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THE INFLUENCE OF THE INTERMEDIATE SOWINGS ON MICROAGAGREGATE COMPOSITION SOILS IN THE DRY STEPPE AND SEMI-DESERT ZONE OF AZERBAIJAN

M.P. Babaev[1], F.M. Ramazanova[1], R.I. Mirza-zade[1]
[1]Institute of Soil Science and Agrochemistry, Azerbaijan National Academy of Science, Baku, Azerbaijan

Maharram P. Babaev - Doctor of Agricultural Sciences, Professor, Academician, Azerbaijan National Academy of Science, Head of Laboratory of Genesis, Geography and Cartography of Soils, Institute of Soil Science and Agrochemistry, Azerbaijan National Academy of Science, Mammada Rahima St., 5, Baku, AZ 1073, Azerbaijan, e-mail: maharram-babayev@rambler.ru

Firoza M. Ramazanova - Candidate of Agricultural Sciences, Associate Professor, Leading Researcher, Institute of Soil Science and Agrochemistry, Azerbaijan National Academy of Science, Mammada Rahima St., 5, Baku, AZ 1073, Azerbaijan, e-mail: firoza.ramazanova@rambler.ru

Rena I. Mirza-zade - Candidate of Agricultural Sciences, Associate Professor, Head of Soil Museum, Institute of Soil Science and Agrochemistry, Azerbaijan National Academy of Science, Mammada Rahima St., 5, Baku, AZ 1073, Azerbaijan

The aim of the research is to study and evaluate, in long-term studies, the influence of virgin vegetation and different-species schemes of intermediate crops of fodder crops on the granulometric and microaggregate composition and waterproof aggregates of virgin and irrigated genetically different (kastanozems) - dry steppe zone and gleyic calcisols - semidesert zone) the soils of the Kura-Araks lowland of Azerbaijan.

Studies have revealed that for the virgin (at the layer 0-25 cm a fraction content <0,01 mm forms - 57.34 %) and irrigative (<0.01 mm - 58.43-59.84 %) kastanozems and irragri kastanozems soils dry steppe zone the mechanical composition is heavy loamy, but for the gleyic calcisols semi-desert zone - heavy loamy (<0.01 mm - 55.96 %) and for the irragri gleyic calcisols - in limit of heavy loamy (<0.01 mm - 58.11-59.60 %) and light clay (<0.01 mm - 61.91 %), characterized by a more satisfactory number of "true" microaggregates (in the 0–25 cm layer –34.90 and 33.17 %) and by microaggregation.

It is revealed that under an influence of the irrigation and plant interseeding on both types of the soil, after long experiments happened enleaching of the silt fraction and its accumulation at the layer 25-50 cm.

This accumulation is noticeable under a variant of winter rye+vetch+rape (harvest 1) - corn+soybean+sorghum+amaranth (harvest 2) - barley+vetch (harvest 3). The dispersion coefficient at the layer 0-25 cm of soil of the given variant - the lowest (for irragri kastanozems - 16.87 %, irragri gleyic calcisols - 16.17 %), but a quantity of the waterstable aggregates <0.25 mm under this variant is higher than under virgin vegetation on the corresponding virgin soils.

Keywords: *gleyic calcisols and kastanozems soils, intermediate sowings, granulometric and microagagregate composition.*

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GEOLOGICAL AND GEOMORPHOLOGICAL CONDITIONS OF THE BIG BEND OF DON AS FACTORS OF HISTORICAL RESETTLEMENT OF THE PERSON IN HER BORDERS

I.S. Dedova[1], A.V. Seleznyova[1]
[1]Volgograd State Social and Pedagogical University, Volgograd, Russia

Irina S. Dedova - Candidate of Geography, Associate Professor, Department of Geography, Geoecology and a Technique of Teaching Geography, Volgograd State Social and Pedagogical University, V.I. Lenina Ave, 27, Volgograd, 400005, Russia, e-mail: itrofimova@yandex.ru

Aleksandra V. Seleznyova – Methodologist, Educational Management, Volgograd State Social and Pedagogical University, V.I. Lenina Ave, 27, Volgograd, 400005, Russia, e-mail: revina2006@yandex.ru

