

IGCP 521-INQUA 0501 Fourth Plenary Meeting and Field Trip: An overview

The Fourth Plenary Meeting of IGCP Project 521 “Black Sea-Mediterranean Corridor during the last 30 ky: Sea level change and human adaptation” (2005–2009) and INQUA Project 0501 “Caspian-Black Sea-Mediterranean Corridor during the last 30 ky: Sea level change and human adaptive strategies” (2008-2010) was carried out on 4-16 October, 2008. Previous meetings and field trips were carried out in Turkey (Istanbul) in 2005, Ukraine (Odessa) in 2006, and Gelendzhik (Russia) and Kerch (Ukraine) in 2007 (meeting held together with IGCP 481). The projects are designed to fill gaps in the study of human responses to environmental changes since the Last Glacial Maximum by bringing the relevant but diverse research groups together to provide cross-disciplinary and cross-regional correlation of geological, geochemical, geophysical, paleontological, archaeological, and historical records for the entire “Corridor” in order to evaluate the influence of sea-level change and coastline migration on human adaptation during last 30 ky. The studies are focused on the evolution of the coastal zone, where a rich sedimentary, landform, and archaeological archive provides a superb opportunity for investigating spatial and temporal interactions between environmental changes and human responses. About 400 scientists from approximately 25 countries have participated in the project; most members are from developing countries. Today, IGCP 521-INQUA 0501 is a focal point for correlation of scientific data obtained by research projects dealing with climate change, sea-level fluctuations, coastline migration, and human adaptation in a variety of settings within the Caspian-Black Sea-Mediterranean Corridor (<http://www.avalon-institute.org/IGCP>).

IGCP 521-INQUA 0501 meetings usually discuss the actual status of our knowledge over a range of subjects, as well as scientific approaches to integrating environmental, anthropological, ethnological, and archaeological data in order to trace the history of ancient humans in the region and predict their future development in coastal zones under various sea-level scenarios. They also introduce young scientists, especially from the Eastern countries, to new analytical techniques and state-of-the-art interpretation of data. Besides, they encourage east-west dialogue and integrate researchers from different countries into the international R&D community, as well as contribute to the preservation of cultural and religious heritage through the discussion of ancient cultures, civilizations, and their legends.

The Fourth Plenary Meeting and Field Trip was organized jointly by the National Institute of Marine Geology and Geoecology (GeoEcoMar), Bucharest, Romania, the Department of Natural History of the Regional Historical Museum, Varna, Bulgaria, and the Avalon Institute of Applied Science, Winnipeg, Canada. Financial support for this meeting was contributed by UNESCO-IUGS-IGCP, INQUA, the National Institute of Marine Geology and Geoecology (GeoEcoMar), the Romanian National Council of Research, and National Plan of Research and Development. Co-Presidents of the conference were Prof. Nicolae Panin (Vice-President Dr. Mihaela Melinte) and Dr. Mariana Filipova-Marinova, respectively. Executive Director was Prof. Valentina Yanko-Hombach, Co-Leader of IGCP 521 and Leader of INQUA 0501 (Figure 1).

The eight-days fieldtrip (by bus and boat) led by prominent Romanian and Bulgarian geologists and archaeologists, including conference co-leaders, N. Panin and M. Filipova-Marinova (Figure 2), as well as P. Mihova, M. Daskalov, D. Pavlov, T. Dimov, K. Stoykova, and V. Tenekedziev, among others.

One hundred sixty seven scientists from four continents and eighteen countries contributed to the conference; 63% of them were from developing countries (Figure 3). Their peer-reviewed contributions are assembled in a 215-page volume that contains 78 extended abstracts (Figure 4).

The meeting began on October 4 with registration and a welcoming icebreaker at the EURO Hotel, Bucharest, to celebrate the arrival of participants who traveled from over the world to Romania. The 3-day technical program (October 5–7) started with greetings from Prof. Anton Anton, Minister of the Romanian Ministry of Education and Research, and Conference Co-Presidents Prof. Nicolae Panin and Dr. Mariana Filipova-Marinova. It was followed by the progress report presented by Prof. Valentina Yanko-Hombach, Co-Leader of IGCP 521 and Leader of INQUA 0501 projects, on the current status of both projects and the need for future research and collaboration.



