Annual Report* of IGCP Project No.____

*NOTE: MAXIMUM LENGTH OF THE TEXT REPORT IS 5 (FIVE) PAGES (starting from question 1). SINGLE SPACE, 12 POINT FONT. REPORTS EXCEEDING THIS LENGTH WILL BE RETURNED TO THE AUTHOR(S) WITH THE REQUEST OF REDUCING THE TEXT TO THE ABOVE STANDARD.

A LIST OF PUBLICATIONS HAS TO BE ADDED AS AN ANNEX.

*REMINDER: IF THIS IS THE FINAL YEAR OF YOUR PROJECT, PLEASE SUBMIT A REVIEW ARTICLE ABOUT YOUR PROJECT TO THE IUGS JOURNAL ‘EPISODES’.

The scientific information in this report will further be used for publication on the IGCP website hosted at UNESCO (please feel free to attach any additional information you may consider relevant to the assessment of your project).

IGCP project short title: “From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary”

Duration: 2013-2017

Please tick this box if the report is for a Project on extended term (OET): □

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1. **Website address(es) related to the project**


http://www.geoecomar.ro/website/proiecte.html

https://www.facebook.com/groups/180481035443572/

http://vk.com/album115218532_181815723

http://www.geoecomar.ro


http://www.geogr.msu.ru/structure/labs/notl/

2. **Summary of major past achievements of the project**

Five years of IGCP 610 activity have been carried out in strict agreement with the Working Plan [http://www.avalon-institute.org/IGCP610/work_plan.php]. The following achievements have been obtained: (1) In-depth study of the Quaternary stratotypes, archaeological monuments, and anthropological remains in countries surrounding the CORRIDORS; (2) The Reference List of main publications, a majority of which are published in Russian—their titles required transliteration and translation into English; (3) A data set on chronometric data, correlating the regional geochronological scales and establishing a general geochronological framework for correlating major events in human prehistory and history with global environmental changes; (4) The reference collection of Mediterranean, Caspian, and Black Sea foraminifera (supplemented by SEM images) as well as the Ponto-Caspian molluscs, palynomorphs, NPP, artefacts, and anthropological records; (5) Series of regional paleogeographic, tectonic, and geological maps; (6) Mathematical models for (a) the filling of the Black Sea basin by Mediterranean salt water during the Holocene, (b) the degradation of the Paratethys into the Caspian and Black Sea, and (c) the evolution of the Akchagylian Sea area and coastline; (8) The 1st, 2nd, 3rd, 4th, 5th (together with INQUA POCAS) Plenary Conference and Field Trips in Georgia (2013, 2016), Azerbaijan (2014), Russia (2015), and Italy (2017), respectively; (9) The field work in various areas of the “CORRIDORS” enabled the collection of several hundred samples analyzed in different laboratories by various techniques. Without IGCP 610, no access and sampling of those geological sequences and artifacts would have been possible. (10) Summer schools for young researchers in Kalmykia (2014), in the Danube Delta on-board the floating laboratory boat “Halmys” (2013-2017), and Turkmenistan (2015-2017); (11) Winter youth expedition-field school in the Manych depression (2016, 2017); (12) Workshops in Sozopol (2013), Moscow (2014, 2015, 2016), Kirkcraleri (2014), and Ahtopol (2014). (13) Presentations of IGCP 610 activities during special sessions of large international fora: “Under the Sea: Archaeology and Palaeolandscapes” (Szczecin, Poland, 2013), “Recent Problems on Lithology of Sedimentary Basins of Ukraine and Adjacent Territories” (Kiev, Ukraine, 2014), the Markov Readings “Actual problems of the Pleistocene palaeogeography and stratigraphy” (Moscow, Russia, 2015), SPLASHCOS Conference “Lost and future worlds: marine palaeolandscapes and the historic impact of long-term climate change” (UK, 2017), and XXII International Scientific School on Geology of the seas and oceans (Moscow, Russia, 2017); (14) IGCP 610 sessions at STRATI 2015 (Graz, Austria, 2015), GSA 2015 (Baltimore, USA, 2015); EGU General Assembly (Vienna, Austria, 2016); 35th International Geological Congress (Cape Town, South Africa, 2016); PAGES 5 (Zaragoza, Spain, 2017). (15) Publications of Project results in special issues of the international scientific journals, e.g., *Stratigraphy and Sedimentology of Oil-Gas Basins* (2014) and *Quaternary International* (2017) as well as peer-reviewed Conference Proceedings (Tbilisi 2013, 183 pages), Baku (186 pages), Astrakhan (207 pages), Tbilisi 2016, 218 pages), Palermo (239 pages), and Field Trip Guides of the respective conferences. (16) Disseminating the project events and activities via regular updating Project’ websites, mailing list (about 1500 e-mail addresses), and social networks (Facebook and Вконтакте); (17) Collaboration with international projects (see 3.7 for more
details). **Social benefits:** implementing cultural heritage projects, open-air site museums, training centers for conducting experimental research, working together with local Governmental and Non-Governmental Organizations; enhancing understanding of the links between environmental change and human adaptive strategies, promoting the wise use of the Earth as a human habitat, and preserving human heritage by addressing and clarifying existing questions about interlinks between human adaptive strategies and environmental changes. Obtained multidisciplinary data enabled to reach the goal of the IGCP 610, namely to provide cross-disciplinary and cross-regional correlation of geological, archaeological, environmental, and anthropological records in order to (a) explore interrelationships between environmental change and human adaptation during the Quaternary, (b) create a networking and capacity-building structure to develop new interdisciplinary research initiatives, and (c) provide guidance to heritage professionals, policy makers, and the wider public on the relevance of studying the “CORRIDOR” for a deeper understanding of Eurasian history, environmental changes and their relevance, and likely future impact on humans.

