

S/1 PANGEO – Open Session

Open for all geoscience contributions not included in a special session.

S/2 Geology of the Alps – Carpathians and Dinarides: The Alpine – Mediterranean Tectonic Puzzle *W. Kurz, H. Fritz, H.-J. Gawlick*

The recent heterogeneous structure of the Alpine Mediterranean area is the result of multiple subduction and collision events spanning from Jurassic to recent times. Recently there is much progress in resolving this puzzle based on various sources of information including sedimentological, stratigraphical, structural, petrological, geochronological and geophysical studies. Of special interest in puzzle is also the emplacement and palaeogeographic position of the various ophiolites as well as mélangé formation. We invite contributions from various areas and various techniques in order to discuss the general tectonic evolution of this orogenic puzzle. Presentations addressed to the older history of this orogenic belt are also highly welcome.

S/3 Geodynamics: structural and metamorphic processes in collisional orogens

K. Stüwe, B. Grasemann, U. Exner & J. Raith

For this session we invite contributions from the entire field of geodynamics with particular focus on field-based studies in which structural and petrological methods are used to derive tectonic models. A conceptual (rather than regional) component in the contributions is desired, but not essential.

S/4 Stratigraphia Austriaca *W. Piller & H. Egger*

The session intends to give an overview on the Explanations to the Austrian Stratigraphic Chart 2004 and resulting problems and consequences for defining and reorganizing lithostratigraphic units. The session is, however, open to all stratigraphic topics.

S/5 Mesozoic of the Eastern Alps *H.-J. Gawlick*

The Mesozoic evolution of the Eastern Alps is part of a complex Triassic to Cretaceous sedimentary history in the western tethyan realm and a key region for the geodynamic reconstruction of the northern and eastern Mediterranean alpine mountain chain. Contributions dealing with this history and contributions for a better correlation with other adjacent regions (Carpathians, Southern Alps, Dinarides) are expected.

S/6 Geochronology and isotope geochemistry *U. Kloetzli*

This session will highlight new research directions in the application of isotope systematics to geochronology, thermochronology and geochemistry that contribute to our understanding of the 4D evolution of the Earth. Interpretations of “geo-isotope” records have major applications in many areas of fundamental and applied science, including the evolution of Earth's lithosphere, hydrosphere and atmosphere, as well as petrology, geochemistry, structural geology, landscape evolution, petroleum and ore system genesis, and paleoclimate-tectonic linkages and so on. We like to invite any submissions relating to analytical, technical, theoretical, and interpretative advancements in all research areas dealing with isotope investigations in geological materials. We also welcome case studies in which an integrated approach of isotope research has contributed to the resolution of complex geological problems.

S/7 Biomarkers and stable isotopes in sedimentary systems (hydrocarbon resources, palaeoclimatology, environmental geochemistry) *A. Bechtel, R. Gratzler & R.F. Sachsenhofer*

Fingerprinting by molecular and isotopic composition of hydrocarbons is routinely used to assess the source potential of sediments and in oil-oil and oil-source rock correlation studies. The combined use of biomarker and stable isotope composition of organic matter in sedimentary successions is increasingly contributing to the deciphering of environmental changes and led to the establishment of new climatic proxies. Finally, these techniques are used to track environmental pollution and to monitor remediation processes. Contributions covering different topics in these fields of organic geochemistry are invited.

S/8 Geofluids: Water-Rock Interactions *R. J. Bakker*

Hydrothermal processes are of major importance in the crust and mantle. Fluid flow, formation of ore deposits, metamorphism and diagenesis include processes that involve a fluid phase. This session may include all kinds of presentation where the fluid phase plays an important role, also including fluid inclusion studies.

S/9 ÖPG-Session – Paleontology *M. Gross & M. Zuschin*

This session is open for all contributions with paleontological contents. It is intended as an exhibition of the paleontological research in Austria and it should especially act as a forum for young palaeontologists.

S/10 Phanerozoic Reefs *B. Hubmann & M. Zuschin*

This session is open to all contributions on reefs and carbonate platforms through Earth history and may include the influence of dominant biota, reef type or bioerosion on carbonate production, and how it is controlled by paleogeographic setting, nutrient level, sea level fluctuation, or atmospheric CO₂-concentrations. Broader scale views on reef building are a primary target, but local scale studies are also highly welcome.

S/11 Current topics in Geophysics *W. Lenhardt & K. Millahn*

This session is devoted to current topics of geophysical research. We invite contributions with broad geoscience coverage as well as on highly specialized topics.

S/12 Hydrogeology *S. Birk*

This session covers all aspects of hydrogeology. The contributions may range from fundamental, theoretical investigations to applied case studies. Potential topics include groundwater in the hydrological cycle (e.g., recharge, runoff dynamics, stream-aquifer-interaction), groundwater quality (e.g., monitoring, trends, and prediction of contamination), exploration, prediction, and management techniques (e.g., hydrogeophysics, isotope methods, modelling), and applied hydrogeological studies (e.g., associated with civil works, hydropower, tourism).

