

Constantin, T.A., Nicoara, S., Busan, A. - Possibilities of considering a hydropower plant with pumped storage in the power graphs of the National Power System .....9

**Abstract** - In this paper is presented the way of considering a pumped storage plant in the power graphs of the National Power System, according to the present estimations for 2005-2010. There are specified the functions that a pumped storage plant has to fulfill. It is established the installed capacity required for a pumped storage plant and there are indicated the possible sites in our country for this type of plants.

**Keywords:** pumped storage, power graphs, installed capacity

Constantin, T.A., Popa, Gh., Constantin, L. - Opportunity and procedure for considering hydro power plant with pumped storage in the power graphs of the National Power System .....15

**Abstract** - The paper presents the theoretical consideration of a given pumping storage plant with respect to the power graphs of an energy system, by following mainly the long term tactics and the opportunity of developing a specific pumped storage plant. The analysis is performed for both working phases turbining and pumping. The opportunity of developing such type of hydropower plant is studied by considering the economic criteria with respect to the other common power plants (thermal, hydro, nuclear).

**Keywords:** pumped storage, power graphs, generator output, pump input (nominal), pumping and turbining periods

Dordea, T., Cretu, Gh., Popoviciu, M.O. - Restoration of the hydrotechnical arrangement Rovinta Mare – Banloc..21

**Abstract** - In the paper are analyzed the possibilities to capitalize the gravitational hydro-amelioration work Rovinta Mare - Banloc, more than two centuries old. There are detailed the possibilities of restoring of this work including through introduction in the calculus a complex scheme of a micro-hydro-power-plant. There are presented some possibilities of energy use and a computational model which includes the technical-economical-social and environmental criteria's, arriving at the conclusion that investments can be recovered only by selling the energy in maximum five years.

**Keywords:** ecosystem, computational scheme, hydrograph, turbine, generator, economical efficiency

Lefter, L., Popovici, A., Ilinca, C. - Consideration about the investments efficiency into hydropower system. Case study on Olt River, sector Avrig-Cornetu .....27

**Abstract** - The economic evaluation plays an important role in the decision-making process of hydraulic developments and in the evaluation of the different variants in order to select the best one. In Romania, presently there are 35 hydropower developments in different stages of construction, many of them proposed to be finalized by concession through the BOT method or public-private partnership. The success of these initiatives depends of the capacity of developments to generate profit for investors. In this way, the potential profit generated by the commissioning of the Avrig-Cornetu sector hydropower developments on Olt River is analyzed according to specific economic indices in a free market economy.

**Keywords:** hydropower developments, economic evaluation, free market

Preluscek, E., Preluscek, R. - The state of art of the hydrotechnical junctions Sanmartinul Maghiar and Sanmihaiul Roman on Bega channel .....34

**Abstract** - This paper presents the up-to-date conditions of the hydraulic structures from Sanmartinul Maghiar and Sanmihaiul Roman on Bega navigable channel.

**Keywords:** navigable channel, lock, barges

Preluscek, E. - What will be the fate of the Bega navigable channel? .....38

**Abstract** - This paper presents the short history of a Bega navigable channel approximately 275 years afterword of its completion putting the question: what a lot wait the Bega navigable channel?.

**Keywords:** history, navigable channel, locks, barges

Truica, E.I., Jugariu, E., Popa, Gh. - The rehabilitation of the old dams from Banat area. Case study hydrotechnical junctions Costei – Topolovat .....42

**Abstract** - The paper presents the technical and functional characteristics of the double connection between Timis and Bega rivers (unique in the world), the history of this hydroelectric complex and state of art. The dam was

carried out in 1758 but in April 1998 a high water flood produced a huge break in the dam body. The paper also presents the necessary technical measures to put again into operation the whole complex if order to include it in the 2<sup>nd</sup> -3<sup>rd</sup> importance class for prescribes water discharge ( 2 % the designing discharge and 0.5 % the verifying one).

