



XIX Congress of the Carpathian Balkan Geological Association
Thessaloniki, Greece, 23-26 September 2010

Session

S01

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S01 Subduction and exhumation of continental margins and the role of oceanic convergence in the Carpathian-Balkan region

Conveners: [Anne Rassios](#) (GR), [Dimitri Kostopoulos](#) (GR) & [Alastair Robertson](#) (UK)

This session accepts both full papers and abstracts

This session is proposed to offer a forum for the discussion of subducted and exhumed continental material in the Balkans and Carpathian regions, their tectonic and chronologic relations, the nature of the subducted continental margins, and the significance of ophiolites and oceanic subduction zones within convergent and exhuming margins. Submissions are welcome for abstracts or papers concerning the nature of oceanic lithosphere and subduction zones, ophiolitic emplacement, continental margins and continental subduction, and exhumation of these complexes. Constraints on these processes arise from a wide range of geologic investigation, thus presentations on topics ranging from metamorphic petrology, structural geology, geochemistry and fossil investigations are invited. In particular, data presentations from any field that constrain strato-tectonic models are encouraged. Framework papers addressing the timing and tectonic kinematics for the Balkans and Carpathians are welcome.



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S02 Tectonostratigraphic Terranes in the Balkan region

Conveners: [Dimitrios Papanikolaou](#) (GR) & [Sándor Kovács](#) (HU)

This session accepts both full papers and abstracts

The concept of tectonostratigraphic terranes has been applied in the Mediterranean area by several researchers. Special emphasis was given within IGCP project 276, Palaeozoic geodynamic domains and their alpidic evolution in the Tethys. The final results were discussed during the XVth Congress of the Carpathian Balkan Geological Association in Athens, 1995 and a special volume was published in the *Journal Annales Géologiques des Pays Helléniques*, 1996-1997. Following new data and ideas, it is time to review and discuss new interpretations for the terrane structure and evolution in the Balkan area and more especially to discuss on geological correlations among various terranes of the neighbouring countries in the Balkan peninsula. Special subjects could be the recognition and dating of terranes representing pre-Alpine continental crust and terranes representing Tethyan oceanic basins. The timing of docking and amalgamation of each terrane within the overall Tethyan palaeogeography can be discussed within regional tectonic movements. Periods of metamorphism and magmatism can be correlated within the terrane structure and geodynamic evolution of the area.



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**S03 Circum Pannonian Terranes – Eastern Alps, Carpathians, Dinarides
(tectonostratigraphy, palaeotectonic evolution and present-day structure –
presentation of monography TERRANES)**

Conveners: [Josef Vozár](#) (SK), [Fritz Ebner](#) (AT) & [János Haas](#) (HU)

This session accepts both full papers and abstracts

In the frame of this Special Session, the new “Terranes – Eastern Alps, Carpathians and Dinarides” monograph will be presented (*SAS Bratislava, Editor-in-Chief: J. Vozár*). New results from the long-running project “Tectonostratigraphic terranes and palaeoenvironmental maps of the Circum-Pannonian region” will also be presented. Results from this project have already been presented in the 16th, 17th and 18th congresses of CBGA (Vienna 1998, Bratislava 2002 and Belgrade 2006 respectively), as well as in the 32nd and 33rd International Geological Congresses (Florence 2004 and Oslo 2009 respectively). It is planned that one representative author from each country (Austria, Slovenia, Croatia, Hungary, Romania, Serbia and Slovakia) will present the definite version of the tectonostratigraphy and evolution of Devonian – Early Carboniferous, Late Carboniferous – Permian, Triassic and Jurassic. This Special Session is also open to other authors working on related research fields.



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S04 Correlating Mesozoic lithostratigraphic units within the Carpathian-Balkan region

Conveners: [Geza Császár](#) (HU), [Michael Wagreich](#) (AT) & [Josef Michalik](#) (SK)

This session accepts both full papers and abstracts

Albeit nowadays the Carpathian Balkan region is highly complicated morphologically and tectonically, in the Triassic and Jurassic periods it was a more uniform sedimentation area of the western Tethys, which is well expressed in the lithologic composition of the relevant successions. During the tectonic activity in the Cretaceous the region started to be more complicated but still there were large areas where the formations resemble each other. In times of establishing formal lithostratigraphic units within this tectonically and politically highly complex region, the majority of the member countries introduced new lithostratigraphic names without taking much care about similarities. The Council of the CBGA accepted a Working Group proposal set as an aim to identify and correlate major lithostratigraphic units developed within the region in order to exclude unnecessary repetitions of identifiable lithostratigraphic units. We are expecting papers dealing with cross-border correlation of successions, promoting the selection of a common name for the entire extension of the relevant formation. The benefits to be expected are as follows:

- (1) students should not waste time for learning unnecessary lithostratigraphic names,
- (2) it will be easier to recognize valid palaeogeographic connections,
- (3) the regularities of geological and geotectonic history can be simplified and more realistic.



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S05 Advances in geology and geodynamic evolution of the Rhodope Massif

Conveners: [Nikolay Bonev](#) (BG) & [Andreas Magganas](#) (GR)

This session accepts both full papers and abstracts

The Rhodope Massif is a major orogen-forming crustal element in the Bulgarian-Greek segment of the Carpathian-Balkan belt. Beyond the crucial importance of the geology in the area of the Massif, its relationships with adjacent tectonic units continue to be subject of intense investigations. The session will focus on process-oriented interdisciplinary approach to our understanding of the recent advances in geology and geodynamic evolution of the Rhodope Massif. Ideally, the contributions are expected to examine, through interrelationships between tectonics, magmatism, basin formation and sedimentation, ore deposition, landscape development and other crust to mantle processes, the geological history and geodynamic evolution. Particular emphasis will be given on the research case studies, although single focused overview presentations are also welcome.



