ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 12,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

THE IMPORTANCE OF GEODESIC MEASUREMENTS IN THE CONSTRUCTION OF ARTIFICIAL

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Abstract : this in the article geodetic measurements artificial water roads (canals , hydraulic engineering) construction of buildings) role , relief of the form monitoring and ecological of changes in the definition importance analysis Construction in the process relief destruction of lands sink or rise , water resources movement and ecological of balance changes geodetic methods through is observed and is evaluated .

Keywords : geodesy , artificial water road , water reservoirs , canals , relief , environmental monitoring, hydraulics , GNSS, topographic measurements .

Login . Today global climate today change , water resources limitation and village farm and industry of the sectors intensive development as a result hydraulic engineer of buildings role increasingly increasing Especially water warehouses , water distribution systems , channels and hydroelectric stations construction strategic importance profession This is buildings build in the process of accuracy , safety and economic efficiency priority importance profession It is this . in process geodetic affairs important scientific and practical tool as to the field comes out.Artificial water the ways are human by natural hydrological to systems mixed without built Such structures are canals , water warehouses , irrigation systems and drainage networks They are included . build to be not only technician and engineering approach , but environment and relief status right It also requires learning .

Basic part . Geodetic measurements this in process main role plays . Through them land surface there is status determined , from construction previous and next relief changes are monitored , ecological to balance impact provider factors is determined . Especially in modern technologies and other modern geodetic methods relief and ecological changes high in accuracy determination opportunity gives.Construction of the area relief clearly topographic measurements done increase , water facilities around relief and ecological the situation permanent following go to the monitoring system create , earth level sinking , drifting or rise circumstances clearly deformation observation done increase and GIS and other engineering programs for main cartographic information creating modeling for information preparation geodetic of measurements is the task .

Research Method: Earth digging and full works as a result relief shape changes , water level changes as a result close surrounding lands gets wet or drought face gives , as a result erosion and sediment gathering processes This process artificial water way construction to the relief serious impact Geodetic monitoring is changes determination and them control to do opportunity Especially through GNSS high accurate coordinates based on in relief every how changes clear record Environmental monitoring and geodetic approach through Water of the regime change as a result plant and animal world composition change , underground waters height change as a result soil to salinity or to get

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bogged down take arrival is determined.This artificial water roads ecological to systems noticeable impact to show means.Geodesic observations ecological monitoring one is part of . Aerial photographs and artificial companion images through plant of the cover change , water floods zones , desert rotation processes is determined .

Research results : Geodetic technologies based on relief and ecological changes observation for continuous monitoring of GNSS (Global Navigation Satellite System) in order points system organization is being and wide applied.Geodetic measurements through design during the relief, that is land surface shape The optimal direction of the channel is determined is determined ; height differences measured , water flow natural accordingly to move downwards for channel height into account is taken ; of the soil water permeability , water gathering danger studied , the earth structure and hydrological conditions Construction during clear coordinates based on construction their places to determine , to direct , to incline corners and lengths is determined and the channel right in the direction digging for geodesy service This device does project requirements appropriate construction provides . Time passing with land changes observed to go monitoring for and deformation control take Available of the channel clear geodetic map there is if , use during repair or expansion works for basis to be next affairs It gets easier . Water " Geodesic" warehouses "surveillance " works water warehouses and hydraulics of the buildings safety in providing geodetic observation works important importance have . Their main purpose – of the structures stability , displacement and deformations control is to do. The main tasks dam and other of buildings sinking , sliding and deformations determination ; water pressure and of the ground changes as a result to the surface coming constructive changes observation ; water warehouse surroundings and of the slopes push the risk control to do ; to measure results based on security monitoring take to go and preventive measures designation ; special geodetic to set marks (reference , center, sighting points) ; to level and triangulation measurements done increase ; total station and GPS technologies use ; taken the results initial project indicators with compare . Geodetic observation and study through of the structure stability and security level about clear information taken ; emergency of situations prevent to take opportunity created;far term exploitation for reliable monitoring system is formed.Exactly geodetic dimensions minimum ground digging works and expenses prevent take economic in terms of benefit brings . To the relief customized channel direction through to nature less damage delivered and ecological balance is stored .

Conclusion . Geodetic measurements artificial water way under construction right project to compose , to compose done increase and construction of work right execution control in doing so , as well as economically and ecological benefit in bringing important importance has was main from tasks one is considered . Geodesic measurements are land relief and ecological balance observer , analysis doer and management for ground creative scientific and practical is a tool. Conclusion as in other words artificial water roads construction natural relief and ecological to systems serious impact shows these effects . in advance assessment and process during following to go modern geodetic without methods impossible . Geodesic measurements artificial water roads under construction the most important scientific and practical processes in line They include :

- relief changes to determine ,
- construction in the process situations control to do ,

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- ecological security to provide ,
- engineering solutions for optimization It is necessary .

Geodesy – not only engineering , maybe ecological security provide tool also important as importance has . Therefore , every how hydraulic engineer in the project geodetic observations mandatory stage as attention to be taken necessary .

Used literature .

1. Jalilov, R. (2019). Hydraulic Engineering facilities Design . Samarkand : SamSU .
2. UNECE. (2018). Guidelines on Monitoring the Effects of Artificial Waterways on the Environment. Geneva .
3. NASA Earth Observatory. (2022). Remote Sensing for Environmental Monitoring. earthobservatory.nasa.govyev , M. , & Islamov , S. (2020).
4. Uzbekistan Republic Geodesy and cartography Committee . (2023). Geodetic work organization to grow according to methodical instructions . Tashkent .
5. Uzbekistan Republic Water farm Ministry of . (2023). Hydrotechnical buildings under construction modern technologies application according to manual . Tashkent .
6. Smith, J., & Johnson, L. (2021). Modern Geodetic Technologies in Hydraulic Engineering Projects. Journal of Civil Engineering, 45(4), 230-245.
7. Mamadjanov.MM ., “ Engineering geodesy”, Namangan 2024.
8. Muborakov.H., Okhunov.ZD and chief., Geodesy. Tashkent 2021.

Websites

1.www.ziyonet.uz;

2. www.lex.uz;

3. www.ozon.ru.

4. www.trimble.ru.

5. www.doroga.ru

6. www.road.ru;