

Section I

Waterways, ports and hydraulic engineering constructions

Astashin A.E., Sotkina S.A., Badyin M.M., Ryzhov E.V., Samoilov A.V.

Dynamics of development of network of elementary water currents of the north of the forest-steppe zone of the Nizhny Novgorod region (on the example of the catchment basin of the river Sundovik) during 1984–2016

Key words: *elementary stream, small river, tributary, drainage basin, forest-steppe zone.*

In the article dynamics of development of network of elementary water currents of the North of a forest-steppe zone of the Nizhny Novgorod Region is considered and the analysis of the factors defining this process is carried out. Established fact of growth of extent elementary water currents. Growth of woodiness against the background of increase in the annual sums of rainfall is recognized as the leading factor.

Lipatov I.V., Reshetnikov M.A.

The ship behavior dynamics mathematical model while driving under the constrained conditions (considering the lock approach channel)

Keywords: *mathematical modeling, lock, approach channel, roll-trim, sag*

In the article the questions concerning the ship behavior conditions dynamics under the sharply growing waterway dimensions constraint are considered (the approach channel and the lock chamber). To perform the research the developed virtual mathematical model as an alternative to dangerous expensive and uninformative experiments is offered.

Sitnov A.S., Gogolev A.E., Matyugin M.A.

The water resources balances calculations methodological features and their results on Nizhny Novgorod low-pressure hydroengineering complex reservoir area

Keywords: *water resources balances calculations, Nizhny Novgorod low-pressure hydroengineering complex*

In the article the water resources calculations methodological features on Nizhny Novgorod low-pressure hydroengineering complex reservoir area in the current state and for the perspective are analyzed. The calculations main results are also given.

Section II

Informatics, management systems, telecommunications and radiolocation

Grosheva L.S., Pluyshchaev V.I.

The paddle wheels vessel held on a given course algorithms efficiency analysis

Keywords: *ship, wheel vessel propulsion and steering complex, adaptive algorithm, fuel consumption.*

Fundamentally new vessels with wheel propulsion and steering system have appeared in Russia. The vessels do not have a traditional steering wheel. The vessels handling is carried out by the paddle wheel rotating frequency ratio changing. It provides the improved vessel handling and at the same time makes it very difficult for the navigator to hold the vessel on a given course. The article deals with the energy-efficient algorithm synthesis concerning the vessel with wheel propulsion and steering complex on a given course retention under the external influences.

Kuvykina E.V.

The conflict traffic flows control system investigation in the after-service algorithms class

Key words: *after-service algorithms, cyclic algorithm, Poisson flow, Bartlett flow, optimal control parameters*

The article considers the machines flow control system at the crossroads in the after-service algorithms class. The traffic flows specificity, which is changing their intensity during the day and the probabilistic structure under the occasional factors influence, such as the weather, have been considered. Simulation method is used for the system

behavior analysis. The after-service algorithm is compared to a simple cyclic algorithm. This algorithm's class adaptive properties with the feedback towards the intensities change and the input streams probabilistic structure are set.

Fedotkin M.A., Ratchinskaya M.A.

The functioning model for the different intensity and priority flows control and service system

Keywords: extraordinary Poisson flow, threshold priority, Markov chain, one-dimensional distributions

The article studies the flows control and service system requirements when the priority low-intensity flow and non-priority high-intensity flow are supposed. The functioning system five-dimensional sequence operating model is constructed. It is proved that this sequence is a homogeneous Markov chain. The recurrent relations between the Markov chain one-dimensional distribution are presented.

Section III

Shipbuilding, ship repair, and ecological safety of the ship

Vaskin S.V., Etin V.L.

The wastewater aeration systems for ships collection tanks constructive and technological characteristics

Keywords: navigation autonomy, ship wastewater, wastewater collection tanks, aeration

In the article the theoretical and experimental results on the aerators constructive and technological parameters substantiation are given. Aerators make it possible to prolong the wastewater storage duration in the ships collection tanks.

Girin S.N., Voronina Yu. Ye., Platov Yu. I.

The transport dock using for the ships passage through the Volga river shallow section Nizhny Novgorod – Gorodets

Keywords: navigation, small depth, transport dock, construction, docking raids, economic efficiency

The problem concerning the heavy-tonnage vessels passage through Gorodets hydrosystem under the shoal conditions is discussed. Such vessels transportation by means of special transport dock is considered as a possible solution to the problem. The dock design is offered and its operation economic efficiency is analysed.

Gramuzov E.M., Larin A.G.