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**S06 The Eocene-Oligocene Thrace basin in Turkey, Bulgaria and Greece:
sedimentation and tectonics**

Conveners: [Aral I. Okay](#) (TR), [William Cavazza](#) (IT) & [Dimitrios Papanikolaou](#) (GR)

This session accepts both full papers and abstracts

The Thrace Basin is a hydrocarbon-bearing, mostly siliciclastic basin of Eocene-Oligocene age located at the south-eastern tip of the Balkan Peninsula. The thickness of the basinal sediments exceeds 9 km in the centre of the basin. Although largely located in Turkey, the Eocene-Oligocene sediments of the Thrace basin extend into the neighbouring regions of Greece and Bulgaria. The biostratigraphy, sedimentology and tectonic setting of the basin is poorly understood; there is a lack of correlation between the Eocene-Oligocene sequences in Greece, Bulgaria and those of Turkey. The session aims at bringing together geologists and geophysicists working in the Thrace basin to discuss problems on its biostratigraphy, sedimentology, tectonic setting and geological evolution.



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S07 Danube valley geological structure, neotectonic activity and evolution during the Pliocene - Pleistocene time

Conveners: [Petru Enciu \(RO\)](#) & [Stefan Shanov \(BG\)](#)

This session accepts both full papers and abstracts

Springing in the Black Forest Mountains (Germany), Danube developed its own valley of 2,857 km in length and ca 50 km in width. Along its flow, through ten countries, Danube crosses the Alps, the Wien Basin, the Western Carpathians, the Pannonian Basin, the Southwestern Carpathians, the Moesian and Scythic Basins a.o. Since the 20th century, geologists within their national territories (Wien Basin, Kiss Alfold, Great-Alfold, Romanian Plain a.o.) identified the remains of the Danube Formation (Ionescu-Argetoiaia 1918, Szadeczky-Kardoss 1938, Fink 1955, Ronai 1960, Liteanu & Ghenea 1966, Janacek 1969, Rakic 1977, Halouzka & Minarikova 1977, Enciu 1998). This session will discuss the newest models on Danube Valley evolution by national researchers, based on its associated deposits. The main focus will be the relationship between the neotectonic regime of different panels of the Danube bottom during the last 2.5 My and its litho- and chrono- stratigraphy: number of the accumulative terraces within positive tectonic areas and number of the buried sequences within the subsiding areas pertaining to the Pannonian (ThamoBozsoet al. 2002, Nador et al. 2002) and Dacic Basins (Enciu 2007). One interesting debate is the incongruence between the traditional models of the Danube terraces Stratigraphy (Pecsi 1959, 1996, Halouzka & Minarikova 1977 a.o) and the recent models based on the modern methods of sediments dating: TL, OSL, TCN (Musinschi 1999, Ruzkiczay-Rudiger 2007). The expected impact of the Danube Evolution along the middle (Pannonian) and lower (Dacic) Basins will turn to good account in the Stratigraphy, the Hydrostratigraphy and the Groundwater resources management.



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S08 New insights on geodynamics of the Vrancea Zone (Romania) and implications for continental tectonics

Conveners: [James H. Knapp](#) (USA), [Camelia C. Knapp](#) (USA) & [Victor Mocanu](#) (RO)

This session accepts both full papers and abstracts

The Vrancea Zone of Romania, situated beneath the bend zone joining the Eastern and Southern Carpathians, is one of the most active seismogenic zones in Europe. This zone of intermediate depth seismicity is widely attributed to the final stages of Miocene age oceanic subduction beneath the Carpathians. Recent observations suggest that other interpretations, including delamination of continental lithosphere, may not only be viable, but more consistent with existing geological and geophysical data. If so, the Carpathians may represent one of the best modern examples of this fundamental geodynamic process in continental evolution. This session will attempt to bring together international scientists with new geophysical and/or geological data which bear on the geodynamic evolution and significance of this critically important component of the Carpathian orogenic system.



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S09 Geology of the Pieniny Klippen Belt and the role of zones with extensive shortening in the structure of orogenic belts

Conveners: [Dušan Plašienka](#) (SK) & [Nestor Oszczypko](#) (PL)

This session accepts both full papers and abstracts

The Pieniny Klippen Belt (PKB) represents a very narrow but continuous zone that follows the Outer/Central Carpathian boundary for about 600 km. Despite certain along-strike differences, the entire PKB bears some common features revealing an extraordinary shortening and accumulation of units of originally distant provenances. The PKB has been intensively studied for some 150 years, but many specific features of its structure and evolution remain still enigmatic. On the other hand, the last decade brought numerous data and concepts of key importance that have shed new light on several old problems. The session aims at presentation of the recent results in studies of the PKB and similar narrow, but intensively shortened orogenic zones and at stimulation of a vivid discussion that would inspire further research.

The PKB and related zones extend in areas of 5 countries (Austria, Slovakia, Poland, Ukraine and Romania), therefore a number of contributions is expected. These may cover many aspects of geological research, including stratigraphy and palaeontology, lithology and sedimentology, basin analysis, volcanology, palaeogeography, structural geology, tectonic structure and evolution etc. Innovative and interdisciplinary approaches and methods applied to long-term problematic aspects will be especially welcome.



