

### **Landesgeologen im "Vollzug" der Bergpredigt - Gewährleistung eines sicheren Baugrundes im Dienste der Landesbürger**

GRÖSEL, K.

Amt der Niederösterreichischen Landesregierung, Baudirektion - Geologischer Dienst

Landesgeologen in Österreich setzen sich in vielfältigster Weise dafür ein, dass ausschließlich für eine Bebauung geeignete Flächen in Bauland umgewidmet und als Baugrund zur Verfügung gestellt werden dürfen.

Auf Grund von zahlreichen Negativbeispielen mit teilweise katastrophalen Folgen, die viel Leid in der Bevölkerung ausgelöst haben und die die Länder im Rahmen der Ausschüttung von Mitteln aus dem Katastrophenfond sehr viel Geld gekostet haben und zukünftig noch kosten werden, werden Landesgeologen vermehrt in Entscheidungsprozesse rund um Baulandwidmungen einbezogen.

Im Vorfeld der gutachterlichen Tätigkeiten konzentrieren sich die Aktivitäten der Landesgeologen auf die Sammlung raumbezogener widmungsrelevanter Informationen (Gefahrenpotentiale bzw. Archivierung von Schadensfällen), Schulung von Raumordnungsbeauftragten (Sensibilisierung für Naturgefahren), auf Beiträge innerhalb der Österreichischen Raumordnungskonferenz (ÖROK, Risikomanagement-Naturgefahrenprävention) und verstärkte Zusammenarbeit mit der Wildbach- und Lawinenverbauung (WLV) in Zusammenhang mit der Erstellung von Gefahrenzonenplänen. Im Rahmen von Projekten werden weiters Standards für die Naturgefahrenanalyse und Bewertungen von geogenen Risiken erarbeitet.

Die Spannungsfelder bzw. Interessenskonflikte in Widmungsverfahren - Politiker (Bürgermeister) - Bauherr - Landesgeologe - Raumordnungsbeauftragter - werden näher beleuchtet.

Schließlich werden im Rahmen des Vortrages die Grundlagen erörtert, auf deren Basis Landesgeologen Entscheidungen fällen und ihre Gutachten verfassen.

### **Structural evolution of the western and northern Gurktal - Bundschuh units**

GRUBER, CH., FISCHER, S., WIPFLER, K., KURZ, W., KRENN, K. & FRITZ, H.

Institut für Erdwissenschaften, Universität Graz, Heinrichstraße 26, A- 8010 Graz, AUSTRIA.

The western and northern margin the Gurktal Nappe is classically defined as a structure of Alpine nappe emplacement with Permomesozoic sediments (nappe separators) decorating the thrust. The tectonic boundary stretches from Radenthein northwards and bends sharply to the east heading towards the Turrach saddle. Structural studies along that boundary display a complex tectonic history. (1) The contact between the Pfannock Gneiss and the Königstuhl Conglomerate is interpreted as late-Carboniferous cataclastic fault zone that formed in the course of exhumation of the crystalline and coeval deposition of Carboniferous sediments. Cataclastic pebbles are present within the Carboniferous sediments and suggest exhumation prior to deposition of rocks. The pre-Carboniferous fault can be traced all along the eastern and southern margin of the Pfannock Gneiss. (2) The Pfannock Schuppe includes an inverted suite of Permian to Mesozoic sediments. It is interpreted as a tectonic sliver with the Pfannock Gneiss in the core of a northwest vergent fold. Shearing and folding is correlated with Cretaceous northwestward nappe stacking. (3) The actual geometry of the boundary is result of bulk extension during the late Cretaceous. Extensional structures with E- to SE displacement dominate N-S trending segments, dextral strike-slip zone the W-E trending segments. The overall geometry can be described as eastward spreading units with normal faults forming extensional bridges between strike-slip domains

### **Strain and AMS data from the Stangalm Mesozoic: Do data record tectonic strain?**

GRUBER, CH., SCHOLGER, R., FRITZ, H., & KURZ, W.

Institut für Erdwissenschaften, Universität Graz, Heinrichstraße 26, A- 8010 Graz, AUSTRIA.