The underwater vessel ratio load and shape influence on the immersion possibility in the ice conditions

Keywords: ice cover, ice towing tank, natural ice model, breaking load, modeling theory, underwater vessel

The article is devoted to the underwater vessel ratio load and shape influence study in terms of the breaking load value for the ice cover during the immersion. The experimental setup for the ice cover breaking is described. The model experiment results are given, the underwater vessel ratio load and shape correlation influence on the breaking load value is shown.

Ermakov S.A., Kupaev A.V., Kapustin I.A., Molkov A.A., Sergievskaya I.A., Shomina O.V.

Experiments on remote sensing of organic films using multi frequency microwave radar

Keywords: radar probing, slicks, field experiment, polarization, surfactant film.

The article describes results of first field experiments with the use of a multi-frequency radar, which were carried out at the Gorky Water Reservoir in July-August, 2016. The results showed high perspectives of the use of multi-frequency, polarized radars to solve the problem of remote sensing of the water surface pollutions, in particular through the possibility of retrieval of the intensity of wind waves at different wave lengths and of the analysis of their variability under the effect of surfactant films.

Zaporozhtseva N.I.

The domestic standards and technical conditions using possibilities in the computer-aided design (CAD)

Keywords: structural-parametric approach, identifying attributes, regulatory technical documentation, information flows, uniform requirements, data base

In the article the following problems are analysed: the access system to the constructor information in the constructor's workplace, the access system formation based on the products classificational names, parametric models, constructor elements and documents considering the organizational sphere peculiarities, data exchange using the domestic standards and technical conditions within «Data base» concept.

Igonina M.V., Cheban E.Yu., Volodchenko E.V., Berdnikova E.Yu., Rachkova E.S., Molkova N.V., Yurtaeva K.S., Dmitriev M.N.

Preliminary results of the water quality's research in the lacustrine of Gorky Reservoir and Volga and Oka rivers above Nizhny Novgorod on 2016

Keywords: *Gorky reservoir, hydro-chemical indicators, the ecological state of the river Volga.*

Results of water quality's research in the lacustrine of Gorky Reservoir and in the areas of Volga and Oka rivers above Nizhny Novgorod are given.

Plotnikova V.N., Sukhareva D.S.

The solid waste separation problem review and analysis at the Russian population level

Keywords: *solid waste, separation system population, solid waste utilization*

The article is devoted to the solid waste separation problem at the Russian population level. The authors show this system advantages considering European countries and the USA. The causes slowing down the system introduction in Russia are found out. The main solutions to the problem are planned (Nizhny Novgorod is considered).

Presnov S.V., Kochnev Yu.A.

The Central Russia transport shipping current state

Keywords: *transport shipping, operating conditions, the vessels couplers.*

The article describes the inland navigation vessels under Russian River Register authority, their technical state and its changes dynamics. The offers concerning the transport shipping efficiency increase using barge tugs are given. The couplers use on different river vessels types is analysed.

Surov O.E., Parnyakov A.V.

The modern staterooms design peculiarities on a cruise ship

Keywords: *cruise ships, economy class stateroom o, interior, comfort, stateroom -suite, color, lighting, furniture, naval architecture*

The article is devoted to the modern cruise ships staterooms interior and design issues. The authors reveal the passenger staterooms problems, specific features, forms, types. The main attention is drawn to the stateroom design features. Considering different cruise ships passenger staterooms the main issues concerning the decor, the colour and lighting design, the decorating and furnishing elements. The complex approach necessity towards the passenger staterooms interior design problems solution is revealed and substantiated.

Cheban E.Yu., Kapustin I.A., Molkov A.A., Igonina M.V.

Research of oil spill dynamics in vessel's wake current generated by «ship to ship» mooring

According to a statistical data the largest number of oil spill occurs in the oil handling operations. It requires special measures for preventing emergency situations from the small amount of oil spill. In this case need to create condition for predicted oil slick spreading in the predefined place with favorable environment for oil spill response operation. The special equipment with required parameters for these places needs to be predefined too.

An laboratories and on location study of velocities fields and oil simulator transfer's effects from «ship to ship mooring» is given. Different parameters of «ship to ship mooring» were observed, exactly: distance between vessels, flow velocities, displacements of vessels relative each other. Magnitudes of lateral velocities component are defined for different combinations of flow velocities, hull forms, distance between vessels and vessels' displacement are defined. An important role of a vessel's mutual disposition, which changes of the oil slick flow direction, is demonstrated. An increase of distance between vessels increases the velocity in wake current. Besides that a superposition velocity fields and oil simulator transfer are showed a good agreement.

