

**FEMTOSECOND LASER RANGER WITH THE RADIATION
PROPAGATION
IN A VACUUM PROCESSED TUBE**

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The design of a high precision absolute femtosecond interference laser ranger for the increase a long distance measurement precision the is suggested. This range finder can be used for measuring kilometer distance with micrometer instrumental error.

Key words: range finder, instrumental error, distance measurement precision, absolute femtosecond interference laser ranger.

**TO THE ISSUE OF THE POSSIBILITY
OF GROUND SURFACE STRAIN STATE STUDY BASED
ON REPETITIVE HIGH-PRECISION LEVELING MEASUREMENTS**

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The article describes a method of calculation of ground surface kinematic conditions characterizing its strain state, specified by tectonic processes.

Key words: modern vertical motion, roll, relative deflection, ground surface slope and curvature alteration.

THE PSEUDO-GRAVITATIONAL SIGNAL FORMED IN SPRING ГРАВИМЕТРЕ UNDER THE INFLUENCE OF MICROSEISMIC WAVES NATURAL ЭНДОГЕННОВО OF THE ORIGIN, AND USE OF THIS SIGNAL IN GEOLOGICAL PROSPECTING

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In [8, 13–16, 28, 29] papers it was given a mathematical description of this falsegravitational ξ signal happening to appear in our spring gravimeter shaken by the endogenous microseismic waves. Such a signal bears the underground geological objects information. In the above-mentioned papers the ξ -signal survey sings are thoroughly systematized. Is has been shown here that some of these indications are undeliberately used in the highly-effective empiric methods of the gas and coal-beds contouring known as the GONG abbreviation. But the author of the methods underpins his own law of gravity which is strongly opposed to Newton's one. In the article the early presented alternative microseismic version the GONG-methods is also presented.

Key words: spring gravimeter, microseisms, gravitational prospecting.

THE GEODESY TO GO WITHOUT ... GEODESIC LINE (COORDINATIZATION OF THE ELLIPSOID OF ROTATION SURFACE BY THE DIRECT NORMAL SECTION AZIMUTHS)

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It is done an algorithm and numerical example for coordinatization of the ellipsoid of rotation surface by the direct normal section azimuths who were observed from two known point to a one determined.

Key words: coordinatization, ellipsoid of rotation, direct normal section.

GNSS-TECHNOLOGIES APPLICATION FOR STRUCTURAL DEFORMATION MONITORING

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This article discusses the new concept of monitoring by the kinematics of deformation in real time (RTK) with the use of GNSS. The results of monitoring deformation waterfront in Hong Kong, which demonstrate the effectiveness of the service network of GNSS real-time single-frequency receivers using GNSS in the region, where the influence of ionospheric refraction is significant and unpredictable.

Key words: GLONASS, GPS, Centralized Processing, RTK, GNSS Network corrections.

THE COMPARATIVE CHARACTERISTIC OF RESULTS OF TWO STATISTICAL METHODS OF THE ANALYSIS OF DIFFERENCES OF REPEATED MEASUREMENTS

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The research of the probability-statistical analysis is presented. It deals with the differences of traverse sides repetitive observations, to reveal displacements of network points in process of linear objects monitoring. The results have been compared with those of the correlation analysis of the same differences.

Key words: monitoring, displacement, analysis, difference, criterion, statistics.

SYMBOL OF OUTDATED IDEOLOGY

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The ideology is considered as a general view, the settled representation of experts about a science. The ideology carrier are textbooks, the directories, popular, etc. the literature. As a symbol of this ideology science definition serves. Affirms that the existing ideology and its symbol correspond to middle XX century and don't answer the present. It interferes with development of a geodesy and is a crisis original cause.

Until in geodetic formation the ideology and a geodesy symbol, and also structure and the organization of corresponding knowledge won't change, the past will remain the main obstacle of development.

Key words: ideology, a paradigm, a method.

RESTORATION OF CARRIER PHASE: PROBLEMS AND DECISION WAYS

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The article posed the problem of detection, assessment and recovery phase of GNSS - observations. Key challenges to address this problem. A review of the basic methods of detection, assessment and recovery phase of observation are made. A new method of carrier phase recovery based on the use of orbital elements and the approximate position of observation points, which has significant advantages over other methods are presented.

Key words: omissions accounts cycles, linear combinations, the Kalman filter, a combination of Melbourne – Wubbena, the Blewitt method.

TYPES OF SEA WAVES, THEIR CHARACTERISTICS AND CLASSIFICATION IN DESIGNING AND CONSTRUCTION OF HYDRAULIC ENGINEERING STRUCTURES ON THE SHELF OF THE ARCTIC AND FREEZING SEAS

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Types of sea waves, their characteristics and classification used in designing and construction of sleet-proof hydraulic engineering structures on a shelf of the

Arctic and freezing seas are outlined. Conclusions and recommendations on production of hydrocarbons in aquatic areas of these seas are given.

Key words: sea waves, tsunami, cyclones, hurricanes, seiches, platforms, artificial islands.

