Journal of Research in Ecology

An International Scientific Research Journal

ISSN No: Print: 2319 –1546; Online: 2319-1554

Comparison of EPM and Geomorphology models for erosion and sediment yield assessment in a semi-arid environment

Authors:
Somayeh Shahri[1], Hasan Ahmadi[3] Mohamareza Ekhtesasi[4] and Fatemeh Malekzadeh[2].

Institution:
1. Ms. Engineering of Watershed management of Tehran University
Research expert of Vernacular Architecture Research Center of Yazd University.

2. Ms. Engineering of Architectural
Member of Vernacular Architecture Research Center of Yazd University

3. Prof. Watershed Management
Natural Resources College of Tehran University

4. Prof. Watershed management
Natural Resources College of Yazd University

Corresponding author:
Somayeh Shahri

ABSTRACT:

In the present study, erosion and sedimentation are estimated by the two qualitative (Geomorphology) and quantitative (EPM) methods; the results in Dehbala watershed in Yazd, Iran, were compared with that of observed statistics for sedimentation. Geomorphology presents the intensity of erosion qualitatively; factors such as physiographic, soil and stone type, vegetation coverage and geomorphology facies determine the intensity o the erosion. EPM method quantitatively offers the amount of erosion for each watershed using four factors including current erosion conditions, soil and stone susceptibility coefficient to erosion, utilization coefficient of lands and also calculation of the amount of sedimentation carrying after the calculation of sedimentation coefficient of watershed. In order to improve precision and to create possibility of the better investigation, the accomplishment of the quantitative model, i.e. EPM, at the level of homogenous units was representative of this case that of EPM model because geomorphology considers more efficient factors in erosion and also its application in the specific areas, called homogenous units, which mediates effective elements in destruction, presents better results. However the results differed from the real amount of the watershed sedimentation due to special conditions of the area of study (mountainous, highly inclined). By comparing the results of the above-mentioned methods with observed statistics for sedimentation, we find out that the difference between the amount obtained by geomorphology method and the amount obtained by observed statistics for sedimentation was 48.96%; this difference was 77.22% in the EPM model.

Keywords:

Erosion, Sedimentation, Geomorphology model, EPM model, Facie, Homogenous unit

Journal of Research in Ecology