
SCS

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SCS

Archive of SID

(E-mail: n_mojtaba@hotmail.com)

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(USDA)

(SCS)

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P> / S ()

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$$Q = \frac{(p - \cdot / \gamma s)^{\gamma}}{(P + \cdot / \lambda S)}$$

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Q,P

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S

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(CN)

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$$S = \frac{\gamma \delta \cdot \cdot}{CN} = \gamma \delta \cdot$$

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N

-Hawkins
-Hossein

-R. P. Betson
-J. Bales
-McCuen

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P:Q

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S

Q P

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$$S = \Delta[P + \gamma Q - (\gamma Q + \Delta PQ)^{1/\Delta}] \quad ()$$

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:P

KSC, IRL

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:Q

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(λ Ia/S) ()

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SCS

-
- Heggen
 - Kim
 - Woodward

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- Bofu
 - Mishra

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II

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| | / | B | | |
| | / | C | | |

II

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| | (km) | | | |
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| | / | D | () | |
| | / | D | () | |
| | / | B | | |

II

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| | (km) | | | |
| | / | D | | |
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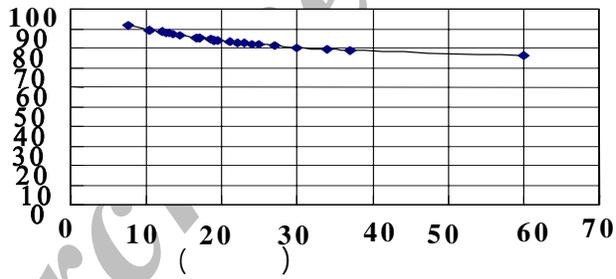
| | (S(mm | (mm) | (mm) | | |
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$$CN_{(P)} = 75 + 25 \exp^{-0.053P} \quad ()$$

