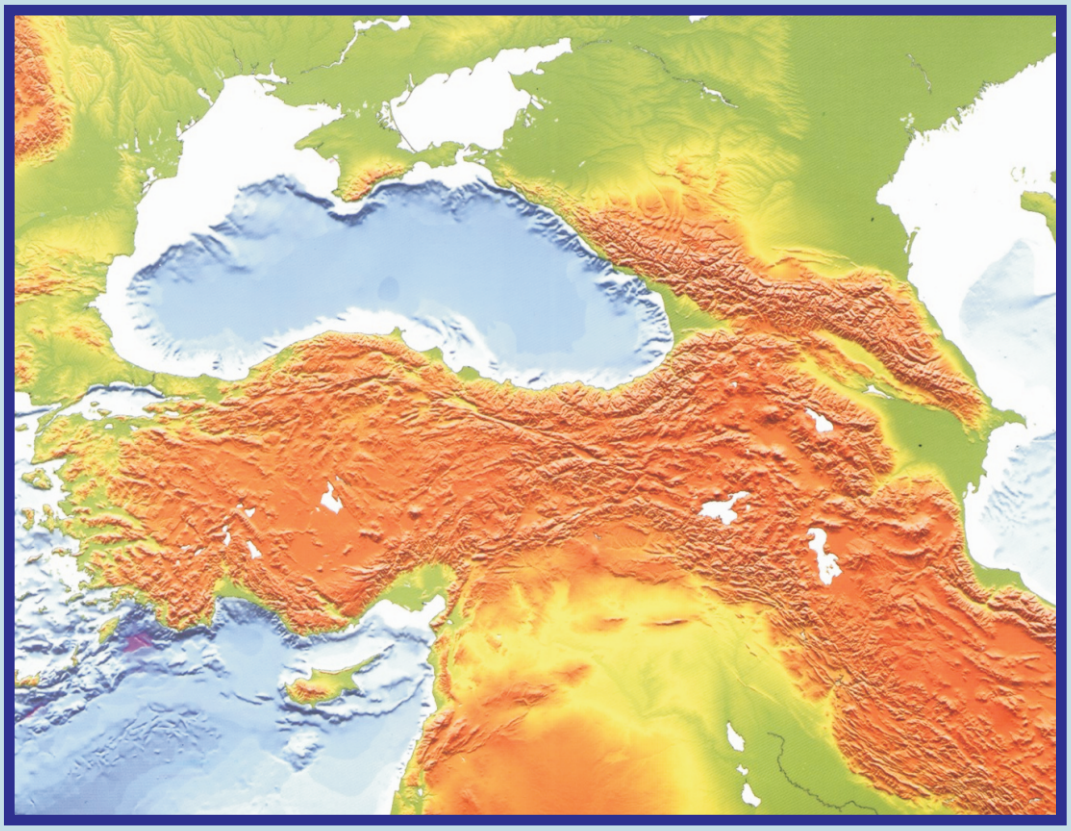
HELLENIC CENTRE FOR MARINE RESEARCH

Hellenic Centre for Marine Research at the Hydrobiological Station of Rhodes, Greece

27 September - 5 October, 2010

INTERNATIONAL GEOSCIENCE PROGRAMME



ABSTRACT VOLUME

IGCP 521 - INQUA 501 Sixth Plenary Meeting and Field Trip

IGCP 521 "BLACK SEA-MEDITERRANEAN CORRIDOR DURING THE LAST 30 KY: SEA LEVEL CHANGE AND HUMAN ADAPTATION (2005 - 2010)

INQUA 501 "CASPIAN-BLACK SEA-MEDITERRANEAN CORRIDOR DURING LAST 30 KY: SEA LEVEL CHANGE AND HUMAN ADAPTIVE STRATEGIES" (2005-2011)

IGCP 521-INQUA 501 Sixth Plenary Meeting and Field Trip, Island of Rhodes, Greece

27 September - 5 October 2010

ORGANIZERS

Hellenic Centre for Marine Research at the Hydrobiological Station of Rhodes, Greece

Avalon Institute of Applied Science

SPONSORS

INQUA

Avalon Institute of Applied Science, Canada

Hellenic Centre for Marine Research at the Hydrobiological Station of Rhodes, Greece

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Hellenic Centre for Marine Research at the Hydrobiological Station of Rhodes

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AIMS AND SCOPE

The main goal of the INQUA 501-IGCP 521 project is to provide cross-disciplinary and cross-regional correlation of geological, geochemical, geophysical, paleontological, archaeological, and historical records for the entire Caspian-Black Sea-Mediterranean Corridor (CCBSMC) in order to evaluate the influence of sea-level change and coastline migration on human adaptation during the last 30 ky. INQUA 501-IGCP 521 investigates the evolution of the coastal zone, where a rich sedimentary and archaeological archive provides a superb opportunity to study spatial and temporal interactions between human adaptation and environmental change.

