

## II. Engineering Geodetic Measurements

### 1. **Andreea Radulescu, Catalin Ionut Vintila, Petre Iuliu Dragomir: *Intergration of surface and underground utility network surveying tehnologies***

*This article aims to present the main technologies used today in collecting data related to utilities networks. The paper summarizes both classical and modern surveying techniques in urban infrastructure mapping, techniques that can be used separately or in some cases integrated. Gathering above surface or underground details of utility network a complete geographic information system (GIS) can be developed. GIS enables the sharing of all available information about assets and operations throughout the utility line from a single comprehensive and authoritative source and supports the needs of multiple departments through a common set of applications.*

### 2. **Catalin Ionut Vintila, Andreea Radulescu, Petre Iuliu Dragomir: *Monitoring technologies of dynamic phenomena of Bucharest One Tower***

*It is well known that every construction, especially new ones, suffers, more or less, long term displacements, these displacements could be determined with high accuracy by using together geodesic or non-geodesic technologies. In the past years many modern technologies have been developed for real time and online deformation monitoring, but in order to assure the precision required, the monitoring method has to be wisely chosen. This paper presents the monitoring technologies, the network adjustment and the interpretation of obtained data, used to establish the displacements of one of the tallest construction build in Romania, the Bucharest One Tower.*

### 3. **Constantin Chirila, Ioana-Andrada Casandrescu: *Study on application of microtrilateration geodetic network for monitoring of hydrotechnical constructions***

*Among geodetic methods for monitoring of hydrotechnical constructions, the application of horizontal geodetic networks in the form of triangulation, trilateration, or a combination thereof, to determine horizontal displacements of a certain dam, is performed assuming that the direction along which the most significant position changes are expected is known. Therefore, to design a horizontal geodetic network for dam monitoring favourable geometry will be taken into account, to highlight with high precision horizontal displacements of the control points in the direction of interest. In the case study, the design and distance measurements on the model within a microtrilateration geodetic network are presented in order to determine the dam's horizontal displacement vectors, exemplifying the adjustment computation using least squares method and evaluating the precision of the results, of which practical conclusions and recommendations of this method will be deduced.*

**4. Tudor Salagean, Dumitru Onose, Mircea Ortelecan, Raluca Farcas, Adrian Savu, Constantin Cosarca: *Aspects concerning the monitoring of subsidence elements in conditions of salt deposits***

*Underground mining of the salt reserves causes, imminently, the movement and deformation of the surface and also the damage of the industrial and civil objectives placed on the surface of mining exploitations. The paper aims to determine the parameters of the subsidence areas from Ocna Mures salt deposit. To estimate the parameters of subsidence was designed and placed a tracking station consisting of transversal and directional alignments on the diving cone surface resulting in the crash caused by the existence of previous mining operations.*

**5. Savu Adrian, Cosarca Constantin, Didulescu Caius, Saracin Aurel, Salagean Tudor: *Making data bank for operating tunnels***

*This article describes the key components of the data bank for tunnels: general data, data on the execution stage, data on environment, data on land, the status of technical data, methods of investigation, diagnosis, mode of collection of this information and how to integrate the information into the database.*

**6. Raluca Farcas, Dima Nicolae, Sanda Nas, Andra Porutiu: *Considerations regarding the stability of topographic landmarks placed on a salt probes field***

*The goal of time tracking constructions placed on a salt probes field is to obtain information in order to ensure the construction stability and to obtain an evaluation of the environmental conditions in order to prevent certain natural accidents, respectively prevention through diminishing material damages, prevention of loss of life and of environmental degradation. Based on topographic measurements conducted on topographic landmarks placed in the field or on topographic marks placed on the constructions; foundations is tracked the determination of deformations and displacements that occur in the salt exploitation influence area and are also tracked the displacement directions of the landmarks (vertical displacements).*

**7. Norbert-Szabolcs Suba, Stefan Suba: *Engineering activities regarding the startup of a metallic bridge over the Crisul Repede river***

*This paper will present engineering works carried out in order to startup a metallic bridge over the Crișul Repede river in Oradea, Romania. The challenge behind this operation was that the above mentioned bridge's metallic superstructure was launched on the abutments and the piers, but after that, no interventions were made for one and a half year. Upon restarting the construction works, specific interventions had to be made in order to meet the imposed technical and safety regulations. The paper will present specific stages of the engineering works, both from the constructor's and the surveyor's point of view.*