Features of resettlement of the people in the Big Bend Don - unique natural education are considered. In formation of the Big Bend the paramount role belongs to a lithological and structural factor. A variety of mineral resources, favorable the landscape - climatic situation, proximity of large river system of Don have caused an old story of development of the considered territory. Four chronological stages of resettlement of the person have been revealed: an early paleolithic - a late bronze age; an early iron century - the period of Golden Horde state; formation the Cossack stationary settlements; present stage. The analysis of a topographical arrangement of monuments and settlements indicates development of the territories which are in range of isohypses of +100 … +150 m before the Cossack resettlement more than 50 % of settlements that has been caused by economic and household tenor of life and a sacral factor. The Cossack towns and the farm initially arose in the range of isohypses +30…+ 60 m (a shelter factor in a flood plain or frame system). Modern the farm and the village are characterized by a primary arrangement at the heights of +61 …+120 m. For the Don settlements three types of the settlements focused on the course of geomorphological elements are allocated: area (settlements of cones of carrying out), linear (along a flood plain brow, along courses of beams, etc.), linearly - area (settlements of the extensive valleys adapted under both slopes). In the geomorphological relation mainly slopes of the lower plateau (41 - more than 70 % of settlements), valleys of river and frame systems (50-70 %) are mastered.

Keywords: *East Don Ridge, Big Bend of Don, beam, ravine, slope, river valley, settlement, historical monument.*

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GREEN MANURE VAPOR UNDER FOREST-STEPPE OF ULUG-HEM HOLLOW OF TYVA

V.N. Zhulanova[1], T.F. Zharova[2]
[1]Tuva State University, Kyzyl, Russia,
[2]Tuva Research Institute of Agriculture, Kyzyl, Russia

Valentina N. Zhulanova - Doctor of Biological Sciences, Professor, Department of Agronomics, Tuva State University, Lenina St., 36, Kyzyl, Tyva Republic, 667000, Russia, e-mail: zhvf@mail.ru

Tatyana F. Zharova - Senior Researcher, Tuva Research Institute of Agriculture, Magistralnaya St., 2, Kyzyl, Tyva Republic, 667000, Russia, e-mail: tuv_niish@mail.ru

Based on the analysis of long-term experimental data established that one of the main factors to improve soil fertility and yield of spring wheat is green manuring. The influence of different types of vapor on the fertility of dark chestnut soil and productivity of spring wheat in conditions of forest-steppe zone of Tuva. Efficiency of green manure and vapor employed is determined by the amount entering the soil organic matter. Revealed that the use of a couple of green manure crops compared to bare fallow increased soil fertility and increased yield of spring wheat. It is observed that in the forest-steppe natural-climatic zone of Tuva of green manure vapors has the highest efficiency of green manure sweet clover couples. Sweet clover green manure fallow after two rotations of the rotation increased the content of humus in the soil almost 1.3 times. Determined that the structural-aggregate composition of dark chestnut soils is estimated at a good level. In the arable layer of dark chestnut soil light loamy composition, water stability of structure is an average of 52 %. When growing green manure crops is happening the increase in the layer 0-20 cm of water resistance of soil aggregates 1.2 times. Most soil biological activity occurs in pea green manure a couple, the lowest in the crop rotation with sweet clover for green mass. The correct selection of green manure crops in this region can contribute to conserving and improving the fertility of zonal soils. It is established that the predecessors influence the yield of spring wheat. In the forest-steppe zone of Tuva in dry years, one of the best predecessors is bare fallow, but the highest yield of spring wheat obtained after sweet clover green manure and green manure of pea pair.

Keywords: *crop rotation, cover crops, bare fallow, green manure vapor, clover, biological activity of the soil, dark chestnut soil, soil fertility, yield.*

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COAL-MINING AREAS AS SEATS OF ECOLOGICAL TENSION

V.E. Zakrutkin[1], E.V. Gibkov[1], G.Yu. Sklyarenko[1], O.S. Reshetnyak[1]
[1]Southern Federal University, Rostov-on-Don, Russia

Vladimir E. Zakrutkin - Doctor of Geology and Mineralogy, Professor, Head of the Department of Geoecology and Applied Geochemistry, Institute of Earth Sciences, Southern Federal University, Zorge St., 40, Rostov-on-Don, 344090, Russia, e-mail: vezak@list.ru

Eugeny V. Gibkov - Candidate of Geography, Senior Lecturer, Department of Geoecology and Applied Geochemistry, Institute of Earth Sciences, Southern Federal University, Zorge St., 40, Rostov-on-Don, 344090, Russia, e-mail: irvict@mail.ru

