UNESCO-IUGS-IGCP International Geoscience Programme
IGCP 521-481 Joint Meeting and Field Trip
Participating countries: Algeria - Australia - Azerbaijan - Belgium - Bulgaria - Canada - China - Egypt - Finland - France - FYR of Macedonia - Georgia - Germany - Greece - India - Ireland - Israel - Italy - Japan - Kazakhstan - Moldova - Romania - Russia - Spain - Switzerland - The Netherlands - Turkey - Turkmenistan - United Kingdom - Ukraine - USA
Southern Branch of the P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences, Golubaya Bukhta, 353467 Gelendzhik-7, Krasnodar Territory
September 8-15, 2007
Beneficent Foundation "Demetra", P.O.B.4, Kerch, Crimea, Ukraine 98300
September 16-17, 2007

IGCP 521 "Black Sea-Mediterranean Corridor during the last 30 ky: sea level change and human adaptation"
(2005 – 2009)
http://www.avalon-institute.org/IGCP

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Yücel Yilmaz, Turkey
Pavel Dolukhanov, UK

IGCP 481 "Dating Caspian Sea Level Change"
(2003-2007)
http://www.caspage.citg.tudelft.nl
http://www.caspiansealevelchange.org

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Ladies and Gentlemen,
Dear Friends and Colleagues,

This year the confeence and field trip will e caried out in to countries – Russia and Ukraine. With the second circular we are able to provide more detailed information concerning the conference, the field trips, lodging, as well as the program, which you will find at: http://www.avalon-institute.org/IGCP on August 15.
In addition, and because of several questions, we would like to emphasize that participation in this meeting is not restricted to IGCP 521-481 members. Everyone who is interested in the Caspian-Black Sea-Mediterranean region is welcome.

On behalf of the Organizing and Executive Committees,
Alexander Pokryshkin, Valentina Yanko-Hombach, and Salomon Kroonenberg

The meeting will be organized into four panels:

PANEL 1: Paleogeographic and paleoceanographic reconstructions

Session 1. Geology, paleoceanography and paleogeography

Moderator: *Salomon Kroonenberg (The Netherlands)* s.b.kroonenberg@tudelft.nl; Co-moderator *Andrei Chepalyga (Russia)*, igras@igras.geonet.ru, *Elmira Aliyeva, Azerbaijan* e_aliyeva@yahoo.com

This session will focus on geological, geophysical, sedimentological, geochemical, mineralogical, and paleoceanographic proxies for, and radiocarbon dating of, sea-level change and coastline migration in order to reconstruct the paleogeography and paleoceanology: namely, paleotemperature, paleosalinities, paleoproductivity, circulation patterns, and efficiency of gateways for given time intervals; tracing the evolution of water masses in space and time, and identification of their possible sources; reconstruction of climate dynamics, and the changes from wet to arid periods; and determination of paleodepths and co-operation in the construction of sea-level curves.

Session 2: Paleontology and biostratigraphy

Moderator: *Tamara Yanina (Russia)* didacna@mail.ru; Co-Moderator: *Ron Martin (USA)* daddy@UDel.edu
This session will focus on mollusks, foraminifera, ostracoda, diatoms, and dinoflagellate cysts in order to develop a regional, high-resolution, chronostratigraphical framework for the entire region, elaborating data on absolute age, bio- and ecostratigraphy.

Session 3: Palynology

Moderator: Suzanne Leroy (UK) suzanne.leroy@brunel.ac.uk; *Co-moderators: Mariana Filipova-Marinova (Bulgaria)* marianafilipova@yahoo.com; *Natalia Gerasimenko (Ukraine)* geras@gu.kiev.ua.
This session will focus on the reconstruction of vegetation and the history of climate dynamics based on GIS-linked maps and models of changing vegetation using available pollen diagrams and surface samples from both marine and lake sites.

Session 4: Active Tectonics

Moderator: *Yücel Yilmaz (Turkey)* yyilmaz@khas.edu.tr; *Co-moderators: Hayrettin Koral (Turkey)* hkoral@istanbul.edu.tr, and *Evgeny Larchenkov (Ukraine)* larchenkov@onu.edu.ua.
This session will consider the influence of active tectonics on coastal morphodynamics in order to understand their contribution to climatically-induced coastline migration. Cases suggesting the influence of tectonics on paleoceanographic, paleogeographic or archaeological features/data/sites in the CBSMR are welcome in this session. General principles for elucidating tectonic effects from climatic influences will be the focus.

PANEL 2: Archaeology, History, and Ethnology

Moderator: Pavel Dolukhanov (UK) pavel.dolukhanov@ncl.ac.uk; *Co-moderators: Paolo Biagi (Italy)* pavelius@unive.it, and *Olena Smyntyna (Ukraine)* smyntyna_olena@onu.edu.ua.
This panel will deal with the assessment and correlation of available information on human adaptation to environmental change; the elaboration of databases of archaeological artifacts thus far obtained from the region; and the determination of prospective areas in the search for new archaeological sites (on land and underwater).

PANEL 3: GIS-linked Mathematical and Geological Modeling

Moderator: Graeme Sarson (UK) g.r.sarson@ncl.ac.uk; *Co-moderator: Alexander Kislov (Russia)* avkislov@mail.ru.
This panel will consider GIS-linked mathematical modeling of climate change, human and ecosystem dispersal, and air-sea exchange in order to discover a possible correlation between environmental variations and the evolution of biodiversity and human adaptations in the CBSMR.

PANEL 4: Geo-Information System

Moderator: *Ken Wallace (Canada)* design@sealevel.ns.ca; Co-moderator: *Yury Agarkov (Russia)* agarkov@aaanet.ru.
This panel will compile and integrate existing paleontological, micropaleontological, bibliographical, radiocarbon, sedimentological, and paleoceanographic data sets cartographically in order to develop a GIS-linked Geo-Information System.

The conference will take place over 8 days. Three days will be spent on the scientific sessions, and four days will be dedicated to the field trips.

Conference Venue

The conference will be held under the auspices of the Southern Branch of the P.P. Shirshov Institute of Oceanology, Gelendzhik, Russia, in the resort hotel "Sosnovaya Roscha" (Pine Grove) (http://www.seatours.ru/86/416/) located on 9, Maiachnaia St. (ул. Маячная, 9), Gelendzhik.

