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CONTENT AND ABSTRACTS

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**Keywords:** drinking water, Romanian standards

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**Keywords:** dump, industrial waste, monitoring, environment, ecologic reconstruction.

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**Keywords:** ecological disaster, salt exploitation, salty wave relevant keywords)

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**Keywords:** chlorination-filtration, iron, drinking water

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**Keywords:** fishpond, dissolved oxygen, density currents, warm season fish kill

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**Keywords:** aquifer, organic substance, pollution, iron, insertion.

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**Keywords:** municipal waste disposal site, leachate treatment

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**Keywords:** substrate ,reaction kinetic, industrial waste water

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**Keywords:** SPRAWL, smart growth, durable development

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**Die Wahrnehmung der negativen Wirkungen der Verschmutzer auf die Umwelt und den Organismus ist für die Vorbeugung oder Einschränkung der zufälligen Verschmutzungen nützlich. Die vergangenen oder heutigen Fehler zum Schaden einer reinen Umwelt ertragen nicht diejenigen, die sie verursacht haben, sondern die künftigen Menschengenerationen. Der Konflikt zwischen Menschen, Lebewesen und Umwelt wird immer heftiger, es wird immerwieder Übereinstimmungen zwischen den Verschmutzungs- und den Arbeitsschutz- und de Problemen der öffentlichen Gesundheit geben, denn der Verschmutzungsgrad wird meistens mit dem sanitärischem Risiko gemessen.**

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**Keywords:** *waste management, selective collection, neutralization, composting, incineration, disposal.*

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**Abstract -** *The geothermal waters are very valuable thermo-energetic resources, especially used for heating spaces, as a resource for hot running water and also for pools and fish breeding. The corrosive and encrusted nature of geothermal waters determined by the presence of sedimentary salts and gases under the form of methane and carbon dioxide, also as chemical substances and dissolved gasses contribute to the rapid deterioration of afferent constructions and installations. The effects of these phenomena, as noticed in most of constructions and hydraulic equipments for geothermal water pipe lines in Western Romania, may be eliminated implementing some specific treatment technologies, established according to physical-chemical characteristics of the waters.*

**Keywords:** *geothermal water, thermal softening, corrosion, encrustation, hydraulic equipments.*

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**Keywords:** *vacuum sewerage, Iseki vacuum valve, vacuum station, Nash vacuum pump*

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**Keywords:** *water supply system, fresh water, water plant, pipes network, water quality, water consumption, water metering*

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**Keywords:** industrial residual water, pre-cleaning, biological cleaning, pollution with organic substances

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**Keywords:** phonic pollution, investigation, reduction, urban area

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**Keywords:** phonic pollution, investigation, reduction, urban area

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**Keywords:** aeration, process, controller, relay contact, sensor

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**Keywords:** accidental inundation, linear defense structure, floodplain

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**Keywords:** watershed, soil erosion, solid flow

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*of the exploitation, of the repairs and maintenance under safe conditions, based on exploitation rules and on water administration infrastructure*

**Keywords:** *water, management, maintenance, monitoring*

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**Keywords:** *excess water hazard, mapping, GIS-based*

*Cretu, Gh., Badaluta Minda, C., Present problems regarding the floods management and strategy*

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**Keywords:** *floods, risks management*

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**Keywords:** *risk model, vulnerability, natural hazard, economic loss, disaster mitigation, risk assessment.*

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**Keywords:** *underground water bodies, monitoring system, underground water quality, protection degree.*

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**Abstract:** *Water is an important factor for the ecological equilibrium and its pollution is a current issue with more or less severe consequences upon the population .Water pollution represents the direct or indirect change of its normal composition, seen as a result of human activity. This may present risks for human health, but also for the quality of the aquatic or terrestrial ecosystems which directly depend in the aquatic ecosystems. This paper presents the problems of nutrient pollution from the hydrographical basin Bistrita, a brief description of the basin, the purpose of the project and environmental issues. The second part of the paper presents the main nutrients responsible for the eutrofication phenomenon, discusses the bodies of water*

and the essential risk categories needed in order to have a functional ecosystem and in the end there are the conclusions.

**Keywords:** nutrient pollution, Bistrita hydrographical basin, sollutons

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**Keywords:** Timiș-Bega interrivers zone, Teba-Timișoara draining system, groundwater modelling

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**Keywords:** beds, uniform flowing, regime

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**Keywords:** meteorological conditions, heavy precipitation, heat waves, flood waves and floods, Banat Hydrographical Area.

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**Keywords:** roofs, waterproof membranes, vegetation, drain layer.

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**Keywords:** water, chlorination-filtration, iron, drinking water

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**Keywords:** *stormwater storage, reducing solutions*

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**Keywords:** *the variations of the water level in the reservoir, strains, dam.*

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**Keywords:** *numerical modelling, flood management, EU Flood Directive.*

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**Keywords:** *GIS, drought*

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**Keywords:** *extreme flow, distribution laws*

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**Keywords:** *flash floods, small basins, threshold precipitation, riverbed discharge capacity.*

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**Key words:** *numerical modeling, slurry walls.*

Bica,I., , Alboiu, N.I., Dimache, A., Iulian, I., Contributions of the “Hydraulics and Environmental Protection Department” of the Technical University of Civil Engineering of Bucharest to the development of aquifer strata protection .....213

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**Keywords:** petroleum products, drainage, impermeable screens, passive treatment

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**Abstract** - Evaluating natural attenuation as remediation method of contaminated aquifers implies estimating the required time for the natural attenuation process to take place in order to reduce the mass of contaminant to levels accepted by health and environment standards.