**S10 Geology, geophysics, tectonics and geodynamics of Eastern Anatolia
Accretionary Complex (Eastern Turkey high plateau)**

Conveners: [Mustafa Toker](#) (TR), [Sinan Özener](#) (TR) & [Petko Dimitrov](#) (BG)

This session accepts both full papers and abstracts

The present day geological-geodynamic importance and earth science interests of Eastern Anatolia Accretionary Complex (EAAC, eastern Turkey) are:

- (1) It is high plateau elevated at 2 km, remnant of the closed Tethys Ocean. This plateau is dynamically supported by asthenospheric doming, not by collisional thickening of Arabia-Eurasia.
- (2) Slab delamination-dependent doming asthenosphere resulted in thinned, weakened and hot convergent crust (38 km) and shear-wave splitting (mantle anisotropy) between the uppermost mantle and thin crust. There is a clear tectonic gap between deep- and shallow- seated events.
- (3) Rheologically changed and very buoyant crust is subjected to intra-plate conjugate wrench tectonics (extensional and strike-/oblique- slip deformation) within intra-plate convergent setting.
- (4) The crust-seated mechanical anisotropy mainly drives fault-controlled sedimentary basin blocks in the region due to the basement reactivation of accretionary complex material and low shear strength.
- (5) In spite of doming asthenosphere, the upper crust seems to have relatively normal heat flow gradients evidenced by normal crustal Curie point depths (17 km).
- (6) Intra-plate extensional and transtensional alkaline primary basaltic magmatism and related intrusions in S is both confirmed by seismic reflection data and Helium isotopic studies. This is strange finding as completely different from subduction-accretion related calc-alkaline magmatism in N.
- (7) Intra-plate suture zones and thrust contacts (accretionary materials) are obliquely opening and alkaline primary magmas rise. Ductile shear zones along pre-existing lineaments bound basin blocks.
- (8) EAAC is a new and special type orogenic environment, presently classified by Celal Şengör (2008).

EAAC is "crust-forming orogen", known as a "small Turkic-type orogen" (Celal Şengör).



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S11 Olistostromes and their role in tectonostratigraphic reconstructions of the Carpathian-Balkan region

Conveners: [Marek Cieszkowski](#) (PL) & [Marek Wendorff](#) (BW)

This session accepts both full papers and abstracts

Within the last decade, or so, very significant advances have been made in the research on olistostromes, which contributed significantly to our understanding of the geotectonic evolution of sedimentary basins and composition of the now non-existent ridges – the source zones that separated individual basins and supplied them with coarse detritus. It has been shown that the olistostrome bodies span a much more varied spectrum of textural and structural features, and have more complex internal organization, than thought in the past. New regional geotectonic interpretations based upon the identification of olistostromes have been proposed and even ore deposits hosted in the olistostrome bodies have been identified. In the Carpathian-Balkan region a host of new data have been brought forward. The newly recognized aspects of olistostromes should be disseminated and discussed, and a special thematic session of the Carpathian-Balkan Geological Association Congress is the most appropriate venue. This session will disseminate the information on the advances in the olistostrome research and will stimulate new work, especially comparative studies based upon regional cooperation. They will enhance our understanding of the evolution of the Carpathian-Balkan region and place our knowledge in a more inter-regional context. The papers resulting from this session will be published in a special issue/thematic volume of one of the leading international journals.



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S12 The Upper Miocene Paratethyan regime in the Aegean region: causes, timing and implications

Conveners: [Dimitris Kostopoulos](#) (GR), [George Syrides](#) (GR) & [Imre Magyar](#) (HU)

This session accepts abstracts only

The Aegean region appears to be a key-area for the understanding of the Mediterranean-Paratethys connectivity events during Late Miocene. Brackish-water mollusc faunas of Paratethyan affinities, already well known from numerous Miocene spots along North Aegean-Thrace region, have long ago triggered the discussion of a late Miocene Paratethyan invasion in the Southern Balkans. The geographic extent of this event and the pathways it followed are, however, open to discussion as old and new data from the broader area allow alternative scenarios. The role of major regional tectonic events related to the prolongation of the North Anatolian Fault System, as well as of global events related to the Messinian Salinity Crisis appear to be crucial in the determination and timing of the North Aegean Paratethyan regime. The palaeogeographic and environmental impacts of this episode to the continental territory (fauna and flora) are still little known and need further investigation. The present session wishes to bring together different aspects of the topic focusing on its causes, timing and palaeogeographic-palaeoecological impacts and allowing a multidisciplinary approach.



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S13 Neogene palaeoenvironmental reconstructions and climatic records in South-Eastern Europe

Conveners: [George Koufos](#) (GR), [Maria Triantaphyllou](#) (GR) & [Mathias Harzhauer](#) (AT)

This session accepts both full papers and abstracts

The reconstruction of the past environments and the definition and determination of palaeoclimatic changes are very important factors which can help to investigate the future ones. Last years the marine and continental records of the Balkans and surrounding areas have provided significant new information on this subject. This special session is therefore referred to the novelties regarding methods and data for determining and reconstructing the marine- continental palaeoenvironments of the Neogene in Southeastern Europe by using either palaeontological or physical approaches or combination of both. The timing and nature of possible climatic changes during the Neogene and the correlation of marine and continental data are the basic goals of the topic.