Accommodations

In Gelendzhik (September 8-14) and Kerch (September 15-16), we have reserved a number of rooms in the resort hotel "Sosnovaya Roscha" (Pine Grove) (http://www.seatours.ru/86/416/) located on 9, Maiachnaia St. (ул. Маячная, 9), and Nimphey located on 1, Uglovaya St. (ул. Угловая), respectively (Table 1 and 2). The prices in "Sosnovaya Roscha" and Nimphey include breakfast, dinner, supper, and transportation.

Table 1. Resort hotel "Sosnovaya Roscha" (Pine Grove), Gelendzhik

Room	**Rubles** (taxes included) per night/per person (prices may vary)		**Euro** (taxes included) per night/per person (prices may vary)
Standard double room (refrigerator, TV, bath with shower)	Double occupancy	1400	41
	Single occupancy	1700	50
Double room of a higher comfort (air conditioner, TV, refrigerator, bath, Internet, mini-bar, telephone, sea or mountain view).	Double occupancy	1900	56
	Single occupancy	2800	82
Deluxe Studio [37 m^2] (air conditioner, TV, refrigerator, bath, Internet, mini-bar, telephone, whirlpool on the balcony, sea or mountain view).	Single occupancy	4600	135

Table 2. Resort hotel "Nimphey", Kerch

Single room	Single occupancy	1920	55
Double room	Double occupancy	1570	45
Room with four beds	Four persons occupancy	700	20

Please make your reservation as soon as possible by sending your completed and signed Hotel Reservation Form (available on the Internet) to the Avalon Institute of Applied Science via e-mail admin@avalon-institute.org or fax +1 (204) 489-5782. Please note that the number of standard rooms is limited and will be assigned on a "first come–first served" basis.

Pre-Final Schedule

September 7: This portion of the schedule is only for those who depart from Odessa to Gelendzhik using the conference bus – departure from Odessa in the morning (around 9.00 am), overnight in Kerch. Departure to Gelendzhik on September 8 around noon time.
For all others:

September 8: Arrival. Welcome Cocktail at the resort hotel "Sosnovaya Roscha."

September 9-11: Technical Sessions (oral and poster), meetings of working and regional groups, project business meeting, closing ceremony – all at the resort hotel "Sosnovaya Roscha." Conference Dinner (September 10).

September 12-14: Field Trips on the Russian side of the Kerch Strait. Departure from the resort hotel "Sosnovaya Roscha"in the morning; return to the resort hotel "Sosnovaya Roscha" in the evening (portable lunch provided).

September 15-16: Field Trips on the Ukrainian side of the Kerch Strait. September 15 - early morning departure from the resort hotel "Sosnovaya Roscha" to the Ukranian side of the Kerch Strait. Crossing the strait by ferry. Working on archaeological and geological sites (portable lunch provided). Two overnights in Kerch.

September 17. Departure. For those participants who arrived at the conference using the Ukrainian bus from Odessa – early morning departure from the hotel in Kerch to Odessa. For all others - crossing the strait by ferry in the morning and further transfer to Anapa.
Taking into account customs formalities upon crossing the Kerch Strait, as well as unforeseen circumstances on the way back to Odessa by bus, it is strongly recommended to make flight arrangements as follows:
for those who will fly back from Anapa on September 18;
for those who will return to Odessa on September 19.
The Organising Committee can assist (upon request) with the hotel reservations in Anapa and Odessa.

Field trips (Fig.1A, B)