CONTROL OF ATMOSPHERE REFRACTIN INDEX CORRECT VALUES IN THE MEASUREMENT RESULTS OF MODERN LASER RANGERS AND TOTAL STATIONS

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The problem of use of an incorrect indicator of refraction of the atmosphere in modern optoelectronic range finders is discussed and the amendment formula for correction of the distances measured by such devices is offered. It is given an example calculation.

Key words: dispersion atmosphere, refraction index.

MAINTENANCE OF CONDITIONS OF STEADY LAND TENURE IN PROJECTS OF DEVELOPMENT OF DEPOSITS IN TERRITORIES OF TRADITIONAL WILDLIFE MANAGEMENT

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In clause maintenance of conditions of steady land tenure in projects of development of deposits of minerals in territories of traditional wildlife management on an example Khanty-Mansiysk autonomous region-Ugra is considered. Recommendations on use of a technique of calculation of losses are presented to communities to aboriginal small-in-number people and other parameters of steady land tenure.

Key words: steady land tenure, territories of traditional wildlife management, recultivation.

STRUCTURE AND CONTENT OF DATABASE OF AUTOMATED INFORMATION SYSTEM FOR MONITORING AGRICULTURAL LAND

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The paper describes the database development as a basis of automated information system for monitoring of agricultural land.

Key words: land monitoring, automated information system for monitoring of agricultural land, database.

ABOUT CLASSIFICATION OF DOCUMENTS OF THE STATE CADASTRE OF REAL ESTATE

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The article proposes a classification of documents of state real estate cadastre.

Key words: state cadastre of real estate (OCG), keeping the OCG, the

OCG documents, classification, unification.

FORMULATION OF STATE CADASTRAL REGISTRATION OF FOREST LAND: PROBLEMS AND SOLUTIONS

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The article presents the main issues arising from the cadastral engineers in setting the state cadastral registration of land (forest) areas in the forest lands.

Key words: The state cadastre of real estate, the earth of wood fund, the state cadastral account, ground (wood) site.

MATHEMATICAL MODELING IN APPLIED GEOINFORMATICS

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Direct studying of objects, processes and phenomena might be impossible, dangerous and expensive in applied geoinformatics. Therefore mathematical modeling becomes the basic method of their research. At present there are two basic methods of mathematical modeling: analytical and simulation. The analytical method of mathematical modeling lies in the obtaining of modeling results in the form of statements which validity is established on the basis of proving. If analytical modeling does not occur to be possible, simulation modeling is applied. The procedure of simulation modeling lies in the modeling algorithm development of a system structure functioning process, taking into account the chosen level of detailed elaboration, and its reproduction on the computer in the way to have a possibility to operate the course of a simulation process. The description of these modeling methods and their examples are adduced in the following article.

Key words: geoinformatics, mathematical modeling, analytical modeling, simulation modeling.

ROLE OF THE CARTOGRAPHICAL METHOD OF RESEARCH IN THE DECISION OF PROBLEMS OF RADIATING CONDITIONS OF ENVIRONMENT

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The article considers the relevance of cartographic research method in solving the problems of radiation situation of the environment.

Key words: radioactive contamination of the environment, the territory of radioecological situation, radiation situation map.

CREATING DISTRIBUTIONAL AND POPULATION HUNTING BIRDS MAPS OF WESTERN SIBERIA

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It is proposed the methodology of creating a series of distribution map and abundance of upland fowl based on GIS-technologies. In order to obtain the characteristics of fullness these interpolation methods are used.

Key words: zoogeographical mapping, distributional maps, population number, geoinformatic mapping, interpolation, surface, Capercaillie, Black Grouse, Hazel Grouse.

VIRTUAL TESTING OF VISION SYSTEMS

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The possibility of automated optical-physical researches with the help of laboratory measurement equipment, which is made on the basis of a television camera connected with computer, is discussed. Image, which is entered into a computer, is digital processing, so measurement accuracy increases and the time of measurement is reduced. In addition, the possibility appears to create a simulation model of the machine vision systems for virtual testing.

Key words: image, measurement, digital processing, automation, simulation, machine vision system.

APPLICATION OF DISPERSIVE FORMULAS OF MATERIALS IN THE SUBMILLIMETRIC RANGE OF LENGTHS OF WAVES

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Known dispersive formulas of optical materials with reference to a submillimetric range of a spectrum are considered. Formulas of a dispersion and their factors suitable for definition in engineering approximation of parameters of refraction of materials used in optical devices of a submillimetric range of a spectrum are determined.

Key words: a parameter of refraction of a material, the dispersive formula, factors of the dispersive formula.

DEVELOPMENT OF TECHNIQUES OF CONTROL SAMPLE MEASURING PARTYPRODUCTS

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The technique of an estimation of reliability of results of continuous and selective target measuring control of the products, based on application of a method of imitating modeling is offered. The example of planning of multiple parameter quality assurance of the limited lot of products is resulted.

Key words: Customer's risk, Producer's risk, The selective surveillance, Simulation modelling.