Environmental Magnetism on the Black Sea Coast

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The objective of our project is to monitor the environmental pollution of the Black Sea seaside using magnetic susceptibility measurements. We monitor: the beaches, areas adjacent to the main highway, which during the summer have extremely high traffic and the trees on the edge of high traffic areas. Susceptibility measurements were performed in the field, with the Magnetic Susceptibility Meter SM-30. The geographic coordinates of the work points were recorded. Photos of the analyzed areas were taken. The data was processed in Microsoft Excel. The main conclusion is that magnetic susceptibility measurements can be used in the study the quality of environment. It was simple to determine high levels of pollution on beaches, near highways or on vegetation. We detect pollution with metals (paramagnetic or ferromagnetic). The big advantage of susceptibility studies is the low cost and the possibility of making measurements. We have found different levels of pollution on the beaches. Older and bigger beaches are the most polluted beaches. The old beaches of Costinesti have low values of susceptibility because they are often washed by waves. On all beaches the higher levels of pollution are in the areas where sun beds and umbrellas are located. Areas with shells (diamagnetic substances) have the lowest values of even negative susceptibility. At some beaches susceptibility increases to the cliff. In the case of trees, it can be highlighted in all cases that susceptibility is higher on the road. It is obvious that high traffic led to the deposition of paramagnetic or ferromagnetic substances on the roadside. Chemical analyzes may determine precisely what substances are in. In the case of crowded roads, there is an increase in susceptibility to objects around the road.

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