S/13 Near to surface and deep geothermal energy *G. Höfer-Öllinger*

Geothermal energy comes more and more into fashion. During the last decades developments of thermal wells and heat pumps for detached houses, factories and offices increased significantly. In many countries studies for using deep geothermal energy are carried out. At other places the geothermal gradient forms natural obstacles: e.g. in deep tunnels and mines. Use of geothermal energy in tunnels could be increased substantially, only small parts of this potential are used right now.

S/14 Engineering geology and tunneling *E. Tentschert & S. Kieffer*

Tunneling activities in Austria are presently intensive, with several major construction projects nearing completion (e.g. Wienerwald, Perschling, Pfänder, Lainz, Unterinntal), and others in the design stage (e.g. Koralm, Brenner, Bosruck) or exploration stage (e.g. Semmering, Lobau). These projects traverse diverse geologic terrain from Molasse to the central Alps, and the interplay between site geology and construction approaches has proven very significant. Aside from the civilian benefit, these tunneling activities provide keen insight to regional and site-specific geologic conditions. But even smaller constructions attracting minor interest sometimes provide interesting problems (foundations, water drainage etc.).

S/15 Natural hazards - Application of geophysical methods for pre-investigation and crisis management *E. Niesner*

Present day civilisation is prone to natural hazards like landslides, earthquakes, volcanoes and flooding. This session is focused especially on the scope of geophysical methods for prediction and investigation of natural hazards and on the possible contributions to crisis management and early warning systems. Of interest are contributions investigating applied and theoretical aspects of natural hazards and demonstrating examples. All natural hazard types are considered from local to global scale, with emphasis on forecasting.

S/16 Mineral deposits/raw materials: genetic aspects – prospection – utilisation – impact to society and environment *W. Prochaska & F. Ebner*

Mineral resources are essential for economy and the living standard. During the last years the international raw materials' system changed dramatically. This requires a particular response: broad research in all fields of economic geology, activation of exploration worldwide, sustainable using of raw materials and deposits, as well as preventing steps respecting national and international mineral resources planning, supply and policy. All contributions from "classical" research topics of mineral deposits as far as to interdisciplinary presentations in the field of resources supply and policy are highly asked for the session.

S/17 Knowledge Transfer between Academia and E&P Industry

H.-G. Linzer & G. C. Tari

The topics to be addressed are:

Case studies of current cooperative research between industry and academia

Sedimentological case studies on reservoir sequences and their properties

Implications of regional geology, structural geology and paleontology studies on hydrocarbon exploration
New developments in earth modelling, seismic data processing and imaging, production engineering.

S/18 Understanding CO₂ Migration in the Shallow Crust *S. K. Matthai & H. Hofstätter*

This session invites contributions from the earth and geohydrological sciences which foster our qualitative and quantitative understanding of geological CCS. Our intention is to create a constructive dialog among the different disciplines of research that have a potential to constrain contributing processes and their interactions and to identify new research topics. In particular, we invite contributions that attempt to quantify residence times of natural CO₂ in the crust and field-data based simulation efforts aimed at understanding CO₂ migration as well as natural barriers to it.

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S/19 Mathematical Geosciences *G. Rantisch*

The session is dedicated to theoretical concepts and practical applications of numerical methods in the geosciences. Contributions from the entire field of mathematical geosciences (e.g. modeling of geological structures, GIS, databases, statistics, basin modeling) are highly welcomed.

S/20 Geoarcheology and Archaeometry *M. Meyer & E. Draganits*

Archaeometry and Geoarchaeology are highly interdisciplinary research areas and cover a wide field of modern laboratory and field techniques. Today, a plenitude of methods can be applied in order to help deciphering evolutionary, archaeological as well as historic problems and to resolve controversial scientific debates. Many different geoscientific research strands as well as geochronological techniques are of prime importance for archaeometrical research since many decades. More recently, physical, geochemical, biomolekular and microscopic techniques are rapidly gaining importance in archaeology too. This session aims to overview geoarchaeological and archaeometrical research conducted in Austria. Furthermore, we want to present new and sometimes revolutionary insights and interpretations, as facilitated by applying modern geoarchaeological and archaeometrical techniques.

S/21 Geology in Schools *B. Hubmann, H. Summesberger, G. Lieb & L. Holemy*

Geology - the science of the history of our planet and life on it - is not a school subject: However geological sciences supply relevant basic knowledge for geography teaching as well as biology teaching. During the session school projects with geological contents will be presented, contents and materials of the advanced training programs compiled at the regional didactic centres demonstrated, and on current geoscientific topics relevant for teaching in the school reported.