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TO THE QUESTION OF ECOLOGICAL AND ECONOMIC EVALUATION OF DAMAGE IN UNAUTHORIZED AGRICULTURAL FIRE IN THE STAVROPOL REGION

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The issue of fighting fires for the Stavropol Region occurs in the region every year during the seasonal field work in agricultural fields. And every year natural damage from unwise actions of the increases in arithmetic progression. The proposed amendments to the law of Stavropol Region from December 08, 2010 N 106-KZ "On some issues of protection of atmospheric air (as amended on 07.11.2014) prohibiting unauthorized fires dry vegetation on the territory of Stavropol Region on agricultural lands and lands of other categories that will regulate the illegal actions of farmers and to reduce the risk of adverse environmental effects.

The method of determination and the calculation of costs of pollutant emissions from forest fires, approved by the order of state ecological Committee of Russia from 05.03.97 N 90, can be used to assess the economic damage to the national economy of air pollution emissions. The resulted damage calculation on an example of three farms of Aleksandrovsky District of Stavropol Region on the basis of pictures Spot-7 from August 31, 2015 on 18 facts of offenses as a result of not authorized fires of agricultural fields, in the prices of 1999 has made 5 923 644,4 rubles and in the prices 2015 taking into account the inflation factor amounted to 34 357 137,52 rubles.

Keywords: *ecological and economic damage, air pollution, unauthorized fires, remote sensing, thermal point.*

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MINERALOGICAL AND PETROGRAPHIC AND GEOCHEMICAL FEATURES OF PALEOCENE AND EOCENE ZEOLITES OF SINAY PENINSULA (EGYPT)

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Paleocene and Eocene zeolites of Sinay Peninsula belong to the sedimentary type. Zeolite containing rock is localized in shoal marine deposits of Alpine folding belt called Tethys. Zeolites formed by carbon-bearing matter, terrigenic, pyroclastic, allothigenic and authigenic clayed matter and authigenic cristobalite.

Zeolites are shared evenly in the rock, they generate microaggregates and associate with opal-cristobalite framed spheres. Zeolites are posed as klinoptilolite (less often as stilbite and geylandite). Klinoptilolite of zeolite-containing association in lime dissolution is synthesized by clayed matter crystallite, aluminosilicates and biogenic amorphous cristobalite. Zeolites was generated at the diagenesis period.

Keywords: *zeolites, Paleocene, Eocene, klinoptilolite, spectrogram, diffractogram, diagenesis, geochemical surveys, Sinay Peninsula, Egypt.*

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TO THE GROWTH OF DANGEROUS AND SPONTANEOUS HYDROMETEOROLOGICAL PHENOMENA ON THE CRIMEAN PENINSULA

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The frequency of occurrence of the most dangerous natural processes and phenomena on the Crimean Peninsula is analyzed in the article, the origin of which was dangerous and spontaneous hydrometeorological phenomena, the intensification of occurrence of which is noted in the current climate change conditions.

The most intensive warming in the Crimea has been observed in the last 30 years, which leads to an increase in the occurrence of dry meteorological phenomena such as droughts and dry winds, in addition, there is an intensification of strong winds and, as a result, the occurrence of dust storms, which threatens the ecological and hydrometeorological safety of the territories.

Among the natural hydrometeorological phenomena, heavy rainfall of considerable intensity and strong winds with a squall are the greatest threat to agriculture, as well as the economy as a whole.

To reveal the spatial patterns of natural and dangerous hydrometeorological phenomena, a map of the potential hydrometeorological hazard of the Crimea (PHMH) has been compiled, the analysis of which provides an opportunity to identify the most dangerous regions, taking into account local microclimatic and, not unimportant, socio-economic conditions. Taking into account the zonal approach, a set of measures is recommended to combat the consequences of manifestations of dangerous and spontaneous hydrometeorological phenomena in the Mountainous Crimea and in the territory of the Kerch Peninsula.

Keywords: *Crimean Peninsula, dangerous and spontaneous hydrometeorological phenomena, climatic system, landscape.*

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RUSSIAN PART OF TRANSBOUNDARY ALTAI IN THE SECTION OF HYDROECOLOGICAL SECURITY AND RECREATIONAL ATTRACTIVENESS

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The hydro-climatic conditions of the territory refer to those natural prerequisites that affect the recreational appeal of the region. They play a decisive role along with geomorphological, landscape and biological features of the terrain.

The analysis of literature and stock data on the climate and hydrology of the region was supplemented by the authors with the results of their own field research. The hydro-climatic features of the Russian part of the transboundary Altai are studied in terms of their influence on the prospects of recreational use of the region. As a territorial unit of assessment, natural and recreational areas were chosen – territorial formations with a homogeneous degree of bio-climate for recreation and located within the boundaries of natural and territorial complexes. In the region of the study, 14 natural-recreational areas have been identified: Tigirek, Bashchelak, Koksu-Korgon, Terektinsky, Seminsky, Tongosha, Uimon, Katun, North-SouthChuy, Ulagan, Chulyshman, Ukok, Chui-Kurai, and Djulukul. For each natural and recreational area, the level of hydroecological safety is established. In parallel, the recreational attractiveness of the region's water resources was assessed. A comparison of the results showed that most of the territory, unfortunately, is characterized by a tense hydroecological situation. The most attractive natural and recreational areas are Katun, North-South Chui and Djulukul, located respectively in the Katun-Terek and Chulyshman physical-geographical provinces.

