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Water contaminations in Karaj dam's rivers and their relationship with outcrop rocks with using GIS method

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Karaj Dam is located in the middle part of Alborz Mountain and its distance from Capital city, Tehran, is 63 kilometers. Watershed area approximately is 1000 square kilometers, average rate of rainfall is 625 mm per year and watershed altitude is between 4900 to 1700 meters from open sea. Karaj Dam is as a drinking water source for Tehran and Karaj cities and 21000 hectares of agricultural irrigation. Our studies is connected with As, Pb, Sb, Hg, Mo contaminant elements . We used 194 rock samples for chemical analysis and 12 water quality control stations. Chemical analysis values of rocks in the GIS divided into different classes with regard to the standard allowable values. We used SRTM data to find major catchments area and small watershed basin area behind the dam. After the necessary calculations, we determined which small basin area can be important to make more elements to pollution. The results compared with 12 water quality control stations and direct connection between the chemical composition of the rocks and water contaminated that comes from that area are very obvious. Our Study shows that natural contaminations can be enter to cycle from the southern part of basin, 14 kilometers from dam to east. Water contaminations is located along Shahrestanak river to Shahrestanak bridge and then to Mahan factory. The catchment's area for this river has highest amount of As, Sb, Pb and water quality control stations close that area show high contamination.