**Keywords:** *hydrotechnical junctions, water flood, importance classification*

Sunai, G. -Dam-foundation seismic interaction analysis .....46

**Abstract-** *This paper studies embankment dams-foundation interaction and its influence on earthquake response of the dam. Seismic analysis has been made with a finite element program COSMOS 2.6. The analysis has been made for two cases, in first case hasn't been taken into consideration the interaction with the foundation and in second case has been taken into consideration the interaction with the foundation. Finally the observed results have been compared.*

**Keywords:** *dam, foundation, interaction*

Lazar, Gh., Ghitescu, A. -Computation of the stresses in an anchoring block by using the classic method and the finite element method .....54

**Abstract-** *The paper presents the classical procedure to draw an anchoring block, the calculus of the state of stress and unit stress by using the 3D finite element method by taking into consideration the co-operation between the supporting mass and foundation in the connection area.*

**Keywords:** *anchoring block drawing, foundation, interaction*

Matei, F., Olariu, G., Ion, M., Popa, Gh. - Strain and stress state distribution for a loading water chamber with two compartments .....62

**Abstract –** *A structural and present analysis is proposed on the water basin compound by two compartments. Because the two compartments were built in different periods the behavior under loading was studied by using different design assumptions. The analyze refers to the water basin located on hydrotechnical junction Timisoara on Bega River.*

**Keywords:** *loading water chamber, finite element, solid type element*

Maries, C., Riiosu, J., Popa, Gh., Ion, M., Lazar, Gh. - Computer-assisted modeling of infiltrations under an low overflowing dam by the finite elements method .....66

**Abstract-** *The paper presents a quantitative study of infiltrations through the foundation soil of a low overflowing dam. The dam is situated at the complex used node Bega-Timis. The computation, were carried out using the finite elements method.*

**Keywords:** *equipotential lines, current lines, infiltrated flow*

Olariu, G., Matei, F., Maries, C., Popa, Gh. - Lock chambers computation by the help of Finite Elements Method .....72

**Abstract.-** *The design of the lock chamber computation is a very complex process because of the structural form and the interaction between the involved materials. The classical computation method requiring a lot of structural approximation and simplification that are in many cases inaccurate. This paper wants to show the improvements and the new possibility of the lock chambers computation introduced by the finite elements method.*

**Keywords:** *lock chamber design, classical method, finite element method*

Pogany, A.- Einige Betrachtungen bezüglich der notwendigengeologischen Erkundungen beim Entwurf der Wasserkraftstollen .....78

**Auszug:** *In der Arbeit werden die notwendigen geologischen Erkundungen betrachtet beim Entwurf der Wasserkraftstollen. Es wird betont, dass die unvollständigen Erkundungen zu Unfällen führen und es werden diese Fehler erwähnt. In einem weiteren Teil werden die geologisch -geotechnischen Faktoren der Erkundung erörtert und zwar die Tunnelkartierung, die tektonischen Strukturen, die Grundwasserverhältnisse und die geotechnisch -felsmechanischen Kennwerte. Die genaue geologische Erkundung führt zur Sicherheit bei der Ausführung und der Instandhaltung eines Wasserkraftstollens.*

**Schlusselwörter:** *Geologische Erkundung, Kartierung, Tektonische Strukturen, Grundwasserverhältnisse, Laborversuche an Bohrkernen, Probestollen und Schachte*

Carabet, A., Beilicci, R., Podoleanu, C., Batea, F. - Modernization of the water distribution system of Timisoara.82

**Abstract-** *Modernization of the water distribution system impose, through other introduction of monitoring dispatch system with the purpose to observe the state of the system and for take the most correct decisions. Another element, which contribute at the modernization of distribution system and also contribute at the reduction of energetically spending is introduction of the equipment with electrical action and adjustable of pumps.*

**Keywords: monitoring, water distribution system, equipment with electrical action and adjustable of pumps**

Jura, C., Mirel, I., C. Podoleanu, Achim, C. - Optimierung der Klarprozesse in Klaranlagen für Städtisches Abwasser ..... 90

**Abstract** Die Arbeit ist eine Zusammenfassung von theoretische und praktische Erkenntnisse und hat als Grundanlage die zur Bestimmung der klarTechnologie betragen. Die Losungen and Varianten beruhen auf die Belastung des Abwassers als and auf die Auswirkung auf den Vorfluter und Umwelt.

**Schlusselwörter** : Klar Technologie, Abwasser, Vorfluter, Umwelt

Jura, C., Mirel, I., Podoleanu, C., Batea, F. -The improvement of technological processes in water treatment stations .....98

**Abstract-** Documentary synthesis regarding the theoretical and experimental studies realized in the issues connected to the improvement of water treatment processes. Notable results obtained in the field during the last decade efficient solutions for the treatment of drinking and industrial water are underlined.

