Towards the Development of a US Flood Model

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Floods are in the top-three tier among all weather-related hazards in the United States, with large economic and societal repercussions. Examination of flood extent associated with events from the upper tail of the flood peak distribution highlight coherent spatial structures over large areas. Therefore, a realistic model able to describe flooding over the US at the regional scale should be able to represent the spatial correlation of the physical processes at play and, at the same time, to incorporate information about local factors (e.g., impervious areas). By leveraging on the wealth of discharge data collected and archived by the US Geological Survey (USGS), we pursue a data-driven approach to describe flood extent associated with flooding from the upper tail of the flood peak distribution. The development of such model would lead to the generation of empirically-based event sets, with beneficial effects to different sectors, such as the insurance/reinsurance industry and for public policy. We present preliminary results concerning the development of a flood model for the Eastern US.