A B S T R A C T S

GEOLOGY

UDC 553.98

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INVESTIGATION OF THE HETEROGENEOUS PORE SPACE OF THE RESERVOIR FOR OPTIMIZATION OF HYDROCARBONS RECOVERY

As a result of heterogeneous pore medium study the authors came to the conclusion that stratification factor of reservoirs is the cause of negative events in the development of hydrocarbon deposits. The reservoir rocks stratification was classified as the "anomalous" that create negative phenomena in the development, and basic background layers. The techniques to determine the "anomalous" collector in the volume of deposits and the construction of the contrast maps to delineate potentially hazardous areas in the development process have been proposed. For optimal production of hydrocarbons "anomalous" and background layers are treated as two filtration subsystem. Recommendations to comply with the technological parameters to pool filtration subsystems into a single balanced. Recommendations on disclosure sharply differentiation reservoirs in order to avoid the negative phenomena in the development of hydrocarbon reservoirs and optimize production rates.

Keywords: macroinhomogeneity, contrast, quantitative and qualitative factors, stratification of reservoir rocks, the "anomalous" and background collectors, filtration system.

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UDC 622.279.23/4

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FORECAST OF ELECTORAL WATER CUT OF HYDROCARBON DEPOSITS BASED ON THE RESEARCH RESULTS OF LITHOLOGICAL AND FILTRATION PROPERTIES OF RESERVOIR ROCKS

According to the results of combined maps constructions characterizing hydrodynamic, physicochemical properties, watering properties and pore structure of the reservoir medium the authors proposed a method

to forecast flooding of hydrocarbon deposits in the electoral mechanism prior to the development of the field. The effectiveness of the method is confirmed by comparing the constructed forecast map with a map of actual deposits irrigation in the development process. From a physical point of view, the essence of combining maps is that the sample water flow will move from the initial contour level of separation of fluids deep hydrocarbon saturation of the pore volume in the propagation direction hydrophobized porous channels reservoir in the most permeable layers, which, moreover, are characterized by a sharp contrast settings reservoir properties.

Keywords: selective flooding, forecasting technique, the combination of maps, deposit.

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UDC 550.552.53.553

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FORECAST OF TERRIGENOUS ROCKS RESERVOIR PROPERTIES BASED ON THE ACOUSTIC RESEARCH RESULTS UNDER THE CONDITIONS OF ALTERNATING PRESSURE (ON THE EXAMPLE OF VOLODYMIRIVSKA AREA IN VOLYN-PODILLYA REGION)

The features of the original laboratory research techniques and study of void space structure according to the petrophysics data in variable pressure conditions have been considered.

The original ultrahigh pressure facility was used for experimental petrophysical studies. Laboratory research process was held at increasing pressure from 1 MPa to 60 MPa and inversely with its reduction to 1 MPa. Interpretation of laboratory tests was carried out using the technique that makes it possible to invert the speeds data into the structure of the void space (to define void formats and their concentration in the samples).

The regularities of petroacoustic properties change of Volyno-Podillia region, Volodymyrska area, Cambrian terrigenous rocks depending on the applied pressure have been studied. Analyzing the results of petrophysical studies (velocity of longitudinal waves, the coefficient of porosity in variable pressure and density, speed of transverse waves in atmospheric conditions) based on techniques developed by the author, a quantitative void distribution of different formats in the studied rocks was established.

Separate rock groups were allocated, which correlate by acoustic, capacitance and petrographic parameters. The types of rock porosity were quantitatively defined.

Determination of rock void space structure for different pressure conditions makes it possible to trace the quantitative changes of rock porosity types with pressure changes, as well as to allocate and forecast the prospect of complex structure terrigenous reservoir rocks at large depths.

Keywords: petroacoustic properties, alternating pressure, applied pressure, types of porosity.

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UDC 556.491:622

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PATTERNS OF CHANGE IN GROUNDWATER INFILTRATION IN WESTERN DONBASS ON THE EXAMPLE OF MINE DUMPS

Changes of infiltration in time under conditions of mine dumps stockpiling have been studied. Infiltration supply is one of the main variables that determine the changes in the hydrogeological conditions, rise or decline of groundwater level. Based on the results of field observations the author considered the ground water influence on infiltration supply.