**Keywords:** water treatment processes, efficient solutions, drinking and industrial water

Marinescu, R.,L., Marinescu, L., Mirel, I.- Notes to establish technical inventory..... 105

**Abstract-**The present work proposes the methodology used by the International Water Association regarding water balance. It offers a method for determining the quantity of water losses within the drinking water accumulation network. In addition, the terminology used will be than from the field of water loss control, as defined by IWA.

**Keywords:** water balance, water losses, international water association (IWA)

Popa, Gh., Pavel, M.D. –Energetically optimization of the groundwater collection front.....109

**Abstract-**In the paper we looked to present the benefits from using a sand-trap device with pressure water stream. By using this kind of plant the ground water pump station efficiency is considerably increased due to proper well cleaning. The considered plant can significantly reduce the maintaining cost for a ground water collection front by reconsidering the financial support toward the drilling of new wells for replacing the stuffed ones.

**Keywords:** well shaft, groundwater collection front, sand-trap device, filter

Bartha, I., Anastasoaei, M., Marcoie, N., Agafitei, M., Toaca, D. - Irrigation equipment of zinc-plated steel with laterally hoses..... 114

**Abstract:** Demand for irrigation equipments having low prices and high viability and performances need to new types of watering equipments made up using zinc-plated steel sheet pipes. Providing the equipment with lateral hoses results three watering position for each position of the main tube and diminishing of necessary labor for moving the equipment. To improving the technical characteristics, there is some changing proposed: die changing of coupling system of the pipes, the couple rod-sprinkler and the hydrant valve. The equipment is also provided with volume measurement device that allows the correct application of the water rate and factoring of water consumption.

**Keywords:** irrigation equipment by zinc-plated steel sheet, quick coupler bayonet type, hydrant valve

Constantinescu, L. - Soil pollution by chemical fertilizers plants..... 118

**Abstract-**The present paper deals with the complex aspects that have arisen because of the problem of soil pollution, more precisely the one resulted from the activities carried out by chemical fertilizers plants. The paper presents the various aspects the soil pollution has undergone, the circumstances in which it occurred as wed as its effects on the environment effects that have led to real problems that might become irreparable if urgent measures are not taken as soon as possible.

**Keywords:** soil, pollution, chemical fertilizers plants

Constantinescu, L., Rogobete, Gh., Nemes, I., Grozav, A. -Research concerning the landslides in Caras-Severin County..... 122

**Abstract-** The paper deals with the causes that produced the landslides in the Bozovici and Resita areas, located in Caras-Severin county, as well as with their implications and effects on roads, constructions, and localities. The clay mineralogical composition as well as the physical and chemical analyses carried out in these areas establish the landslides prevention and control measures in the researched areas.

**Keywords:** landslides, surface water, infiltration water, prevention and control measures

Luca, M., Nitescu, E., Popescu, S., Ghelase, I. -The clogging-up process in the irrigation system..... 126

**Abstract:** The alluviation phenomena in the channels and the pipes of the water systems rises important and difficult technical problems. In order to reduce the alluviation quantity in water supply systems and to

*keep it under control, continuum self stripping filtration equipment has been designed and manufactured at the Technical University of Iasi. The equipment is based on a modular system designed according to the alluvia characteristics and it is able to carry out both the separation and nitrification functions of the water taken by the pumping station and by the water supply network. The exploitation process of the equipment is full controlled.*

**Keywords:** *alluviation, filtration equipment, mathematical model channels, pumping station*

*Man, T.E., Cimpan, G. -Watering and Movement Schemes of the Mobile Sprinkler Equipments. Case Study Fantanele Arad Irrigation System..... 130*

**Abstract-***The paper succinctly presents the changing schemes of the sprinkler moving laterals used for large and small irrigation systems. For the Fantanele Arad irrigation system is presented a case study of the use for the sprinkler watering of the classical and modern watering equipment.*

**Keywords:** *small irrigation systems, sprinkler*

*Man, T.E., Nastea, C., Blaguescu, C., Gabor, A., Lauer, I. -The reorganization of the local authority in the land reclamation field: SNIF Timis County –Institutional frame for future rehabilitation, modernization and efficiency of the land improvement arrangements..... 138*

