Reflections on the July 31, 1976, Big Thompson Flood, Colorado Front Range, USA

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Abstract

In the early evening of Saturday, July 31, 1976, a large stationary thunderstorm released as much as about 305 mm of water in a few hours that produced extraordinary flash flooding, primarily in the Big Thompson River Basin. The flood caught residents and tourists by surprise. The sudden flood that churned down the narrow Big Thompson Canyon scoured the river channel that night and caused over $116 million (2006 dollars) in damages. The tragedy claimed the lives of 144 people, including two law enforcement officers trying to evacuate people in danger, and there were 250 reported injuries. Hundreds of other people narrowly escaped with their lives.

This poster presents a summary of the hydrologic conditions of the 1976 flood, describes some of the advances in U.S. Geological Survey flood science as a consequence of this disaster, and provides a reminder that such floods will occur again. Important contributions to flood science as a result of the 1976 flood include the development of paleoflood methods to document the number, magnitude, and age of floods that occurred prior to streamflow monitoring, which are used to improve flood frequency estimates, help improve flood warning systems, and validate the critical-depth method for improving estimates of extreme flood discharges in higher-gradient rivers. The poster also provides background information for the associated Wednesday field trip to the Big Thompson River watershed. These methods and data on large floods can be used in many mountain-river systems to help us better understand flood hazards and plan for the future.

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