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ABSTRACTS

PEDOGEOCHEMICAL INDICATION OF SUSTAINABLE LAND USE AT THE PRIVOLZHSKAYA IRRIGATION SYSTEM (SARATOV REGION)

© 2011. G.S. Kust*, S.Yu. Rozov, G.V. Stoma**, P.V. Andreev****

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Abstract. Soil cover and landscape-geochemical features of the Privolzhskaya irrigation system (Saratov Volga) are described. The sustainable functioning of this irrigation system in the conditions of the absence of artificial drainage is noted that is explained as a result of the specifics of geomorphologic structure of the area within the ancient flood plain and deltaic landscapes of former Volga river and its tributaries. A number of assumptions are made about the role of paleo features of local landscapes in the redistribution of ground and infiltrated flow from irrigated lands. In particular, the assumption that ancient bottoms of estuaries and lagoons, composed of marine clays and overlapped with latest loamy deposits are acting as natural intermediate reservoirs of drainage waters. The phenomenon of "red spot" on multispectral (3-5-7 channels) Landsat images is described, presumably associated with the additional soil moistening in the zone of lateral subsurface migration of infiltrated irrigation water.
Keywords: pedogeochemical indication, sustainable land use, irrigated chernozems.

MODELING OF CHEMICAL POLLUTION IMPACT ON THE BIOLOGICAL PROPERTIES OF HYDROMORPHIC SOLONCHAKS OF THE DRY STEPPE ZONE IN SOUTHERN RUSSIA

© 2011. S.I. Kolesnikov, N.A. Spivakov, L.S. Vezdeneeva, K.Sh. Kazeev

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Abstract. Pollution of Southern Russia hydromorphic solonchaks by oxides of Cr, Cu, Ni, Pb and oil leads to reduced activity of catalase, dehydrogenase and celluloselytic activity. According to the degree of negative impact on the biological properties of soil heavy metal oxides form a series: CrO3> NiO> = CuO> = PbO. The activity of catalase and dehydrogenase, celluloselytic activity should be used to monitor chemical contamination of solonchaks. At the same time, the index of abundance bacteria of the genus *Azotobacter* and indicators of phytotoxicity can not be used because a large hydromorphic solonchaks makes possible non-existence in them of these bacteria and completely suppresses the development of the traditional test object phytotoxicity – radish.
Keywords: pollution, heavy metals, oil, solonchaks hydromorphic, biological properties.

WITHIN-YEAR AND LONG-TERM DYNAMICS OF SEASONAL RIVER FLOW WITHIN UPPER PART OF THE BASIN OF THE DON RIVER

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Abstract. On the rivers of the upper basin of the Don during the climatic norm of 1961-1990 and in the years 1991-2009 there is a decrease of spring runoff, the increase of summer, autumn and winter seasonal runoff. Annual peaks of snow flood are continuously declining. Seasonal flow of low-water period in the annual course is becoming stable. Within-year redistribution of flow has positive and negative water-management effects.
Keywords: water-management year, the seasonal flow, within-year distribution of river flow, low-water, the water regime.

WATER BODIES OF KUMA-MANYCH DEPRESSION IN KALMYKIA: REGIME, ECOTONS OF THE COASTS AND LANDUSE

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Abstract. In that article the implications of the transformation of the hydrographic network Kuma-Manych Depression is considered: changes in the river flow direction, creation of artificial water-bodies (lake Manych-Gudilo, Chogray reservoir). It is shown that in recent decades falling water levels in reservoirs is observed, the steady increase in mineralization of their waters, and not always rational use.
Keywords: hydrographic network, artificial reservoirs, the level of mineralization, alteration, biological resources, ecotones, diversity, landuse.

CHEMICAL COMPOSITION AND POLATABILITY OF SOME HALOPHYTE SPECIES

© 2011. A. Rabbimov, B. Bekchanov, T. Mukimov

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Abstract. The article presents the results of the experiments on irrigated fodder production under the condition of Kyzylkum desert with the use of mineralized artesian waters. The results of the research on polatability of halophytes by Karakul sheep showed that crops as *Artiplex nitens*, *Kochia scoparia*, and *Suaeda altissima* were satisfactorily and well consumed. However, the polatability of *Climacoptera lanata* showed low values – 16%. It is known that up to 40% of salt can be accumulated in the green phytomass of *Climacoptera lanata*. After washing up *Climacoptera lanata* with warm water the rate of polatability of this plant increased up to 79.13%.
Keywords: halophytes, fodder, Kyzylkum desert, artesian water, sorts, chemical compositions.

THE INFLUENCE OF SHEEP PASTURING ON THE HUMUS PROPERTIES IN THE LIGHT CHESTNUT SOILS OF DAGESTAN REPUBLIC

2011. M.E. Kotenko

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Abstract. The influence of cattle-breeding on the contain and fractional composition of humus in the soils was studied. The fundamental law that the influence of anthropogenic factors causes the leveling of the soils` nature was cleared up. It is showed that in light chestnut easily argillaceous and sandy soils worked the system of humus substance, but not its separate fractions. This system acts as a united natural complex even under degradation of soils.
Keywords: organic substance, fractional composition, humus substance, degradation of soils, anthropogenic use, pasturage loading.