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S14 Radiolarian biochronology: key to tectonostratigraphic reconstructions

Conveners: [Taniel Danelian](#) (FR) & [Spela Gorican](#) (SI)

This session accepts abstracts only

Radiolarian biochronology has now become invaluable for understanding the complex geodynamic, palaeogeographic and palaeoenvironmental evolution of Neo- and Palaeo-Tethyan oceanic realms and associated continental margins. More particularly, radiolarians are nearly always the only fossils available to date the sedimentary cover of ophiolites as well as blocks and matrix in associated melange units. Therefore, they are often the only fossils that allow to constrain the timing of opening and closing of the various parts of past oceans. Moreover, radiolarian dating is essential to reconstruct the sedimentary evolution of deep-water basins and adjacent continental margins.

This session will attempt to bring together radiolarian micropalaeontologists and geologists interested in large scale palinspastic reconstructions, in order to provide a multidisciplinary forum addressing questions about the complex evolution of Tethyan realms.



S15 Tertiary potassic and ultrapotassic magmatism along the Carpathian-Balkan-Dinaride chain: petrological processes and geodynamics

Conveners: [Giampero Poli](#) (IT), [Vladica Cvetković](#) (RS) & [Antonis Koroneos](#) (GR)

This session accepts both full papers and abstracts

Recent petrological, geochemical, and geological data have revealed that potassic and/or ultrapotassic magmatism has very interesting features:

- (i) it is often associated with magmas having typical calc-alkaline affinity;
- (ii) it is commonly linked to large horizontal movements along major shear zones;
- (iii) both mantellic and crustal sources have an important role leading to extensive processes of magma mixing.

However, the exact definition of geodynamical environment associated with potassic and ultrapotassic magmatism is still matter of debate, and the most different environments, from subduction to mantle-plume, have been proposed (e.g. ¹).

Tertiary potassic and ultrapotassic magmatic rocks, both volcanic and plutonic, are common along the Carpathian-Balkan-Dinaride chain. This area offers us a prime opportunity to understand the link between magmatism and geodynamic owing to the variability of tectonic environments. The questions to be discussed in this session include, but are not limited to:

- (1) petrologic and geochemical characteristics of magmatic rocks in such zones and their origin and evolution,
- (2) crustal and mantle processes that may be responsible for magmatism,
- (3) geodynamic style controlling magmatism, and
- (4) models of continental growth that can be applied to the Carpathian-Balkan-Dinaride chain.

We welcome field petrologists, geochemists, structural and regional geologists, and geophysicists of all areas to share their new observations and new thoughts with a common goal of enhancing our understanding of magmatism and geodynamics in the Carpathian-Balkan-Dinaride area.

¹ "Cenozoic Volcanism in the Mediterranean Area" Beccaluva, L., Bianchini, G., and Wilson, M., eds., Geological Society of America Special Paper 418, doi: 10.1130/2007.2418.



S16 Progress in understanding the evolution of the Late Alpine-Quaternary magmatism and geodynamic history of the Carpathian-Balkan region

Conveners: [Ioan Seghedi](#) (RO) & [Hilary Downes](#) (UK)

This session accepts both full papers and abstracts

The purpose of this session is to bring together scientists from different fields to present new data and models that significantly improve our understanding of the relationship between magmatism and geodynamics in the Carpathian-Balkan area (CBA). CBA is the site of various types of magmas during Late Alpine – Quaternary times, but this magmatic activity is not always appropriately explained in the geodynamic models. We hope that this session will highlight current research in the generation and evolution of magmas in CBA based on new data on geochemistry and petrology and to relate this with geodynamic models based on geological and geophysical data. Suggested topics include (but are not limited to):

- (1) Are we all in agreement that the orogenic setting of CBA is typical for Africa-European collision zone that included a subduction stage characterized by roll-back associated with extensional back-arc volcanism? If not, what are other alternatives?
- (2) Is the temporal and spatial geochemical trend characteristic and fundamental to magma formation in CBA and similar to other areas on the Earth?
- (3) Can seismic tomographic observations provide relevant constraints on geodynamic models to allow understanding the processes in the mantle, subduction zones, including mantle flow patterns, magma production processes, and the cycling of material including volatiles through the system?
- (4) What is the effect of slab-derived fluids and melts on mantle melting and what are the characteristics of the magma differentiation of CBA magmas?
- (5) What are the key geodynamic aspects of the transition from subduction-type magmatism to intra-plate- OIB-like type magma? Etc...



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S17 Phanerozoic geodynamic evolution of the Balkan Peninsula: constraints from petrological and geochronological studies

Conveners: [Albrecht von Quadt](#) (CH), [Franz Neubauer](#) (AT) & [Peter Marchev](#) (BG)

This session accepts both full papers and abstracts

Time scales relevant to magmatic and metamorphic systems are likely to vary from as short as decades to millions of years, and even shorter periods are involved with volcanic degassing and eruption. Precise geochronology has substantially developed in the last years, delivering more precise and accurate age data. Subduction recycles crustal components through convergent plate magmatism and back into the deep mantle. This session focuses on the quantification of chemical and isotopic compositions of subduction zone inputs, the progressive metamorphic processing of slab materials, the characteristics of fluids/melts released from the slab, their interaction with the mantle wedge, and inputs to the deep mantle. Conditions and processes that lead to the rock formation may be recorded in multiple ways and on different scales. Mineral compositions and phase assemblages were usually interpreted based on equilibrium thermodynamics to obtain estimates for the conditions during rock or magma evolution. Process information was largely derived by empirical comparison of observed reaction microstructures and textures.

