

研究报告

## 杂谷脑河流域河网统计自相似性

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**摘要** 河网自相似性是水文尺度研究的重要方向, 统计自相似研究不同尺度下河网参数概率分布函数的相似性. 从统计自相似的角度, 推导出河网参数、全河网分布和单级河道分布的关系, 并用杂谷脑河DEM进行验证; 对所得数据进行Kolmogorov-Smirnov双样本检验, 结果显示, 推导结论与实际数据吻合, 说明整个河网和单级河道之间是复杂的层叠关系, 而不是简单的比例关系.

**关键词** [河网](#) [统计自相似](#) [概率分布](#)

分类号

## Statistical self-similarity of channel networks in Zagunao River catchments

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### Abstract

Self-similarity of channel networks is an important field in hydrologic scaling research, while the statistical self-similarity of channel networks is to study the similarity of the probabilistic distribution functions of network parameters at different scales. In this paper, the relationships between the entire network and the streams of the same Horton-Strahler order were derived in terms of the probabilistic distribution of network parameters, and empirical tests were performed by using the DEM data of Zagunao River catchments. The results of Kolmogorov-Smirnov Two-Sample test showed that the derived equations fitted the empirical data well, suggesting that the relationships between the entire network and the streams of the same Horton-Strahler order were of complicated cascade rather than "simple scaling".

**Key words** [Channel networks](#) [Statistical self-similarity](#) [Probability distribution](#)

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