Experimental results allow suggest that there is the optimal distance between vessels in «ship to ship mooring». It cans changes oil spill response technologies for the rivers raids for vessel's oil handling operations.

Yakovlev P.V., Gorbaneva E.A.

The heat transfer process numerical modelling during the high viscosity liquids transportation

Keywords: *transportation, high viscosity liquids, liquid tanker, numerical modeling*

The liquid behaviour numerical modeling during heating in the liquid tank volume while transporting high viscosity liquids applying a light permeable barrier located in the tank volume above the heaters parallel to the free surface mirror is presented. The temperature fields analysis is also held.

Section IV

Financial and accounting-analytical problems of the modern economy

Veselov G.V., Mineev V.I., Korchenkova E.I., Shishkina M.A.

Bulk consignments containerization efficiency in the corridor North-South-North: experience, problems, efficiency

Keywords: *river container transportation, characteristics, efficiency, containers, lighters, lighter carriers.*

The article deals with the container transportation organization in Europe and the central part of Russia. It is noted that containerization transportation benefits contributed much to the rapid containers and container carriers construction. Besides, for a number of reasons containers transportation by means of inland water transport in the central part of Russia is almost collapsed.

Krainova V.V., Grechko N.V.

The FBU «Volgo-Don basin inland waterways administration» tariff policy analysis for the water supply and irrigation services in 2017–2023

Keywords: *planned rate, alternative rate, water supply services, water consumers, pumping points, repair costs, subsidies.*

To solve the problem concerning the FBU «Volgo-Don Basin Inland Waterways Administration» pumping points repair and maintenance funding it is offered to revise the tariffs for pumping water for water supply and irrigation. The author's model deals with the growth rates possibility and its impact on the water supply services cost increase for Volgograd region villagers.

Kudryavtseva I.Yu.

Water transport internal control development substantiation

Keywords: *internal control, water transport, enterprise, development*

In this article the main water transport internal control directions considering the industry functioning problems and specificity are substantiated. The notion's content is revealed in relation to its functional purpose.

Trukhinova O.L.

Making decisions methods in relation to offering projects in the crisis conditions

Keywords: *problem situation, the decisions choice, criteria, strategy, the customer behavioral model, targets, structural performance.*

During the investment project realization the contractor's choice problem appears. A contractor may satisfy customer requirements and achieve the project goals. This problem is caused by taking management decisions necessity in the multicriterial problem conditions. Current studies use methods that can be implemented while a contractor is making his/her choice.

Shamonina K.S., Shepetova V.N.

Internal water transport enterprises risk matrix

Key words: *risk, risk matrix, risk ranking, probability, loss.*

The article discusses the risk matrix preparation procedure; the Volga shipping company main risk groups. The risk matrix preparation for the main risk groups is carried out.

Section V

Economics, logistics and transport management

Dvornikova E.N.

Some certainwater and sea transport activities types state licensing

Key words: *license, some certain activities types licensing, water transport, government regulation*

The article dicusses some certain water transport activity types licensing state rgulation in Russia. The main legal acts regulating licensing procedure for legal entities and individual entrepreneurs engaged in business activities in the Maritime and inland water transport are also analysed.

Platov Yu.I., Nikulina M.V.

Transport shipping management efficiency estimation

Keywords: *efficiency estimation, management, transport shiping work, approaches, estimation systems, a universal indicator, management informatization*

This article offers a transport shipping management universal efficiency indicator and its place in other enterprises mangement efficiency indicators system. This indicator can estimate the ships and some particular departments work. Its use may increase the transport shipping eficiency estimation adequacy, and afterwards- the transport shipping work efficiency. The problem concerning this indicator use in the modern world today is also described.

Section VI

Operation of water transport, navigation and safety of navigation

Vedernikov Y.V., Vedernikov D.Y.

The Russian maritime transport shipping current state in the Far East

Keywords: *maritime transport shipping, the vessels, number, loading, dimensional and age transport shipping status indicators.*

The article deals with the Russian maritime transport shipping current state in the Far East. In the article the cargo, the passenger and the auxiliary transport shipping structure according to the quantitative, size (deadweight, displacement) and age indicators. The work is based on the data provided by the Russian Maritime Shipping Register.

Klementiev A.N.

The plane ship movement mathematical model while entering an extremely small width lock-chamber

Keywords: *ship, lock, entering the lock process*

In the article some hydrodynamic features while the ship's entering a lock chamber are noted. The plane ship movement mathematical model while entering an extremely small width lock-chamber is presented.