This platform shall foster an integrated discussion on magmatic and metamorphic processes in subducted slabs and document their chemical/isotopic relevance on the mantle dynamics of the Balkan Peninsula's. Contributions based on field observations, tectonic interpretations, experimental investigations, theoretical as well as numerical studies are welcome.



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S18 New advances of understanding physical volcanology processes in the Carpathian-Balkan Region from a global perspective

Conveners: [Karoly Nemeth](#) (NZ) & [Zoltan Pecskey](#) (HU)

This session accepts both full papers and abstracts

The Carpathian-Balkan Region is a perfect site where young and active volcanism co-exists with older volcanic terrains that were formed in a strikingly similar way to their active, younger counterparts. This scenario makes the Carpathian-Balkan Region a perfect playground to study, compare, and advance our knowledge of the volcanic processes that generated a broad range of volcanic landforms, volcanosedimentary environments and associated ore mineralizations. This unique nature of the Carpathian-Balkan Region manifested in the past decade in elevated research activity focused on understanding the physical volcanology of various volcanic systems from intra-continental to subduction related tectonic settings. The proximity in both age and space of various volcanoes, their erosional remnants as well as volcanogenic sediment-filled basins in such a diverse environment ranging from submarine, lacustrine to continental realms provide an exceptional location from which to understand physical volcanology processes in general. In this session we invite papers on physical volcanology research primarily based on examples located in the Carpathian-Balkan Region, as well as research that has relevance, similarity or recent or ancient analogy from elsewhere in the World that could be applied directly to volcanic systems in the Carpathian-Balkan Region. This session also calls for presentations on theoretical approaches for understanding the physics of explosive volcanism, analogue and numerical modelling of volcanic mass flow processes, their natural hazard implications, quantifying sedimentary budgets in volcano-dominated sedimentary basins and geochronological methods developed, trialled in or compared with volcanic systems of the Carpathian-Balkan Region. This session will officially be supported by the International Association of Volcanology and Chemistry of the Earth Interior's Commission on Volcanogenic Sediments and Commission on Monogenetic Volcanism. Contributions are expected to be submitted either as full length manuscript to the Special Publications of the Geological Society of Greece (CBGA Volume) or as a short abstract to the Abstract Volume of the XIX CBGA. Full length research articles are encouraged to be submitted to the Special Volume (*New advances of understanding physical volcanology processes in the Carpathian-Balkan Region from a global perspective*) of the Central European Journal of Geosciences (Versita/Springer) by 30 April 2010 (www.cejg.editoool.com).



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S19 Triassic rifting magmatism and associated deep-water sedimentation: their significance in the early evolution of the western part of Neotethys

Conveners: [Ladislav Palinkaš](#) (HR), [Sándor Kovács](#) (HU) & [Georgios Migiros](#) (GR)

This session accepts both full papers and abstracts

The onset of Triassic rifting-type volcanism (mainly basalts) and associated pelagic sedimentation (Hallstatt/Bulog or Bódvalenke-type limestones, radiolarites) are good indicators of the beginning of Neotethyan rifting processes in the Hellenidic—Dinaridic domain. Magmatic activity within rift structures exhibited alkaline affinity, and gradually developed in calc-alkaline to tholeiitic character. Mixing of hot lava flows with cold, unconsolidated deep water sediments resulted in a specific facies, peperites. These can be followed in a belt from central Greece (Othrys Mts., Euboa Island, etc.) to NW Croatia, then (displaced) until the Bükk—Darnó area in NE Hungary. These events began in (?)Late Scythian—Anisian and continued until the Late Carnian or Early Norian. The session is devoted to related volcanic and sedimentary processes, including study of petrochemistry, lithology, peperite facies, sedimentology of deep water carbonate and siliceous deposits, hydrothermal phenomena, etc. The contribution will have a regional significance in understanding the early Neotethyan history in the Circum-Mediterranean realm.



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S20 Marine mineralization associated with volcanic arc and other environments, with emphasis on the Aegean and Black Sea

Conveners: [Soterios Varnavas](#) (EL), [Konstantinos Papavasileiou](#) (GR) & [David Cronan](#) (UK)

This session accepts both full papers and abstracts

Submarine mineralisation processes during the last 10 years received considerable attention after the impressive findings and perspectives associated with the Marine mineral resources, and submarine metallogenesis.

In the broader Carpathian-Balkan area some basins like the Aegean and Black Sea, whilst received extensive and thorough studies concerning their Geotectonic evolution and status, on the other hand received relatively much less attention concerning their metallogenesis and mineralization processes . Taking into consideration the fact that in these areas there are extremely important features such as, the volcanic and hydrothermal activity on the Hellenic Volcanic Arc, the hydrothermal activity in the immature Northern Aegean Trough, the formation of important placer minerals in the continental shelf of the Eastern Macedonia and Thrace, the important anoxic environments in the Black Sea, it is quite clear that these subjects require a more thorough and recent approach connected with the new developments and findings concerning the metallogenesis and mineralization processes.

Furthermore this session will attempt to explore the relationships between modern day hydrothermal activity in the Aegean and ancient hydrothermal ore deposits there.