The results of the research can be used at the stage of creation of tourist and recreational projects, when developing and carrying out activities on excursion, ecological and sports and health tourism.

Keywords: *Altai, water resources, hydroecological safety, recreation, attractiveness, typology, climate.*

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STUDIES OF THE STRUCTURE OF THE ELECTRODE LAYER TO THE SURFACE ATMOSPHERE

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The results of theoretical studies of the formation of the electrode layer structure in a surface atmosphere free of aerosol are presented. An electrodynamic model of a horizontally homogeneous surface-free aerosol layer consisting of ionization-recombination equations for positive and negative light ions (aeroions) and the Poisson equation is considered. Analytic expressions are obtained for stationary distributions of the concentrations of aeroions, electric field and electric charge density in the approximations of the classical and turbulent electrode effect. The coefficient of turbulent diffusion was specified as a linear function, which corresponds to the conditions of neutral stratification in the atmosphere. It is established that the height of the classical electrode layer in an aerosol-free atmosphere is about 10 m, and its structure is mainly determined by the electric field. When the electric field is amplified, the height of the electrode layer and, consequently, the scale of the distribution of electrical quantities increases. The volume electric charge is positive, the charge density decreases with the electric field amplification. In the transition to a turbulent regime in the surface atmosphere electrode layer height increases and reaches several tens of meters. The height of the turbulent electrode layer is determined by both the electric field and the degree of turbulent mixing. An increase in the values of the coefficient of turbulent diffusion leads to an increase in the height of

the electrode layer, and as a result, the profiles of the positive and negative aeroions become close. As in the classical electrode layer, the space charge is positive, but the scale of its distribution increases, and its density decreases. The electric field generated by the space charge in the surface layer is comparable in magnitude to the external field. The amplification of the external electric field weakens the effects of turbulence. The density of the space charge increases, and the distribution of electrical characteristics becomes similar to the classical electrode layer.

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

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GEOCHEMICAL FEATURES OF GOLD-QUARTS DEPOSITS OF OMCHAK ORE CLUSTER OF VERKHOYANSK-KOLYMA FOLDING REGION

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Geological and geochemical characteristics of gold-quarts formation objects and host complexes within the Omchak gold placers of Ayan-Juryakh anticlinorium of Verkhoyansk-Kolyma folding region are given. All objects localized in Permian sedimentary rocks. Localization of ore zones are controled by North-West faulting wich are zones of mylonization and graphitization. In ore objects there are veins and interlacing vein, mineralized crushing zones, areas of disseminated mineralization.

Detected similarities in mineralogical complex of ore and veined minerals, stages of their formation and also in types of near-ore changes. As a result, gold ore objects of Omchak ore cluster charactericed by single-type geochemical fields. Gold and arsenic are the main elements - indicators of mineralization which form secondary dispersion halo with concentrations of tens or hundreds of units of local geochemical backgrounds. A special position is taken by tungsten which forms halos with concentrations of tens local geophones only within ore fields. Marganese halos are associated with deposits and to their flanking zones-small in the area halos of bismuth, antimony, barium. The rest or the elements are distributed evenly by ore cluster area without forming abnormal concentrations. Low contrast tin, silver, bismuth, polymetal halos associated to mineralization which occurs during activation of the Okhotsk-Chukcotka volcanic belt.

Keywords: *geochemical features, Omchak ore cluster, Verkhoyansk-Kolyma folding region, Ayan-Jurah anticlinorium, gold mineralization.*

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ESTIMATION OF ENVIRONMENTAL IMPACT OF DEEPENING AND WIDENING OF NAVIGABLE CANALS IN RIVER DELTAS

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The article presents the results of a comprehensive environmental impact assessment of possible ways to deepen and expand navigable canals, in particular, the Azov-Don Sea Channel (ADSC). The modern ecological situation is assessed, the aquatic landscapes are identified and their resistance to anthropogenic impact is determined, the degree of anthropogenic transformation, the ability to accumulate or dissipate pollutants, the main factors of the impact of dredging on the environment are assessed and their impact on water objects is assessed, environmentally acceptable parameters for deepening and expansion the river Don in the area of ADSC. To solve the tasks set, a program of field and laboratory studies, methods of integrated ecological and hydrological assessment of the current state of water bodies and assessment of the impact on the environment of dredging and expansion of navigable canals in the delta of the Don river and Taganrog Bay were developed. At the field stage of the work, 39 water samples, 39 samples of suspended matter, 105 samples of bottom sediments were selected and analyzed. Hydrological measurements and drilling operations were carried out. In the studied water bodies, homogeneous water complexes - aqual landscapes - have been identified and studied. A set of works was performed to determine the absolute heights of the water cuts and the coordinates of the boreholes in the river section of ADSC. In the areas of the alleged storage of the extracted soil, a survey of soils and vegetation cover was carried out.

Keywords: *dredging works, rivers deltas, Lower Don, Azov-Don Sea Channel, methodology of integrated ecological and hydrological assessment, impact of dredging on the environment, aquatic landscapes.*

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