3. **Achievements of the project this year only**

3.1. **General scientific achievements:** (1) The field work in the **Caspian Sea region** (Supervisor Prof. Yanina) was carried out at the key geological sections in the **Middle, Lower Volga, Kalmykia, Astrakhan, Turkmenistan, and Kazakhstan**. Together with large number of $^{14}$C, U/Th, OSL, and dendrochronological new data this enabled to correlate late Pleistocene transgressive-regressive sea level fluctuation with glacial-interglacial cycles on the Russian Plain. The study of **boreholes** recovered in the **Northern Caspian Sea** enabling the reconstruction of the basin development in Holocene. (2) The field work in the **Eastern Manych valley** (Supervisor Dr. R. Kurbanov) enabled to study of the late Pleistocene. (3) The field study of the northern and eastern coast of the Sea of Azov, and the **Kerch Peninsula** (Supervisor Prof. Yanina) with particular attention of the Eltigen (MIS 5) parastratotype (with new OSL datings) enabled to correlate climate, sea level changes, and human adaptive strategies in the region. All data obtained in the regions above are stored and primary processed at the laboratories of the Moscow State University (Russia). (4) The field work in the **Western Black Sea** (Supervisor Prof. Panin) provided continuation of geological and geophysical mapping of the continental shelf with release of new sedimentological map (1:50,000 and sediment structure (with help of sub-bottom profiling and 2D seismic equipment); investigation of bio-gases and gas-hydrates zones (by seismics and coring); study of artificially fed beaches (lithology, mineralogy, etc.); as well continuous implementation of the “Black Sea Security System – an Early warning system to marine geohazards” enabling to trace environmental state and dynamics of water masses and sediments. The data obtained are stored in the national centres in Constanta (Romania), and Varna (Bulgaria). (5) The field work in the **North-Western Black Sea** region enabled to study the human response to climate changes for better understanding of the human occupation history in the region during the Stone Age, paleometal epoch and early medieval period (Supervisor Prof. Smyntyna). (6) **In the Mediterranean region** (Supervisor Prof. Caruso) the number of GSSP (e.g., Messinian-Zanclean, Punta Piccola - Zanclean/Piacenzian, Gelasian) and other key outcrops (e.g., Capo Rossello; Punta di Maiata, Monte San Nicola, etc.) were studied along with observation of the UNESCO heritage Agrigento Valle dei Templi as well as a series of important Doric temples of the Greek period. (7) The Reference Collections of microfauna (foraminifera, ostracoda) (Supervisors Prof. Yanko-Hombach and Prof. Caruso), palynomorphs and NPP (Supervisor Prof. Mudie), molluscs (Supervisor Prof. Yanina) from the stratotypes and key geological sections of different parts of the Corridors were established. (8) The reference collections of artefacts (Supervisor Prof. Smyntyna) and anthropological records (Supervisors Profs. Vasilyev and Borutskaya) for defining the main regularities in spatial distribution of prehistoric sites and
their inhabitants were established. All records listed in 1-8 are stored in respective universities and institutes to which supervisors of the collections are affiliated.

