TITLE:
“Two studies in scaling of extreme events in self-similar river networks: peak flows and ecological extinction".

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SESSION**:**
"Four paradigms in predicting extremes: Legacy of Vladimir I. Keilis-Borok"

PREFERENCE:
Invited talk.

ABSTRACT
In this talk we explore the implications that self-similarity imposes on transport in river networks. Two separate phenomena are considered, and each is based in newly discovered formulations of the relationship between geometry and transport in river basins. First, the flow of water in large networks is discussed in terms of the network's width function, and some scaling results for the location and magnitude of the peak flow are given. Secondly, we consider the dispersive transport of small benthic individuals within a network, and compute the critical reproductive rate needed for persistence of the population in the network. We then explore the role that the network's geometry and topology plays on the critical reproductive rate, and explore its scaling in terms of the self-similiraty properties of the network.