The aim of the study is the change in infiltration in groundwater from dumps Western Donbas (for example, blade w. Samara).

To investigate the magnitude of infiltration over time benchmark groundwater from wells (3 wells in group 3 St.) are analyzed. During 1991 - 2013 years, the wells are studied which situated downstream of the blade and the blade up.

The results obtained allowed to establish the variation of infiltration supply groundwater during the study period depending on the level of groundwater.

These results demonstrate that infiltration in the target portion ranges from $1{,}6\times10^{-3}$ to $4{,}4\times10^{-3}$. It explains the blade is in the low part of the relief that increases runoff. When the level of groundwater infiltration is value decreases with a decrease in the level – increases.

Based on the analysis performed that the calculation method chosen infiltration can more clearly describe the relationship with the level of infiltration of groundwater. The results obtained can used in the calculation of project groundwater level.

Keywords: infiltration supply, groundwater level, mine dumps, non-stationary filtration.

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UDC 552.57

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IGNEOUS ROCKS OF CLASTIC MATERIALS FROM COAL BEDS IN DONETS BASIN

Only the coarse igneous rocks from coal seams of Donets Basin have been studied. The object of the study were thin sections of rocks, and they were described under a polarized microscope. In addition, the paper presents some chemical analyzes of igneous rocks and their petrochemical recalculations in the systems of A. Zavaritskii and CIPW. According to the quantitative composition rocks are: acid (60%), medium (36%) and basic igneous rocks (4%). As a result, the following igneous rocks: garnet-granite, granite, grain – granite, quartz-diorite, diorite, quartz-porfir, diabaz. In the granite rock-forming mineraloami is quartz, as -

feldspar: plagioclase and potassium feldspars. Accessory minerals: garnet, Tsircon, magnetite. Secondary minerals muscovite, sericite, calcium, pyrites.

Keywords: igneous rocks, granite, quartz-diorites, diorites, diabase, coarse material, coal layers.

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UDC 556.314:553.98 (292.471)

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EXPECTED LOCALIZATION OF HYDROCARBON DEPOSITS OF THE BLACK SEA AQUIFEROUS BASIN BASED ON HYDROGEOCHEMICAL INDICATIONS

The hydrogeochemical and gas-hydrogeochemical features of the underground waters contacting with gas fields can be used as criteria of the local gas- and oil- bearing potential. Signs of deposits on the salt and gas composition of water, content of trace elements and micro-components for the Black Sea water head basin. We propose the classification of hydrogeochemical indices of the available deposits in which manifestations of poorly mineralized condensation waters and their mixtures with bedded ones can be used except dissolved gas and organic matter. Among them, exept water-dissolved gases and hydrocarbons in the composition of water saturated organic matter take place the condensation waters, or their mixtures with the formation waters that are genetically connected with gas deposits.

Keywords: Black Sea head water basin, hydrogeochemistry, water-dissolved gases, condensation waters.

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UDC 624.131

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SOME POSSIBILITIES TO ANALYZE THE TRENDS IN THE GROUNDWATER REGIME ON INCREMENTS TRAJECTORY OF GROUNDWATER TABLE

Changes in the hydrogeological conditions of the territory of cities is a change factor in the composition and soil properties in the zone of natural and man-made system's impact. Underflooding of industrial and urbanized areas is a regressive process leading to the deterioration of ground properties affecting the conditions of natural and anthropogenic systems.

To construct forecasting models of the soils and groundwater dynamics we have to set the type of process, substantiate the degree of anthropogenic disturbance of the regime. We can judge about the degree of disturbances both as a change of trends, and as a change in the periodical component. From the positions of the theory of dynamical systems, time dependence of the groundwater table depth can be transformed into an increment trajectory. Appearance of the trajectory allows to judge about the nature and incremental mode.

Recommendations are given for the creation of an increments trajectory of the groundwater table depth. Trajectory analysis allows to simply and clearly identify trends, assess the degree of anthropogenic disturbance, prove the need to include cyclic components in the model.

