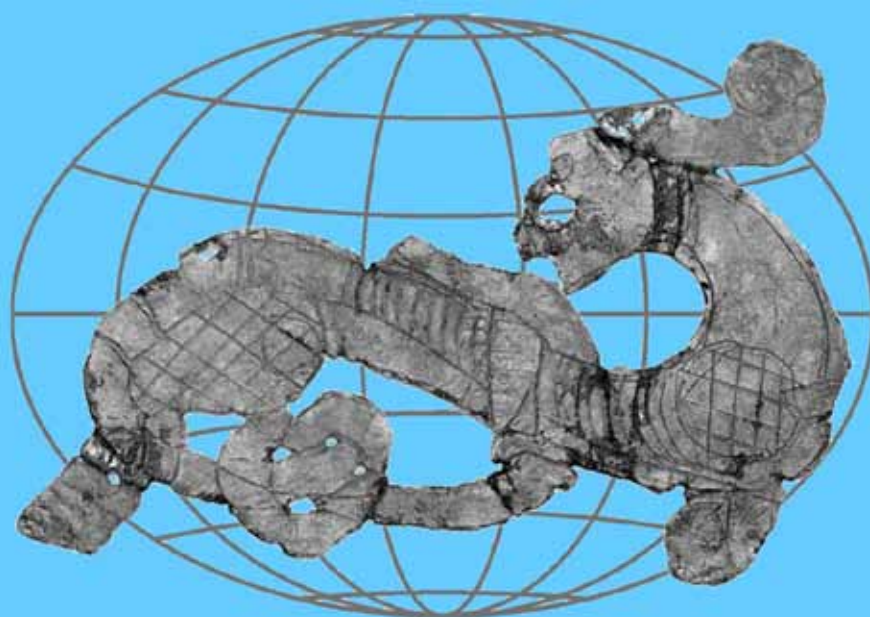


GEOMORPHIC PROCESSES AND GEOARCHAEOLOGY

From Landscape Archaeology to Archaeotourism

International conference
August 20-24, 2012
Moscow-Smolensk, Russia



EXTENDED ABSTRACTS



*Administration of the
Smolensk Region*



*Russian Association of
Geomorphologists*

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*University of Moscow:
Faculty of Geography, Faculty of History*



*Smolensk University
for Humanities*



*Russian Academy of Sciences:
Institute of Geography
Institute of Ethnology and
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*Smolensk State
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*State Historical
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*International Association of
Geomorphologists:
Working Group on
Geoarchaeology*



*International Union for
Quaternary Research:
Terrestrial Process Commission
(INQUA TERPRO)*



*Global Continental
Palaeohydrology research
Group (GLOCOPH)*

ISBN 978-5-91412-129-9

Geomorphic Processes and Geoarchaeology: from Landscape Archaeology to Archaeotourism. International conference held in Moscow-Smolensk, Russia, August 20-24, 2012. Extended abstracts. Moscow-Smolensk. «Universum». 2012. 317 p.

Compiled by Maria Bronnikova and Andrey Panin. Computer design by Elena Sheremetskaya.

Printed with financial support from the A.I.Shkadov Foundation (Fond im. Alexandra Ivanovicha Shkadova)

ISBN 978-5-91412-129-9

Геоморфологические процессы и геоархеология: от ландшафтной археологии к археотуризму. Материалы Международной конференции. Москва – Смоленск, Россия, 20-24 августа 2012 г. Москва-Смоленск: Издательство «Универсум», 2012. – 317 с.

Составители: М.А. Бронникова, А.В. Панин. Компьютерная верстка: Е.Д. Шеремецкая.

Издано при финансовой поддержке Благотворительного Фонда имени Александра Ивановича Шкадова.

