
*

(// : // :)

Archive of SID

...

...
(, , ,)

()

()

()

()

()

()

((, , , ,))

...
()

()

()

()

Peter

Ohio

Bruce

Walling

()

()

()

/

()

()

(
y ,x

()

)

()

()

"(

()

Run test

Dargahi

Polawaski

...

SPSS

()

()

()

"

()

(b)

()

$$Q_s = aQ_w^b$$

()

$$\text{Log}(Q_s) = \text{Log}(a) + b \text{Log}(Q)$$

(m³/s)

:Q_w (Ton/day)

:Q_s

a,b

Archive of SID

)

(

Arcview

()

()

Ilwis

()

)

(

Step wise

| | | | | | | | | | | | | |
|---|---|---|---|---|-----------------------------|--|--|--|--|--|--|--|
| (|) | | | | | | | | | | | |
| | | | / | / | $Q_s = 3/4527 Q_w^{1/1135}$ | | | | | | | |
| | / | | / | / | $Q_s = 1/1143 Q_w^{2/1615}$ | | | | | | | |
| | | / | / | / | $Q_s = 2/1815 Q_w^{1/4104}$ | | | | | | | |
| | | | | | $Q_s = 1/9211 Q_w^{1/4005}$ | | | | | | | |
| | / | / | | / | $Q_s = 0/5047 Q_w^{2/2622}$ | | | | | | | |
| | / | | / | / | $Q_s = 3/9477 Q_w^{1/5003}$ | | | | | | | |
| | | / | / | / | $Q_s = 2/5442 Q_w^{1/6102}$ | | | | | | | |
| | | | / | / | $Q_s = 1/6271 Q_w^{1/9112}$ | | | | | | | |
| | | / | / | / | $Q_s = 2/7137 Q_w^{2/0686}$ | | | | | | | |
| | | / | / | / | $Q_s = 21/769 Q_w^{1/5362}$ | | | | | | | |
| | | / | / | / | $Q_s = 8/7996 Q_w^{1/6556}$ | | | | | | | |
| | | | / | | $Q_s = 5/8973 Q_w^{1/3668}$ | | | | | | | |
| | | / | / | / | $Q_s = 30/069 Q_w^{1/3775}$ | | | | | | | |
| | | / | / | / | $Q_s = 35/89 Q_w^{1/9308}$ | | | | | | | |

()

| | f | | df | | | |
|-----|----------|---|-----------|---|--|--|
| / | / | / | | / | | |
| () | | / | | / | | |
| | | | | / | | |
| / | / | / | | / | | |
| () | | / | | / | | |
| | | | | / | | |
| / | / | / | | / | | |
| () | | / | | / | | |
| | | | | / | | |

| | | | | | | |
|---|---|-----|-----|--|--|--|
| | | | | | | |
| / | | 1 / | 7 / | | | |
| / | / | / | / | | | |
| / | / | / | / | | | |
| / | / | / | / | | | |
| / | / | / | / | | | |
| / | / | / | / | | | |
| / | / | / | / | | | |
| / | / | / | / | | | |

...

| | | |
|------------|---|--|
| | | |
| () () | : a : X ₁ : X ₂ | a = / + / x ₁ - / x ₂ |
| () () | : a : X ₁ : X ₂ | a = / + / x ₁ - / x ₂ |
| () () | : a : X ₁ | a = / + / x ₁ |

()

()

...

()

()

()

(a)

()

Archive of SID

()

- 18- Asselman, N. E. M., 2000. Fitting and interpretation of sediment rating curves, *Journal of Hydrology*, 234:228-248.
- 19- Cox, N. J., 2002. Generalized linear models for prediction: some principles, some programs and some practice, University Of Durham, n. j. cox. @ durham.ac.uk.
- 20- Dave Rosgen, P.H., 2000. Review comments of the evaluation of sediment transport data for clean sediment TMDL, S. Report NO.17 of November 2000.
- 21- Gravford, C.G., 1991. Estimating of suspended – sediment rating curves and mean suspended –sediment loads, *Journal of Hydrology*, 12(1-4): 331-348.
- 22- Horowitz, A. J., 2002. The use of sediment rating curves for monitoring suspended sediment concentrations and fluxes: Issues of temporal resolution, estimation errors, and sampling frequency, proceedings MTM-IV, U.S. Geological Survey, Peachtree Business Center, Suite 130, 3039 Amwiler Road, Atlanta, Ga 30360, USA.
- 23- Horowitz, A. J., 2002. The use of rating (transport) curves to predict suspended sediment concentration: a meter of temporal resolution, turbidity and other sediment surrogates workshop, U.S. Geological Survey, Peachtree Business center, Suite 130, 3039 Amwiler Road, Atlanta, Ga 30360, USA.
- 24- Kerem, H. C., 2003 .Estimation and forecasting daily-suspended sediment data by multi-layer perceptions advances in water resources, 27(185-195).
- 25- Kerem, H., 2000. Suspended sediment estimation for rivers using artificial neural networks and sediment rating curves, *Turkish Journal Eng. ENN. SCI* 2002, NO .26.
- 26- Pruitt, B. A., Melgaard, D. L. Howard, H. & Flexner, C. M., 2001. Chattooga river water shed ecological / sedimentation project, U. S. Environmental Protection Agency.
- 27- Walling, D. E., 1977. Assessing the accuracy of suspended sediment rating curves for a small basin, *Water Resources Research*, VOL. 13, NO.3.

28- Wheat Croft, R, A., Sommerfield, C. K. & Drake, D. E., 1997. Rapid and widespread dispersal of flood sediment on the northern California margin, *Geology.*, volume 25. NO.2, p 163-166.

29- Whiting, P. J., 2003. Estimating TMDL back ground sediment loading from existing data – FLNAL REPORT to the great lakes commission. Department of geological sciences case Western Reserve University.

30- Wilcock, P., 2004. Sediment transport in gravel bed rivers. University of California – Berkeley, lecture 1.

Archive of SID

Regional Assessment of Sediment Rating Curves in the different climates of Iran

B. Farokhzadeh^{*1}, M. Azarakhshi¹, M. Mahdavi² and A. Salajegheh³

¹ Ph. D. Student, Faculty of Natural Resources, University of Tehran, I. R. Iran

² Professor, Faculty of Natural Resources, University of Tehran, I. R. Iran

³ Assistant Prof., Faculty of Natural Resources, University of Tehran, I. R. Iran

(Received 17 October 2005, Accepted 28 October 2007)

Abstract

One of the methods for estimating sediment is using sediment data of hydrometric stations, and establishment of a relation between flow discharge and sediment discharge as sediment rating curves. Because of the importance of these curves in sediment discharge estimation and lack of sufficient data and information for most of watersheds in Iran, this research attempts to study variation trend of regional sediment rating curves and the effective factors, for use the obtained results for the other watersheds. Then 29 hydrometric stations with suitable geographic distribution were selected and their sediment rating curves were determined. Those stations were zoning into four climates, and in every zone, a regression relation was established between percentage of sensitive area to erosion, percentage of vegetation cover, and area of the basins with slope of curves. This relations were significant in 95% level of confidence in humid climate, 99% level in semi humid and 90% level in arid climate, this results showed the effect of this variable on slope of curves, but this situation in the semi arid climate a significant relation did not occurred.

Key words: Sediment rating curve, Hydrometric station, Sediment discharge, Climate

* Corresponding author: Tel: +98 261 2249313 , Fax: +98 261 2249313 , E-mail: be_farokhzadeh@yahoo.com