**Abstract-***The paper present the history, the actual and the perspective situation of the national society of land reclamation- Timis, which has transformed according with the government decision or. 1407/ 02.09.2004 in national administration of land reclamation and improvement SNIF and national society of land reclamation and improvement ANIF– SA Timis County. TheANIF– SA Timis County Company Timis has as a principle objective the privatization of her structure units, to be able to made independently viable economic activities, and also to assure in efficient conditions the function in the benefit of their owners, the exploitation activities, the maintenance and repairs of land reclamation arrangements.According to this reorganization A.N.IF. -R .A. will be a new institutional support for the retechnologization perspective, modernization and efficient exploitation of land reclamation arrangements from our country.*

**Keywords:** *national society, national administration of land reclamation and improvement, national society of land reclamation and improvement*

*Man, T.E., Halbac-Cotoara, R. –Clasical and modern methods of drainage planning used in our country and worldwide .....146*

**Abstract-***The paper presents synthetically the main design methods of drainage arrangements for excess elimination from agricultural fields with temporary or permanent humidity excess.*

**Keywords:** *drainage, design methods, drainage techniques, drainage arrangements*

*Nemes, I., -Research Concerning the Erosion Phenomena in Almaj Depression, Caras - Severin Country..... 154*

**Abstract-***The paper presents the research and the achieved results concerning the erosion phenomena on the soils of Almaj Depression, Caras -Severin County. We also present both the determinations done on the ground and those done in the lab with Erozitester type I.C.P.A., and we propose some combative measures for the soil erosion as well.*

**Keywords:** *erosion processes, exogenesis factors, area of erosion, soil level, soil losses, rain aggressiveness, soil profile*

*Rogobete, Gh., Constantinescu, L., Nemes I.- Research Concerning the Use of Entrianthropic Soils in South-Western Romania .....158*

**Abstract-***The paper presents the characteristics of the soils in formation on the waste dumps and sedimentation ponds in the proximity of the Moldova Noua city. The pedological studies done on the site and in the lab for the two types of waste- the sedimentation pond and the waste dumps, showed two types of Regosoils: spolic and rudic.*

**Keywords:** *waste, waste dumps, flotation, spolic, rudic, modeling works*

*Rogobete, Gh., Nemes, N. - Mobile Phosphorus Contents in some Acide Soils in Bistra Hydrographic Area.....162*

**Abstract-***The paper presents the mobile phosphorus content resulted from the analysis of the low, medium and high acid soil samples. The analytical data show low-medium mobile phosphorus content in the low acid soils and extremely low in the high acid and medium soils that are predominant in the area. The pollution problems appear only on the area where the acidity is moderate-strong, with pH lowers than 5.80. The environment impact is great and negative, with low agricultural production, a great erosion hazard, leaching in the river some ions like heavy metals, Al<sup>3+</sup>, drying woods.*

