

*Beilicci,R.F., Beilicci, E.-MODOFC program capabilities for solving optimal flow control problems based on MODFLOW simulation.....5*

***Abstract*** – *This paper present the capabilities of MODOFOC program for solving optimal flow control problems of groundwater. The depicted optimization models base on coupling of results of flow equations obtained with MODFLOW program and the optimization model MODOFOC. The models base on determination of optimal rate of injection/extraction from wells and the optimum locations of wells.*

***Keywords:*** *groundwater flow, optimum*

*Beilicci, R., Beilicci, E.- Presentation of Domenico Non-Steady State Spreadsheet Analytical Model .....9*

***Abstract*** – *The paper present the analytical model Domenico for the simulation of dissolved organic matters transport through aquifers. The calculation is adapted for Microsoft Excel, the common utilitarian for all to PC users.*

***Keywords:*** *contaminant transport processes, Non-Steady State Analytical Model*

*Gîrbaciu,I.,A., David,I., Achim,C.,Gîrbaciu, C.- The study of the deferrization processes of underground water through classical technology and direct treatment methods .....13*

***Abstract*** - *These papers present the analyses of the deferrization process using classical methods and direct treatment methods. In both technologies the deferrization of underground water is based on the aeration and filtration phases. The proper treatment, that is the oxidation of dissolved iron and the restrain of hard soluble compounds, take place in underground in comparison with the classical method which are doing at the surface in filters. The in situ process is a complex process where will appear biological, chemical and physical factors which are reciprocal conditioned.*

***Keywords:*** *classical method of deferrization, underground deferrization, rivers arrangement using complex schemes*

*Beilicci,E., Bisztriczki, M., Beilicci,R.- Sediment yield from watersheds hillslopes .....17*

***Abstract*** – *The paper present two models (using SURFER and WEPP programs) for calculus of sediment yield from watersheds hillslopes during 1 and 20 years, thanks to soil erosion by overland flow. The SURFER program use the Wischmeier equation for soil loss. The WEPP model is one from the best recently models used in the world for prediction of amount of soil erosion. In the first part, are depicted the factors witch contribute to soil erosion.*

***Keywords:*** *sediment yield, Wischmeier equation,WEPP model ,SURFER*

*Nemeș, N., Rogobete, Gh.-Fate of phosphorus in bistra hydrographyc area.....23*

***Abstract.*** *Several environmental factors affect plant uptake of P from any source, soil or fertilizer. These include temperature, soil compaction, soil moisture, soil aeration, soil pH, type and amount of clay content, P status of soil, and status of other nutrients in soil. The P content of water percolating through the soil profile is generally low due to sorption of P by P-deficient subsoils. The critical soil solution P level of a given soil is determined by the content and activity of Fe, Al, and Ca compounds adsorbing P.*

***Keywords:*** *soil solution, nutrients, mobile phosphorus.*

*Gîrbaciu, C., Beilicci ,E., Gîrbaciu, I.A.–Rivers arrangement using complex schemes .....27*

***Abstract*** - *These papers present the importance of the rivers arrangements using complex schemes. For an optimal satisfy of the national economical interests we can not limit to resolve the only a problems of hydraulic, it is important to make efforts to find a complex solution to satisfy the interest of all hydraulics branch.*

***Keywords:*** *arrangements, complex schemes, rivers, flow*

*Barabas,K.,Titan,L.G., Damian,A.,Gherman,V.- Waste water sludge valorification in sanitary deponment systems.....31*

**Abstract:** Like a result of the wastewater treatment will result high quantities of sludge which can have different characteristics depending by the type of the sewerage system. Big problems concerning the deshydration inert sludge valorification are caused by the sludge resulted from wastewater treatment plant which collect wastewater from the unitary sewerage system. It was observed that sludge's contain organically matter and nutrients (N, P, K) and also contain important quantities of high metals (Pb, Zn, Cu, Ni, Cd) and because of this cannot be used like agricultural fertilizing. A solution in this case is to use the sludges like inert matter to cover the lamellas from the sanitary deponment.

**Keywords:** sludge, nutrients, fertilizers

Achim, C., Girbaci, I. A., David, I. - Modelling methods of the surface runoff and infiltration from rainfall on the small basins.....35

**Abstract:** In the last decades the humanity has shown a great interest for water using in urban areas. The urbanization phenomena are the result of the economical, social processes, which occur as a consequence of urban area development. In the past only a small part of the population live in the cities and after industrialization the localities increased and the number of localities also. In 1970 the population number from the cities increase with 37%, in 2000 with 51% and in 2005 with 61%. This tendency of urbanization is higher in the countries in process of development where in the same period of time the population increased with 3.5 times. The increased number of population from the cities, the negative consequences of urbanization and industrialization has a negative impact increasing social problems and sever problems of health for the population.

**Keywords:** urbanization, surface runoff, small basins

Rogobete, Gh., Grozav, A. - Researches for the pollution phenomena of soil and water in the catchment area Bârzava .....39

**Abstract** The growth of human population, without the development of strategy of sustainable freshwater management and without a reasonable soil management caused a continous degradation phenomena of these. The current paper presents a analysis and the interpretation of the results from water and soil quality investigations for the catchment area Barzava.

**Keyword:** pollution, sterile stockpile, pond of decantation, dump of slag and ashes, heavy metals