The Sixth Plenary Meeting and Field Trip is focused on the progress of INQUA 501-IGCP 521 with special attention to (1) Linear and non-linear geological processes and concepts through correlative studies of a wide range of sites through the "Corridor" that are needed to achieve a better understanding of the influence of global climate change and/or active tectonics on regional sea-level fluctuations, coastline evolution, transformation from lacustrine to marine environment, eco- and sedimentary systems (including deposition of sapropels), as well as prehistory and history of the adaptation of Anatomically Modern Humans; (2) Correlation of sea-level changes in the "Corridor" with those in the Caspian Sea; (3) Improvement of standards in research methods and techniques (e.g., quantitative modeling of environmental crises with detailed identification of the factors involved and their behavior); (4) Delineation of the main areas of natural risk (e.g., erosion, flooding) required for proper environmental management; and (4) Further elaboration of a complete database on bibliography, radiocarbon assays, archaeological sites, and artifacts linked to the sea-level changes.

The meeting brings together multidisciplinary scientists from all over the world and enhances the West-East scientific dialogue by providing a supportive background for collaboration regarding the correlation and integration of their discoveries on the influence of climatically/tectonically induced sea-level changes and coastline migration on humanity. This is an area of strategic importance not only for all coastal countries but also for at least 17 other countries sharing the drainage basin that is one-third the size of the European continent.

The meeting will cover seven days. Three days (28 - 30 September) will be spent on the plenary sessions, and four days (1- 4 October) will be dedicated to the field trips.

WELCOME

On behalf of the Organizing and Executive Committees as well as the Hellenic Centre for Marine Research at the Hydrobiological Station of Rhodes, Greece, we are delighted to welcome you to the INQUA 501-IGCP 521 Sixth Plenary Meeting and Field Trip being held on 27 September – 5 October 2010 on the Island of Rhodes, Greece.

This conference is the sixth in a series of IGCP 521 – INQUA 501 Plenary Meetings and Field Trips, and the last one for IGCP 521. It is being held in the Aegean part of the Corridor and focuses on the superposition of the successive Quaternary sea-level changes and the vertical tectonics that have resulted in the formation of marine terraces uplifted at various elevations to 400 m above present sea level. During field trips, the participants will visit sites of uplifted paleo-shorelines and marine terraces as well as coastal prograding sequences, active faults offsetting terraces, sites of fossiliferous Pliocene marls, cold-water corals including Lophelia, and many other sites of geological interest.

As usual, the meeting will discuss the actual status of our knowledge on a range of subjects, and 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. This time, the meeting will finalize IGCP 521 activities and will focus on efforts to maximize the project exposures via diffusion of results in key international journals and project web sites to insure wide accessibility and increased interactive potential for project participants, the scientific community at large, relevant agencies, and the public in order to consolidate scientific achievements as a basis for developing a future strategy for scientific research.

The Sixth Plenary Meeting and Field Trip has been organized by the Hellenic Centre for Marine Research at the Hydrobiological Station of Rhodes, Greece, and sponsored by the Hellenic Centre for Marine Research, Greece, and the Avalon Institute of Applied Science, Winnipeg, Canada; with financial contributions from INQUA.

We are happy to welcome to Greece distinguished specialists and students in the Humanities, Earth, and Life Sciences from countries around the world.

We wish you a very pleasant stay in Greece.

Sincerely,

Organizing and Executive Committees of IGCP 521- INQUA 501 Sixth Plenary Meeting and Field Trip

VENUE

The conference will be held under the auspices of the Hellenic Centre for Marine Research (HCMR, http://www.hcmr.gr) at the Hydrobiological Station of Rhodes, Greece (Fig. 7, 8), Cos Street, 851 00 Rhodes, Greece, Tel: +30 2241027308, +30 2241078320; Fax: +30 22410 78321; Email: hsr@hsr-ncmr.gr.