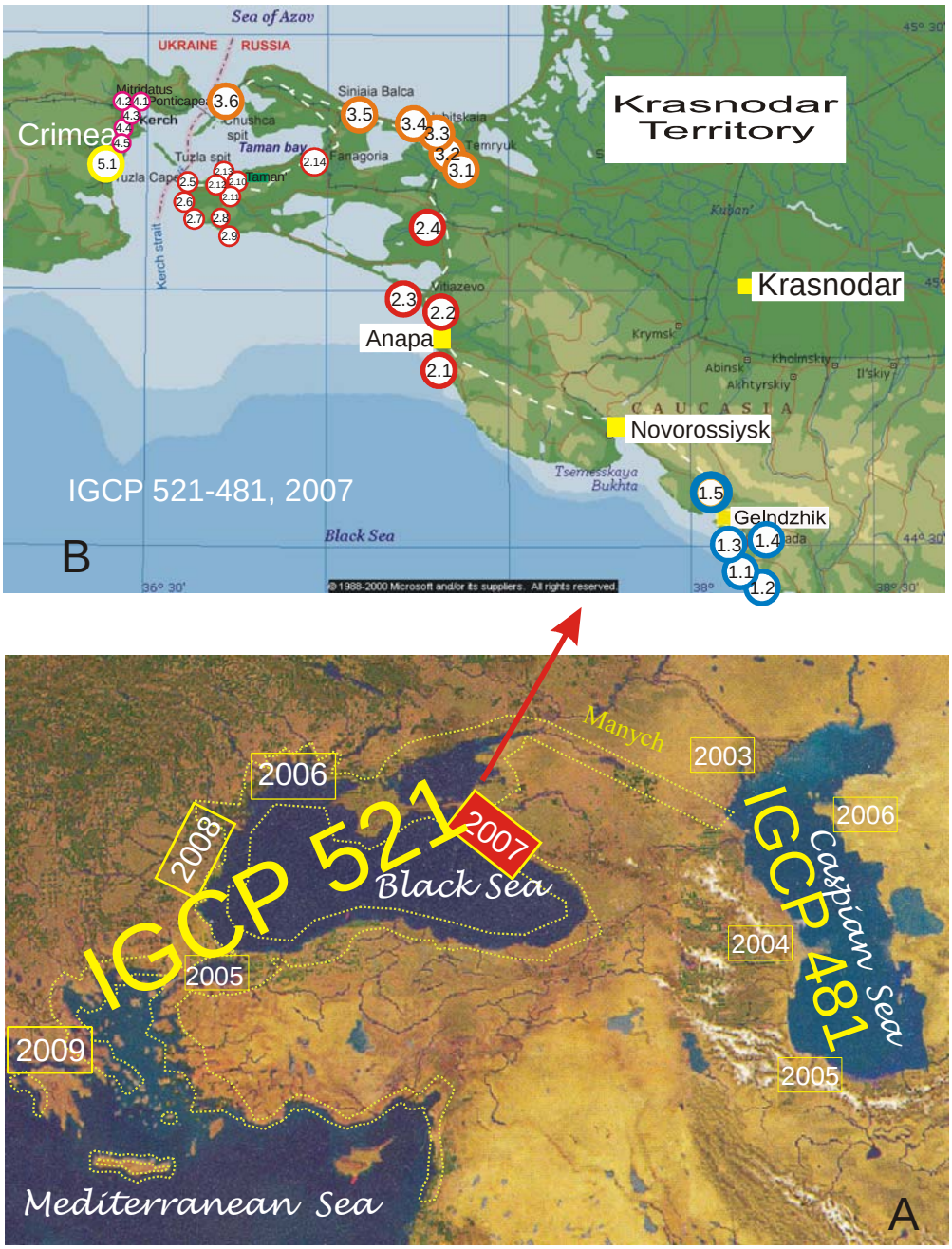

Figure 1. A – Locations of IGCP 521 Plenary Meetings and Field Trips: 2005 – Istanbul, Turkey; 2006 – Odessa, Ukraine; 2007 – Gelendzhik, Russia; 2008 – Bulgaria, Romania; 2009 – Greece; and location of IGCP 481 Meetings and Field Trips: 2003 – Astrakhan, Russia; 2004 – Baku, Azerbaijan; 2005 – Rasht, Iran. Red square indicates locations of the joint IGCP 521-481 Meeting and Field Trip in Gelendzhik (Russia) and Kech (Ukraine) shown on Fig. B where circles with numbers inside indicate geological and archaeological sites to be visited during the joint IGCP 521-481 Field Trip.

September 12. Bus route: Gelendzhik-Betta marıne terraces and archaeologıcal sıtes in the Caucasian Black Sea coastal area – return to resort hotel "Sosnovaya Roscha," Gelendzhik.

Stop 1.1. The sequence of Old Euxine terrace in the Vulan-Pshada Interfluve. The exposures of the Old Euxine (locally known as 'Krinitsian') terrace will be observed along the 12 km-long Krinitsa-Betta motorway, its original height is c. 55 m a.s.l. The terrace's rock foundation has an average slope of 0.05, and the upper surface of the marine sediments slopes at 0.25.

Stop 1.2. The sequence of the Uzunlar (or 'Pshada') terrace in the Vulan-Pshada Interfluve will be observed in the coastal area of the interfluve at an elevation of 30 m a.s.l. On the right bank of the river, the terrace surface lies at 25 m.

Stop 1.3. The sequence of the Chaudian (or 'Idokopas') terrace at Ikonopas Cape. The outcrops of Yugorian deposits of the Lower Pleistocene Chaudian (locally known as the 'Idokopas') terrace will be observable over 2 km along the shoreline in the Ikonopas Cape area. The altitudinal position of its trend varies from 40 to 44 m; the height of the fossil shoreline is estimated at 47 m. The terrace is formed by conglomerate, detrital limestone, and calcareous sandstone with cross-bedding indicative of offshore deposition with numerous molluscs of Caspian origin.

Stop 1.4. Dolmens in the vicinity of Pshada village are represented by different types, e.g., slab dolmens (the most common types, each wall being made of a single slab); composite dolmens (each wall being made up of several flagstones, chiselled to fit one another); trough-like dolmens (both the side walls and the floor chiselled out of a single slab and covered by another one); and dolmen monoliths (made out of whole stones or hewn from the bedrock). The dolmens are complicated architectural monuments that were erected using various techniques, such as grooves and bushings that permitted precise adjustment of huge slabs and flagstones. Several dolmens include engravings, usually triangles, spirals, and wavy lines, the meaning of which is unclear.

September 13. Bus route: Anapa-Taman Black Sea coastal area.

Stop 2.1. The Anapa Archaeological Museum is located on the picturesque Black Sea coast with a magnificent view of the Anapa sand-spit, a large-scale landform of coastal accumulation. The observable archaeological monuments that are supplemented by a rich collection of bronzes, glass, and pottery wares, portable pottery sculptures, and Greek inscriptions will be observed. The open-air exhibitions include a lapidarium, which contains architectural elements, sarcophagi, burial monuments, and other exhibits.

Stop 2.2. The town of Anapa: excavations of the ancient Greek city of Gorgippia are located in the central part of town, in the immediate vicinity of the Anapa Archaeological Museum. The Greek colony was founded in the second half of the 4th century B.C. at the Anapa Harbour, on the territory of the Sinds, the local tribe. This town had been known as Sindik before its inclusion into the Bosporan Kingdom, an amalgamation of Greek North Pontic city-states with Panticapaeum (now Kerch) as its capital. King Leucon (387–347 B.C.) appointed his brother Gorgippa as governor, and the latter managed to stop tribal wars and subjected the Sinds to Bosporan rule. Under Gorgippa, the town that henceforth bore his name developed into a large urban center with a regular layout. Based upon the suggestion of Demosthenes, the prominent Greek statesman and orator, the statue of Gorgippa was erected in the Agora at Athens. Agriculture was at the base of the city's prosperity. No less important were wine-making and fish-salting. The city also boasted various crafts and industries: stonemasonry, pottery-making, wood- and bone-carving, ironworks, bronze foundry, tanning, spinning, and weaving. Gorgippia was a major center of commerce, through which wheat and other agricultural products were exported. Imported items included wine and olive oil in amphorae, bronze implements, marble, glasswares, jewelry, and fragrances. Its main trading partners were Athens and other cities of mainland Greece, Eastern Mediterranean trade outposts (Chios, Pathos, Rhodes, and others), Pontic port-cities (Sinop, Chersonessos, and others), Bosporan Kingdom cities, as well as 'barbaric' tribes. The city was ruled by the governor through the intermediary of city magistrates, with popular assemblies, civil unions, and amalgamations playing very important roles. Important events were marked by the erection of stelae with memorial inscriptions. The city dwellers worshipped Zeus, Poseidon, Demeter, Aphrodite, Dionysus, Apollo,

Heracles, Hermes, and other gods of the Greek pantheon, for whom they built magnificent temples and shrines with statues and organised colourful feasts and sporting events. In the mid-3rd century A.D., the city was destroyed by fire as a result of an assault by nomadic tribes. Since 1960, the site has been systematically excavated by an expedition from the Institute of Archaeology, Russian Academy of Sciences.