Grigory Yu. Sklyarenko - Candidate of Geology and Mineralogy, Associate Professor, Department of Geoecology and Applied Geochemistry, Institute of Earth Sciences, Southern Federal University, Zorge St., 40, Rostov-on-Don, 344090, Russia, e-mail: gysklyarenko@sfedu.ru

Olga S. Reshetnyak - Candidate of Geography, Associate Professor, Department of Geoecology and Applied Geochemistry, Institute of Earth Sciences, Southern Federal University, Zorge St., 40, Rostov-on-Don, 344090, Russia, e-mail: olgare1@-rambler.ru

The coal-mining territories of the Russian Federation as a source of formation of ecological tension are considered in article. The changes happening in key environmental components - air, soils, surface and underground waters - as a result of impact on them of coal-mining branch of industry are analysed. It is revealed that the influence, maximal on scales, is made on the surface and underground water. The comparative analysis of natural waters of coal-mining regions showed that they differ in poor quality and are of little use for the drinking and economic purposes.

Keywords: *coal-mining territories, coal dumps, underground waters, surface water, environmental pollution.*

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APPROXIMATE ANALYTICAL SOLUTION OF THE PROBLEM OF THE ELECTRODYNAMIC STATE OF THE SURFACE ATMOSPHERE IN THE CONDITIONS OF AEROSOL POLLUTION

G.V. Kupovykh[1], A.G. Klovo[1], D.V. Timoshenko[1], S.S. Svidelsky[1]
[1]Southern Federal University, Taganrog, Russia

Gennady V. Kupovykh - Doctor of Physics and Mathematics, Professor, Head of the Department of Higher Mathematics, Institute of Computer Technology and Information Security, Southern Federal University, Nekrasovskii Lane, 44, Taganrog, Rostov Region, 347928, Russia, e-mail: kupovykh@sfedu.ru

Aleksandr G. Klovo - Candidate of Technical Sciences, Associate Professor, Department of Higher Mathematics, Institute of Computer Technology and Information Security, Southern Federal University, Nekrasovskii Lane, 44, Taganrog, Rostov Region, 347928, Russia, e-mail: klovo_ag@mail.ru

Dmitry V. Timoshenko - Candidate of Physics and Mathematics, Associate Professor, Department of Higher Mathematics, Institute of Computer Technology and Information Security, Southern Federal University, Nekrasovskii Lane, 44, Taganrog, Rostov Region, 347928, Russia, e-mail: dmitrytim@yandex.ru

Sergey S. Svidelsky - Postgraduate, Institute of Computer Technology and Information Security, Southern Federal University, Nekrasovskii Lane, 44, Taganrog, Rostov Region, 347928, Russia, e-mail: dr.leavesea@yahoo.com

The article describes an electrodynamic model of the horizontally homogeneous turbulent surface atmosphere in the presence of monodisperse aerosol particles. The mathematical model includes nonstationary ionization-recombination transport equations due to the electric field and turbulent diffusion of polar light ions (air ions), including terms describing their interaction with aerosol particles and also the stationary Poisson equation with allowance for the formed heavy ions. It is assumed that the equilibrium condition for heavy ions is satisfied, and their transfer is not taken into account. Analysis of the system of equations makes it possible to estimate the time of establishment of a stationary electrodynamic state, which varies from 100 to several tens of seconds with an increase in the concentrations of aerosol particles in the atmosphere from $5 \cdot 10^9$ to $5 \cdot 10^{10}$ m^{-3}. The characteristic height of the electrode layer varies from several tens of centimeters to several meters: it increases with increasing degree of turbulent mixing and decreases with increasing concentration of aerosol particles. To obtain stationary analytical solutions of the model equations, the following assumptions are made: the rate of ionization in the surface atmos-

phere is assumed to be constant; at the considered concentrations of aerosol particles, recombination of light ions can be neglected; the electric field and the coefficients of turbulent diffusion (for light and heavy ions) are constant and do not depend on altitude. Approximate analytical expressions are obtained for the vertical distribution of the concentrations of polar aero ions and the density of the space electric charge as a function of the concentration of aerosol particles, the electric field strength, and the degree of turbulent mixing. The obtained results are in good agreement with the theory of the electrode effect in the atmosphere and can be the basis for constructing a numerical model of electrodynamic processes in the surface layer.