HELLENIC CENTRE FOR MARINE RESEARCH (HCMR)

The Hellenic Centre for Marine Research (HCMR, http://www.hcmr.gr) is the main governmental research institution in Greece aimed at carrying out multidisciplinary scientific and technological research of the hydrosphere (marine and inland waters), its organisms (fisheries, genetics), its interface with the atmosphere (operational oceanography), the coastal zone, the sea floor and the geosphere underneath it, and the physical, chemical, biological, and geological conditions that prevail and regulate the above-mentioned systems.

The first Greek marine research institute, the Marine Hydrobiological Station, was established in 1914, and accomplished its first studies in fisheries and marine biology in 1915. In 1985, the National Centre for Marine Research (NCMR) was established and placed under the jurisdiction of the General Secretariat of Research and Technology. NCMR thus became the main vehicle of marine research in Greece. During the same year, 1985, the ocean-going R/V AEGAEO was purpose-built for carrying out marine research. In 1987, further progress was made with the establishment of the Institute of Marine Biology of Crete (IMBC) in Heraklion, Crete. IMBC rapidly developed and, with the R/V PHILIA, played an important role in the areas of marine biology, fishing, and aquaculture during the past years. The integration of NCMR and IMBC took place in 2003 and gave birth to the new organization, the Hellenic Centre for Marine Research (HCMR).

HYDROBIOLOGICAL STATION OF RHODES

The Reale Istituto di Ricerche Biologiche di Rodi (Royal Biological Research Institute of Rhodes) was founded in the years 1934-1935, during the Italian occupation of the Dodecanese Islands (1912-1943). The Station came into existence during the Italian occupation of Rhodes, and its Art-Deco-inspired exterior and interior have been preserved as a historic landmark. HSR is both an HCMR research unit and a public Aquarium/Museum, thus combining research and recreational, educational, and awareness-raising programs. The overall aim of the Hydrobiological Station of Rhodes is to develop and disseminate scientific knowledge on the marine environment and its conservation. As one of the field stations of HCMR, it carries out research commitments as part of its operational requirements. As one of the few Aquaria in the Eastern Mediterranean, it attracts more than 200,000 visitors annually and undertakes a lot of public awareness, educational and dissemination activities.

ABOUT RHODES ISLAND

Rhodes, one of the Mediterranean's most beautiful islands, lies in the southeastern part of the Greek Archipelago and belongs to the Dodecanese island group. With an area of 1,398 km2, a maximum length of 77 km, a maximum width of 37 km, and a permanent population of about 100,000, it is the fourth largest of the Greek islands.

The ancient Greeks were so taken with the charms of the island that they associated its beneficent climate with a myth, according to which, Helios, the life-giving sun-god, enchanted by its natural beauty, asked Zeus to be the protector and benefactor of the island. In mythology, Rhodes was the daughter of Poseidon and Amphitrite (or Aphrodite) and the beloved of Helios, who gave her name to the island.

ACKNOWLEDGMENTS

We gratefully acknowledge the support and hospitality of the Greek organizers, the Hellenic Centre for Marine Research at the Hydrobiological Station of Rhodes, for hosting the INQUA 501-IGCP 521 Sixth Plenary Meeting and Field Trip, and providing us with their facilities to convene this conference.

Support has also been received from the Hellenic Centre for Marine Research and the Avalon Institute of Applied Science, Canada.

Financial contributions to underwrite the travel costs for scientists from developing countries and countries in transition were kindly provided by INQUA.

We are indebted also to Dr. Dimitris SAKELLARIOU for his extraordinary efforts in organizing the conference and field trips. Particular appreciation is extended to Drs. Dimitris SAKELLARIOU, Stathis STIROS, and Evi NOMIKOU, Greece, for arranging the Field Trips around the Island of Rhodes and preparing the Field Trip Guide.

We gratefully recognize the assistance of Prof. Allan Gilbert together with Prof. Dr. Valentina Yanko-Hombach for editing and layout of the Abstract Volume.

To the Scientific Committee we offer sincere thanks for evaluating submissions and managing the abstract review process.

The Scientific Committee, in turn, wishes to thank the anonymous reviewers for their efforts in providing useful comments on submitted abstracts.

For her prompt action, we extend our appreciation to Dr. Irena Motnenko for regularly updating the IGCP 521-INQUA 0501 website.