Stop 2.3. The Anapa baymouth barrier is an impressive coastal accumulation form of Late Holocene age that extends over a distance of nearly 50 km north of Anapa, in the direction of the Taman peninsula, separating the system of lagoons from the open sea. Its maximum width in its southern part reaches 1.5 km; the maximum height of marine deposits is 1.5 -2 m, while dune height reaches 5-6 m. Intensive geological and geomorphic field investigations recently conducted on the Anapa barrier included the coring of 44 boreholes reaching up to 10 m in depth, large-scale mollusc studies (345 samples), and radiocarbon dating (32 measurements), as well as other analyses.

The barrier started forming when sea level and salinity reached their present-day values at 5.2-5.3 ka (the oldest date: 5290±60 BP, and the youngest, 790±60 BP). Its recent geologic history includes several stages: Dzhemetinian 1 (5.3-4.1 ka), Dzhemetinian 2 (4.1-2.5 ka), Nymphaean (2.5-0.3 ka) and recent ones (> 0.3 ka). Numerous episodes of erosion and accumulation caused by sea-level oscillation can be distinguished, formed over the course of these stages. These oscillations also affected the composition of mollusc orictocenoses, where repeated episodes led to repeated intervals of species enrichment and impoverishment. Based on the reconstruction of the barrier's history, scenarios of its future development will be described.

Stop 2.4. The Black Sea paleo-channel of the Kuban River: its geomorphology and geological setting. Between Anapa and Temryuk the excursion itinerary will cross the 6 km wide valley presently taken up by a small channel of the Kuban River that flows into the Kiziltash Liman of the Black Sea. Until the 18th century, this was the main course of the Kuban River, which, since that time, has been artificially channelled into the Azov Sea. A transect across this valley consists of 10 boreholes up to 100 m in depth; the molluscs from the cores have been analysed, and a series of TL and radiocarbon dates has been obtained. Pliocene and Pleistocene sandy-clayey sediments of various ages have been recovered from the bottom part of the cores at a depth of 55 m. TL dates ranging from 353 to 23 ka have been obtained for Pleistocene deposits. The overlying series, up to 55 m thick, forms a clear sedimentary assemblage corresponding to the Last Ice Age cycle. At its bottom, all the cores have recovered the layer of Antian alluvial regression-type sands, 10 m - 128 m in thickness, that includes mollusk fauna with *Dreissena polymorpha* Pall. and *Unio* sp. It unconformably overlies the erosional surface of the underlying sediments. The upper portion of the sequence consists of alternating alluvial and lagoon sediments formed in an environment of oncoming transgression that includes the molluscan fauna of Neoeuxinian, Bugazian, Vityazevian, and Kalamitian types. The dates obtained for peat layers and mollusk shells show ages between 7380 and 660 BP. This sequence confirms the view that during the Last Ice Age regression, the Kuban River flowed into the Black Sea north of Anapa.

Stop 2.5. Tuzla Spit is a coastal accumulation form stretching from the Tuzla Cape into the Kerch Strait. Until the early 20th century, this was a single 15-km-long accumulation form that belonged to the Temryuk Region of the Krasnodar Krai (Province) of the Russian Federation. Due to sea-level rise and active coastal erosion in the 1920s, the sand-spit was disrupted, and its distal part became an isolated Tuzla Island, which lies closer to the town of Kerch (Crimea). By a decision of the local authorities, the insular part of the sand-pit was leased to Kerch-based Ukrainian fishermen. After Ukraine gained independence in the 1990s, this was declared part of Ukrainian territory. As the waterway in the Kerch Strait runs west of the Tuzla sand-spit, it automatically became part of Ukraine's territorial waters. Although the international status of the Kerch Strait remains undefined, Ukraine declared its sovereignty and charged passing ships custom duties. The territorial dispute remains unresolved, and the demarcation line between Russia and Ukraine in the Kerch Strait and the Sea of Azov has not been finalized. Presently, a temporary agreement has been reached that provides for joint use of the Azov-Kerch basin.

Stop 2.6. The Tuzla sequence. The marine Karangat. Tuzla Cape, which forms the westernmost extremity of the Taman peninsula, structurally belongs to the northern limb and the axis of the Taman syncline. Along the shoreline, over a distance of 1 km, one can observe the sequence of coastal-marine sediments lying on the abraded surface of Sarmatian-Cimmerian clay shale, the elevation of which rises in a southern direction from 0 to 4 m a.s.l. and extends below sea level south of the Tuzla Cape. The light-gray, moderately sorted, horizontally-bedded litharenitic sand has abundant Mediterranean mollusks, including saltwater Karangat species, such as *Cardium tuberculatum* and *Paphia senescens*. Its total thickness exceeds 3 m. These deposits are overlain by a series of yellowish-greyish loams, up to 15 m in thickness, with loose sub-horizontal bedding in its basal part. In this part, one can observe the contact of these sediments with the Lower Pleistocene (Chaudian) coastal-marine conglomerate and overlying lagoon and subaerial deposits. Remarkably, the darkish loam layers of the supra-Karangat stratified series steeply rise further south (in their contact area with the Chaudian conglomerate), along the fossil abrasion cliff, merging into a thick (up to 1.5 m) dark-grey paleosol of palustrine type. In the upper unstratified part of the cover mantle, one or two weakly developed paleosols may be distinguished, with recognizable illuvial horizons in some areas. Based on the uranium-ionium dating of *Chione gallina* and *Donax trunculus* mollusk shells, the age of the Tuzla sequence varies between 44.8 and 66 ka.

Stop 2.7. The Krotkov Cape Sequence. Lagoonal Karangat. The Krotkov Cape is located in the western part of the southern section of the Taman Peninsula, corresponding to the southern limb of the Taman syncline. At a short distance from the 14-15 m high coastal bench, one can observe the sequence of dark-greyish-greenish lagoonal clay, 5.5-6 m thick, lying on the eroded surface of Maeotian bryozoan limestone, forming block joints. The main clay outcrops are found on the narrow cape extending into the sea, an abrasion remnant, the existence of which is due to the solid limestone with its surface tilted from 6 to 0 m and extending below sea level farther to the south. These sediments contain a Mediterranean mollusk fauna with a prevalence of *Cerastoderma glaucum* (many of which are articulated) and an occurrence of *Abra ovata, Spisula subtruncata, Nassarius reticulates, Ostrea edulis, Cerithium vulgatum, Hydrobia ventrosa*. These sediments are overlaid by loose grey-yellowish loess loam, 6-7 m in thickness, the bottom of which consists of decomposed bryozoan limestone, with inclusions of fragmented thick-walled Neogene shells and rare fresh-water gastropods. According to the uranium-ionium dating of well preserved shells of *Cerastoderma glaucum*, collected 2.5-3 m below the clay surface, the age ranges between 88.9 and 100.6 ka.