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S21 Metallogeny along the Carpathian-Balkan region

Conveners: [Robert Moritz](#) (CH), [Panagiotis Voudouris](#) (GR) & [Vasilis Melfos](#) (GR)

This session accepts both full papers and abstracts

The formation of ore deposits is an integral part of the geodynamic, tectonic, magmatic and sedimentary evolution of any orogenic belt. The Carpathian-Balkan region contains a large number and high diversity of ore deposits, formed in different geological settings and at different times during the evolution of this region. In the past years, there has been a tremendous, high-scientific level research activity on these deposits. In addition, this region is also the focus of important mineral exploration programs and on-going mining activities. Our aim is to include in our session ore deposit studies at all scales, ranging from local ore deposit and ore prospect investigations up to the regional scale, integrating ore deposit interpretation and the geodynamic evolution of the Carpathian-Balkan region. New exploration results from industry will also be welcome.



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S22 Large-scale tectonic controls on fertility of magmatic suites for ore genesis in the Carpathian-Balkan region

Conveners: [Albrecht von Quadt](#) (CH), [Irena Peytcheva](#) (BG) & [Peter Marchev](#) (BG)

This session accepts both full papers and abstracts

This session will focus on the large-scale tectonic and petrogenetic processes in the Carpathian-Balkan region that dictate the potential for magma to become the progenitor of an ore deposit. Special attention will be paid to integrated geochronological, tectonic, petrological and geochemical studies. All deposit types of any age - whether magmatic or hydrothermal in origin - whose main fluxes of economic elements are derived from magmas constitute suitable topics. Examples include the conditions required to generate the optimal conditions for the formation of Cu- and Au-rich magmas in volcanic arcs, the U-, W- or Au- rich S-type granites in collisional zones, the fertile pollymetallic magmas in postcollisional regimes or the origins of the magma parental to the deposit types found in basic-ultrabasic complexes.

Contributions based on field observations, tectonic, petrological, mineralogical and isotope-geochemical studies research are welcome.



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S23 Gemology

Conveners: [Stefanos Karamelas](#) (CH), [Spyros Sklavounos](#) (GR) & [Corina Ionescu](#) (RO)

This session accepts both full papers and abstracts

In many of the recent international and national mineralogical (e.g. IMA meetings) and geological conferences (e.g. RST), a special session on studies of precious stones, i.e. gemology, is included. It seems that the nascent science of gemology has started to be a branch of mineralogy and petrology.

Gemstones are found also in Carpathian, Balkan and surrounding regions; gem quality opals, ambers and amethysts are solely some example. Thus, this special session could be an opportunity to bring together for a first time the researchers from these regions of the rapidly developed science of gemology and could may give a start to collaborations between researchers from these areas. Contributions on geology of gem deposits as well as on geochemistry of gems of the Carpathian, Balkan and other European regions, on non-destructive methods used in gemology and on gems' treatments and detection are welcome for this session.



S24 Natural stones, usage and testing

Conveners: [Török Ákos](#) (HU), [Maqdalini Theodoridou](#) (HU) & [Richard Přikryl](#) (CZ)

This session accepts both full papers and abstracts

Natural stones are widely used as construction materials. Stones are applied both as ornamental and dimension stones but majority of natural stones are used as aggregates. Besides the current use, stones also form an important part of our cultural heritage, since many historic structures were made of stones. Although the application of stones is very widespread the testing and qualification of stones may be different in various countries. The EN (European Norms) provides instructions and methods of stone testing, but there are several aspects of stone qualification, which are not standardized. These include in situ testing of monuments and application of various test methods for provenance studies, etc. The session tries to bring papers together describing various aspects of natural stones from quarrying through testing and finally to applying as construction materials. The session is focused on any geological aspect of present use and historical application of stones but namely the following points are covered:

- (1) Characterization of dimension and ornamental stones
- (2) Laboratory testing of stones
- (3) Quality and standard testing methods
- (4) Application of stones in modern construction and other industries
- (5) Stones of historical monuments, diagnosis and reconstruction
- (6) Replacement stones and techniques used for determination of provenance and authenticity
- (7) Aggregates and armour stones, testing and quality demands

Artificial stones and re-cycling



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S25 Weather modification

Conveners: [Theodoros Karakostas](#) (GR) & [Mladen Curic](#) (RS)

This session accepts both full papers and abstracts

Many weather modification programmes have been conducted within the Carpathian-Balkan region and therefore innovative, high scientific research will be addressed in this Special Session. The focus of the session themes would be on the following topics:

- (1) Field programs and projects
- (2) Fog characteristics and fog dispersal
- (3) Hailstorm characteristics and hail suppression
- (4) Rain and snow enhancement
- (5) Concepts and models for weather modification
- (6) Design and evaluation of weather modification experiments
- (7) Instrumentation and techniques for weather modification
- (8) Inadvertent weather modification and climate change

Impacts of weather modification on society



**S26 Measurements and modeling of biologically active UV solar radiation:
towards balancing between risks and benefits**

Conveners: [Alkiviadis Bais](#) (GR) & [Irina Terenetskaya](#) (UKR)

This session accepts both full papers and abstracts

It is known that solar ultraviolet (UV) radiation is the most important environmental risk factor for human health in view of high energy of UV photons that are absorbed by UV sensitive macromolecules in human skin giving rise to photochemically induced alterations in their structure. Not surprisingly, these photochemical reactions have both positive and negative biologic effects.