We are also very grateful to the journal *Quaternary International*, which has kindly invited us to publish the Izmir-Çanakkale conference proceedings within their pages just as it did for the First, Second, Third, and Fourth, Plenary Meetings of IGCP 521-INQUA 501 in Istanbul, Odessa, Gelendzhik-Kerch, and Romania-Bulgaria, respectively.

Valentina Yanko-Hombach and Yucel Yılmaz

SCHEDULE

27, 28 September 2010

ARRIVAL AND REGISTRATION

27 September

17.30-19.30

28 September

08.30-18.00

Hellenic Centre for Marine Research, Hydrobiological Station of Rhodes, Cos Street, 851 00 Rhodes, Greece

Tel : +30 2241027308, +30 2241078320; Fax: +30 22410 78321; Email: hsr@hsr-ncmr.gr

27 September 2010

ICE-BREAKING PARTY

20.00 Hellenic Centre for Marine Research, Hydrobiological Station of Rhodes, Cos Street, 851 00 Rhodes, Greece

28-30 September 2010

TECHNICAL SESSIONS

9.00-18.00 Hellenic Centre for Marine Research, Hydrobiological Station of Rhodes, Cos Street, 851 00 Rhodes, Greece

30 September 2010

CONFERENCE DINNER

20.00 Conference Dinner, Kallithea Spa

1-4 October 2010

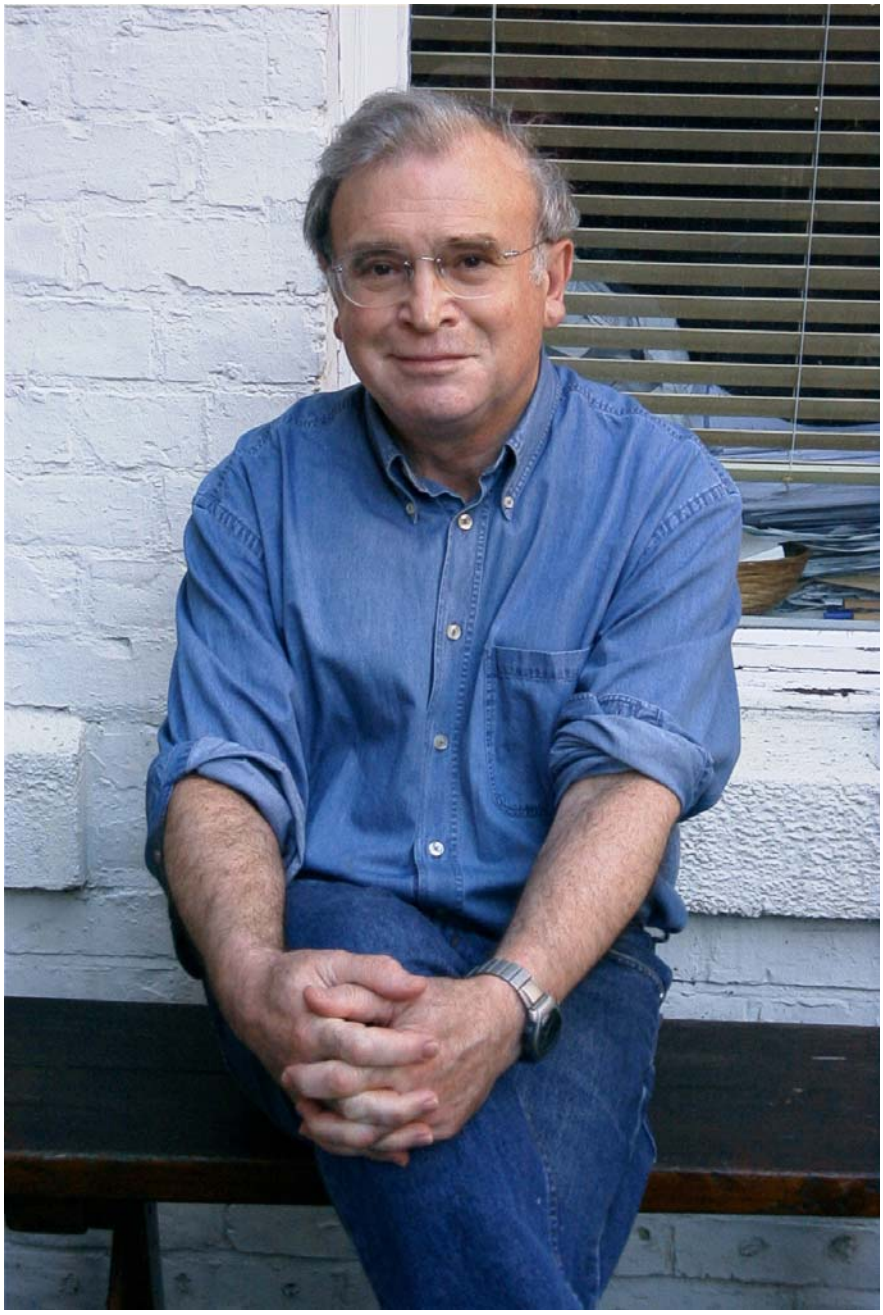
FIELD TRIPS

8.00-18.00 Field Trips

5 October

DEPARTURE TO RESPECTIVE COUNTRIES

Tribute to the memory of Prof. P.M.Dolukhanov[1]
Co-Leader of IGCP 521 Project



Pavel Dolukhanov (1.01.1937 - 06.12.2009)

Pavel Dolukhanov (1937–2009) belongs to that glorious cohort of creative and innovative professionals whose role in the development of prehistoric studies stands out among contributors to the discipline. Pavel was born in Leningrad on January 1, 1937 to an Armenian father and a Russian mother. He grew up within a remarkable family of Russian *intelligentsia* with roots in the aristocracy and a strong intellectual tradition. They were musicians and poets and journalists; his uncle was a famous Russian composer.

His childhood was marred by the Nazi blockade of Leningrad during the Second World War. Pavel was four years old when the blockade began in September of 1941, trapping him and his family within the city. Both of Pavel's grandfathers died during the struggle—tragically on January 1, 1942, his fifth birthday—and his father very nearly died as well. Eventually, the Soviets managed to open a narrow land

[1] Reprinted from *Quaternary International,* 2010, volume 225, issue #2 (in press).

corridor to the city, and Pavel and his family were evacuated to Georgia, where they lived until the end of the war.

In 1959, Pavel graduated from Leningrad State University as a geographer and geomorphologist, and he began working at the Laboratory of Archaeological Technologies within the Leningrad department of the Institute of Archaeology of the USSR Academy of Sciences (now, the Institute for the History of Material Culture, St Petersburg, Russia).