Stop 2.8. Archaeological site. Zelensdkaya Hill (135 m), a settlement of Classical antiquity. An ancient Greek settlement has been excavated on the northern slope of the hill at an elevation of 90 m a.s.l. Archaeological deposits lay directly on top of the outcrop of iron ore of the Cimmerian age (the Kamyshburunian horizon). At the site, one notes clear indications of iron mining, and, possibly, smelting. Archaeological deposits include pottery and large-size Karangat mollusk shells *Acanthocardia tuberculata* (L), *Paphia senescens* Cocchi, as well as Cimmerian brackish-water mollusks *Pontalmyra crossatellata* (Desh). Supposedly, the shells were used as a flux in the smelting. Archaeological excavations are being conducted jointly by the Institute of Archaeology, Russian Academy of Sciences (A.B. Kolesnikov, Zavoikin), and the Don Archaeological Society.

Stop 2.9. Volna Village – modern coastal dynamics and shore protection. The southern flank of Taman peninsula reaches 80-90 m in height and is composed of Neogene and Pleistocene sandy and muddy terrigenous deposits, which are vulnerable to abrasion and are eroded along their entire length. Locally, the rate of erosion exceeds 1 m/year. The longshore sediment transport is from NW to SE. During the design and construction of coastal protection structures, a concern has been voiced that the cessation of erosion of the Taman cliffs may lead to disintegration of the Anapa barrier downdrift (SE) due to reduction of sandy material supplied by the cliffs. The construction of shore-normal structures (jetties, groins, etc.) can also lead to activation of downdrift erosion. In this regard, it is imperative to preserve the natural regime of erosional-depositional processes in this region. The area of Volna Village is the site of a large liquid ammonia terminal.

Given the aforementioned use patterns, a governmental ecological expert assessment accepted a piling-terminal version, which will not interfere with natural coastal zone dynamics.

Stop 2.10. The Taman Historical – Archaeological Museum. Taman Village boasts a highly significant museum assemblage which includes the Archaeological Museum, Hermonassa-Tmutarakan archaeological sites, and the memorial house of M.Yu. Lermontov, the Great Russian poet (opened in 1988). Following the ancient tradition, the building includes an inner courtyard and a grape-adorned atrium, which brings together two exposition halls.

Stop 2.11. Monument to first Taman Cossacks who landed on the Taman peninsula was erected on the central square at the end of the 19th century, in the vicinity of the Taman museum. The permanent resettlement of the Cossacks into this area was carried out at the end of the17th century, under the decree of the Empress Catherine the Great. On the granite pedestal, the words of a song of praise addressed to the Empress were cut. The monument luckily survived two world wars and has remained intact.

Stop 2.12. Taman. Excavations of Hermonassa and Tmutarakan archaeological sites. Hermonassa and Tmutarakan are the most important archaeological sites on the Taman peninsula. The ancient Greek colony of Hermonassa, was founded in the 1st half of the 6th century B.C. Along with Phanagoria and Panticapaeum, Hermonassa was one of the main trade centers of the Bosporan Kingdom. Hermonassa was destroyed during the arrival of the Huns in the region, but settlement on the site resumed shortly thereafter. In the 7th century, the region fell to the Khazars, who built the fortress town of Tamatarkha. Fortified with a strong brick wall and boasting a fine harbour, it became a major center of international trade. It controlled much of the Northern European trade with the Byzantine Empire and Northern Caucasus. Its inhabitants included Slavs, Greeks, Armenians, Jews, and North Caucasian ethnicities. In the 10th-12th centuries, the town belonged to the Kievan Rus and became known as Tmutarakan. Later, the town was overrun and devastated by Cumans (Polovtsy). In the 13th and 14th centuries, the town (now known as Matluka) belonged to the Tatars' Golden Horde, and still later to Circassian-Adygian rulers. In the 15th century, the town became a Genoan colony and was referred to as 'Matrega'. From the 16th century, the town was controlled by the Ottoman Turks, and since that time, the name 'Taman' came into use. According to the Manifesto of Catherine the Great from the 8th of April, 1792, the town of Taman came under Russia's sovereignty 'in perpetuity'. In 1978, the archaeological site was declared a 'National Preserve'. Salvage excavations are carried out annually.

Stop 2.13. Taman Village – Wine-making museum and the wine-tasting hall. Six wine brands are available for tasting. Afterwards, you can buy your favorite wines, as well as sparkling wine, vodka, and balsam in the company store of the Wine House "Phanagoria" at the museum. According to H. Johns's "Annual Wine Guide," "Phanagoria" is "the best wine maker in Russia." The wine experts especially recognize "Cabernet Phanagoria" and "Merlot Phanagoria" from the grapes, the seedlings of which were obtained in France in 1998 and grown in "Phanagoria" vineyards on the Taman peninsula. These grapes are considered "the purest sort in the Krasnodar Region." "Phanagoria" is the main national wine manufacturer using its own grapes (more than 1000 ha of vineyards). Many experts like Phanagorian wines with herbal extracts from "Lekar" (Russian for "healer"), "Black Lekar", "White Lekar", and "Balsamic Kagor" (this wine, together with "Kagor of Phanagoria" has been sanctified and blessed by the Mitropolit of Ekaterinodar and Kuban for use during fasting).