3.2. **List of IGCP project meetings/symposia and IGCP related meetings/symposia with exact attendance (if possible) and number of countries:**

1. Joint Plenary Conference and Field Trip of IGCP 610 and INQUA IFG POCAS, Palermo, Italy, 1-9 October 2017. (2) All-Russian conference “Questions of geomorphology and paleogeography of the sea coasts and shelf. P.A.Kaplin’s memories. M.V. Lomonosov Moscow State University, Russia, February 2-3, 2017. Special IGCP 610 session at the (3) EGU General Assembly 2017, Vienna, Austria, April 23-28, 2017; (4) PAGES V Open Science Meeting, Zaragoza, Spain, May 9-13, 2017; (5) All-Russian conference “Actual problems of the modern palynology”, Moscow, Russia, June 5-8, 2017; (6) International Youth School-Conference "Where East meets West: Pontocaspia, the historical dimension of the evolution of a unique biodiversity”, Azov, Astrakhan, Russia, August 21 - September 3, 2017. (7) All-Russian meeting "Fundamental problems of the Quaternary: Results of studying and main directions of further researches", Moscow, Russia, September 25-29, 2017. (9) XXII International Scientific Conference (School) on Geology of the Seas and Oceans, Moscow, Russia, November 20-24, 2017. (10) Lost and Future Worlds: Marine Palaeolandscapes and the Historic Impact of Long-Term Climate Change (the Royal Society, UK, May 15-16, 2017. It is difficult to calculate the number of scientists and countries involved. We assume about 150 scientists at least from 15 countries were involved.

3.3. **Educational, training or capacity building activities related to the IGCP project and IGCP project participants:**

1. School-seminar for young researchers "Methods of deltaic systems study in the South of Russia", Moscow State University, March 2017 and (2) Youth field school to study the Lower Volga Pleistocene outcrops, Astrakhan, August 2017 attended by 32 young scientists. (3) Youth involvement in the implementation of plans occurred at all stages of work – from field research and obtaining field materials for analytical processing to discussion of results and participation in the writing of papers and preparation of presentations. Obtained materials were used by students from Russia, Ukraine, and Georgia (Shtyrkova, E., Garova, E., Tyunin, N., Semikolenykh, D., Yarovaya, S., Tkach, N., Sychev, N., Mudryk, I., Kondariuk, T., Demchenko, O., Gogoladze, S., and Bobrova, Yu.) for their BSc, MSc, and PhD projects. (4) Training sessions for the “Black Sea Security System - an early warning system for marine geohazards” for Romanian and Bulgarian students organized in the GeoEcoMar’s Constanta Branch. (5) Summer schools for international students and young researchers in the Danube Delta on-board the floating laboratory boat “Halmyris” were also organized.

3.4. **List of countries involved in the project (please indicate the countries active this year*:**

- Azerbaijan*
- Belgium
- Bulgaria*
- Canada*
- China*
- Georgia*
- Germany*
- Greece*
- Denmark*
- France
- Israel
- Italy*
- Kazakhstan*
- Latvia*
- Romania*
- Russia*
- The Netherlands*
- Sweden*
- Switzerland
- Turkey*
- Turkmenistan*
- UK*
- Ukraine*
- and USA*.

3.5. **Participation of scientists from developing countries**

<table>
<thead>
<tr>
<th>Participating scientists</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young scientists/students (&lt;35 years old)</td>
<td>210</td>
<td>120</td>
<td>90</td>
</tr>
</tbody>
</table>

Geographically, IGCP 610 project is carried out largely in developing countries, and therefore, the participation of scientists from those countries, especially young and female researchers who are full of energy and the desire to learn from older experienced colleagues, is crucially beneficial for its success.

3.6. **List of the 5 most important publications (including maps) of this year**
a) could not have been published were if not for this project: (1) Yanko-Hombach, V. (also Yanko, V.). 2017. Editorial to IGCP 610 Special Volume of Quaternary International. In Press.


c) did you publish in Episodes? The paper for Episodes is in preparation and will be submitted at the beginning of 2018..

Selected bibliography of this year (Annex 1).

3.7. Activities involving other IGCP projects, UNESCO programmes, IUGS Commissions or Task Groups or others: 1. The IFC (International Focus Group) POCAS created within the INQUA SACCOM for the years 2017-2020. 2. The European Union Strategy for the Danube Region within which the Romanian partner leads the project “Danube International Centre for Advanced Studies in the River – Sea systems: a Pan-European Distributed Research Infrastructure (DANUBIUS - RI)”. The project was accepted on the updated ESFRI roadmap for 2016 and was granted the preparatory phase project by the European Commission. The IGCP projects will benefit from the opportunities offered by this Centre. 3. Uncovering the Mediterranean salt giant (MEDSALT) COST Action CA15103.

3.8. Scientific Legacy: We plan to upload a series of presentations, publications, and films related to IGCP 610 at the main project website. The field data (e.g., field diaries, samples, maps, etc.) and various collections are stored at different organizations (see 3.1 for more details) are available for study by IGCP 610 participants.

