restauration des Profils konnte jedoch aufgrund der unbekannten Lage und Geometrie der listrischen Abschiebung nicht durchgeführt werden. Das Softwarepaket "PHIL" (PetroDynamics Inc.) bietet die Möglichkeit, durch Definition von Subsidenzraten für Punkte auf Zeitlinien die Sedimentgeometrie innerhalb des hangenden Blocks der listrischen Abschiebung zu simulieren. Die Angabe von Subsidenzraten für die Modellierung in "PHIL" erfordert eine chronostratigraphische Einstufung des *growth strata* Profils. Nach der Arbeit von KOVAC et al. (1998) wird die vorhandene biostratigraphische Einstufung (Mollusken-Biozonen) mit absoluten Sedimentaltern korreliert werden.
Das Poster präsentiert eine durch *forward modelling* entstandene Simulation der *rollover-anticline growth strata* in der Kiesgrube "Kaufer" und bietet darüberhinaus die Möglichkeit die Interaktion von tektonischen Ereignissen mit Sedimentation zu veranschaulichen.

DECKER, K. & PERESSON, H. (1996): Rollover and hanging-wall collapse during Sarmatian/Pannonian synsedimentary extension in the Eisenstadt Basin. - Mitt. Ges. Geol. Bergbaustud., **41**: 45-52, Wien.
KOVAC, M., BARATH, I., KOVACOVA-SLAMKOVA, M., PIPIK, R., HLAVATY, I. & HUDACOVA, N. (1998): Late Miocene Paleoenvironments and Sequence Stratigraphy: Northern Vienna Basin. - Geol. Carpathica, **49** (**6**): 445-458, Bratislava.

^{40}Ar/^{39}Ar Ages of detrital white mica (Molasse Zone, Austria) multi- versus single-grain dating

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The investigation is focused on ^{40}Ar/^{39}Ar multi- and single-grain dating of detrital white mica from the northern Alpine Molasse basin. The studied area is situated between Salzburg in the south and river Inn in the north.
Dating of detrital white mica taken from nonmetamorphic sedimentary rocks is a powerfull tool for determination of tectonostratigraphic units in the presumed source area. The recorded Ar/Ar-ages are interpretated as cooling age of the source rocks through 350-420 °C. Precisely dateable detrital minerals in well known sedimentary basins are thus be a powerful tool to reconstruct the timing of geodynamic evolution in the hinterland. ^{40}Ar/^{39}Ar dating of detrital white mica gives strong constraints for uplift and exhumation in mountain belts.
Classical multi-grain age determination (few to hundreds of mineral grains in one bulk grain sample) requires a uniform source rock for a meaningful interpretation. Multi-grain samples that comprise several age groups give a mixed age without directly geological meaning. Unlike that single-grain age determination opens up the vistas to obtain significant ^{40}Ar/^{39}Ar ages for each single grain.
For this study detrital white mica were taken from sandstone samples covering the whole Molasse sequences from the upper Eocene (Limnic beds and Limestone-sandstone Formation) to the Pannonian (Kobernaußer Schotter).
The sediment input into the Molasse basin originated from two main source areas: In the Upper Eocene (Priabonian) sediments derived from the Variscan Bohemian Massif in the north. In the Egerian, sediment input from the rising Alpine mountain belt in the south started and increased rapidly in time.

The following major conclusions can be drawn:

a) Multi-grain samples mostly show mixed ages. This indicates that mica within one sample are derived from different source rocks. So multi-grain samples are insufficient for precise age determination in this rocks due to the mixture of variable proportions of grains from different sources.
b) In the units close to the base (Priabonian), we got uniform Variscan single-grain (300-320 Ma) and multi-grain ages (295 Ma and 319 Ma) with no influence of younger detrital mica.
c) In post-Priabonian sediments we observe Variscan single grain ages (270 Ma, 290-330 Ma) which are well known from southern part of theBohemian Massif (FRANK & SCHARBERT 1993) and from Austroalpine Units (FRANK et al. 1987), questionable Triassic/Jurassic single grain ages (~230 Ma) and early Alpine single ages (140-70 Ma). Younger ages that we expect in the uppermost units (Süßwassermolasse) have not been detected yet.
d) Minimum single grain ages of detrital mica decrease in age from Priabonian (Variscan ages: 300-320 Ma to Egerian (early Alpine ages: 70-90 Ma). These ages reflect the change of the main sediment source from the Bohemian Massif in the north to the Alpine Mountain Belt in the south.
e) The time interval between cooling through the closure temperature (350-420°C) of mica and the deposition of the detrital mica decreases rapidly from the Priabonian (up to 250 Ma) to the Egerian (c. 50 Ma).
f) Ar/Ar single grain dating yield additional age groups (e.g.: 230 Ma age, see point c) that are not recognizable by the Ar/Ar-multi grain method.

FRANK, W. & SCHARBERT, S. (1993): K/Ar- und Ar/Ar-Daten von Glimmern der Böhmischen Masse (Erweitertes Abstrakt) Projekt S4702. - Mitt. Österr. Miner. Ges., **138**: 119-121.
FRANK, W. et al. (1987): Geochronological Data from the Eastern Alps. - (In: FLÜGEL, H.W. & FAUPL, P. (Ed.): Geodynamics of the Eastern Alps), 272-281.

^{40}Ar/^{39}Ar-dating of detrital white mica from sandstones in the Moravo-Silesian basin, Czech Republic

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The Moravo-Silesian Zone (MSZ) in the Czech Republic, situated at the eastern margin of the Bohemian massif, is interpreted to represent the south-easternmost part of the Variscan Rhenohercynian Zone, from which the MSZ is displaced by the NW-SE striking Odra Lineament. The crystalline basement of the Proterozoic Bruno-Vistulicum is discordantly overlain by a mainly late Palaeozoic sedimentary cover sequence, characterized by early to middle Devonian terrestic clastics (Old Red), late Devonian parauthochthonos shallow marine platform sediments (limestomes and clastic sediments), clastic deep marine synorogenic through sediments (Culm) and shallow marine to terrestic sediments (paralic to terrestric molasse). The Culm basin of the MSZ in the Czech Republic is a NNE-SSW trending belt from 30 km south of Brno in the south to the line Krnov-Ostrava at the Poland border. The Culm succession, underlain by Emsian to Eifelian clastic sediments of the Old Red, ranges from supposed Middle Viseán in the western parts to early Namurian A in the eastern parts. These uncomplete Palaeozoic sedimentary succession is underlain by the autochthonous Proterozoic (Cadomian) basement of the Bruno-Vistulicum, that is overthrusted in the west by the allochthonous Molda-