The Basement - Cover contact between the Bundschuh Crystalline complex and overlying Permo-Mesozoic sediments (Stangalm Mesozoic) has been studied in detail by shape analyses of clastic grains and the AMS techniques (anisotropy of magnetic susceptibility). Aim of this study is to compare both techniques in terms of their significance to resolve tectonic strain. Although a sedimentary contact between both units is present, the actual boundary between the Bundschuh Complex and the Stangalm Mesozoic is a ductile low angle normal fault with E- to SE-displacement. Structural features include SC and ECC fabrics. SC fabrics developed by pressure

solution together with dislocation climb and grain boundary migration mechanisms, ECC fabrics developed during general cooling of rocks and include dislocation glide and bulging mechanisms. Syntectonic temperatures, estimated from rheological behaviour of rock forming minerals suggest onset of deformation at temperatures between 380°C and 440°C, during late deformation stages rocks cooled below 380°C. Data show that distinctly different deformation increments are recorded by strain and AMS data. Grain shape analyses by various techniques of strain analysis show that shape preferred orientation of quartz pebbles evolved during formation of SC fabrics within a temperature regime allowing for viscous deformation of quartz. By contrast, the anisotropy of paramagnetic minerals records the latest deformation increment when ECC fabrics were formed. Paramagnetic minerals precipitated in extensional bridges of ECC fabrics and record the late stage tectonic elements. Our study shows, that both techniques are, on first glimpse, not compatible. None of them records total finite strain. Instead, certain deformation stages are recorded by the individual techniques and allow reconstruction of incremental strain accumulation.

### **Recent assemblages of foraminifers, ostracods and calcareous nannoplankton in the Gulf of Cádiz and West off Portugal: implications for paleoceanography and paleoclimatology**

GRUNERT, P.<sup>1</sup>, BALESTRA, B.<sup>2</sup>, ALVAREZ-ZARIKIAN, C.<sup>3</sup>, HODELL, D.<sup>4</sup>, FLORÉS, J.-A.<sup>5</sup>, HERNÁNDEZ-MOLINA, F.J.<sup>6</sup>, STOW, D.A.V.<sup>7</sup> & IODP EXPEDITION 339 SCIENTISTS<sup>8</sup>

<sup>1</sup> Institut für Erdwissenschaften, Karl-Franzens-Universität Graz

<sup>2</sup> School of Earth and Environmental Sciences, Queens College, USA

<sup>3</sup> IODP-Texas A&M University, USA

<sup>4</sup> Godwin Laboratory for Paleoclimate Research University of Cambridge, UK

<sup>5</sup> Dpto. de Geología, Universidad de Salamanca, Spain

<sup>6</sup> Facultad de Ciencias del Mar, Universidad de Vigo, Spain

<sup>7</sup> ECOSSE, Heriot-Watt University, Edinburgh, Scotland, UK

<sup>8</sup> IODP Expedition 339 Scientists: Acton, G., Bahr, A., Ducassou, E., Flood, R., Furota, S., Jimenez-Espejo, F., Kim, J. K., Krissek, L., Kuroda, J., Li, B., Llave, E., Lofi, J., Lourens, L., Miller, M., Nanayama, F., Nishida, N., Richter, C., Roque, C., Sanchez Goñi, M., Sierro Sanchez, F., Singh, A., Sloss, C., Takashimizu, Y., Tzanova, A., Voelker, A., Williams, T., Xuan, C.

IODP Expedition 339 recently drilled 5 sites in the Gulf of Cádiz and 2 west off Portugal, and recovered 5.5 km of core. The Gulf of Cádiz was targeted for drilling 1) to investigate the Mediterranean Outflow Water (MOW) and its influence on global circulation and climate, and 2) to understand the effects of tectonic activity on evolution of the Gibraltar Gateway and margin sedimentation. During the expedition samples from surface-waters and the seafloor were collected to study recent communities of foraminifers, ostracods and calcareous nannoplankton. Preliminary results on benthic foraminifers show that living specimens are rare, which is most likely related to deep-sea patchiness; loss during the drilling process cannot be excluded for some samples. Composition of live and dead assemblages strongly depends on water depth and position along the pathway of MOW. Combined with ostracod and nannoplankton assemblages the results will provide insights into the effect of North Atlantic Central Water and MOW circulation on the microfauna and -flora. Moreover,  $\delta^{13}\text{C}$ ,  $\delta^{18}\text{O}$ , Mg/Ca and Sr/Ca of foraminifers, ostracods and coccoliths will be determined and compared to seawater geochemistry to evaluate "vital effects". The present study thus serves as an important reference for future work on paleoceanography and paleoclimatology in the Upper Miocene-Pleistocene deposits drilled during IODP Expedition 339.