

On teaching mathematics to geologists

SHURYGIN, A.M., Dept. of Mech. and Math.,
Moscow State University, Moscow, Russia.

Having two specialities, geological and mathematical, the author, trying to close down the breach between geology and modern statistics, processed geological data, solved specific problems, and read special courses to geologists. The experience shows the following.

- Teaching mathematical analysis with theorems and proofs is not necessary. An understanding of basic concepts and notions is enough for active using them.

- Classic statistics is not optimal because of instability for deviation from the model that are necessary in any application, especially in geology, where objects are individual. Modern applied statistics finds robust methods that really could be useful, but they are unknown to geologists.

- Visually uncontrolled, classic multivariate statistics is often harmful. Modern methods of applied statistics and data analysis are much more suitable.

- Geological objects are essentially more complicated than models considered in textbooks on statistics. Mathematical problems of geology go out of standard methods of data processing and require special study and solution.

- Standard packets of programs for data processing are lag for tens years behind the modern level of stochastic sciences that contain useful solutions. To realize them, special programs have to be developed.

All these problems can be solved by geologists who in education receive knowledge about modern status, possibility and restriction of mathematical methods.