It is believed that solar UV exposures are responsible for photoaging and increasing the risk of skin cancer. However, sunlight is the most important provider of vitamin D for humans that is formed in the skin from 7-dehydrocholesterol as a result of UVB exposure. Recently large number of epidemiologic and laboratory studies indicated a connection between vitamin D deficiency and a broad variety of independent diseases including various types of cancer, bone diseases, autoimmune diseases, hypertension and cardiovascular disease.

Hence a serious problem is to find a balance between risks of vitamin D deficiency and skin cancer. Due to convincing evidence it is believed that the protective effect of less intense solar UV radiation outweighs its mutagenic effects, although further work is necessary to define adequate guidelines for solar UV exposure.

Accurate monitoring of solar UV spectra both by spectroradiometers and various biodosimeters, elaboration of reliable algorithms for calculations specific biological activities and their comparison with experimentally measured data will promote well-balanced recommendations on sun protection ensuring an adequate vitamin D status.



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S27 Palaeoenvironmental research in Balkan mountain areas

Conveners: [Karsten Grunewald](#) (DE) & [Ivan Traykov](#) (BG)

This session accepts both full papers and abstracts

Scientists and policy-makers increasingly asking: what consequences global warming will have on ecosystems? This remains unclear in many areas of the world, not least for the Balkan countries. Recent developments in the area of palaeoenvironmental research have made their application in the field of climate and environment reconstruction more and more attractive. Thus, this session focuses on an interdisciplinary multiproxy, multiarchive approach to investigate modern- and palaeo- climate and environmental variations during the Holocene on societally-relevant time scales (seasonal to decadal, to modern times with increasingly resolution) in high mountains of the Balkans. The session will primarily assess the potential of geoarchaeological studies with regard to all aspects which may advance the interpretation of geoarchives in mountainous zones for climate reconstruction. It should be stressed that this includes the possibility of incorporating multi-proxies such as trees, lake-sediments, glaciers, moraines, for broadening and substantiating the basis of climate reconstruction. This means:

- (1) To address existing concepts and their limitations
- (2) To identify future developments that are necessary to advance the interpretation of data
- (3) To pave the way for novel ideas, i.e. on the one hand side with regard to new research fields and on the other side in view of even more advanced technologies
- (4) To identify fields in which projects should be promoted or encouraged.



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S28 Geotourism

Conveners: [Geiza Timčák](#) (SK), [Jana Jablonska](#) (SK) & [Tadeusz Slomka](#) (PL)

This session accepts both full papers and abstracts

Geotourism has many aspects. One area that attracts the interest of specialists and lay people is the scenic and other generally appreciable aspects of the geological structure that underlies the vegetation or is exposed due to various types of erosion, tectonic or volcanic activities as well as the results of activities of water (flowing or still). The other aspect is the results of special anthropogenic activities working on rock (rock carving, carving of dwellings into rocks, monuments carved out of in situ rocks, rocks containing palaeontological material), rocks in civil engineering, decommissioned mines.



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S29 Promoting geoconservation in South-Eastern Europe – Geoparks

Conveners: [Charalambos Fassoulas](#) (GR), [Nickolas Zouros](#) (GR) & [Dan Grigorescu](#) (RO)

This session accepts both full papers and abstracts

South-Eastern Europe is geologically a much diversified area where processes, rock types and minerals have interacted through time to create exceptional environments and life forms. Individual sites, landscapes and outcrops host the great diversity of this geological heritage. Many efforts have been undertaken by geoscientists to identify, map and assess the value of this geodiversity and to raise the awareness of society for the need of its conservation and enhancement. Special projects have been implemented by international organizations and institutions on the recognition and promotion of geological heritage incorporating all existing scientific knowledge, whereas other initiatives have engaged local development as a crucial factor for geoconservation. Recently a new initiative aiming at the protection, promotion and rational management of geosites as well as the sustainable development of their hosting territories through the creation of Geoparks was established in Europe in close synergy with UNESCO. However, the level of geoconservation in many countries is still quite degraded compared to living environment, and funding of such activities is very limited. Geoscientists have thus to identify the best practices and tools for the promotion of geological heritage and conservation of geodiversity in a sustainable way, useful for local and scientific societies. Studies focused on the identification, assessment and promotion of geodiversity, geoparks creation and management as well as on the geo-education and sustainable use of geoheritage for the benefit of both scientific and local communities are welcomed under this session.



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S30 Underwater geoarchaeology: an interdisciplinary field bridging marine geosciences and underwater archaeology

Conveners: [Dimitrios Sakellariou](#) (GR), [Vasilios Lykousis](#) (GR) & [Nicholas Flemming](#) (UK)

This session accepts both full papers and abstracts

We envision a special session which will provide the opportunity for marine geoscientists and engineers to present the significance and the effectiveness of marine geo-scientific methodology, techniques and marine technology in the discovery, mapping and investigation of shallow- or deepwater archaeological sites. We also invite underwater archaeologists to present results and set standards and requirements to be met when marine geoscience and technology is used for underwater archaeological studies. The aim of this session is to promote mutual understanding between archaeologists and natural scientists, like marine geoscientists and technologists about appropriate methods of investigation and a wider recognition of the need for true interdisciplinary integration under the theme of underwater geoarchaeology. Swath bathymetry, side scan sonar, subbottom profiling, magnetometry, photomosaicing along with the use of human occupied (HOV) or remotely operated (ROV) or autonomous underwater vehicles (AUV) are techniques which have been used for the investigation of archaeological artefacts on the shallow or deep seafloor. Nevertheless, little discussion has taken place on the limitations of these techniques when applied for underwater archaeological studies. We encourage the submission of papers highlighting the role and the limitations of marine geo-scientific methodology and techniques and marine technology in the discovery, mapping and investigation of ancient shipwrecks, submerged settlements and constructions and submerged historic and prehistoric landscapes. Very much welcome are papers which will attempt to explain and/or reconstruct geological processes, like sea-level change, tectonic movements and earthquakes, sedimentation and landslides, affecting the evolution, destruction and site formation of submerged archaeological sites.