Keywords: groundwater regime, cyclic recurrence, technogenesis.

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UDC 556.491:622

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CHANGING PATTERNS OF WATER MIGRATION COEFFICIENT IN GROUNDWATERS OF WESTERN DONBAS

In this paper we have analyzed changes in hydrogeochemical conditions of groundwater of Western Donbass on the example of the area adjacent to the storage pond of waste water from the mine "Svidovok." Migration properties of chemical elements in groundwater of Western Donbass using a coefficient of water migration have been assessed.

At present almost throughout in the area Ukraine of natural and technogenic technological and man-made aquifers had formed or have been forming. This process is often the result of infiltration of wastewater, the most typical of industrial areas and urban agglomerations, areas of the mining industry.

Migration properties of chemical elements in groundwater depends on many factors: the chemical composition of groundwater, acid-base and redox conditions, processes, complex-formation, etc. As consideration all conditions is virtually impossible, the assessment of migratory properties of chemical elements in groundwater can performed using the coefficient of water migration.

For the study area the coefficient of water migration water migration (Kx) is calculated for chlorine, sulfur, sodium, calcium and magnesium. In oxidizing conditions supergene zone for classification Perelman O. and Shvartseva S. revealed differences from the series migration them.

Ground water in wells, where the rate of water migration of chemical elements in groundwater don't match rows migration of elements in the oxide supergene zone conditions, are located on the line of discharge of mine water to the river basin Significant and unusual changes it is the result of anthropogenic impact.

Keywords: coefficient of water migration, technogenesis, storage pond.

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UDC 553.048+622.324.5

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EXPERIMENTAL JUSTIFICATION OF TECHNIQUE FOR CORE-DERIVED GAS RECOVERY FACTOR OF RESERVOIR FORMATIONS

This article is devoted to approbation of a technique for core-derived gas recovery factor in a production laboratory in connection with its upcoming standardization at SOU level. It briefly describes the technique, which is based on obtaining water and core saturation reduction curves when centrifuging samples followed by graphic-analytical processing of these curves. On the example of determining core-derived gas recovery factor of the Horizon C-5 of Berezovske field we identified possible sources of errors and provided recommendations on their elimination by introducing some changes to a method of adding kerosene to saturate the samples with respect to the method adopted in GOST 26450.1-85. The purpose of these changes is to minimize the loss of residual water saturation due to evaporation under vacuum treatment. The essence of the changes is that the samples with residual water saturation are resaturated with kerosene pre-vacuumed separately from the samples and that the vacuum is supplied to the samples with residual water only briefly, for capillary impregnation time, for its stimulation. After introduction of these changes the technique for core-derived gas recovery factor can be considered as approved and it may be recommended for standardization.

Keywords: core examination, petrophysical support of prospecting, exploration and development of gas fields, reservoir properties of rocks, gas recovery factor.

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UDC 550.4:543.422

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FORMATION OF HYDROGEOCHEMICAL BARRIERS IN THE CONTACT AREAS OF TECHNOGENIC GROUNDWATER FLOWS WITH THE SURFACE OF NATURAL WATERS

The paper discusses the processes of heavy metals accumulation in the zone of constant contact. Distribution of metal concentrations in water and bottom ground of the study area has been studied. Water samples (bottom layer) and sediment samples taken in the mixing zone have been studied. It has been shown that in the mixing zone at a hidden underground discharge of groundwater runoff by bottom sediments acts as a filter for heavy metals, a hydrogeochemical barrier is formed. The barrier parameters (thickness, gradient and contrast) for each of the investigated elements in the bottom layer of water and the bottom ground have been studied.

Keywords: man-made underground streams, surface natural waters, bottom sediments, areas of constant contact, hydrogeochemical barriers, heavy metals, regulation of anthropogenic pollution.

