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**TOPOGRAPHIC WORKS NECESSARY FOR THE STABILIZATION AND GREENING OF THE SLOPES AROUND THE  
SILVAȘU DE CÂMPIE LAKE IN BISTRIȚA-NĂȘĂUD COUNTY**

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**Abstract:** *The geodetic network, made in the classic system of measurements, has served for more than half a century to carry out topographic surveys, constituting an important cartographic and geodetic fund for engineering works and administrative records. The implementation and use of modern technologies in the determination of higher order support networks is a particularly complex process, aiming at the efficiency of topo-geodetic works by adopting an effective work method based on spatial information. It is known that in Romania geodetic works use the Stereographic Projection on a single secant plane developed in 1970 on the Krasovski ellipsoid. For leveling works, the reference plan is the level of the Black Sea, determined in 1975. The technology-method impact can be successfully applied in one of the problems to be solved, namely the one related to the determination of a support network, it has existed until now. Applying another technology, respectively working method, we have to solve the same problem, but in a shorter time and with higher quality results. All fields of activity seek the application of top technologies in the respective field, to reduce costs and the time needed to solve problems by adopting solutions that make the topo-geodetic measurement methods more efficient.*

#### • Introduction

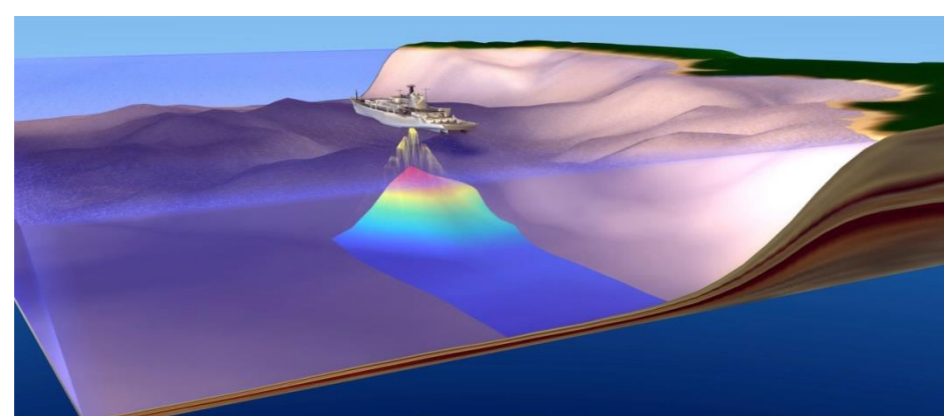
- The geodetic network, made in the classic system of measurements, has served for more than half a century to carry out topographic surveys, constituting an important cartographic and geodetic fund for engineering works and administrative records.
- The implementation and use of modern technologies in the determination of higher order support networks is a particularly complex process, aiming at the efficiency of topo-geodetic works by adopting an effective work method based on spatial information.
- It is known that in Romania geodetic works use the Stereographic Projection on a single secant plane developed in 1970 on the Krasovski ellipsoid. For levelling works, the reference plan is the level of the Black Sea, determined in 1975.
- **Perspectives**
- The technology-method impact can be successfully applied in one of the problems to be solved, namely the one related to the determination of a support network, it has existed until now. Applying another technology, respectively working method, we have to solve the same problem, but in a shorter time and with higher quality results.
- All fields of activity seek the application of top technologies in the respective field, to reduce costs and the time needed to solve problems by adopting solutions that make the topo-geodetic measurement methods more efficient

#### • Material and method

It is indicated that the stations should not be obstructed in terms of visibility above the elevation of 15-20 degrees; if the station is portable, it is good to find the area with the lowest degree of obstruction.

Too dense vegetation can create visibility problems for GPS stations; tree leaves and branches can block satellite signals. Deforestation is carried out in the respective area, based on the agreement obtained from the legal authorities. Also, avoid locating stations near tall buildings or vertical walls that may interfere with the received signal, as well as high-power transmitters (TV). In this phase, an obstruction diagram or a polar diagram is drawn up, in order to determine the optimal period of stationary on the point, when the visibility of the satellites is the best.

A high-performance GPS was used for the exact delimitation of the perimeter of the lake bed and the wetlands. The bathymetric measurements were carried out using the Valeport Midas



ig. 1. Surveyor echo sounder (Bathy-500DF Dual Frequency Hydrographic Echo Sounder).



Fig. 2 Ecosonda Valeport Midas Surveyor

#### • Results and discussions

- Solving the problem of stabilizing the slopes consists in:
  - - execution of monolithic concrete walls.
  - - gabion walls filled with dry rough stone masonry placed in areas with ravines on the slope.
  - - reinforcement walls made of raw stone masonry that come into direct contact with the slope.
  - - rough stone dry masonry work behind the gabions
  - - retention works of the deluge that will slide over time, with gabions placed on the filling behind the concrete wall and gabions.
- The shape of the masonry was adapted according to the configuration of the land, resulting in an architecture
- special
- The flexible structure for stabilizing slopes prone to degradation is made of wire mesh anchored in rock or soil, with joining elements and DDRESSING
- The curtain-type protection structure ensures the prevention of accidents caused by the fine or coarse material detached from the slope. It consists of a mesh of the high resistance wire with rhomboidal mesh covering the slope, being anchored perimeter in rock or soil.

#### • Conclusions

Plant consolidation technology can apply for:

- the slopes of road and railway embankments; • the banks of torrents, canals, rivers, slopes near the sea - cliffs;
- consolidation and protection of slopes affected by landslides;
- restoration and revegetation of surface mines, polluted areas.

The implementation technology provides for a simple and quick construction site with the spreading of a mixture of water, certain fertilizers, natural glue, and a mixture of technical seeds with the characteristics described in the following, on the surface subject to the intervention. These are hydro-seeds that are spread with specialized equipment, equipped with tanks from 1000 l to 10000 l, placed on vehicles, 4X4 or even attached to tracks. To cross bumps, or in the case of construction sites with difficult access, long hoses up to 300 m are used.