Figure 1. From left to right – M. Filipova-Marinova, N. Panin, V. Yanko-Hombch, and O. Smynyna (President of the Second IGCP 521 meeting).



Figure 2. October 14, 2008: Visit of the Dobrich Archaeological Museum, Bulgaria. In the center M. Filipova-Marinova, the guide of the tour.

The Technical Sessions were organized into four panels and eight Oral/Poster sessions. Panel 1 was entitled “Paleogeographic and Paleoceanographic Reconstructions,” and it included four sessions: “Geology, Paleoceanography, and Paleogeography of the Caspian-Black Sea-Mediterranean Corridor,” “Paleontology and Biostratigraphy,” “Active Tectonics,” and “Palynology.” Panel 2 was entitled “GIS-linked Mathematical and Geological Modeling,” and it included only one session: “GIS-linked Mathematical and Geological Modeling.” Panel 3 was entitled “Archaeology, History, and Ethnology,” and it also included one session: “Archaeology, History, and Ethnology of the Caspian-Black Sea-Mediterranean Corridor.” Panel 4 was entitled “Hot Spot Ecosystems of the Black Sea,” and it included one session as well: “Hot Spot Ecosystems.”

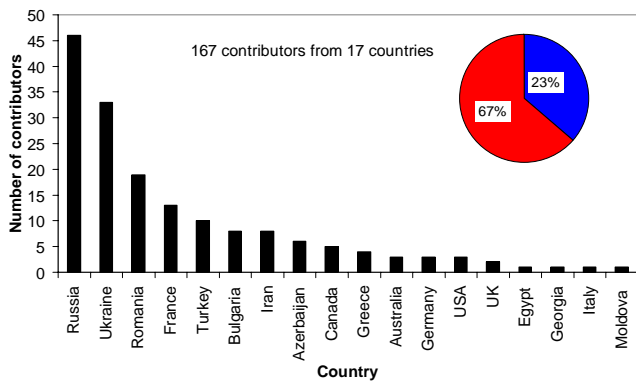
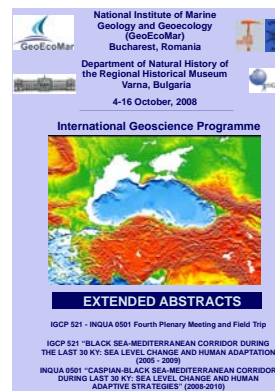
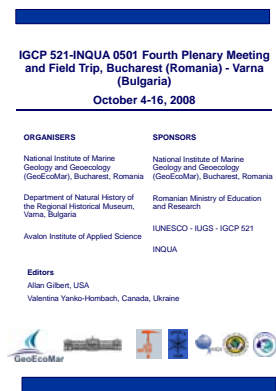


Figure 3. Number of contributors to the Abstract Volume (Fig. 4) of IGCP 521-INQUA 0501 Plenary Meeting. In red and blue – number of scientists from developing and developed countries, respectively.



a



b

Figure 4. Peer-reviewed Abstract Volume of IGCP 521-INQUA 0501 Plenary Meeting: a. cover page, b. second page.

Forty five oral and thirteen poster presentations including three keynote talks were delivered. The presentations focused primarily on either archaeology or coastal geoscience. Prof. Allan Chivas, president of INQUA, and his PhD student Antony Nicholas, gave a key-note talk on aminostratigraphy of coastal sedimentary sequences in the

Kerch Strait, northeastern Black Sea, on behalf of their Australian and Ukrainian collaborators. Dr. Mariana Filipova-Marinova presented her achievements on palynostratigraphy of Pleistocene and Holocene sediments from the western Black Sea. Prof. Pavel Dolukhanov, Co-Leader of IGCP 521, presented new information on the “Black and Caspian Seas in Early-Mid-Holocene: climate, sea levels, and the spread of the Neolithic” and “Black Sea and Caspian Basins in Late Pleistocene: sea-level changes, climate and early human settlement” on behalf of his Ukrainian and Russian collaborators.