***Keywords**: atmosphere, air ions, aerosol, electric field, space charge, turbulent diffusion, surface layer, electrode effect, electrodynamics.*

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THE DEVELOPMENT OF IDEAS ABOUT THE SUSTAINABILITY OF HYDROCARBONS IN EXISTING RESERVOIRS, AND THE SUSTAINABLE PRODUCTION OF OIL AND GAS

E.S. Sianisyan[1], A.V. Bochkarev[2], V.A. Bochkarev[3], S.E. Sianisyan[3]
[1]Southern Federal University, Rostov-on-Don, Russia,
[2]Gubkin Russian State University of Oil and Gas, Moscow, Russia,
[3]LUKOIL International Upstream West Inc., Houston, USA

Eduard S. Sianisyan - Doctor of Geology and Mineralogy, Professor, Department of Oil and Gas Geology, Institute of Earth Sciences, Southern Federal University, Zorge St., 40, Rostov-on-Don, 344090, Russia, e-mail: edward@sfedu.ru

Anatoly V. Bochkarev - Doctor of Geology and Mineralogy, Professor, Department of General and Oil and Gas Geology, Gubkin Russian State University of Oil and Gas, Nagornaya St., 5, Losino-Petrovskii, 141150, Russia, e-mail: anatolybochkarev@gmail.com

Vitaly A. Bochkarev - Candidate of Geology and Mineralogy, Deputy Head of the Geological Prospecting, LUKOIL International Upstream West Inc., 3 Greenway Plaza, Houston, Texas, 77046, USA, e-mail: Vitaliy.Bochkarev@lukoil-international.com

Sergey E. Sianisyan - Candidate of Geology and Mineralogy, Deputy Manager for Geology, LUKOIL International Upstream West Inc., Greenway Plaza, 3, Houston, Texas, 77046, USA, e-mail: Sergey.Sianisyan@lukoil-international.com

The article presents the review of Russian scientists researches in the study of natural renewal of hydrocarbon reserves in the Terek-Caspian foredeep sag and the zone of joint between southeastern slope of the Voronezh anticlise and west edge of the Pricaspiysk syneclise. The conception of two-step formation of hydrocarbon deposits relied on organic theory of oil origin is in the base of introduced investigations. The main points of the concept are potentially dip source rocks in the deep gas window, the presence of current migration channels and the presence of areas of accumulation. Studies of fluid inclusions, performed by us, were a convincing proof of the multistage formation of oil and gas deposits in the Caspian basin and the Terek-Caspian deflection. Calculations, proofs, experimental researches have allowed to prove prospects of oil and gas potential and expediency of conducting geological prospecting works within these areas on the basis of the created model of a fault-block structure and two-stage formation of deposits of hydrocarbons. The ways of rational oil and gas production at the Severnye Buzachi field with a significant increase in the coefficient of extracted oil are proposed.

Keywords: *Tengiz, Severnye Buzachi, Buzachin vault, block structure, genesis of hydrocarbons, Paleozoic deposits, Jurassic productive lauer, oil deposits in reef buildings.*

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CLASSIFICATION OF RIVERS BASINS ACCORDING TO THEIR FISHERY VALUE

V.N. Shkura[1], E.E. Ostrovskaya[1]
[1]Don State Agrarian University, Novocherkassk, Russia

Vladimir N. Shkura - Candidate of Technical Sciences, Professor, Department of Water Supply and Use of Water Resources, Kortunov Novocherkassk Reclamation Engineering Institute, Don State Agrarian University, Puchkinskaya St., 111, Novocherkassk, Rostov region, 346428, Russia, e-mail: proektgts@rambler.ru

Ekaterina E. Ostrovskaya - Postgraduate, Kortunov Novocherkassk Reclamation Engineering Institute, Don State Agrarian University, Puchkinskaya St., 111, Novocherkassk, Rostov region, 346428, Russia, e-mail: avtnmv@yandex.ru

River basins are the most important natural component, providing conditions for spawning migrations and natural reproduction of the most valuable anadromous fish species living in the seas, lakes and their desalinated estuaries. Under the influence of anthropogenic factors, river ecological systems have become natural and man-made systems, which have largely lost their natural properties, including the ability to ensure migration and natural reproduction of particularly valuable and valuable species of anadromous fish. As a result of the ichthyofauna of many river basins has undergone serious species changes.

The current classification of water bodies according to their fishery value does not take into account modern changes in river basins, and therefore a new classification of river basins according to their fishery value has been developed.

Keywords: *rivers basins, natural and technical system, classification according to fishery value.*

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