

## Study of the Hydrochemical Composition of Canal, Collector-Drainage and Ground Waters of Kura-Araz Plain and Modeling by GIS Method

**Authors :** Gurbanova Lamiya

**Abstract :** The Republic of Azerbaijan is considered a region with limited water resources, as up to 70% of surface water is formed outside the country's borders, and most of its territory is an arid (dry) climate zone. It is located at the lower limit of transboundary flows, which is the weakest source of natural water resources in the South Caucasus. It is essential to correctly assess the quality of natural, collector-drainage and groundwater of the area and their suitability for irrigation in order to properly carry out land reclamation measures, provide the normal water-salt regime, and prevent repeated salinization. Through the 141-km-long main Mil-Mugan collector, groundwater, household waste, and floodwaters generated during floods and landslides are poured into the Caspian Sea. The hydrochemical composition of the samples taken from the Sabir irrigation canal passing through the center of the Kura-Araz plain, the Main Mil-Mugan Collector, and the groundwater of the region, which we chose as our research object, were studied and the obtained results were compared by periods. A model is proposed that allows for a complete visualization of the primary materials collected for the study area. The practical use of the established digital model provides all possibilities. The practical use of the established digital model provides all possibilities. An extensive database was created with the ArcGis 10.8 package, using publicly available LandSat satellite images as primary data in addition to ground surveys to build the model. The principles of the construction of the geographic information system of modern GIS technology were developed, the boundary and initial condition of the research area were evaluated, and forecasts and recommendations were given.

**Keywords :** irrigation channel, groundwater, collector, meliorative measures

**Conference Title :** ICAWCIWUM 2023 : International Conference on Agricultural Water Conservation and Irrigation Water Use Management

**Conference Location :** Paris, France

**Conference Dates :** March 27-28, 2023