In the framework of the EU FR6 HERMES project, a co-sponsor of the Meeting, a group of scientists from Odessa National University named after I.I. Mechnikov presented their new results concerning the lithology, biochemistry, and micropaleontology of mud volcanoes and high-intensity cold seeps on the bottom of the Black Sea and Sea of Azov. Other presentations related to HERMES dealt with calcareous nannoplankton, ostracoda, foraminifera, and meio- and macrobenthos of the Black Sea presented by Romanian and Ukrainian scientists.

New work from Dr. G. Lericolais (Figure 5), France, indicated that there was a significant influx of Mediterranean water into the Black Sea at approximately 8.4 ka (^{14}C yr). Other presentations included, for example, those on Caspian sea-level fluctuations, palynostratigraphy of the western Black Sea, sedimentary relationships between the Carpathians and the Black Sea basin, and tectonics of the North Anatolian Fault. In contrast, Dr. Ivar Murdmaa and collaborators from Russia described the first submersible examination of the Gibraltar Sill by Russian workers in 1995.



Figure 5. Lecture by Dr. G. Lericolais. To the left Prof. A Chivas.

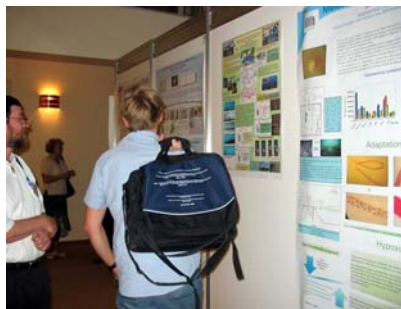


Figure 6. Poster session.



Figure 7. Final discussion.

Poster presentations augmented the technical sessions and offered ample opportunity for researchers from various fields to share their findings. The posters were displayed at the Conference Hall of the EURO Hotel and were available for viewing throughout the conference (Figure 6).

A heated discussion took place on October 7, the last day of the technical sessions (Figure 7). The main topics of the discussion included (1) the beginning of the first intrusion of Mediterranean water into the Black Sea in the Holocene, as well as the speed of Holocene transgression (catastrophic versus gradual and/or oscillating), and (2) radiocarbon dating by conventional and AMS methods.

It was decided to publish the materials of the Fourth Plenary Meeting in a special volume of the scientific journal *Quaternary International*, and, as the main product of the projects, to publish a collective monograph concentrating on the most contradictory questions in the geosciences and archaeology of the “Corridor.”

Following the technical sessions was an eight-days (8-14 October, 2008) field trip enabling participants to examine a number of geomorphological, stratigraphic, and archaeological localities along the Danube Delta and western coast of the Black Sea (Figure 8), including coastal dunes (Figure 9), the free-meandering St. George branch of the Danube River (Figure 10), the meeting point of the Danube River and the Black Sea (Figure 11), and a very wide 10-km-long beach with small to medium

size dunes formed by sand of Danubian origin containing a unique mixture of mollusk shells represented by freshwater (*Unio*), brackish (*Monodacna*), and marine (*Cardium*, *Rapana*) species that provided an important opportunity to obtain samples for radiocarbon dating, isotopic and micropaleontological calibration (Figure 12).



Figure 8. October 9–14, 2008: The Field Trip route in Romania starts from Bucharest (A) and crosses the Romanian Plain, as well as Central Dobrogea and Northern Dobrogea up to Tulcea (B). At the end of the Romanian Field Trip, the route traverses, starting from Tulcea (B), Northern, Central, and Southern Dobrogea, to the Romanian-Bulgarian border, and it continues to Varna town in Bulgaria (C).



Figure 9. October 9, 2008: Coastal dunes formed by the Caraorman littoral accumulative formation (about 2 km from Caraorman village).

