

Higher National School of Hydraulic

The Library

Digital Repository of ENSH



المدرسة الوطنية العليا للري

المكتبة

المستودع الرقمي للمدرسة العليا للري



The title (العنوان):

Study on the applicability of the SCS-CN-based models to simulate floods in the semi-arid watersheds of northern Algeria

The paper document Shelf mark P21-25 :(paper version not available)

APA Citation (APA توثيق):

Abdi Ishak, Meddi Mohamed (2021). Study on the applicability of the SCS-CN-based models to simulate floods in the semi-arid watersheds of northern Algeria . *Acta*

Geophysica , vol 69(n°1), p. 217–230 . DOI ou URL :

<https://link.springer.com/article/10.1007/s11600-020-00511-3>

The digital repository of the Higher National School for Hydraulics "Digital Repository of ENSH" is a platform for valuing the scientific production of the school's teachers and researchers.

Digital Repository of ENSH aims to limit scientific production, whether published or unpublished (theses, pedagogical publications, periodical articles, books...) and broadcasting it online.

Digital Repository of ENSH is built on the open DSpace software platform and is managed by the Library of the National Higher School for Hydraulics. <http://dspace.ensh.dz/jspui/>

المستودع الرقمي للمدرسة الوطنية العليا للري هو منصة خاصة بتقييم لإنتاج لأساتذة باحثي المدرسة.

يهدف المستودع الرقمي للمدرسة إلى حصر الإنتاج العلمي سواء كان منشورا أو غير منشور (طروحات، مطبوعات، مبداعات، مقالات، دوريات، كتب...) بثه على الخط.

المستودع الرقمي للمدرسة مبني على المنصة المفتوحة DSpace و يتم إدارته من طرف مديرية المكتبة للمدرسة العليا .

كل الحقوق محفوظة للمدرسة الوطنية العليا للري.

Abstract : Algeria has experienced catastrophic floods over the second half of the twentieth century, causing many deaths and extensive material damage. This study was conducted to find a suitable event-based rainfall-runoff (RR) model for semi-arid conditions, where continuous data are not available in all regional basins. The study compared, based on data availability, the SCS-CN model based on the antecedent moisture conditions (AMC) and four modified SCS-CN models incorporating antecedent moisture amounts (AMA) in order to find the best model to reproduce the flood hydrographs in two catchments. The modified models were predominant over the SCS-CN method. Nonetheless, the Singh et al. (Water Resour Manag 29:4111–4127, 2015. <https://doi.org/10.1007/s11269-015-1048-1>) model (M4) and the Verma et al. (Environ Earth Sci 76:736, 2017a. <https://doi.org/10.1007/s12665-017-7062-2>) model (M5) were superior and demonstrated more stable structures. Coupled with the Hayami routing model, the models showed promising results and were able to reproduce the observed hydrographs' shape. However, it was impossible to choose the preferred model since they each excelled as to a criterion. Therefore, the corresponding outputs were combined using the simple average (SA) method and the weighted average (WA) method. We found that the WA method showed better results in the two catchments and allowed a more accurate prediction according to the performance criteria.

Keywords: AMC ; AMA ; Event-based ; Flood prediction ; RR model ; SCS-CN

Available from : <https://link.springer.com/article/10.1007/s11600-020-00511-3>