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UDC 556.38:628.1

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PROBLEMS AND WAYS TO IMPROVE QUALITY OF DRINKING WATER

The paper analyzes the main problems of valuation indicators of drinking water quality. The analysis of all existing GOSTs on the post-Soviet space, and those now operating in Ukraine has been carried out. New

health rules and regulations governing the indicators of drinking water quality approved in 2010 have been evaluated. The main existing approaches to the regulation of drinking water quality, as well as the main ways to improve water quality in Ukraine have been considered. Improving the quality of drinking water can be achieved through an integrated solution of some problems of which the main ones are the development of new technologies of water purification and maximum harmonization of the national legal framework regulating the quality of drinking water, and appropriate standards of developed countries, particularly the EU and WHO recommendations.

Keywords: quality of drinking water, quality indexes regulation, the European and international requirements, risk minimization, regional standards, human health, water quality monitoring.

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UDC 556.3:553.98

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FEATURES OF HYDROGEOCHEMICAL TECHNOGENESIS IN THE DEVELOPMENT OF OIL FIELDS

The paper analyzes the features of hydrogeochemical technogenesis in the development of hydrocarbon deposits. The notion of hydrogeochemical technogenesis and its importance for the study of aggregate (superimposed) processes of the natural environment transformation in the oil fields has been introduced. A comparative analysis of selected concepts of geology, oil and gas and oilfield hydrogeochemistry has been carried out. A number of important practical problems that can be solved by the hydrogeochemical method of monitoring of hydrocarbon deposits development have been considered. Practical implementation of the sphere – numerous oil and gas fields, where the accumulated hydrogeochemical material is not systematized, his analysis does not match the capabilities of modern scientific and methodological approaches and requirements of the modern oil and gas fields.

Keywords: hydrogeochemical technogenesis, geological environment, oil and gas fields, groundwater, hydrogeochemical method of control, the development of hydrocarbon deposits.

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UDC 553.98

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TECTONIC MOVEMENTS AND OIL AND GAS CONTENT

The need to study tectonic movements development over time in connection with description of various issues of Petroleum Geology has been analyzed. Among them there are regional-geological work, the study of tectonic movements over time (geotectonic cycles, etc.), uneven rifts. Regional and global connection of different age folded structures development in time has been established. Such studies will provide a unified scheme of historical and geological periodization and geotectonic cycles, formation patterns of tectonic structures containing oil and gas, deposition development in time, age determination of folded structures that are the basis for the creation of tectonic maps. There is the need to harmonize our views in this field.

Keywords: geotectonic cycles, development interconnection, tectonic activity.

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UDC 556.314: 550.4 (550.424)

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ABOUT THE SOURCES OF BROMINE INCOME AND ITS MIGRATIONS IN GROUNDWATER (ON THE EXAMPLE OF THE DNIEPER-DONETS AULACOGENS)

The article describes the sources of bromine in the underground hydrosphere, where the main place is occupied by brine leaching halogen thickness, pore water of sediment formation waters of deep horizons of the Paleozoic and exogenous fluids. It describes some of the features of the test water migration of trace elements in the underground hydrosphere. On the example of the Dnieper-Donets aulacogene patterns of structural confinement and spatial distribution of the element are described. It is stressed that the geochemical history of bromine in the bowels of the earth is closely linked with the history of geological development of the region. Some aspects of hydrogeochemical anomalies element are determined. The authors conclude that the bromine in the groundwater of the region may serve as an indicator element of the activated zones of deep faults, as well as sites of hydrothermal mineralization and accumulation of oil and gas. At the same time, the concentration of an element reaches the values at which the water can be used not only as a spa, but also used as a raw material for industrial hydro extraction element.

Keywords: bromine anomaly, groundwater, water migration, sources of income, deep fluids, halogen deposits, bedded water, anticlinal structures, deep faults.

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UDC 551.7

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GEOLOGICAL AND GEOPHYSICAL PRECONDITIONS OF REGIONAL OIL AND GAS BEARING IN DDD TRIASSIC ROCKS

Log data and geologic materials analysis in some zones and local structures of Dnieper-Donets depression together with late decades exploration results give possibility to say about common-geologic and geophysic precondition for regional character of Triassic system rocks productivity. Special attention must be given to Upper Serebryanka subsuite of Middle Triassic (so called Clay Triassic), there sandstones have specific physical-lythologic characteristics and have been studied not enough. This object has big potential. The most perspective in DDD are Northern near-edge (together with Northern vicinity of Donbas) and Preaxial zones. There are foundation to hope on future hydrocarbons commercial supply increasing and recovery which will be compared with ones, given by modern traditional search object in Eastern Ucrainian oil and gas bearing province.

