MATHEMATICAL MODELS AND OPTIMAL CONTROL ALGORITHMS FOR CHANNELS OF IRRIGATION SYSTEMS, TAKING INTO ACCOUNT THE DISCRETENESS OF WATER SUPPLY

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ABSTRACT

The object of research was selected section of the southern Golodnostep main canal, located in the North-East of the Republic of Uzbekistan. In recent years, scientific research has been carried out in many countries around the world, aimed at developing mathematical models and algorithms for solving problems of optimal management of water management systems, with the use of modern information systems. Methods of mathematical modeling and algorithmization of optimal control problems for systems with distributed parameters, what is considered the main channel. Optimal changes in water consumption over time and along the length of the main channel section are obtained, opening its gates allows you to increase the amount of water flow along the length of the site. During t=34,7 min. the water flow rate at the end of the main channel section reaches a value of Q=100 m³/sec and stabilization which important for canals and water gates

Keywords: optimal control, information systems, numerical methods, channels, water distribution, discrete water supply.