

Winter youth expedition–field school in the Manych depression: January 27 – February 7, 2016

During the students' vacation between January 27 and February 7, 2016, the Geographical Faculty of Lomonosov Moscow State University and the Institute of Geography of the Russian Academy of Sciences organized a winter expedition-field school to the Manych valley (fig. 1) for students of the Geographical Faculty. The main objective was to study the functional history of the Manych Passage during the Pleistocene and the relationship between the Caspian and Black seas during this epoch. Besides field research, an important part of this project was training students in the complex methods needed to study recent deposits and conduct paleogeographical reconstruction.

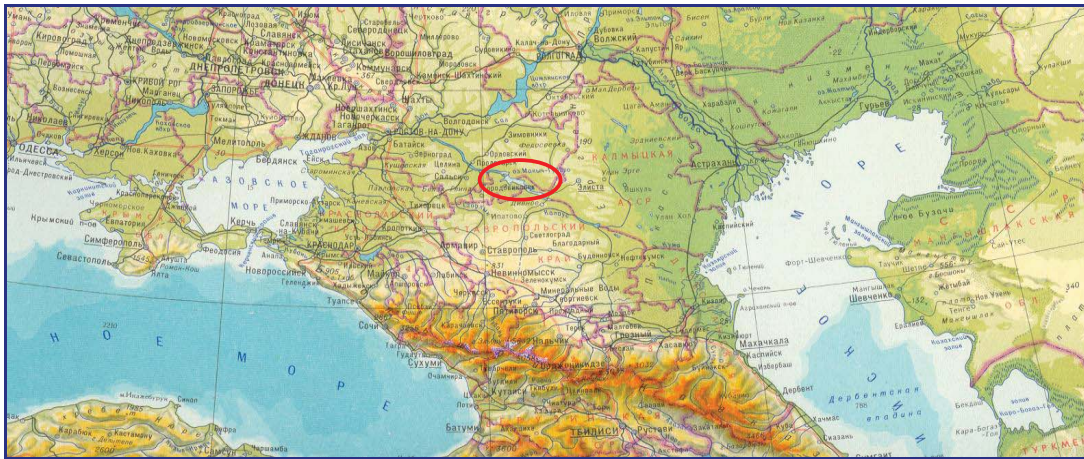


Figure 1. Manych depression and area of the expedition

15 students, 3 teachers (Professor T.A. Yanina and senior researchers E.V. Garankina and V.R. Belyaev) from the Geographical Faculty, and 3 employees (the leading researcher O.K. Borisova and researchers R.N. Kurbanov and V.V. Matskovsky) from the Institute of Geography of the Russian Academy of Sciences took part in the expedition. The research supervisor of the expedition-field school was Professor T.A. Yanina (the co-leader of the IGCP-610 Project).

The scientific base in the Manych settlement that enabled us to carry out the expedition-field school was provided by the Southern Scientific Center of the Russian Academy of Sciences (President, Academician G.G. Matishov).

Students together with their teachers conducted significant scientific research: (1) relief was studied, geomorphologic profiles were constructed (figs. 1, 2), and a geomorphologic map of the studied territory will be constructed on the basis of these research results;



Figures 2, 3. Geomorphologic research



Figures 4, 5. Geomorphologic research

(2) drilling into the Holocene lake deposits through the ice using a special ice drill was carried out (fig. 6);



Figure 6. Drilling through the lake ice.

(3) drilling with the use of a manual drill of Holocene and late Pleistocene deposits to a depth of 15 m (figs. 7-9);



Figure 7. Dr. R. Kurbanov teaches students how to work with a drill.

Figure 8. Students describe the core and select the samples



Figures 9-11. Drilling

(4) two deep (to 50 m) wells were drilled using vehicle-mounted drilling equipment (figs. 12, 13). The drilling penetrated deposits of Khvalynian and Khazarian (Girkanian) age within the Manych, and also the ingressive gulf of Karangatian transgression. Samples were selected for various analyses.



Figure 12. The drilling equipment



Figure 13. The core

Field work was performed successfully. We are confident that the analysis of the collected samples and generalizations from the received results will allow us to obtain new and interesting interpretations concerning the environmental evolution of the Manych depression during the Pleistocene.

Educational activity was an important component of the expedition-field school. Every evening after the day's field work, scientists with the project presented interesting lectures to the students. Prof. T.A. Yanina described the scientific problems of the Ponto-Caspian region and Manych valley; she presented the main methods of paleogeographical reconstruction that can be used to answer scientific questions in the studied area. Prof. Dr. O.K. Borisova read a lecture about palynological method, and another about the Holocene period of the Quaternary. Dr. V.V. Matskovsky presented an explanation of the dendrochronological method, and Dr. V.R. Belyaev described geomorphologic methods. Reports were given by students.

We consider that such work with students attracts them to science and paleogeography while stimulating an interest in the solution of scientific problems of the Ponto-Caspian region.

Co-leader of the Project IGCP 610 Dr. Prof. T. Yanina
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