Keywords: logging, geophysics, system, suite, sandstone, deposit.

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UDC 556.3

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SALT FORMATION IN OIL EXTRACTION AND HYDROGEOLOGICAL CONDITIONS IMPACT ON IT

The process of salt formation in the development of oil fields and the urgency of this problem for industrial petroleum geologists has been considered. The article presents the relationship between hydrogeological environment and oil and gas deposits, as well as the influence of hydrogeological conditions on them. Hydrogeological properties of oil deposits are singled out into a separate category, which affects the formation of salts directly in the oil field development. There are examples of oil fields in different countries where the problem of salt formation was faced. Thus, water is regarded as a major source of salt. The article lists basic salts, most commonly found in the development of oil fields. It also describes what and at the expense of what salt can be formed.

Keywords: salt formation, an oil field, nucleation, temperature, pressure, solubility.

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UDC 624.15:631.431.6

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COMPLEX APPLICATION OF MULTIDIMENSIONAL STATISTICAL ANALYSIS IN STUDIES OF SWELLING SOILS AS FOUNDATIONS BASE

A new method for the study of swelling soils as base foundations by methods of mathematical statistics including cluster, factor and correlation-regression analyses has been proposed. The results of these analyses set standard values of the strength characteristics of the soil, depending on their physical properties and the degree of swelling, limits of application, prevailing factors and correlations between different properties of soils. A method to study area zoning that allows a differentiated use of normative characteristics of soils has been described. Proposals for the design of bases and foundations for swelling soils have been developed. The methods were tested on the soils in Sudan.

Keywords: swelling soils, physical properties, the degree of swelling, bearing capacity, zoning, foundations, cluster, factor and regression analysis, the predominant factors and correlations.

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UDC 550.849

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COMPLEX LITHOLOGICAL, GEOCHEMICAL, PALYNOLOGICAL AND COAL-PETROGRAPHIC RESEARCH OF SEDIMENTARY ROCKS IN ORILSKA AREA

The results of the first scientific work on expediency and methodology of prospecting for hydrocarbons in unconventional reservoirs within Orilska area are described. This work substantiates the methodology and approaches to prospecting for the deposits in unconventional reservoirs, thus increasing the resource base of the country as a whole. On the basis of complex geochemical, lithological, coal-petrographic and palynological research the degree of catagenetic transformations and the quantity of organic substances in sedimentary rocks of Orilska area have been analyzed to assess oil and gas potential connected with unconventional reservoirs. The changes catagenetic transformation of sedimentary rocks are analyzed, zoning their distribution in Dniprovo-Donetskiy basin at different depths are established, as the main criterion in assessing of the hydrocarbon potential area, based on the scientific analysis of laboratory tests to determine the reflectivity of the vitrinite.

Keywords: deposits of hydrocarbons, thermal alteration index, catagenesis, palynomorphs.

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UDC 556.314

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METAMORPHIZATION OF DRINKING GROUNDWATER IN KHERSON REGION

This paper encompasses the geochemical aspects of the Upper Miocene aquifer system in Kherson region.

It has been established that in the context of anthropogenic load in time the average chemical composition and hydrogeochemical type of underground drinking water have changed. Complete anthropogenic metamorphism of underground drinking water from Miocene aquifer is developing in a straight line pattern in the region. Consequently, the increasing of the concentration of total dissolved solids in the groundwater modify the output hydrochemical types of groundwater. The average hydrochemical type vary from chloride at the first time period to sulfate at the second. Resources of drinking groundwater in Kherson region is being heavily affected by the process of antropogenic metamorphization, which occurs by direct scheme.

Keywords: drinking groundwater, the Upper Miocene aquifer system, chemical composition, metamorphism, Kherson region.