In addition, visits were made to a number of archaeological sites, which spanned several millennia of human adaptation to a changing coastal landscape. On the Romanian coast, sites included Histria fortress (Figure 13), the first Greek settlement on the western coast of the Black Sea.



Figure 10. October 8, 2008: Steaming by boat along a section of the free-meandering St. George branch and crossing five meander bends.



Figure 11. October 9, 2008: Meeting point of the Black Sea and Danube River.

On the northern Bulgarian coast, sites included the archaeological park of Durankulak and the museum at Durankulak, Shabla lake (paleoecological reconstructions and human activities for the last 7 kyrs), Cape Kaliakra (Figure 14), and Cretaceous-Tertiary (K/T) boundary in marine sediments (Figure 15). On the southern Bulgarian coast, the tour included Sozopol, the oldest town on the Bulgarian Black Sea coast (dated to the 4th–3rd millennia BC); archaeological artifacts of the Late Eneolithic and Early Bronze Age settlements exhibited at the archaeological museums in Sozopol and Kiten, the stone forest near Varna (Figure 16), and the archaeological Museum in Varna, famous for the oldest gold in the world. This museum hosts more than 100,000 objects—monuments of past eras from Varna, the Region of Varna, and Northeastern Bulgaria. The meeting was completed by cocktail party from the Director of the Museum of Natural History in Varna on October 15, 2008.



Figure 12. October 9, 2008: Sandy beach with a mixed assemblage of mollusk shells; bottom sediments were sampled by V. Alekseev (on the right) and stored by V. Yanko (on the left).



Figure 13. October 11, 2008: The city of Histria, the first Greek settlement on the western coast of the Black Sea, designated part of the European cultural heritage. It is one of the best studied Greek Fortresses in the entire colonial Greek world.

Overall, the meeting provided an excellent forum for international discussion of different methods and interpretations used to analyze the history of the Caspian-Black Sea-Mediterranean Corridor, to encourage exchange of data and publications, and to encourage future collaboration between physical and social scientists in Australia, North America, Europe, and countries bordering the Black and Caspian Seas.



Figure 14. October 14, 2008: Cape of Kaliakra fortress. The early history of Kaliakra is connected with the Thracian tribe, Tirizi. In the 4th century BC, in the southern part of the cape, a small village was established. Later on, it was turned into a strong fortress that was ruined in Medieval times. In the front – Dr. E. Alyeva, President of IGCP 521-INQUA 0501 meeting and filed trip in Baku, Azerbaijan in 2010.



Figure 15. October 14, 2008: Cretaceous-Tertiary (K/T) boundary in marine sediments on the Bulgarian coast of the Black Sea near the city of Bjala, 35 km south of Varna. Guide Dr. K. Stoykova (on the left picture).

The next meeting and field trip will be carried out in Turkey (2009) and Baku, Azerbaijan (2010) with the main focus on the Aegean/Eastern Mediterranean and Caspian shoreline, respectively.



Figure 16. October 14, 2008: Participants of IGCP 521-INQUA 0501 Fourth Plenary Meeting and Field Trip in the "stone forest" near Varna.

We gratefully acknowledge the support and hospitality of GeoEcoMar and the Museum of Natural History for hosting the IGCP 521–INQUA 0501 Fourth Plenary Meeting and Field Trip. The conference organizers, Dr. Nicolae Panin, Dr. Mihaela Melinte, Dr. Tatiana Begun, Dr. Adrian Teaca (all from GeoEcoMar) and Dr. Mariana Flipova-Marinova, as well as all the assistants deserve heartfelt gratitude for putting together an excellent meeting, which stimulated much discussion and interaction. This was a worthy continuation of an active multidisciplinary project.

Conference Proceedings of the Fourth Plenary Meeting will be published in the Fourth Special Volume of *Quaternary International*. For more information on IGCP Project 521-INQUA 0501, please visit <http://www.avalon-institute.org/IGCP/>.