From 1959 to 1988, he rose from Senior Assistant up to Laboratory Head, concentrating mostly on multidisciplinary studies involving different aspects of paleolandscape, paleoenvironment, and prehistoric human-nature interaction. These issues became the subject of his Candidate of Sciences (PhD) thesis ("Late glacial and post-glacial history of the Baltic Sea and its basin," 1965) and his Doctor of Sciences thesis ("The development of nature and economy among prehistoric populations of Eastern Europe and the Near East in the Pleistocene and Holocene," 1985). Over the course of his research, Pavel gradually became a key person in the field, successfully merging his competence in paleogeographic and archaeological analysis into many case studies, and thereby applying his unique interdisciplinary skills to the creation of many new and innovative ideas that helped set the course of East European environmental and landscape archaeology for many decades. His impact is still felt today.

Pavel Dolukhanov introduced the concept of human cultural adaptation into studies of the Late Pleistocene and Early to Mid-Holocene. He was the first in Soviet science to use paleoecological approaches systematically in archaeology in the investigation of transformations in economy, lifeways, settlement patterns, subsistence strategies, and other aspects of prehistoric change.

He was also the first to formulate hypotheses about the correlation of milestones in human cultural evolution with changes in global climate and paleogeography, and to illustrate them with the help of a rich interdisciplinary database. These associations seem evident now, but at the time they were absolutely stunning to Marxist archaeology and prehistory, which traditionally derogated the role of nature in human social development. Pavel's innovative methodology yielded a basic foundation upon which he could elaborate upon many of the most important topics in prehistoric studies, such as the origin and spread of agriculture, the origin and spread of ceramic production, the genesis and early ethnic history of the Slavs and Baltic peoples and their languages, and human migration with respect to the history of the Black and Baltic Seas, their estuaries, limans, and waterways. Most of these problems had already attracted Pavel's attention in the 1960s, but he subsequently added his vision and interpretations based on his own research and new developments in the fields of prehistory and archaeology.

