wässer hinweist.
Wir entwickelten einen isotopengeologischen Modellierungsansatz, welcher auf der Isotopensystematik des Sauerstoffes basiert ($\delta^{18}O$ Werte der Speläotheme sowie Abschätzung des $\delta^{18}O$ Gehaltes des Paläo-Niederschlages), um eine Reihe von Hebungs- und Erosionsszenarien durchzuspielen. Diese zeigen, dass für die letzten 2 Mio Jahre nur Hebungsraten in der Größenordnung von $0.50 < x < 0.75$ mm möglich sind. In Kombination mit den paläoökologischen Daten, welche aus den Sintern gewonnen wurden (Pollenspektrum, Lamination und die $\delta^{18}O$ und $\delta^{13}C$ Werte), kann ein relativ genaues frühquartäres Landschaftsbild für diesen Abschnitt der Nördlichen Kalkalpen gezeichnet werden.

Endocrine disrupting alkylphenolic compounds in the Danube River

Micic, V.[1], Sacher, F.[2], Slobodnik, J.[3], Brauch, H-J.[2] & Hofmann, T.[1]

[1]Department of Environmental Geosciences, University of Vienna, Althanstrasse 14, 1090 Vienna, Austria; [2]DVGW-Technologiezentrum Wasser (TZW), Karlsruher Strasse 84, 76139 Karlsruhe, Germany; [3]Environmental Institute, Okru•ná 784/42, Koš 972 41, Slovak Republic; vesna.micic@univie.ac.at, sacher@tzw.de, slobodnik@ei.sk, brauch@tzw.de, thilo.hofmann@univie.ac.at

The Danube River is the second largest river in Europe. Along its 2780 km, the Danube and many of its tributaries receive variously treated or untreated wastewaters from many sources, including agricultural, industrial and municipal.
Wastewater treatment plants (WTP) can be point sources for alkylphenolic compounds (alkylphenols and their lower ethoxylates), hydrophobic degradation products of alkylphenol polyethoxylates (APEOs), mostly used commercially as surfactants. Nonylphenol, its mono-and diethoxylates and octylphenol are known to have toxic and estrogen – mimicking potential to aquatic organisms and are therefore treated as priority substances of the OSPAR convention and by the European Council. Due to their hydrophobic nature, they are associated with organic matter in sediments and suspended particulate matter (SPM). Suspended particles especially play a significant role in the transport of these contaminants, while sediments may act as their sink (or source).
Alkylphenols were investigated for the first time in the Danube River in 2001, whereby relatively high concentrations were found in sediments and in suspended particulate matter. However, their hydrophobic predecessor compounds (mono- and diethoxylates) were not investigated until now. This study, therefore, focused on the contamination level and distribution pattern of six alkylphenolic compounds: octylphenol (OP), octylphenol monoethoxylate (OP1EO), octylphenol diethoxylate (OP2EO), nonylphenols (NPs), nonylphenol monoethoxylates (NP1EOs) and nonylphenol diethoxylates (NP2EOs) in surface sediments and suspended particulate matter.
Analyses of sediment and suspended matter samples showed that alkylphenolic compounds are still present in the Danube, with nonylphenols the most abundant in both investigated matrices. Our study also showed, for the first time, that nonylphenol mono-and diethoxylates have also accumulated in Danube sediments and in suspended particles. Sediment concentrations of nonylphenols and their lower ethoxylates (up to 2.8 mg/kg dry weight) reflect the input of alkylphenol polyethoxylates (APEOs), despite the „Restrictions Directive“ (Directive 76/769/EEC), „Detergent Regulation“ (NO. 648/2004), and the Water Framework Directive (Directive 2000/60/EC) issued by European Parliament. In comparison to the sediment concentrations, suspended particulate matter exhibited lower levels of alkylphenolic compounds (up to 0.18 mg/kg dry weight). Octylphenolic compounds were rarely found, if, then in significantly lower concentrations. The current study showed variation of alkylphenolic substances in the Danube River, which is expected due to varying sources, hydrodynamic conditions, as well as physico-chemical and biological processes along the large stretch of the Danube River. It provided evidence of noticeable sediment and suspended matter contamination, especially proximal to big cities and their associated large sewage treatment facilities.

Imbricates from different palaeogeographic origin and thermal overprint along the eastern Periadriatic Lineament (Karavank Mountains, Austria) - a document of their polyphase tectonic history

Missoni, S. & Gawlick, H.-J.

University of Leoben, Department for Applied Geosciences and Geophysics, Chair of Prospection and Applied Sedimentologie. Peter-Tunner-Str. 5, A-8700 Leoben; s.missoni@daad-alumni.de, hans-juergen.gawlick@mu-leoben.at

According to the geological maps of the Austrian Geological Survey and others the east-west trending Periadriatic Lineament separate the Eastern Alps (Northern Karavank Mountains) and the Southern Alps/Dinarides (Southern Karavank Mountains) in the study area. Former structural investigations showed a laterally far less continuance due to strong segmentation along high-angle faults of limited displacement, numerous of them displacing the lineament also.
The geological structures of the Karavanks south of Maria Elend are dominated by E-W- to SE-NW-striking high-angle faults, separating from each other in so far 24 imbricates, crosscuted by faults striking in NW-SE direction. They are of variable size, stratigraphic range, facies, thickness, palaeogeographic origin and diagenetic/thermal overprint, which are tested by biostratigraphy (e.g., radiolarians, conodonts, algae, foraminifera, incertae sedis), microfacies analysis and measurements of the Conodont Colour Alteration Index (CAI). These individual imbricates, who derived from different palaeogeographic positions of Triassic-Europe by far tectonic transportation of crustal fragments, can be clearly distinguish by

1) their stratigraphic range, facies evolution and their palaeogeographic origin, and
2) their diagenetic/thermal overprint, and
3) a specific structural inventory, which strike not in the neighbouring imbricates.

These particular sets of structures restricted to individual tectonic entities were created before the amalgamation, and are thus transported structures. However, there are successions with affinities to most Triassic(-Jurassic) facies zones of the Northern Calcareous Alps (NCA), the Southern Alps, and the „Slovenian Trough“ south of the Julian Alps. An interesting fact is the diagenetic/metamorphic overprint of different imbricates in this area. To the north and northeast Late Carnian to Early Norian reef near sediments in tectonically isolated imbricates reach CAI values of CAI 5.5 to 6.0, corresponding to low grade metamorphism. These high CAI values of CAI 5.5 to 6.0 are comparable with the faciesequivalent thermally overprinted rocks of the so called Ultratirolic unit of the NCA (e.g. Mount Hochkönig, Tennengebirge and others) or some individual slide blocks in the Hallstatt Mélange in the area of the central NCA. The thermal overprint of these different tectonic slices in this region is therefore transported. Despite some knowledge about general trends in deformation within the study area, the fact that the amalgamation of the imbricates progressed from south to north and the imbricate zone