

## Estimation and analysis of discharge, sediment transport and its effect on sedimentary processes of Alamut and Shahrud rivers (North of Qazvin Province)

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Received: 2017/6/19

Accepted: 2017/8/28

### Abstract

Sediment transport from continents to oceans and seas via rivers is one of the most important processes regulating river-bank stabilization, soil formation, biogeochemical cycling of elements, crustal evolution and many other earth-related processes. Shahrud catchment is a part of Caspian Sea great drainage basin, located in North of Qazvin Province; its main tributaries are Alamoutrud and Taleghanrud rivers. As a structural point of view, the study area is part of Southern-Central Alborz structural zone which is mostly composed of Eocene volcanic units and Miocene terrigenous sedimentary rocks. In this research, water and sediment discharges (2013-2014 water year), grain size and mineralogical analysis of the sediment load were studied. Cyclic variation of discharge indicate a flood-dominated river; both water discharge and sediment load are controlled by the river tributaries and lithology of the catchment. This research shows (for the first time) that suspended load constitutes (mainly silt-size grains, composed of quartz, calcite, feldspar, muscovite/kaolinite) more than 99% of the sediment load. Bed-load materials are mainly volcanic- and carbonate-rock fragments. Erosion is the main process in upstream and transport/sedimentation is dominant in the river mid and downstream.

**Keywords:** Shahrud, Alamut, Taleghan, flow discharge, hydrometry, sediment transport