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UDC 338.48-6327-57-522(477.83)

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TERRITORIAL FEATURES OF PILGRIMAGE DEVELOPMENT IN LVIV REGION

With development aviation, auto and railway transport, by the facilitation of the mode of crossing of western border after disintegration of the USSR, many Ukrainian pilgrims began to carry out a trip to the world centers of Christianity: on the Sainted Earth, to Vatican, Greece, France, Portugal. Carried out calculation the organized and independent action pilgrimages on territory of Ukraine, in particular, to the centers of Ukrainian Christianity: Pochaeva, Zarvanici, Kievo-pecherska large Monastery, Krekhova, Uneva and other. A pilgrimage, except for own religiously spiritual value, stimulates development of auxiliary and attendant industries of economy, satisfies social necessities, substantially influences on development of cities, settlements, regions.

Pilgrimages are carried out to the confessional man-made places (separate buildings: temples, bell towers, churches, churches), to the natural cult objects (mountains, caves, rivers, groves, sources, rates, wells), to the places related to the prominent religious figures (places of Appearance Mother of god, prominent Biblical places, places of storage relics).

All have these religious objects historical, cultural and religious value. Annually thousands of pilgrims head for them, for worship of Christian relicts. Each of these objects occupies a ponderable place in religious society and public life of Christian.

The most widespread problems which brake development of pilgrimage is not enough the developed infrastructure, in particular system of a transport service, low enterprise activity in this sphere, providing of the proper level of development of social infrastructure on the places of pilgrim, absence of financing on the reconstruction of temples, churches, monasteries, chapel.

Keywords: pilgrimage, religious and pilgrimage tourism, relics of saints and the blessed, miraculous icons, sacred healing springs, Christian relics.

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UDC 911.3

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REGIONAL FEATURES OF AGRICULTURE IN KHARKIV REGION

The paper discloses territorial features of agricultural development of the Kharkiv region. A summary of agricultural lands is presented and established that their landshare increases in the lower area.

Production and sale features of plant growing and animal industry's main sectors by districts are examined. It is ascertained that in the agricultural production sectoral structure plant growing dominates considerably. Such situation is observed in almost all parts of the region. Plant growing is represented by the main types of crops: corn and bean, sunflower, sugar beet and rape. Animal industry is presented by pigstry, poultry, cattle, sheep and goat breeding. The livestock development in districts of the Kharkiv region is rather low, which is caused by the livestock products market uncompetitiveness. Mainly it is used to meet domestic needs of regional agricultural enterprises.

Plant growing and animal industry profitability of the Kharkiv region is determined in the territorial aspect. Survey showed that the most profitable plant industries are sunflowers and vegetables. Livestock profitability by districts is quite differentiated.

Research identified the main agricultural problems of the Kharkiv region. The lack of governmental support, price volatility in agricultural markets, inefficient use of agricultural land, etc. can be mentioned among them. Today's Kharkiv region agriculture development priorities are as follows: to create optimal conditions for competitive agricultural products at foreign markets, to establish agricultural holdings and agricultural clusters, to introduce new technologies in agricultural production. Such issues as preparation and consolidation of skilled personnel in rural areas; migration overcoming, particularly among young people from rural areas; growth in the standard and quality of living of the rural population; development of social infrastructure in rural areas and so on need further socio-geographical researches.

Keywords: agriculture, plant growing, livestock, grains and legumes, sunflower, sugar beet, rape, cattle breeding, pigstry, poultry, sheep and goat farming, agricultural lands, production profitability.

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UDC 911.375

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THE INFLUENCE OF THE URBANIZATION PROCESS ON THE EMERGENCE OF MODERN FORMS OF CITY SETTLEMENTS

Most cities of the world are on the complex, very controversial stage of their evolution, the transition to new forms of urban settlements. The main «engine» of urban space is the process of urbanization. The aim of

this article is identification the characteristics of the impact of urbanization on the occurrence of certain modern forms of urban settlements.

The modern urban rate in Ukraine and the world has been analysed in this article by using analysis of statistical information. The main stages of the development of a city, particularly urbanization, suburbanization, dezurbanization and reurbanization, have been characterized. The author's schemes of the communication distribution between the main city and neighboring settlements during the main stages of the city development have been provided. The features of the urbanization process influence on the emergence of modern forms of city settlements have been revealed.