: P

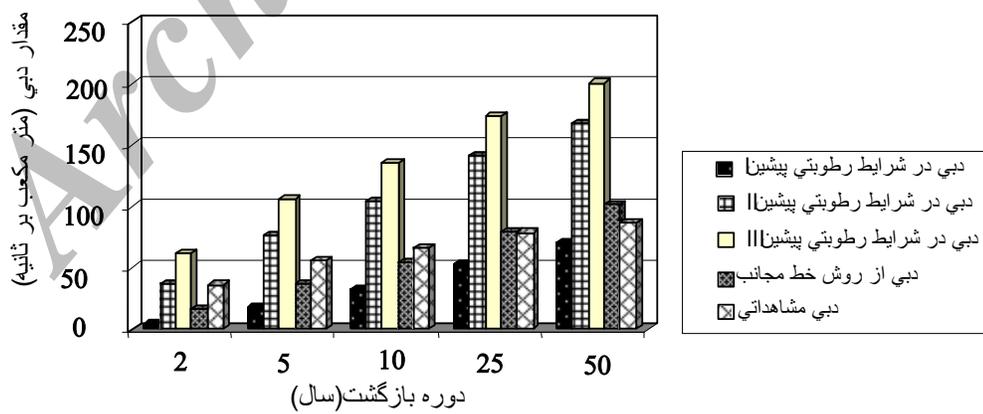
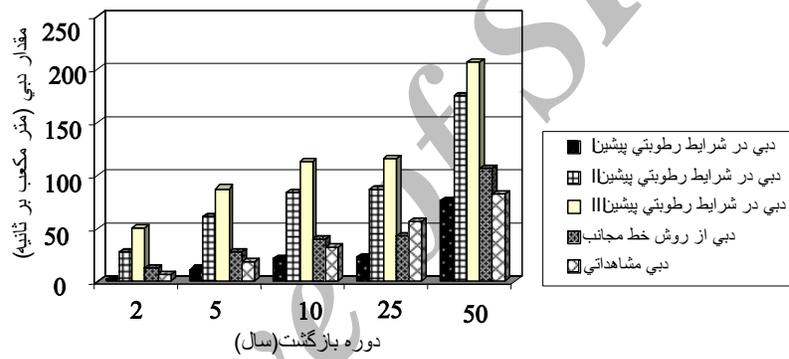
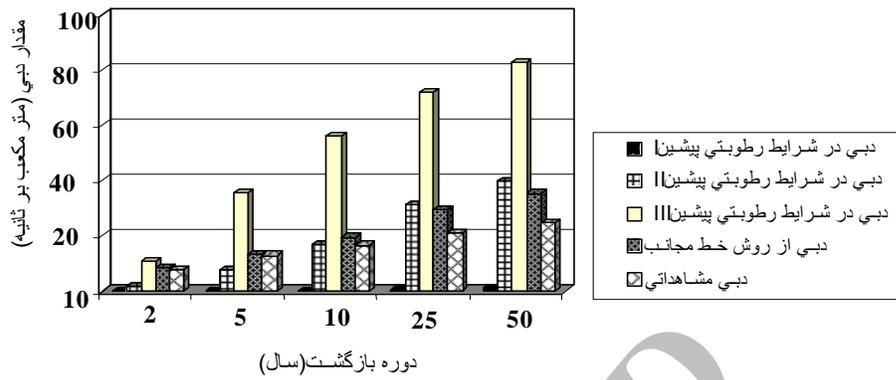
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- ۳-Bales, J. & R. P. Betson, ۱۹۸۱. The Curve Number as a Hydrologic Index, Proceeding International Symposium on Rainfall-Runoff Modeling, Mississippi State University, pp. ۳۷۱- ۳۸۶.
- ۴-Bofu, Y. U., ۱۹۹۸. Theoretical Justification of SCS Method for Runoff Estimation, Journal of Irrigation and Drainage Engineering, ASCE, ۱۲۴(۶): ۳۰۶-۳۱۰.
- ۵-Hawkins, R. H., ۱۹۷۸. Runoff Curve Number With Varying Site Moisture, Journal of the Irrigation and Drainage Division, Proceedings of the American Society of Civil Engineers, ۱۰۴(۴): ۳۸۹-۳۹۸.
- ۶-Hawkins, R. H., ۱۹۸۴. A Comparison of Predicted and Observed Runoff Curve Number, Water Today and Tomorrow; Proc. Specialty Conf., ASCE, New York, N.Y., pp.۷۰۲-۷۰۹
- ۷-Hawkins, R. H., ۱۹۹۳. Asymptotic Determination of Curve Numbers from Data, Journal of Irrigation and Drainage Engineering, ASCE, ۱۱۹ (۲): ۳۳۴-۳۴۰.
- Heggen, J. R., . Normalized Antecedent Precipitation Index, Journal of Hydrologic Engineering, ASCE, (): - .
- ۹-Hossein, A. A., D. H. Pilgrim., G. W. Titmarsh. & I. Cordery, ۱۹۸۹. Assessment of U.S.Conservation Service Method for Estimating Design Floods, New Directions for Surface Water Modeling; Proc., Balimore Symp., IASH Publication ۱۸۱, Int. Assoc. of Hydro. Sci., Washington, D.C. ۲۸۳-۲۹۱.
- Kim, Y., B. A. Engel, K. J. Lim, V. Larson & B. Duncan, . Runoff Impact of Land-use Change in Indian River Lagoon Watershed. Journal of Hydrologic Engineering, ASCE, (): - .
- ۱۱-McCuen, R. H., ۱۹۸۲. A Guide to Hydrologic Analysis Using SCS Methods, Prentice - Hall, Inc. Englewood clif, N.J.
- ۱۲-McCuen, R. H., ۲۰۰۲. Approach to Confidence Interval Estimation for Curve Numbers, Journal of Hydrologic Engineering, ASCE, (): - .
- Mishra, K. S. & P. V. Singh., . Another look at SCS-CN Method, Journal of Hydrologic Engineering, ASCE, (): - .
- Warren Viessman, Jr. & Gary L. Lewis, . Introduction to Hydrology ۳th Ed., HarperCollins Publishers, New York., pp.
- Woodward, D. E., R. H. Hawkins, R. Jiang, A. T. Hjermfelt, J. A. Van Mullem, & Q. D. Quan, . Runoff Curve Number Method: Examination of the Initial Abstraction ratio. Proceeding of the World Water & Environmental Resources Congress and Related Symposia.

A Determination of Peak- Flood using Different Curve Number Methods (Case Study, Central Alborz Area)

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M. Mahdavi

Abstract

Soil conservation service-curve number (SCS-CN) method is one of the most employed methods for computing discharge as well as surface runoff from watersheds. Recent studies show that this much-used method is susceptible to difference in curve number. As a result, much caution is recommended in its application. In this research the above-mentioned method was used and it was found that the asymptotic method would give a better SCS Table method for determining curve number. Results also reveal least peak-flood differences between observed and calculated discharge in the asymptotic method. The discharge while using SCS Table method in different antecedent moisture conditions shows a larger difference with the observed discharge.

Keyword: Curve number method, Asymptotic method, Peak-flood.

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