Recurrence of flood and sediment yield of historical heavy rain on underlying surface in different periods

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The research on the recurrence of flood and sediment yield of historical heavy rain on the underlying surface in different periods in Wuding River is helpful to understand the variation of water and sediment under heavy rain conditions in this area, and provide scientific support for clarifying the variation law and causes of the sharp reduction of sediment in the yellow river. Taking the heavy rainstorm in Wuding River Basin on August 5, 1977 as the research object, the underlying surface conditions in two different periods before 1972 and after 1998 was simulated in this paper, the relationship between the secondary flood volume and the area average rainfall, and the combination relationship between the secondary flood volume and rainfall factors, and the relationship between the upper and lower envelope and trend line were established respectively, and the amount of flood cement and sand produced under the early and recent underlying surface conditions was analyzed, The "conventional" and "unconventional" runoff and sediment yield models in Wuding River Basin under different climate underlying surface scenarios were put forward. The results showed that if the rainfall in 1977 occurred on the underlying surface before 1972, it can produce 158.02 million m3 runoff and 101.35 million t sediment, which was 86.97 million m3 more than the actual runoff in 1977 and 54.13 million t more than the actual sediment; If the rainfall in 1977 occurred on the underlying surface after 1998, it can produce 59.63 million m3 runoff and 25.78 million t sediment, which was 102.02 million m3 less than the actual runoff in 1977 and 47.85 million t less than the actual sediment transport.