Natural attenuation employs the physic-chemical and biological processes in order to reduce the concentrations of pollutant to accepted levels in the subterranean environment.

Evaluating natural attenuation as remediation method of contaminated is a necessary stage in the design of remediation systems.

**Keywords:** natural attenuation, aquifers, remediation methods

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**Abstract**- Numerical methods used in the groundwater flow modelling recorded a large development within last years because of continuously development of the methods and users skills. The accuracy of the results depend on the input data, used numerical model an the new incoming techniques. In the vicinity of the singularities large errors are encountered which can arise at the values of 30-40% depending on the cells size in both horizontally and vertically directions. Such, let say, quantitative problems consisting in water levels and discharge rate was solved in 2007 by an appropriate modelling technique. The greater influence on the accuracy results consists in the space discretization and other modelling techniques. The paper presents the influence of the space discretization on the accuracy of the results of pollutants transport in the case of numerical models using finite volumes method. Especially the authors pay attention in the travel time of twenty days which is subject of the sanitary protection zones instituted around pumping wells, in concordance with the Romanian law.

**Keywords:** fully penetrating well, numerical model, Finite Volume Method, travel time

Racelescu, R, Vlaicu, I., David, I., Actually Aspects of the Management of Water and Sewerage Networks. AQUATIM's Experience in GIS Implementation .....227

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**Keywords:** water and sewerage operator Aquatim, GIS, data base, coordinates

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**Abstract:** Wave-generated pressures on structures are functions of the wave conditions and geometry of the structure. This work is focused on structural elements with vertical wall subjected on action of broken wave. In contrast with nonbreaking waves for witch the pressure at the wall has a gentle variation in time and wave forces of this type are treated as static loads, if wave breaking takes place directly on the wall face some short duration, but very large, slamming forces can occur and these are called impact or impulsive forces. If natural period of structures close to the same period of peaked part of the loading, dynamic amplification of the wave load might occur.

**Keywords:** breaking wave, wave loadings, vertical wall, impulsive force, dynamic amplification

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**Keywords:** Double-Flux water turbine, characteristic curves, testing rig, electronic sensors, cross-flow hydraulic turbines.



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**Abstract:** *In order to use and understand better calculation programs tools for design and analyses of sewerage systems the understanding of the hydraulic and numerical aspects are very important. This paper shortly presents the SewerGEMS software, developed by Bentley System Inc., used at AQUATIM. Also, remarks are made related to the stability of the four-point scheme used as a numerical basis for elaborating the software.*

**Keywords:** *SewerGEMS, basic equations, four-point scheme, sewer, model, engine.*

Beilicci, R.F., David, I., Beilicci, E., Şumălan, I., 3D modelling for phreatic aquifers inland fills. Case study Parta landfill .....247

**Abstract** – *The Paper present unconfined groundwater flow and solute transport modeling under landfill (case studies – landfill Parta) using the PMWIN applications. Modeling purpose is to constitute extending pollution zone of aquifers in space and time generated of polluted infiltration in landfill Parța, Timiș country. Knowledge of extending of pollution zone is necessary to settle technical measures to closing nonconformity landfill. The companion software Processing Modflow for Windows (PMWIN) offer a totally integrated simulation system for modeling groundwater flow and transport processes with MODFLOW-88, MODFLOW-96, PMPATH, MT3D, MT3DMS, MOC3D, PEST and UCODE.*

**Keywords:** *groundwater, flow, solute transport, landfill, pollution*

Vingan, D., Botos, M., Methods of optimizing the water supply network extension .....257

**Abstract** - *This paper proposes a modern method for designing ring-shaped hydraulic networks and especially for their extension when localities spread. The hydraulic network designing is approached on the basis of a new concept, i.e. its optimizing that starts from any proposed cost related criterion. At present, in the majority of the network design cases, the starting point is the traditional methods used for calculations and the results reached (with reference to the pipe diameters) are in the real numbers set. The rounding of the results to (standard) commercial diameter means a smaller or grater approximation, function of the expertise of the specialist, to improve their accuracy. The method envisaged by the author is based upon the cost optimizing of the network (investments energy etc.) using discrete programming and aims at reaching an optimal variant for the commercial diameters, with no resort to end approximations or rounding. This method can be applied to new methods to be designed or to check the existing ones or to design extended networks. The results obtained demonstrate their benefits for secure outcomes as well as its flexibility according to practical situations.*

**Keywords:** *Ring-shaped, Commercial diameters, Discrete mixed-integer, Pseudo-Boolean, Head losses, Power balance.*

Tatomir, A.B., A new and efficient approach for modeling two phase flow in fractured porous media using the MINC method .....255

**Abstract** - *A numerical method for modeling transient, two phase flow in fractured porous medium, called 'Multiple Interacting Continua' method, or simply MINC method, is going to be presented together with an efficient numerical procedure for implementation. The essence of the model lies in the observations that the fractures have very large permeabilities and, therefore, they essentially act as the conduits to fluid flow, while the matrix with much greater volume and storage capacity feeds the fractures associated with it. The MINC concept is being implemented and developed by using the vertex centered finite volume method in the numerical toolbox DuMu<sup>x</sup> currently under development in the University of Stuttgart. Of considerable interest is the coupling between the fracture and the matrix continua through the so-called "interporosity flow", which has to account for the transient characteristics of the multiphase flow.*

**Keywords:** *multiphase flow, fractured porous medium, multiple interacting continua, interporosity flow, vertex-centered finite volume method.*