Stop 2.14. Archaeological site – ancient and medieval settlement of Phanagoria. Problem of the Phanagorian Regression. P.V. Fedorov detected a considerable drop in sea level during the 5th to the 6th centuries B.C. at the site of the settlement of Phanagoria. He based his argument on the discovery of the wells on the shore of the Taman Bay, filled with ancient ceramic pieces. The depth of some of the wells was 4 to 5 m below sea level. The depth of the wells indicated that the ancient sea level could not have been higher than this. Fedorov described the discovered phenomenon as the Phanagorian Regression of the Black Sea. Later this regression was detected at other parts of the coast. In some places, the ancient sea level was reconstructed at 10 to 15 m below the present sea level. The Phanagorian Regression is confirmed not only by geological, but also by

archaeological data. Submerged ancient cities were discovered in the Straits of Kerch (Acra, Corocondama), in Abkhazia (Dioscuria), and at the mouth of Dnieper (Olbia). Submerged parts of ancient cities are also known in Nymphaeum, Phanagoria, and Chersonessos. It has been observed that drops in the Black Sea level similar to the Phanagorian Regression also took place during the Bronze Age, between 4.1 and 4.5 ky ago. These are known as the Khadzhibeyan Regression (according to Voskoboynikov et al.), the Kundukian Regression (according to Chepalyga et al.), and the Varna Regression in Bulgaria. The problem is that such considerable drops in sea level are not known for this period outside the Black Sea. This phenomenon can be explained by the fact that the inner basins of the Black Sea are unique in terms of their remote location from the ocean and the absence of tides, which creates favorable conditions for the preservation of a detailed record of their geological evolution. Recently, the Phanagorian Regression has been described beyond the Black Sea, for example, in the Indian Ocean. Signs of sea-level fall of more than 6 to 8 m have been detected in the Gulf of Aden at the ancient port of Qana. Submerged ancient cities are also known in other regions, but their underwater locations have been typically explained by tectonic shifts.

September 14. Bus route: Taman coastal area of the Sea of Azov and the Kerch Strait.

Stop 3.1. Temryuk city, mud volcanoes of the Gnilaya and Miska mountains. Adaptation to dangerous processes related to mud volcanoes. The Kerch-Taman region of fold tectonics is a unique region of mud volcanism. There are more than 50 volcanoes typically associated with anticlinal structures. There is a variety of styles of mud volcanism: continental and marine, buried and open, active and inactive. The main factors of volcanism on the Taman peninsula are: (a) Occurrence of thick plastic clays of the Maikop series, which serve as the original breccia; (b) Presence of groundwater, which softens the clays to form breccias; (c) Existence of large sources of hydrocarbon gases, the accumulation of which in certain fields leads to the accumulation of anomalous pressures, thereby producing active forces within the strata. As a consequence of its previous activity and location within the town of Temryuk, Miska is the most dangerous volcano. Explosive eruptions were recorded in 1812, 1844, and 1905, with the last eruption on 4 September 1988 accompanied by extrusion of mud, steam, and smoke. The 1844 event was the largest explosive eruption with caldera formation, steam release, and gas fires. The 1905 eruption was followed by extrusion of breccia and formation of massive cracks. On 4 September 1988, intensive shocks were registered, large subsurface cracks appeared within a 1 km radius, and water levels rose in wells. Besides Miska volcano, the volcano of Gnilaya Mountain has been active, exploding in 1810. A range of active formations can be observed – small cones, mud fringes, etc. The "Geoecology Kuban" Center performed forecast evaluations of the destruction possible as a result of explosive eruption of a number of volcanoes, defining three danger zones. Around Miska volcano, the first zone (100% damage) includes approximately 200 private households. This zone is inhabited by 600-800 people. The second zone (50% damage) encompasses 3,500 households and multi-story buildings.

Stop 3.2. Open-air museum "Miitar Hill" is a large, unique museum of military machinery from the period of World War II, as well as 1950-70s. It is located near Temryuk. The exhibit contains naval craft, including boats, torpedoes, and mines, along with artillery and tanks, planes, helicopters, and missile carriers.

Stop 3.3. Late Holocene coastlines of the Sea of Azov in the Kuban River delta. The delta plain of Kuban, which covers an area of 6000 km^2, is divided into two parts: (1) pre-Azov, the largest part associated with the SW Azov Sea coast, and (2) Pre-Black Sea, the smaller part occupying the southern Taman peninsula. Structurally, the plain is linked to the down-warped segments of the Western Kuban and Kuban-Taman synclines. Before us is the Azov delta containing Holocene deposits up to 11-14 m thick (in places reaching 20 m) and mostly overlying the Valdai loess. The Holocene of the delta is represented by a diverse complex of alluvial, lacustrine, and estuarine (liman)-marine deposits. The signatures of shorelines corresponding to transgression limits are preserved within the stratigraphy and morphology of the valley as remnants of coastal sandy, shell-rich barriers, which are facies analogues of the modern barrier along the delta margin. Four types of coastal bars are identified: two older ones (relict) are buried and the two younger ones are manifested in

the modern landscape. The relict Vityaz stage paleo-shoreline of the 7.2 ka transgression limit has an absolute elevation of -9.5±1 m. Relict Kalamitian stage shorelines dating to 6-7 ka penetrate farthest into the delta up to 43 km from the modern shoreline and occur at -3.5±1 m. During the time when sea level was close to present, numerous shorelines were formed during the Dzhemetinian (6.0-2.5 ka) and Nymphaean (2.5-0.3 ka) stages. Due to the absence of tides and well-preserved barrier lithosomes with abundant datable shells, the Kuban delta can be considered as one of the best regions for sea-level indicators.

Stop 3.4. Golubitskaya station. Marine mud volcano. A unique marine mud volcano, part of which is located in the Azov Sea, can be observed near Golubitskaya Station. On land, the crater location is occupied by a lake, which is actively used for medicinal mud therapy. Eruptions of this volcano occurred on 05.09.1799; 10.05.1814; 04.07.1862; 22.11.1880; 24.07.1888; 15.07.1906; 24.08.1988; 09.08.1994;, and in May 2000. In addition, its activity was noticed in 1950, 1952, 1968, 1979, and 1981. The eruptions were accompanied by expulsion of water, mud, and rock fragments to a height of 100 m, and by fracturing of the surface of the ephemeral island. In 1988, the largest eruption was recorded, and in 1989, the eruption was calm with extrusion of viscous mud from its crater. In 2000, the eruption was followed by the growth of a 200-m-wide island with a series of active fumaroles releasing volcanic mud and gases along its northeastern margin. The island existed until September 2000 and then was eroded.