Pavel conducted these studies in close association with another subject that remained of special interest to him until his last days: radiocarbon dating. He was among the pioneers of its application in Soviet archaeology and was actively engaged in its implementation in the laboratory where he worked. Later, he contributed considerably to the merging of 'eastern' and 'western' collections of radiocarbon dates, to their calibration, and to the improvement of C-14 and its applications in prehistoric archaeology. Radiocarbon dating became the fundamental scaffolding for (1) the integration of archaeological and paleogeographic data sets, (2) the creation of continually updated chronologies of 'archaeological cultures' (the term used in Soviet and post-Soviet archaeology for clustered archaeological sites located in a certain territory, attributed to a certain time span, and characterized by common features of tool production and other aspects of material culture), and most important, (3) the elaboration of sequences of archaeological and paleogeographic events (e.g., history of flora, fauna, relief, hydrological networks, etc.) to serve as increasingly detailed models on which further reflections might be made about the close dependence of human social transformations and environmental changes.

One other important subject that permanently engaged him from the end of the 1960s until the final years of his life was the application of scientific methods in archaeological research, with particular emphasis on mathematical statistics and data processing by computer. In this area, he pursued especially productive collaborations with skilled mathematicians.

One of his major contributions was the active fieldwork he conducted in many parts of the world. He participated in archaeological expeditions as well as paleogeographic, geomorphologic, palynologic, and other kinds of sampling in Russia, Ukraine, Moldova, Uzbekistan, Turkmenistan, the Baltic area, Siberia,

and many other regions. Pavel assembled an impressive database from his wide-ranging field experience and personal examination of prehistoric sites that gave him unique expertise in the field.

From the late 1970s, results of Pavel's studies in prehistory became familiar to western audiences, with whom he possessed closer ideological, methodological, and spiritual closeness than to Soviet science. When the Soviet system collapsed, he left the USSR. After a difficult period searching for a new life, he found his next intellectual home at Newcastle-upon-Tyne University, where he eventually became Emeritus Professor of Eastern European Archaeology. In his previous teaching in the USSR at the Department of Archaeology of Leningrad State University, Pavel could offer only one course for undergraduates, but in the UK, he was able to expand his educational activities to many more university students, as well as to international locations in the USA, Japan, France, Italy, and other countries.

Pavel Dolukhanov was a unique researcher who managed to combine and synthesize successfully the best from both 'Western' and 'Soviet' traditions of prehistoric studies, producing many original and fruitful ideas and projects. For nearly 20 years after his move to the UK, he labored to build bridges between 'eastern' and 'western' researchers through a series of collaborative international projects in the frameworks of INTAS, EC FP6, and other programs. He understood the peculiarities of the scientific process in each country and demonstrated great erudition and a broad knowledge of archaeological and paleogeographical sites in Russia, Ukraine, Georgia, France, Great Britain, Germany, Italy, Greece, the United States, and other countries, which were made possible and continually reinforced by his fluency in several European languages. As a result, he helped establish a number of networks and specialist working groups among prehistorians, and their activities can still be traced readily by following international conferences and publications under the aegis of UISPP, EAA, INQUA, and other organizations. One of his recent contributions was his co-leadership in the IGCP 521 project: "Black Sea-Mediterranean corridor during the last 30 kyr: sea-level change and human adaptation," a five-year funded program that attracted several hundred participants from around the world to a series of six conferences. Given his unique scientific experience, his amicability, modesty, and kindness, he was a master in creating lasting partnerships. A genuinely cosmopolitan person who traveled much, lived in the Soviet Union, the USA, and Britain, and spoke several languages, he could feel at home in many places while making strangers feel at home in his own place. He treated all those around him with respect and valued his colleagues for their strengths and varied perspectives, yet understood and accepted their weaknesses and disagreements.

Even painful illness could not keep Pavel from his explorations and creative thinking. His latest research will be published in the near future through the efforts of his colleagues and associates, but so many projects, pre-arranged or just begun, will be realized without his continued participation. He has nevertheless left a rich legacy. His publications will be used by generations of researchers to come, and memories of him will constantly remind his many friends to be open and positive.

Pavel Dolukhanov lived a successful and happy life, though we wish it had been longer. He was surrounded by family, friends, and colleagues who loved, respected, and admired him. We are confident that he would appreciate knowing that remembering him makes us happy rather than sad.

Olena Smyntyna, Valentina Yanko-Hombach, and Allan Gilbert