So particularly the process of suburbanization encourages development agglomeration type of settlement and establishments closer ties between the suburbs and the main city. Process of suburbanization and reurbanization characteristics special form of urban settlement – metropolis. Suburbanization and reurbanization simultaneous extend urban space and return the population in the city center.

Keywords: urbanization, suburbanization, de-urbanization, re-urbanization, agglomeration, metropolis.

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UDC 911.2:551.1

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STRUCTURAL-GEOGRAPHICAL ASPECTS IN GEOLOGICAL RESEARCH OF D.N. SOBOLEV

The article summarizes the main structural and geographical ideas of scientific creativity of D.N. Sobolev, interpretations of the books "Earth and life" are given. D.N. Sobolev's contribution into the development of modern science has been evaluated.

Dmitry Sobolev (1872-1948) – famous Ukrainian geologist, one of the founders of the regional geology and the founder of Kharkiv geomorphological school. He owns a significant contribution to the study of general planetary processes, which is of great importance for the formation of Earth. One of the main achievements of the scientist are 3 issues of his series "Earth and life": the first – "Geological Cycles" (1926); second – "Evolution and revolution in the history of the organic world" (1927); third – "On the causes of extinction of organisms" (1928).

D.N. Sobolev formulated its first structural and geographical idea about what to consider and study the Earth as an integral structure is necessary that a certain way ahead of system-structural and structural-functional approach, which appeared in the geological and geographical sciences later.

Keywords: "Earth and life", D.N. Sobolev, geological cycles.

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UDC 911.3

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EPISTEMOLOGICAL BASIS OF THE RESEARCH OF DEMOGRAPHIC BEHAVIOR

The article deals with the theoretical and methodological foundations and concepts of the research of demographic behavior. The essence of the concept of "demographic behavior" as a system of interrelated activities and actions aimed at changing or maintaining the demographic condition of the subject, which may be individuals, families, small groups of the region, nation and so on was identified. Broadly speaking demographic behavior includes actions related to population reproduction (reproductive and matrimonial behavior), its migration and social mobility (migration, and social behavior) as well as its relation to their health (sanitary or greeting behavior). In the narrow sense to the demographic behavior refers marriage and reproductive behavior.

Determined that demographic behavior is studied by a number of sciences such as: demography, sociology, social psychology and law. Analyzed scientific approaches (social and philosophical, socio-cultural, normative, empirical, systemic, structural and functional, evolutionary, social realism of the conflict, social change, social theory postmodern, social, demographic, economic and demographic) to study the demographic situation and to defined their essence.

The role of socio-geographical approach to the study of demographic behavior was determined. Revealed that in the methodological approaches used in social geography, territory can be considered as a territorial system, characterized by integrity and the relationship between the main elements, typical socio-economic issues and trends and more. The interdisciplinary nature of modern demographic problems defines integrated nature of solutions to these problems.

Keywords: demographic behavior, reproductive behavior, matrimonial behavior, migratory behavior, greeting behavior, methodological approaches.

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UDC 332.77.24

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MODERN MAPPING TECHNOLOGIES OF CADASTRAL WORKS SOFTWARE

Nowadays, the classic definition of cadastral data which is consisting of land parcel registration has been expanded to integrate with the other geospatial information. Started in 1980's when USA was introducing a multi-purpose cadastre concept, the cadastre layer has been connected with other geographic information such as building and facilities, cultural resources, government unit and housing. The most important data in cadastre are spatial (technical data), attributes (legal data) and additional data. Technical data consists of data which is ready to serve 3 (three) tasks: positioning, taxation and planning. Legal data consists of ownership and encumbrances. Additional data hold neither technical nor legal data (e.g. postal code). The variety of cadastral data are dynamically expanded and able to be overlaid with other geographic database to provide extensive information using modern mapping technologies in different countries with its national specific.

Keywords: modern mapping technologies, cadastral work, cartographic support.