Stop 3.5. Village Siniaya Balka on the southern coast of the Sea of Azov, paleonological and architecture object (Bogatyr mountain), stratotype of Taman mammal complex described by Gromov (1939). A cemetery containing hundreds of mammal bones has been deformed by volcanic mudflows and rests on Kuyalnik marine deposits (Late Pliocene). The mammaml fauna contain the last southern elephants of the *Archidiscodon* genus (*A. meridionalis tamanensis* Dubrovo), Caucasian rhinoceros *Elasmotherium caucasicum* Ver., and others, totaling more than 20 species. These fauna correspond to the western European Epivillafranco. The Taman complex had a wide distribution in northern Eurasia and is dated to 1.0-0.8 million years ago, based on the fact that at several locations–Roksolana, Kitskany–the enclosing deposits revealed the paleomagnetic Brunhes-Matuyama and Jaramillo boundary. The archaeological Early Paleolithic settlement Bogatyry (Schelinsky, 2006).

Stop 3.6. Chushka Spit. Geological sequence of the Kerch Strait. Research into the geological structure of the Kerch Strait has an almost century-long history. There were several attempts to design and construct the bridge across the straits connecting Ukraine and Russia. They were accompanied by an extensive drilling effort (several hundred boreholes) and analytical studies.

The present depth of the straits is 7 m, the bedrock is 60-70 m deep, and the valley fill consists of sand and mud corresponding to at least three sedimentation cycles: Karangatian, Surozhian (Tarkhankutanian), and Chernomorian. Each of these cycles begins with a stage of regressive incision and concludes with accumulation of marine sediments. The transgressive deposits of all cycles show an up-section progressive change of orictocenoses of micro- and macrofauna from nearly freshwater to brackish Caspian-type and ultimately to marine. *Didacna* genus representatives are present in the Caspian complexes of the first two cycles, Karangatian and Surozhian, whereas they are absent in the Chernomorian cycle (Neoeuxinian strata) containing *Monodacna* genus representatives. In the upper part of the Karangatian complex, in ferruginous coquinas at the base of the Chushka Spit, *Paphia senescens*, *Irus irus*, *Ostrea edulis*, *Chlamys glabita* and others have been described. Uranium-series dating has yielded age intervals from 55,300±1,200 to 76,500±1,800 years (six dates with likely younger ages due to iron enrichment in the shells). The deposits of the Chernomorian complex begin with Chushkinian (Antian) strata representing regressive alluvium of the paleo-Don River, and they give way up-section to Enikalian, Neoeuxinian, Bugazian, Vityazevian, Kalamitian, Dzhemetinian, and Nymphaean, the orictocenoses of which demonstrate a gradual transition from freshwater (up to 22‰ in Enikalian horizons) to marine conditions of modern type (Dzhemetinian and Nymphaean horizons). Chernomorian deposits have a series of radiocarbon dates ranging from 12.15 to 2.50 ka.

September 15-16, and 16-17. Overnights in Kerch.

September 15. Bus route: Kerch coastal area of the Sea of Azov and the Kerch Strait.

Stop 4.1. Excavations of ancient Panticapaeum (the capital of the Bosporus Kingdom). Located on the hillside of Mount Mithradates in the city center, Panticapaeum was the name of the first settlement founded by the Greeks. Once, it was a city of more than 370 acres in the territory of modern Kerch and was the permanent residence of the Bosporan kings. Today, the remains of the central part of the ancient town– the acropolis–near the top of Mount Mithradates in the center of Kerch will be observed. Near the top of the mount, hewn into the rocks, was a mighty citadel and a strongly fortified palace with connecting labyrinths. On the northern slope of the hill was a trading square called the "agora." There were temples of Greek gods and goddesses, public buildings, and statues. Panticapaeum had a good harbor and shipyard. Around the area of Mount Mithradates Mount was a necropolis (a Greek cemetery). Inside the mount itself, many crypts were discovered, a number of which still bear the traces of ancient paintings. A testament to the historical significance of Panticapaeum, the site was listed among World Monument Watch's 100 Most Endangered Sites in 2004. During the 5th century B.C., all large Bosporan towns had walls with bastions and towers, gates, barrages, and ramparts. Panticapaeum had several lines of defense, and remains of its magnificent fortresses can be found in Nymphaeum, Tiritaka, Myrmekion, and Porphmiy. The walls were 70 kilometers long and fortified with 3600 towers. They were visible until the beginning of the 19th century. In the 4th century A.D., the Huns destroyed most of the city and the area.

Stop 4.2. Tsarskyi Kurgan (Tsar's Grave Mound) is located on the southwestern slope of the range, 5 km from the center of Kerch, at the Adzhimushkai settlement. The Tsarskyi Kurgan consists of a dromos 72 ft/36 m long and almost square burial chamber (11.7 ft/4.9 m by 13.05ft/4.35 m). The burial chamber is 26.52 ft/8.84 m high and is erected on roughly dressed rock. The Tsarskyi Kurgan was completely robbed in ancient times. Only the remains of a wooden sarcophagus were left, when the crypt was uncovered. The style and technique of the crypt construction undoubtedly speak of high artistry by the best Bosporan masters.

Stop 4.3. Archaeological Museum and Golden Chamber. The museum, originally called the Kerch Museum of Antiquities, opened on June 2, 1826. It is one of the oldest museums in the country. The exhibits included an amazing collection of items found in the excavations at Panticapaeum and other cities of the Bosporan Kingdom. The original museum edifice was constructed on Mount Mithradates near the site of the initial excavation and was built to resemble the Theseus Temple in Athens, Greece. Unfortunately, the museum was destroyed during the Crimean War, and many of the items on display are now in the British Museum in London. Other items are to be found in the Hermitage in St Petersburg, though the remaining collection is noteworthy. At present, the museum houses an impressive collection of archaeological effects, augmented by new findings from ongoing excavation work. There are over 160,000 items, including ceramics, artwork, glass, jewelry, and much more. A clay theater ticket is among recent findings. The museum possesses an extensive world-class collection (about 2000 items) of lapidary monuments, including burial slabs and sculptures dating from 4 B.C. to 14 A.D. This collection is second only to one in Athens. An exhibit called the "Gold Chamber" displays the riches of the Scythians and Greeks.