**Keywords:** *acidity, eutricambosoils, aluviosoils, soil profiles, mobile phosphorus*

- Wehry, A., Orlescu, M.C., Nutas Vancia, G., Halbac-Cotoara, R.- Efficient technological solutions for restoring the irrigation in the irrigation-drainage system Aranca and Cenad, Ttimis County..... 166  
**Abstract** - *This paper presents several efficient technological solutions of irrigation, integrated in surface and subsurface drainage systems: sprinkling or surface runoff from reserve stocked in the periods with humidity excess in surface drainage canal network subirrigation reversible from drainage and drip subirrigation. In the intentional analyzed area (Aranca system, Cenad sector) the choice and the project were for an irrigation plot with an area of 500 ha for watering with mobile turning laterals (central pin).The beneficiary of this project is S.C. " AQUA-MURES" S.R.L. from Sannicolaul Mare.*  
**Keywords:** *subirrigation, sprinkling, plot, central pin*
- Agafitei, A., Agafitei, M. – Contributions to the eutrophication process in the water storage located in Iasi County area ..... 174  
**Abstract** – *The water storages named Halcesti, Tansa – Balcesti and Podu Iloaiei belonging to the hydrographic basin Prut are affected by the eutrophication process having like causes the massive nutrients input and extra fish producing. The nutrients sources are unknown but probably are agricultural diffuse pollution sources. The fish producing in terms of quantities and spreading is also unknown. From water quality monitoring on Bahlui River is concluded than in order to improve the water quality the nutrients inputs must be reduced.*  
**Keywords:** *eutrophication, nutrients, water quality, phytoplankton, diffuse sources, fish production*
- Bolba, R., Matei, D. -The ecological impact of the human activity on the water quality of the same storage lakes of Bahlui Basin River..... 178  
**Abstract** -*The Bahlui hydrographical basin is situated in the north-east of Romania. The human activities affect ecologically the water resources especially those of the surface water. The monitoring of the quality of this water represents one of the preoccupations of the experts in the field. The system is organized in four subsystems: surface water, groundwater and used water. The observation of the water quality of the storage lakes used for multiple purposes is an important activity.*  
**Keywords:** *hydrographical basin, human activities, ecology*
- Riti, A. - Current techniques and technologies for diminishing the ecological impact in the Motru mining site .... 182  
**Abstract:** *The mining industry is not assuming only the exploitation, but also the investment which are involved in the mining process. It has to taken into calculus the lasting mining development to have an activity field and the less pollution of the environment. In this paper are presented the mining basin Motru and also some technologies in this area.*  
**Keywords:** *colt, mining process, pollution, environment*
- Serban, A. C. - A method for determining additional discharges on hydraulically structured rivers to avoid fish mortality phenomena..... 186  
**Abstract** -*The method is based on the dissolved oxygen balance in water, which is controlled by water temperature and air pressure. The saturated concentration of oxygen is estimated using a multiple correlation algorithm, taking into account the following parameters: water temperature, ammonia and organic substance concentrations. Additional water discharges needed to increase the reduced dilution capacity of the river are predicted based on dilution degree coefficients, calculated for selected characteristic sites and specific concentration estimates of the water quality parameters. The practicality of the method in preventing the aquatic environmental consequences of water pollution is illustrated using as an example a pollution accident produced in Romania during the summer of 2002 on the Tarnava Mare River, which generated fish mortality.*  
**Keywords:** *saturated dissolved oxygen concentration, accidental water pollution, dilution discharges*
- Arsenie, D.I., Florea, M., Mirzali, I., Nitescu, C. - Some aspects concerning the propagation of the water hammer in pressure pipes ..... 190  
**Abstract**- *The paper presents an alternative solution for protection to the water hammer in pressure pipes, solution which consists in the insertion of a linear elastic element, with limited length, along the protected pipe. We present a numerical example for the pumping installation in the two cases: for the closing time of the check ball 5 seconds in the case of an energetically failure and for the closing time of the check ball 0,1 seconds. We compare the results with the case of a protection with an air chamber and we observe that the attenuation effect of the pressure variation is the same order of magnitude.*  
**Keywords:** *water hammer, surge tank, air chamber, pressure pipe, elastic element*
- Iosif, A., Eles, G. – Analytical modeling of a liquid flow crossing through a grid of a hydrotechnical arrangement... ..... 196

***Abstract*** - The paper presents the analytical modeling of a liquid flow from the upstream zone of a grid consisting in metallic cylindrical bars. These situations appear in cases of hydrotechnical arrangements, at the pipelines. The modeling has been made considering a no compressible fluid and for a plane potential movement.

***Keywords:*** potential, modeling, current line, dimensionless, boundary

Luca, M., Luca, A.L.- Hydraulic researches concerning filtering modules for small pressure.....200

***Resume:*** Pour les systemes de distribution a conduites a haute pression on s projete et on a experimente une serie de modules de filtrage. Ceux-ci emploient en tant qu'element filtrant des tamis eo fils de polyamide dont la densitee des mailles est de 40, 50, 80 mesh. Les modules filtrants sont appliques pour des pressions basses et moyennes de fonctionnement. Les experimentations ont permis l'obtention des pressions de travail, des correlations quant aux pertes de charge en fonction du debit ( $h_r = f(Q)$ ), du degre d'obturation, de la maniere d'epuration etc. Les donnees obtenues peuvent etre employees dans les calculs de projets techniques et d'exploitation des filtres aux tamis elastiques.

***Les mots cief:*** filtrage, module dc filtrage, fils de polyamide, system d'irrigation, canal, conduites

Muj, S. - The calculus of pressures and velocities of a flow through a diverter by using finite element method..204

***Abstract-*** The paper intends to calculate the pressures and velocities of water flow through a diverter using a finite element method soft based. The results are compared with those obtained by measurements on a physical model carried out by Turzo in his doctoral thesis in 1977. In the numerical model the diverter can have several cross-sections but only the Turzo's type cross-section was used.