Krinitsin A.S., Tikhonov V.I., Khvostov R.S.

The transverse components hull efforts determination considering the shallow water impact

Keywords: *vessel, shallow water, hydrodynamic characteristics, hull.*

The article analyzes the existing methods for determining the hydrodynamic characteristics in shallow water. The authors offer a new method for calculating hull transverse components for the forces acting on the vessel, depending on the fairway depth reduction Some methods for the future research concerning the hydrodynamic characteristics determining in the shallow water are noted.

Lobanov V.A., Khvostov R.S.

Computer-aided technologies application for the sea and river ice technology problems solution

Keywords: *vessel, ice conditions, ice technology, computer-aidedsystems, finite element modeling*

In the article a short review on the computer-aided technologies application for the shipping transport ice characteristics and the ice impact forecast on hydroengineering constructions is made. Some general information about computer-aided systems, their use peculiarities in the sea and river ice technology problems solution is given. Some particular examples concerning the special consideration ice problems solution with the help of computer-aided technologies are illustrated. The computer-aided experiments importance for the sea and river ice technology is emphsized. Some results which can be used as the help are given.

Osokin M.V.

Voyage duration calculation algorithm using the weather charts

Keywords: *voyage duration, navigation safety, time needed for the passage, the vessel speed in the windy conditions*

The article deals with the forecast weather charts use to consider the ship speed losses in the windy and stormy conditions while calculating the sea passage duration.

Section VII

Operation of ship power equipment

Besukov O.K., Denisova A.A.

Standards selection and weight coefficient quality indicators definitions in marine instrumentation estimation.

Key words: *standard, weights, local quality indicators, analytical methods, expert methods, marine instrumentation*

In this article the existing methods analysis concerning the standard selection and finding the individual marine instrumentation quality indicators weight coefficients. A new algorithm dealing with marine instrumentation selection standards based on its technical level estimation is offered. An analytical way revealing the weight coefficients individual indicators estimation in relation to the marine instrumentation quality is recommended.

Burmakin O.A., Shilov M.P., Malyshev Y.S., Popov S.V.

A ship power plant simulation model

Keywords: *ship power plant, simulation model, synchronization, parallel operation.*

The article offers a ship power plant simulation model, allowing to investigate the processes occurring in the diesel generator unit at varying loads, synchronization and two diesel generators parallel operation. The major model blocks schemes and the model's work waveform are shown. The model functioning adequacy check was carried out.

Korobko I.G.

The output voltage regulation in relation to the inverter in diesel generator unit with variable speed

Keywords: *autonomous power station, diesel-generator, voltage regulation system, frequency inverter.*

The article discusses the autonomous electric station, based on diesel-generator unit with variable rotation speed. The stabilization system concerning the generator unit output voltage, which provides closed loop voltage loss control compensation with the load current increase is offered.

Sugakov V.G.

The ship electrostations automatic control systems smart sensors and receiving relays

Keywords: *asymmetry, three-phase voltage system, module, angle asymmetry, symmetric components, motor torque, alternating current*

In the article the issues concerning the ship electrostations automatic control systems reliability increase are considered. The reconstructive diagnostics appliances use for digital sensors and receiving relays is offered. The chronocontrol principle is used for digital sensors. The sequence principle is used for three receiving relays.

Section VIII

Philosophy. Society. Culture

Balakshin A.S.

A.A. Bagdanov's culturalogical concept theoretical and methodological aspects

Keywords: *culture, cultural science, society, person, politics, economy, ideology, evolution, typology, integrity*

The article deals with A.A. Bagdanov's culturalogical concept theoretical and methodological aspects

Vladimirov A.A.

World outlook and ideology

Key words: *world, ontology, epistemology, axiology, methodology, praxeology*

The article gives a meaningful social philosophy in relation to the world outlook and ideology basic categories analysis. Their social significance is shown here.

Zelenov L.A.

Materialistic monism

Key words: *monism, pluralism, materialism, idealism, dialectic, postmodernism, world outlook*

In this article the pluralistic views assertion within all the world outlook types is stated. The dialectic-materialistic monism necessity and possibility is substantiated.

Schurov V.A., Shatalov-Davydov D.Y.

Adaptation and sustainable development: long-term strategy metalinguistic analysis concerning climate change prevention

Key words: *adaptation, sustainable development, NAMA.*

The article deals with the adaptation concept formation within the UNO system in relation to sustainable development. The adaptation relation to the main sustainable development concepts are also considered.