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ECOLOGY

UDC 504.03+62.8.5

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ECOLOGICAL AND ECONOMIC METHODS TO REDUCE ENVIRONMENTAL DAMAGE CAUSED BY TAILINGS PONDS

The factors of industrial enterprises tailings ponds influence on the environment have been considered. Objects and subjects of influence, the schemes of industrial waste sludge collector's impact on all areas of environment, methods of compensation, prevention, reduction and mitigation of environmental damage have been determined. It is revealed that the main danger for soil and groundwater represent seepage losses from the tailings. Classification of objects exposed to tailings ponds. Presents indicators of anthropogenic impact for each allocated indicator. Describes a set of measures to prevent, reduce (limit), compensation and the elimination of potential and actual damage to the environment from the effects of tailings ponds. Principle diagram of the measures to minimize damage and environmental effects of tailings ponds on the natural environment. A systems approach to ecological-economic assessment of methods to reduce damage to the environment by industrial waste sludge ponds.

Keywords: natural environment, ecological and economic damage, tailings, reclamation, environmental effects, toxic and hazardous waste, objects and subjects of influence.

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UDC 550.8.053:551

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STATISTICAL ANALYSIS OF THE FACTORS OF NATURAL AND TECHNOGENIC COMPONENT OF LANDSLIDES

In the article the choice of factors predicting exogenous geological processes on the example of landslides has been well-grounded. The statistical analysis of the data allowed us to determine the factor characteristics belonging to natural or man-made component of landslides.

Analyzing factors that are using for the space-time forecast is worth noting that the vast majority of factors are presenting a natural component of exogenic geological processes, whereas the man-made factors are still unexplored. Often the connection between different factors and their factor characteristics in the analysis of geological environment in general can not be explained from genetic or causal beliefs, as observed interdependencies can be connected not with the investigated geological processes but, for example, with the method of measuring or other reasons. In the article is substantiated the selection factors in forecasting exogenous geological processes for example of landslides. Having conducted the statistical analysis of the data help to determine the choice of the factor characteristic according to the characteristics of natural or man-made component of the development of landslides. To address the main tasks is done the analysis of statistical distributions of factor characteristics and made the test data of distribution laws corresponding theoretical counterparts, having conducted the analysis of statistical distributions and classification of factors, and proved the necessity of a separate prediction of natural and man-made component factors. Application of the executed researches with the establishment of distribution patterns of landslides processes allows in future to work on the development of analytical computer system of prediction of landslides.

Keywords: exogenic geological processes (EGP), landslide, factor, factor characteristics, natural component, technogenic component, statistical analysis.

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UDC: 556.332.2:632.154

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FACTORS OF PESTICIDES' DISTRIBUTION AND ACCUMULATION IN SOILS AND GROUNDWATER OF CENOZOIC SEDIMENTS

We consider the distribution and accumulation of pesticides in soils and groundwater of Quaternary deposits on the example of Donetsk Research Station of Horticulture (Artemivskiy research polygon). It has been established that pesticides content in the geological environment directly depends on their amount on agricultural lands. The main climatic, geological, hydrogeological and geochemical distribution factors have been determined. The results of research and methodological work on the distribution and accumulation of pesticides in Quaternary soils and groundwater have been presented. The correlation dependence of pesticides residues on their physical and chemical stability (internal factors) and their environment (external factors) has been established.

Keywords: pesticides, soils, ground water, sorption processes, colloids, loam.

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QUALITY OF WASTEWATER FORMED IN CONDITIONS OF TRANSPORT URBAN FUNCTIONAL SUBSYSTEM OF KHARKIV RIVER BASIN

The research of development and condition of wastewater quality of atmospheric origin formed under the influence of the transport urbofunctional subsystem of the basin of river Kharkiv. Particular attention is paid to the analysis of chemical composition of surface flow of atmospheric origin, its ecological conditions. For the analysis we have selected: rain samples, surface water of atmospheric origin in different seasons. The results of the research were used to create a series of maps (through MAPINFO system) showing the content of individual pollutants in the surface flow of atmospheric origin formed on the territory of the transport urbofunctional subsystem.

Keywords: Surface runoff of atmospheric origin, ecological conditions, urban functional subsystem, urban landscape basin, geosystem.

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