Stop 4.4. Ancient Greek town of Tiritaka. This Greek city was about 11 kilometers south of Mount Mithradates in the southern part of modern Kerch. The city was a fishing community supplying troops in Asia Minor and Crimea. Winemaking complexes have also been discovered there. The town was founded by Ionic settlers in the mid-sixth century B.C. at a place where settlement can be dated to the Late Bronze Age. The town had the form of an irregular quadrangle, with the acute angle pointing to the south.

Stop 4.5. Ancient Greek town of Nymphaeum and the problem of the Nymphaean transgression. The town of Nymphaeum was founded in the 6th century B.C. It is located about 18 km south of Mount Mithradates, in the southern part of Kerch. Nymphaeum occupied about 9 hectares and consisted of an upper town with a palace, houses, and temple to Demetra and Aphrodite with marble statues; the lower town consisted of a

harbor and craftsmen's shops. Ptolemy and other famous Greeks mentioned this city in their writings. The city minted its own coins and was closely connected through trade with Athens. Archaeological evidence exists indicating that winemaking began here in the 1st century A.D. The land around Nymphaeum was used to grow grain. Today, Nymphaeum is a live archaeological site.
September 16.

September 16. Bus route: Kerch coastal area of the Sea of Azov and the Kerch Strait.

Stop 5.1. Famous Karangatian outcrop near the village of Eltigen, which is located on the Ukrainian side of the Kerch Strait. The length and height of the outcrop are 3 km and 20 m, respectively. It is represented by marine, lagoonal, and loess sediments beginning from OIS 5 stage, and it contains varied facies of the Karangatian basin (e.g., lagoonal clays, beach sands, pebbles, shellstones, and algae-*Mytilus* biohermes) with an extremely rich fauna of mollusks, foraminifera, ostracoda, etc.

Social program

Welcome Cocktail (September 8), Conference Dinner (September 10), Village – Wine-making Museum and the wine-tasting hall (September 14). More details will be announced in the Programme.

Registration Fee (Please refer to the "Registration Form")

Participant

Before June 30 – 250 Euro
July 1-31 – 300 Euro
After July 31 – 350 Euro

Student

Before June 30 – 170 Euro
July 1-31 – 200 Euro
After July 31 – 250 Euro

Accompanying person

Before June 30 – 200 Euro
July 1-31 – 250 Euro
After July 31 – 300 Euro

The registration fee for participants includes:

Access to the scientific meetings
One Conference Kit including the abstracts volume
Refreshments during coffee breaks
Welcome Cocktail
Conference Dinner
Bus transportation to/from Anapa airport, to/from the venue of the conference, and field trips
Portable lunches during field trips

The registration fee for accompanying persons includes:

Welcome Cocktail
Conference Dinner
Bus transportation to/from Anapa Airport to/from the venue of the conference, and field trips
Portable lunches during field trips
Entrance fee for the museums

Refund policy

Fifty percent refund before July 31, 2007. No refund is possible after July 31, 2007.

Financial Support

IGCP 521 and 481 have very limited funds available to distribute and will not be able to support the full cost of meeting attendance. Therefore, applicants should seek funds from elsewhere to help underwrite the costs of attendance. The funds will be given only to those participants from the developing world **who present a paper** accepted by the Scientific Committee.
A limited number of travel grants are available from the European Science Foundation (ESF) www.esf.org, principally aimed **at European young researchers**, to support their active participation in the IGCP 521-481 Conference in Gelendzhik-Kerch, Russia-Ukraine, on 8-17 September 2007: http://www.avalon-institute.org/IGCP. The Application Form can be found at www.esf.org

Conference Language

The official conference languages are English and Russian (with simultaneous translation into English).

Oral and Poster Presentation

Each speaker will have 15 minutes for presentation and 5 minutes for discussion. Authors are allowed to present only one paper for each session. However, it is permissible to be listed as the co-author in another contribution. Poster format is 120x160 cm.
Projection Equipment: Screens, LCD (PowerPoint presentation) projectors, and overhead projectors are available. If other or additional equipment is requested by a presenter, reasonable attempts will be made to accommodate the individual request (no guarantee).

Publication

Accepted abstracts will be published in the Abstract Volume. The full papers will be published in an IGCP 521-481 Special Volume of the journal *Quaternary International*. For preparation of the manuscript, refer to Instructions for Contributors.

Russian Visa

All participant must carry a valid passport. Except for visitors from the former USSR countries, all other participants must have a double-entry visa for Russia. Dr. Alexander Pokryshkin (alex4709@inbox.ru), President of the Conference, is responsible for providing participants with an official Letter of Invitation. By using this letter, you may apply for a Russian visa via the Internet at: http://www.visatorussia.com/russianvisa.nsf/business_visa_support.html or in your local consulate.

Ukrainian Visa

Except for visitors from the former USSR countries, EU, Canada, USA, Romania, and Turkey (holders of green and diplomatic pasports only), all other participants must have a double entry Ukrainian visa. We are working to provide you with a Letter of Invitation in order to obtain your Ukrainian visa.
For more information on visas and other required travel documents, please contact the Russian ad Urainian Embassy/Consulate in your area before your departure.

Climate

Mid-September is the most favorable time of the year for field trips in both Russia and Ukraine. Daily temperature is about 28°C, and at night, it is about 15-20°C. Seawater temperature is usually about 20°C.

Travel

By train to Novorossiysk train station, from there by public bus or taxi to Gelendzhik (Hotel "Sosnovaya Roscha").
By plane to Anapa International Airport, from there by public bus to the bus station in Anapa, and from there by taxi to Gelendzik (Hotel "Sosnovaya Roscha"). The Organizing Committee will organize the transfer from the airport at Anapa as well as the train station in Novorossiysk to Gelendzhik.

Dates and Time

March 1, 2007	First Circular on IGCP 521 and 481 websites (www.avalon-institute.org/IGCP)
March 1, 2007	Abstract submission and registration opens
May 31, 2007	Abstract submission closes
June 30, 2007	Notification of abstract acceptance
March 1, 2007	Submission of application for financial support opens
June 30, 2007	Submission of application for financial support closes
June 30-July 10, 2007	Second Circular on IGCP 521 website (www.avalon-institute.org/IGCP)
August 15, 2007	Program of the conference available
March 1, 2007	Paper submission to the *Quaternary International* Gelendzhik Volume opens
December 31, 2007	Paper submission to the *Quaternary International* Gelendzhik Volume closes