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**EVALUATION OF LARGE RESERVOIRS AND RIVER SYSTEMS ACTIVITY
AS A FACTOR OF ARCHAEOLOGICAL MONUMENTS DESTRUCTION
WITH REMOTE SENSING DATA USAGE (VOLGA-KAMA REGION)**

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The problem of conservation of archaeological heritage is highly relevant For the Republic of Tatarstan (RT), because in its territory identified, studied and registered around 4,300 archaeological sites [1]. Most of archeological sites from the Mesolithic to the late Middle Ages, situated in the coastal zone, which is due to the nature of human life in the past [2]. According to the 2011 approximately 2905 monuments of archeology are destroyed each year in the Republic of Tatarstan, including the area of the Kuibyshev and Nizhnekamsk reservoirs 942 objects are identified. Monuments placed on the slopes of river valleys, also can be destroyed as a result of various slope processes and river erosion, but the targeted study of their condition not have been performed. Approximately 75 % of the Kuibyshev reservoir shores and more than 290 km of small rivers shores in RT affected by dangerous exogenous processes [3, 4].

Today is necessary to provide security and conduct large-scale rescue operations at the destructible objects to preserve the historical heritage in Tatarstan. It is necessary to use modern technologies in field identification of monuments destruction processes. Thus, when the cultural object in closely located to the abrasive ledge or brow, tacheometry or GPS-survey is necessary for exact object location binding. Obtained results comparison with topographical maps and remotely sensed data using GIS technology will allow to estimate the rate of hazardous processes and, thus, to determine the risk of destruction of the monument.

As a result of remote sensing data processing and monitoring data we have identified areas in the zone of Kuibyshev reservoir influence and along the banks of small and medium-sized rivers, with lots of archaeological sites and intensive destruction processes.

Thus, nearby Comintern settlement and Izmery village of the Spassky district, «Devitchiy gorodok» hillfort was placed (1.06 hectares square), now completely destroyed by Kuibyshev reservoir waters. As a result of analysis on the basis of remote sensing data (1958–1980–2011) de-encryption, the monument exact location determined, its form restored, and dynamics of coastline retreat at its placement evaluated. Coastline retreated here in the period from 1958 to 2011 to a maximum distance 318 m, large area was washed away (10.3 ha).

Another complex of monuments – Ostolopovskoe hillfort, Ostolopovsky burial and Ostolopovskie Settlements I and II – located on the shore of the Kuibyshev reservoir at the mouth of Shentala river (Alexeevsky District RT). The displacement of coastline (1958-2005) studied with the help of multi-temporal remote sensing data. The distance of coastal retreat varies from 0.75 to 1.4 m per year. Archaeological site Ostolopovskoe Settlement I, is mostly destroyed by permanent abrasion processes. During the study period the area of 2.74 hectares washed away, cultural layers were destroyed, maximum displacement speed is 1.4 m per year.

Burakovsky hillfort surveying also showed a slope edge retreat (20-30 m) as a result of landslide processes provoked by washing away the river floodplain terraces. Thus, the rate of destruction is 1-1.5 m per year. Also we have fixed the destruction of Lukovskoe (Yapanchinskoe) hillfort and Tankeevsky cemetery, located in the area of washing away slopes of the Kubnya and Utka Rivers.

Cultural heritage sites monitoring, with information about the chronology, cultural layer value, settlement specifics, etc., taking into account the methods used in landscape ecology and field archaeological survey, allows to evaluate damage and the intensity of archaeological sites destruction through the dangerous exogenous processes estimation. Exogenous processes data and archaeological GIS integration will form unified system of archaeological rescue works, will provide analysis of large amount data in a short time, to update and enter new data, etc.

This approach will help to determine the most problematic areas, in their funding valuation and archeological excavations planning and broaden knowledge about the past of the peoples living in the modern Tatarstan Republic territory.

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GEOARCHAEOLOGICAL DATA ON RAPID ENVIRONMENTAL CHANGES AND CATASTROPHES IN KARELIAN ISTHMUS, NW RUSSIA

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Karelian Isthmus is situated between the Gulf of Finland and the Ladoga Lake. During the Holocene time this territory was many times affected by water level oscillations of the Baltic, as well as of the Ladoga lake, which is the largest fresh aquatic body in Europe. Moreover, during the whole Holocene time the Karelian Isthmus relief has been affecting by the isostatic uplift of the Earth core, with a gradient growing from the South-East to the North-West. Surface spots, which had an equal elevation above the sea level at the certain moment of time, now are at different elevations - higher to the