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S31 Earthquake archaeology and geoarchaeology around Eastern Mediterranean and Black Sea (special IGCP 567 session)

Conveners: [Manuel Sintubin](#) (BE), [Stathis Stiros](#) (EL) & [Klaus Reicherter](#) (DE)

This session accepts both full papers and abstracts

The International Geoscience Programme IGCP 567 reveals a platform for archaeological evidence that can make a valuable contribution to long-term seismic-hazard assessment in earthquake-prone regions where there is a long and lasting cultural heritage. The Alpine-Himalayan region is regarded as an ideal laboratory, because the archaeoseismological studies that have already taken root in the Eastern Mediterranean can be extended to neighbouring regions. Where archaeological relics are displaced they can be used to find active and earthquake-prone faults, show in which direction they slipped during the earthquake and establish comparative fault slip-rates.

Archaeological information can date episodes of faulting and shaking at, along and off the active fault. The obvious difficulty with this approach is that it is hard to distinguish between damage caused by an earthquake and that caused by another destructive event, such as war or the natural failure of foundations. Typologies of earthquake-characteristic damage have been proposed but rarely have they been subjected to a critical and systematic analysis.

By going from the shaking damage of the archaeological remains the session intends to sum up the development of a broadly accepted methodological framework to what reliably constitutes seismic damage. Furthermore, on- and off-fault damages should be discussed in the session, and the potential to be used a palaeoseismic / archaeoseismic tool should be carefully evaluated. Contributions of case studies from these regions should address specific questions relating to the locations, timing and size of past destructive earthquakes and so will aim to contribute specific information for seismic-hazard analysis. We welcome contributions of all areas of active tectonics related with archaeoseismic damage in the Eastern Mediterranean and Black Sea areas.



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S32 The use and applications of GPS and InSAR to geohazards across South-Eastern Europe

Conveners: [Athanasios Ganas](#) (GR) & [Pierre Briole](#) (FR)

This session accepts both full papers and abstracts

The focus of the Session will be on the following topics:

- (1) The applications of GPS and InSAR to ground deformation, interseismic strain and tsunamis,
- (2) The use of GPS and InSAR in pre-operational and operational services for better tackling the question of Geohazard risk around South-East Europe (earthquakes, volcanoes, landslides, urban subsidence),
- (3) Scientific issues relative to GPS and InSAR technique and how to improve the techniques (progress in GPS data processing, handle of atmosphere - ionosphere noise, progress in InSAR processing and PS analysis, data fusion: GPS and InSAR),
- (4) Scientific issues relative to GPS and InSAR technique and how to improve the techniques (progress in GPS data processing, handle of atmosphere - ionosphere noise, progress in InSAR processing and PS analysis, data fusion: GPS and InSAR),
- (5) Progress on new EO - GNSS systems like GALILEO, ALOS, TERRASAR, GLONASS,

This session is expected to attract wider attention because it is of interest to scientists and engineers active in the fields of: Natural Hazards, Active Tectonics, Seismology, Engineering Geology, Geosciences and environment. The session is of particular interest to South-East European scientists (Balkan Peninsula – Turkey etc) because they need to “catch-up” with the latest developments in SAR interferometry and GPS applications in Geohazards.



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S33 Assessment of climate, natural hazard and anthropogenic influence in Carpathian-Balkan lake sediments

Conveners: [Aurelien van Welden](#) (NO), [Gianni Zanchetta](#) (IT) & [Rexhep Koci](#) (AL)

This session accepts both full papers and abstracts

Lakes constitute powerful archives of climate, natural hazard and human activities. Some of the lakes present in Carpathian-Balkan area constitute huge fresh water reservoirs and are characterized by an incredibly huge biodiversity. Due to geodynamic settings (e.g. graben structures), they can furthermore have potentially preserved huge accumulations of sediments. Recent studies (Ohrid, Shkodra lakes) proved the potentiality of large lakes for environmental / palaeoenvironmental studies, especially to reconstruct local climate variability (in relationship with NAO and African Monsoon dynamics). As most Balkan countries are also threaten by earthquake and flood hazards, extensive studies have to be undertaken to characterize and quantify these catastrophic events, in order to better assess their recurrence. For this special session, we invite oral and poster contributions that emphasize climatic variations, natural hazard and human impact / activities from (palaeo-) lacustrine sediments during Historical times to Quaternary time scale. High resolution multi-proxy studies are especially welcome. This session should also include a discussion on meteorological / climatological observations in relationship to water budget flowing into the lakes and isotopic composition of waters. Another main point would be a synthesis of palaeoenvironmental data to define a regional climatic pattern. The session would be the opportunity to define a state of knowledge on limnogeology in Carpathian-Balkan area, to gather local teams and outer countries in order to enhance collaborations and define priorities for the near future.