the Northern Calcareous Alps (Gosau Group, Austria). - (In: Piller, W.E. & Rasser, M.W. (Eds.): Paleogene of the Eastern Alps), Österr. Akad. Wiss., Schriftenr. Erdwiss. Komm., **14**: 57-75, Wien.

Wagreich, M., Kollmann, H.A., Summesberger, H., Egger, H., Sanders, D., Hobiger, G., Mohamed, O. & Priewalder, H. (2009): Stratigraphie der Gosau-Gruppe von Gams bei Hieflau (Oberkreide-Paläogen, Österreich). - Arbeitstagung '09. Geologische Bundesanstalt: 81-105, Wien.

Transfer zones, fold-fault relations and their influence on syntectonic sedimentation: inferences from analogue modelling

Kositz, A.[1,2], Ortner, H.[1], Willingshofer, E.[2] & Sokoutis, D.[2]

[1] University of Innsbruck, Innrain 52, 6020-Austria; csae8262@uibk.ac.at;
[2] Faculty of Earth and Life Sciences, VU University Amsterdam, De Boelelaan 1085, 1081 HV Amsterdam, The Netherlands

The geometry of structures and sediments in Late Cretaceous Muttekopf Gosau basin (Tyrol, Austria) is consistent with deformation by fault propagation folding and strike-slip faulting. Sedimentation was syn-tectonic as documented by on- and offlap structures which form progressive growth unconformities (Ortner 2001, Ford et. al. 1997). Field data show a significant change in strike of the bedding planes across the growth unconformities, which could be indicative of synchronous strike-slip faulting and folding. Series of small-scale normal faults and steep thrusts can be related to progressive rotation of fold limbs during trishear-type fault-propagation folding. The dextral tear fault divides the area in a western part with a single anticline - syncline pair showing a large wavelength and an eastern part, with several folds and smaller wavelength. The growth unconformities connect to the tear fault, a direct relation can be assumed.

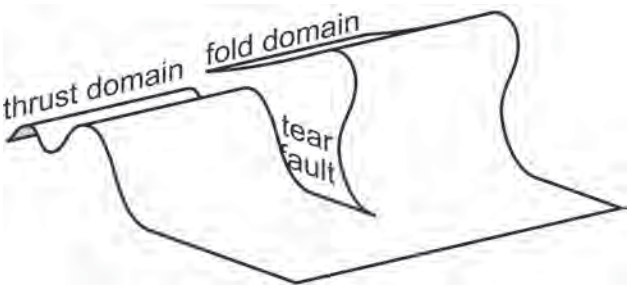

Fig. 1: Illustration of the translation of the field situation to the analogue model.

Analogue modelling has been used to infer the kinematic boundary conditions favourable for the development of tear faults and to decipher deviations from the expected stratal patterns related to fold growth, which can be attributed to tear fault activity.
We used sand for the experiments representing brittle rheological domains. Additionally, the affect of pre-existing basement structures has been implemented by introducing an initially present offset between the independently moving ramps.
The growth of an antiform was simulated by pulling the sediments, which had been added step by step to model growth strata, over two ramps becoming steeper to the with slope angles from 15 to 60 degrees. These experiments aim at investigating the influence of fold growth- and sedimentation rates on the resulting sediment geometries and structures.

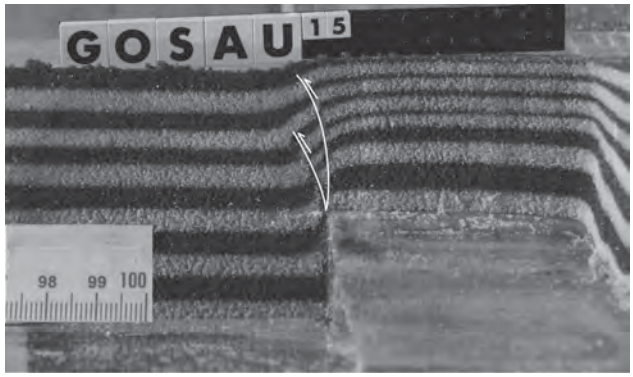

Fig. 2: Crosscut perpendicular to the tear fault within the analogue model showing two steep thrusts.

Results show, when rotative overlap is generated on the faster moving ramp, the slower side is controlled by onlap structures. A constant growth of the structure ends in a constant onlap, whereas constant sedimentation results in offlap structures. Modelling results and observations in the field are comparable. There, rotative overlap on the eastern and constant onlap on the western part of the main tear fault can be described. Furthermore the analogue model reproduced some of the characteristics close to the tear fault within the field. Forced thrusts represent the steep thrusts and moreover the change of strike close to the fault zone could have been clearly reproduced.

Ortner, H. (2001): Growing folds and sedimentation of the Gosau Group, Muttekopf, Northern Calcareous Alps, Austria. - Int. J. Earth Sciences, **90**: 727-739.

Ford, M., Williams, E.A., Artoni, A., Verges, J. & Hardy, S. (1997): Progressive evolution of a fault-related fold pair from growth strata geometries, Sant Llorens de Morunys, SE Pyrenees. - J. Struct. Geol., **19**: 413-441.

Zr and Ti-bearing accessory minerals from metacarbonates of the central Ötztal Complex (North-Tyrol, Austria): geochronological, thermobarometric and textural constraints on the pre-Variscan and Variscan *P-T* evolution

Kozlik, M., Tropper, P. & Tessadri, R.

Institute of Mineralogy and Petrography, University Innsbruck, Innrain 52, 6020 Innsbruck, Austria

Within the central part of the Ötztal-Stubai Complex (ÖSC) metacarbonates occur intercalated between various metamorphic rocks such as amphibolites, eclogites, and