3.9. What tangible improvements has your project obtained? IGCP 610 activity has encouraged East-West dialogue by integrating eastern and western scientists into an international R&D community through scientific collaboration, workshops, and annual meetings.

3.10. What kinds of activities in respect to the benefit of society and science outreach has your project undertaken? Implementing cultural heritage projects, open-air site museums, training centers for school children with possibility of conducting experimental research; working together with local Governmental and Non-Governmental Organizations across the “Corridors”.

3.11. What kind of public information (media reports, etc.) has your project generated? And how do you evaluate their impact? Websites, social networks, public lectures, media presentations, films.


4. Activities planned
4.1. General goals: (1) To maximize IGCP 610 exposure via diffusion of results in key international journals, Project’ websites and social networks (e.g., Facebook) to ensure wide accessibility and increased interactive potential for participants and other parties; (2) To consolidate scientific achievements for the developing a future strategy; (3) To prepare research proposals for the funding agency; (4) To publish IGCP 610 Special Issue of QI; and (6) To publish the paper in Epizodes devoted to the achievements of IGCP 610.

4.2. Tentative list of specific meetings and field trips (please list the participating countries):

5. Project funding requested

6. Request for extension: We request one year of project extension (if possible with some funding) to summarize our activities in a series of selected papers in IGCP 610 Special Issue of QI and in Epizodes as well as organising meetings mentioned in the Paragraph 4.2 and preparing the proposals for funding – all based on IGCP 610 achievements.

7. Financial statement ($ USD only)
In 2017, we obtained 5500 USD from IGCP. The funds were used largely to cover registration fees, airfare and accommodation for young researchers, students, and key-scientists from developing countries (see Financial Report).

8. What additional funding besides the IGCP seed funding has your project obtained thanks to the IGCP label?
In the year 2017, additional funding that the IGCP 610 project obtained thanks to the IGCP label include: 5000 USD from the Avalon Institute of Applied Sciences, Canada; 3500 USD from the Russian Foundation for Basic Research (RFBR); 5500 $ USD from the Russian Scientific Found (RSF); 3500 $ USD from the Ukrainian Ministry of Education and Science; 2000 from University of Palermo; 3500 $ USD (RFBR) for IGCP 610 Russian scientists to attend the PAGES 5 Open Science Meeting, Zaragoza, Spain; 1500 $ USD for the IGCP 610 Special Session at the EGU General Assembly 2017, Vienna, Austria; 1000 USD from the Paleontological Society to run the conference in Palermo; 500 Euro from PAGES 5 to contribute to participation of PhD student from Ukraine. In total 26100 USD. The funds were used to cover research, participation in the meetings, summer and winter schools, printing of the Proceedings and Trip Guide, airfare, and accommodation.

9. Did all project leaders and participants inform their respective IGCP/IUGS National Committees?
Yes. They did.

10. Attach any information you may consider relevant: no space
Attachments (check the box if document is attached or included):
Financial statement x
Meeting report(s) x
Publication list x
Other □

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27. Yanina T., Sorokin V., Bezrodnykh Yu., Romanyuk B. 2017. Late Pleistocene climatic events reflected in the Caspian Sea geological history (based on drilling data). Quaternary International http://dx.doi.org/10.1016/j.quaint.2017.08.003


34. Yanko-Hombach, V. (also Yanko, V.), Kislov, A. 2017. Late Pleistocene e Holocene sea-level dynamics in the Caspian and Black Seas: Data synthesis and Paradoxical interpretations. Quaternary International.

University of Palermo, Department of Marine and Earth Sciences (DiSTeM), Italy

October 1-9, 2017

INTERNATIONAL GEOEUROPE PROGRAMME

PROCEEDINGS

IGCP 610 “From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary” (2013 - 2017)
INQUA IFG POCAS “Ponto-Caspian Stratigraphy and Geochronology” (2017-2020)
Joint Plenary Conference and Field Trip of IGCP 610 and INQUA IFG POCAS
October 1-9, 2017, Palermo, Italy

PROCEEDINGS

Organizers:
University of Palermo
Department of Marine and Earth Sciences (DiSTeM)

Sponsors:
UNESCO
IUGS
IGCP
Avalon Institute of Applied Science, Winnipeg, Canada
University of Palermo
Paleontological Society

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IGCP 610 Fifth Plenary Conference and Field Trip

“From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary” (2013 - 2017)
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INQUA IFG POCAS “Ponto-Caspian Stratigraphy and Geochronology“ (2017-2020)
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