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Research progresses and trends of hydrological connectivity based on bibliometrics

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Water is the main factor restricting and maintaining biological activities, and hydrological connectivity is closely related to many ecological processes. As a process that characterizes the transfer of energy and organisms among landscapes during the water cycle, hydrological connectivity establishes the interconnection between the material and energy flow of the landscape during the water cycle. Using bibliometric methods, hydrological connectivity related researches were searched via Web of Science and CNKI database, combining with Bibexcel, Ucient and Citespace procedures to obtain high-frequency words and keyword co-occurrence network views, we reviewed the research progress of hydrological connectivity abroad. The results showed that: 1) Regarding hydrological connectivity, the volume of publications both at home and abroad has shown an upward trend. The number of the publications showed significantly increased. 2) In terms of the frequency of keywords, many studies tend to focus on the research on hydrological connectivity of different types of ecosystem structure and function changes. 3) The analysis of the frequency of outbreak words showed that hydrological connectivity and climate change, biodiversity and ecosystem services have become research hotspots in this field. 4) According to the co-occurrence network view, we found that hydrological connectivity and ecological processes, the impact of different types of ecosystem hydrological connectivity on material transport, and the impact of changes in ecosystem structure and function on hydrological connectivity are the current research hotspots. Carrying out multi-scale hydrological connectivity mapping and multi-scale hydrological connectivity quantitative assessment and model simulation based on geographic information technology and long-term field monitoring data are the trends of future hydrological connectivity research directions.