TOPOGRAPHIC AND GEODETIC SUPPORT FOR DETERMINING COMPLETE TOPOGRAPHIC REDUCTION OF GRAVITY

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Calculation of topographic reduction for gravitational effect of exterior interlayer masses requires digital relief models for the area under study. The authors present optimal dimensions of the uniform grid for model nods. They are to be applied for calculating topographic correction for different zones taking into account the interlayer effect. The limiting errors for the nodal points height values have been determined.

Key words: interlayer, topographic reduction, exterior, digital relief model.

STATISTICAL ANALYSIS OF GLONASS AND GPS SATELLITE POSITIONING ACCURACY

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Detailed statistical analysis of GLONASS and GPS satellite positioning accuracy on the basis of navigation data is presented.

Key words: on-board ephemeris, accurate ephemeris, statistical analysis, mean-square error, accuracy evaluation.

SIGHTING TARGET CONSTRUCTION FOR HIGH-PRECISION TRIGONOMETRIC LEVELING

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Construction of the developed sighting target for high-precision trigonometric leveling is described. Due to the offered target, leveling may be conducted by a single operator with station accuracy being 0,2 mm, max.

Key words: trigonometric leveling, sighting target.

MATHEMATICAL PROCESSING OF ENGINEERING AND GEODETIC NETWORKS IN A STEREOGRAPHIC PROJECTION OF GAUSS

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The article discusses the mathematical treatment of engineering - geodetic networks in stereographic projection of the Gauss.

Key words: mathematical processing, engineering and geodetic network, the stereographic projection of the Gauss.

AGRICULTURAL LANDS OF ALTAI REPUBLIC AS MAJOR FACTOR OF ITS ECONOMIC DEVELOPMENT

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The challenge of efficient agricultural lands management as a basic factor of economic development of the Republic of Altai is considered.

Key words: agricultural lands, efficient land-use, country's security, agriculture.

DETECTION AND DETERMINATION OF NARCOTIC DRUGS PARAMETERS BY TUNABLE IR-LASER

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Calculation and experimental investigations on the remote determination of some narcotic drugs spectroscopic parameters by IR-parametric laser are presented.

Key words: parametric light generator, nonlinear crystal, differential absorption and dispersion.

EQUIPMENT FOR MEASUREMENTS IN FOCUSED LASER BEAMS AND ITS APPLICATIONS

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An apparatus and programs was developed for nonperturbing measurements in flows of reacting gases by methods of multiphoton scattering and fluorescence. Data on temperature, concentrations of molecules and radicals was obtained in flames of gaseous and solid fuel, and in vortex-type flow.

Key words: Raman scattering, laser-induced fluorescence, combustion, flame.

ASSESSMENT OF NATURAL ELECTROMAGNETIC BACKGROUND EFFECT ON PLANT GROWTH IN 3D ENVIRONMENT ON THE BASIS OF 3D VISUALIZATION

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Ecological role of background electromagnetic emissions of low and ultralow intensity in geophysical landscape formation is not properly estimated due to the system ambiguity as

regards understanding of this effect mechanism. Graphic models for geophysical relief of local territories may be constructed by plant growth rate indicators resulting from the conditions and time variations of electromagnetic fields. The model makes possible 3D visualization of their impact degree in formation of the general morphology of the terrain relief, in particular, by the plant cover. It is possible to distantly control the growth and development of test objects (in the set coordinates) by correcting background emission using special software.

Key words: ecology, electromagnetic background, geophysical relief, phytoindication, software, holographic space, model, processes control.

ECONOMIC AND TERRITORIAL PLANNING BY LAWS OF BIO-GEO-CHEMICAL ACTIVITIES ACCORDING TO SANITARY-AND-EPIDEMIOLOGIC REQUIREMENTS

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The scheme of territorial planning was preceded by the building of economic relations and the formation of a space understood nowadays as territorial production complex. At this stage developed methods of quantitative measurements and comparisons of socio-economic phenomena.
A comprehensive analysis has allowed to construct a centralized economy to obtain the gross domestic product without the development of productive forces, including environmental restrictions and industrial relations including sanitary-epidemiological requirements. Discusses the possibility of territorial planning, limited sanitary-epidemiological norms and environmental requirements for hazardous substances, technologies and productions.

Key words: time, population, space, economic zoning, and territorial planning of natural-territorial complex, regional production complex, the gross domestic product, the model of understanding of economic history.

CONSTRUCTION OF GIS FOR LOCAL OUTLET CHAIN

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Special GIS for foodstuffs distribution network has been constructed, which includes three components: outlets coordinates, their semantic characteristics, and spatial customers' "attraction polygons". Semantic characteristics of outlets comprise quantitative description of trade attributes for rural minimarkets or local supermarkets. The boundaries of polygons (polylines of equal attraction) are based on physiological law of seller – customer attraction. In the offered model, the customer's "physiological attraction" to the source of foodstuffs is compared with mutual attraction of oppositely charged bodies in physics. On the basis of the regression model of seller – customer "physiological attraction", equal attraction polylines position is calculated (within walking distance, on time base). These polylines envelope attraction polygons of each rural shop "next door'. The offered technique makes it possible to represent a rural outlet chain as a GIS with coordinate- and attributive description. The model

facilitates solving a social problem, i.e. determination of outlets optimal position for settlements households.

Key words: GIS, semantic characteristics, economic and physical attributes, physiological model of attraction, distribution network, "next door" shop, polylines of equal attraction, attraction site.

LINEAR GEOMETRIC MODELS APPLICATION IN GEOINFORMATICS

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Modeling is the main technique for systems investigation. The simplest mathematical models in applied geoinformatics are linear geometric models (straight lines and planes). Application of linear geometric models for geoinformatics problems solution is described.

Key words: linear geometric models, applied geoinformatics.

SOCIOCULTURAL DIMENSION OF SCIENCE

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Features of science development under the conditions of technogenic and traditional development of society, affecting its translation and application, are considered. The role of humanitarian component and general trend of knowledge humanitarization are emphasized. The state of current land management in terms of extreme world-view rationalism is shown.

Key words: theoretical knowledge, world view, principle of scientific rationalism, extreme world-view rationalism, principle of rational land use.

STATE ACCREDITATION OF HIGHER SCHOOL AS A BASIS FOR TRAINING NEW FORMATION SPECIALISTS

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The results of the state accreditation of the university branch are presented. The development strategy for the near future is offered.

Key words: accreditation, development strategy.