***Keywords:*** flow velocities, pressures, spacial discretization, diverter, cross-section area

Popescu, I. - Applications of hydroinformatics for hydraulic engineers..... 208

***Abstract*** - Nowadays access to information has led to essential changes in hydraulic engineering. Many of these changes are enabled through developments in hydroinformatics. This paper summarizes key elements of hydroinformatics, and it provides examples of projects developed with hydroinformatics tools. Future hydraulic engineering challenges include the development of more effective means of engaging users, stakeholders and society in general.

***Keywords:*** hydroinformatics, hydraulic engineering, modeling, social issues

Sumalan, I., Achim, C. – Contributions on the hydraulic calculus of the ring-shaped pipe..... 212

***Abstract*** - The water supply systems located in medium or large size urban centers are a part of the infrastructure system beside the electricity, sewage systems, roads and waste water treatment plants. The state of art of such water supply systems is the cause of high level investments in Romania. For the urban centers the water supply systems consist mainly in a ring-shaped pipe. The aspects regarding the drinking water quantities, minimum pressure in nodes and quality aspects are regulated in Romania by the SR 1343-1/95. The design of the pipes network involves a large amount of calculus of which structure depends on the water source position in the network. The present paper intends to analyze two different variants of calculus in order to design a ring-shaped pipe with water sources located in different nodes.

***Keywords:*** ring-shaped pipes pipe, minimum cost design, characteristic flow rate

Balla, G., Balica, S. - Sediment transport in a hydrographic basin..... 218

***Abstract-*** Sediment transport is a critical component to many engineering problems. The sediments affect water supplies, flood control, river migration, aquatic habitats, irrigation, agricultural practices, navigation and also water quality.

***Keywords:*** watershed, sediment transport, suspended load, bed load transport

Beilicci, E., Beilicci, R., – Estimation of the solid flow in a hydrographic basin..... 222

***Abstract-***This paper presents the evaluation of sediment volume on watershed for one year, considering the influence of soil characteristics, length of watershed slopes, the rainfall intensity, vegetation cover factors, conservation practice factors, the watershed area, soil erodibility factor and slope in percents. For calculus is using the SURFER program, witch can model the topography of watershed and calculate the soil losses.

***Keywords:*** watershed, sediment volume, soil erosion, soil loss

Bohus, C.- Risk Assessment Procedures at the Hydrotechnical Structures..... 226

***Abstract-***The world wide discussion about dam safety leads to a change in the approach towards risk related problems. Basically two opinions can be viewed, the safety and the risk-oriented one. Traditionally dams are considered safe, because they have been built according to high technical standards. Today people become

*aware of the fact that all man made structures have a potential risk that has to be evaluated, assessed and managed. Thus the risk of dams is no longer neglected. This discussion about risk based dam safety leads to a new approach for Romanian dams as well. Because of the varying cultural and legal background it is impossible to use a risk assessment procedures from another country without adaptation.*

**Keywords:** dam, safety, risk assessment procedures, management

Craciun, I. -Influence of the wave flooding attenuation due by the storage lakes in the validation of a hydrological model ..... 234

**Abstract-***The mathematical modeling can be an instrument for the quantitative management of the water surface. In this paper are presented the validation procedure of the N.A.M.-MIkell hydrological model, using the hydrological data from the Nicolina basin river, analyzing the parameters of the hydrological*

**Keywords:** basin river, hydrological cycle, mathematical modeling, water surface management

Farcas, R., Stoica, F. -Floods monitoring with automatic systems..... 238

**Abstract-***In the context of Romanians adherence to the European Union, the quantitative and qualitative activities of water management, as well as the other activity fields, must be connected to the modern technologies and methods of establishing the hydrologists and quality parameters of water. Therefore, in the Maramures county, trough some international programmes, two important projects of this kind have been elaborated and tested: Flood Prevention in Tisa River Basin and the pilot project DESWAT, which is going to be extended nationwide. in the paper , there is concise description of the hydrological basin Lapus, concerning the physical-geographical conditions, the flood sensitiveness and the problem of providing classical hydrometric stations for monitoring the hydrae environment. Further on there follows a presentation of the sections monitorized by automatic systems, which are part of the pilot project DESWAT. The most important part of the paper is the presentation of the sensors used for the measurements, the automatic apparatus to obtain the data, the equipment and the data transmission systems from the five automatic stations. There is also a short presentation of the infrastructure works necessary for such a section, in order to get optimal results in the apparatus functioning.*

**Keywords:** flood monitoring, sensors, automatic systems

Girbaci, C., Ion, M., Girbaci, A.- Computer estimation of the water surface and water volume for a reservoir..... 242

