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APPLICATIONS OF RANDOM MODEL OF DRAINAGE BASIN COMPOSITION

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# River Network and Drainage Basin Geomorphology

*Assembly South Room, Monday 1330h*

R. L. SHREVE (University of California, Los Angeles, California), Chairman

## BRIEF INTRODUCTION

R. L. Shreve (University of California, Los Angeles, California 90024)

## H 14 INVITED PAPER

### APPLICATIONS OF THE RANDOM MODEL OF DRAINAGE BASIN COMPOSITION

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The random model of drainage basin composition is founded on the assumptions that (1) natural channel networks are topologically random in the absence of geological controls and (2) for channel networks developed in similar environments, the exterior and interior link lengths are independent random variables with a common distribution for each type. The effectiveness of

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this model in estimating the values of geomorphic variables and in explaining and predicting geomorphic relationships is illustrated by several examples. The data required for these examples were obtained from map studies of 30 channel networks, comprising a total of about 8700 links, in eastern Kentucky. A common factor in the success of all three applications of the model is the way in which the planimetric features of drainage basins are determined by their underlying topologic structure.

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