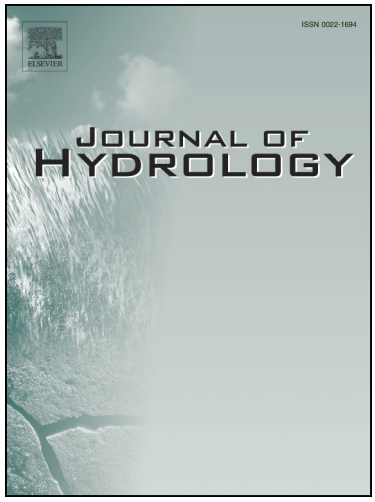

Research papers

Minimizing Ambiguities in Stream Classification of Complex Drainage Structures

Rajesh Kumar Sah, Apurba Kumar Das

PII: S0022-1694(17)30512-7
DOI: http://dx.doi.org/10.1016/j.jhydrol.2017.07.047
Reference: HYDROL 22149

To appear in: *Journal of Hydrology*

Received Date: 26 April 2017
Revised Date: 27 June 2017
Accepted Date: 25 July 2017

Please cite this article as: Sah, R.K., Das, A.K., Minimizing Ambiguities in Stream Classification of Complex Drainage Structures, *Journal of Hydrology* (2017), doi: http://dx.doi.org/10.1016/j.jhydrol.2017.07.047

Minimizing Ambiguities in Stream Classification of Complex Drainage Structures

Rajesh Kumar Sah[1], Apurba Kumar Das[1,*]

[1] School of Sciences, Department of Environmental Science, Tezpur University, Tezpur, India

* Corresponding author

Email: apurba@tezu.ernet.in

Abstract

In hydrological studies complex drainage structures in river systems are open to ambiguous subjectivity when conventional classification systems are followed. We suggest rules that compliment both Strahler's and Shreve's methods of stream numbering and their extent consideration to reduce this subjective uncertainty. We delineated three possible complex distributary conditions followed by individual application of Strahler's and Shreve's rationales for stream classifications with concurrent verification in real river situations. As a result, for Strahler's method, we derived the decisive criteria in designating correct stream number in complex stream interconnections by plotting minimum number of segments along with the concept of primary and secondary flow. On the other hand, for Shreve's method, splitting the magnitude of the streams at divides of the distributaries yielded precise results. Final real world verification from both applications substantiated the potential of our proposed methodologies to reduce subjectivity in stream classification.