**Abstract-***The paper presents a way to calculate the surface and volume of a water storage knowing the contour lines from the site plane where the storage will be located. The calculus of the volume and surface of the water storage is done by using a computer program developed in Qbasic computer code.*

**Keywords:** contour lines, discretization, surfaces, volume, Qbasic computer code

Mocanu, F. C. – Ecohydrology – a tool for lasting management of water resources..... 246

**Abstract-***This paper introduces some basic information related to the concept of ecohydrology, summarize the interactions in the ecosystems, and estimates the role of ecotones in regulation of nutrient retention in land-water transitional zones.*

**Keywords:** ecohydrology, ecotone, ecosystem, biotic structures

Pepa, C.A. –Study regarding the water quality in the Bega catchment area..... 250

**Abstract-***The aim of this paper is the study of water quality in catchment area Bega nowadays as well as the quality water evolution in the future. Taking into account that Bega channel is a cross border stream it has to respect the conditions imposed by the actual treaties and conventions. The water quality of the Bega canal has to be correlated with the international convention in which Romanian is part, and to respect this obligations is urgently imposed modernization of the waste water treatment plant and also the rehabilitation of some parts by municipal sewage system.*

**Keywords:** catchment area, water resource, water quality, sustainable development

Sofronie, C.-The optimization of a water system exploitation..... 254

**Abstract-***The conflicts related to the water supply requests achievement must not be a solved in a random way, but according to some precise rules of operation (dispatcher graphs), scenarios and operation regimes for all the possible situations, optimal decisions and consumer strategies.*

**Keywords:** water supply, rules of operation

Anastasescu, D. -Earthquakes in Banat region and buildings behavior..... 258

**Abstract-***The paper presents in a very concise form, some aspects concerning to the causes and the proportion of the recent Banatian earthquake effects about the constructions. The structural deficiency of the rural and urban buildings, placed in seismic zones, are analyzed and the damage types of these buildings are emphasized.*

*Finally, the paper includes some conclusions and necessary measures, with a view to obtain an efficient antiseismic protection of existing buildings, into Banat region, insisting upon the urgency of these measures.*

**Keywords:** earthquake, buildings, damage, deficiency structural conformation, construction design,

Bancila, R., Gadeanu, L., Petzek, E. - Welds design according to EUROCODE 3.....262

**Abstract-** *The paper shortly presents the analysis of fillet welds according to the European Codes EC3 (pr-EN 1993-1-8. 2003). A comparison with the German Standard DIN 18 800 and the Romanian ones is shown.*

**Keywords:** welds design, EUROCODE 3, DIN 18 800

Jiva, C., Nita, D.- The ovoid of the damages at bridges..... 266

**Abstract-** *The paper presents certain degradations or the infrastructure in two existing bridges on the national road Deva - Arad following flooding occurred during the last years. It also allows the determination of the hydraulic capacity of the two bridges by checking the length of the existing bridges for the calculation flow with 2% assurance. The works in the two bridges are also presented together with the river beds in the area of the bridges at the required safety parameters for an European national road. Aavoiding infrastructure damage in two operational existing bridges.*

**Keywords:** river bed, bridge

Scrada, C., Scrada, L. – Modular concept in the small wood constructions..... 272

**Abstract:** *Developed as concept, the study starts from quick and minimal living needs : homes for dislocated communities, rromae ethnics or cheap cottages for living, small trading or other less important functions. Two modular systems are presented in this project: one for a functional cell composing, the other for a living unit, complex made by multiple functional cells. The structure uses wood, Rigips type slabs and glass. The system advantages are easy and quick execution, transporting and assembling, but mostly flexible combining elements for modular units.*

**Keywords:** module, spatial cell, charity functions

Doandes, V., Eles, G. - Application of topographical electronic equipment in estimating the fill up rate of storage reservoirs .....278

**Abstract -** *In cases of high capacity reservoir spherical shape a very important problem consist in the possibility to determine the stored liquid weight as function of fill up degree.*

**Keywords:** tachimetry, traverse, totalstation, topographical measurements

Doandes, V., Eles, G.- Horizontal displacement pursue methodology of circular construction objectives..... 286

**Abstract -***An important stage in construction consists in pursuing the structures behavior. For structures with a significant importance, it is necessary to make sets of topographical measurements in order to establish the structure behavior.*

**Keywords:** tachymeter, traverse, topographical measurements

Grecea, C. –Model of ecological and economic spatial analysis of multifunctional resources exploitation on urban and regional area..... 290

**Abstract -** *As a consequence of the technologies development is last period the GIS data base is growing. Using perspectives of GIS data base the significant number of inhabitants and country surface size, the diversity of the relief, ecological problems, weak infrastructure, unused agricultural production potential, natural resources optimization and other reasons. The paper concludes than one of the GIS technology goals is connected to an efficient management f the natural resources and by his way a GIS model with related links is presented.*

**Keywords:**GIS data base, environmental resources management, multifunctional exploitation

Man, T.E., Tentis, M., Suiugan, M. - GIS applications use in water bodies determination. Case study: Hydrographical sub-basin Crisul Repede .....296

**Abstract:** *The directive 2000/60/EC of European parliament and of the council establish a framework for Communityaction in the field of water policy an also a new program and policy in the area of water management. The main objectiveis to establish "a good condition" of all water courses.*

**Keywords:** waters body, euro region

Musat, C. -Determination of local displacements and deformations in geodetic networks for hydrotechnical works .....300

**Abstract-***The application of the topographical and geodetically measurements in the local displacements of a network points make possible the knowing of the position evolution during the time of the points which served*



at the building drawing. In the paper are shown the generalized method for identification of relatively stable points, combined with simultaneous determination of the deformations in geodetic network.

**Keywords:** geodetic network, relative deformations, topographic points stability, variance-covariance matrix

Sturza, M., Baciu, A. - Rainfall-runoff hydrological parameters estimating by GIS..... 304

**Abstract-**In the almost scientific fields the present trend is to pass from analogical format to digital one. Today the GIS represent a field with spectacular evolution. It's a useful tool not only for maps producing but also substitution less tool for information analyze referred to the terrestrial surface by creating, converting and updating all data. The present paper analyze the GIS technology possibilities to estimate the necessary parameters in order to calculate the maximum discharge in a hydrographic network based on a national transforming method (MRM).

**Keywords:** GIS data base, hydrographic network, maximum ischarge

Crivat, N. – Uniform structures on multiple function spaces..... 308

**Abstract-**In the mathematical paper different uniform structures are presented upon the family of multiple functions defined on a topologic space with values in a uniform space. These uniform structures are useful in the study of the limit continuity of a generalized row of multiple functions.

**Keywords:** multiple functions, continuity, generalized row of multiple functions

Ion, M., Ghitescu, A. -1995 - 2005: Ten years of partnership between T.U. Graz, Civil Engineering Faculty, Hydraulic Engineering Institutes, and P. U. Timisoara, Hydrotechnical Engineering Faculty..... 312

**Abstract-**By the initiative of the Prof.dr.ing., D.H.C, Heinz BERGMANN, Prof.dr.ing. Helmut RENNER and Prof.dr. ing. Gunther HEIGERTH a partnership between Technical University of Graz (TUG) and "Politehnica" University of Timisoara, Faculty of Hydrotechnical Engineering (FHE) was found in 1994. The goals of the partnership were to ensure the specialization of some teaching staff from FHE at TUG, and, by the other hand, conferences/ short courses sustained in FHE by the teaching staff from TUG. During then years period since this partnership is working the objectives are enlarged. The paper presents the detailed unrolled actions which made up a special chance for Timisoara's both students and teaching staff.

**Keywords:** Technical University of Graz, Faculty of Hydrotechnical Engineering, ten years partnership, actions

Maftai, C., Chevallier, P., Rosu, L., Buta, C., Adam, G. -Mathematical modeling of the relation suction-moisture.. 318

**Abstract-** On the small catchment, the soil conditions influence controls the hydrological answer better than on the large catchment. The pass or not of water in different soil compartments conditions the hydrological response of the catchment for the production in different flow components. The soil description from the hydrological point of view is necessary to determine a retention curve of each pedological layer, moisture profile and hydraulic conductivity. This paper presents the relationship between soil suction and moisture in pH interval from 0 to 3, knowing the fact that the overland flow starts from a pH equal to 3. The soil suction experimental values are determinate with a pressure cells in the Civil Engineering Soil Physical Laboratory. The experimental results are adjusted then with unempirical model like Van Gcnutchen. The Voinesti catchment was chosen in this application.

**Keywords:** suction-moisture, modeling, Voinesti catchment area