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Flash flood, scales and society

Abstract:

Flash floods are characterized by their suddenness, fast and violent movement, rarity, small scale but high level of damage. They are particularly difficult to forecast accurately and leave very little lead time for warnings. Flash floods can surprise people who are in the midst of their daily activities, with particularly serious impacts when people travel across roads vulnerable to flooding. Most of the people killed by flash floods in the US and France are in cars. What make motorists especially vulnerable? Experts call for a comprehensive integration of social and natural sciences and engineering to better understand public responses. My research addresses people's travel patterns during flash floods and uses a spatio-temporal analysis to better understand the link between human behaviors and sudden change of the environment. Using examples from France and from Texas, this presentation will show the main results of this interdisciplinary research using both qualitative and quantitative methods. It will demonstrate that « at risk » travel patterns result in a mix of three factors: spatio-temporal exposure, cognitive understanding of risks on the road, but also daily family and professional constraints.

Bio:

I grew up in the French Alps that is probably why I became very interested in geology and natural hazards. My background led me to graduate in applied geology (MSc). Though I love stones and geomorphology and the story they may tell, 4 years of working experience in environmental education also gave me the itch to better understand the complex relationship between society and environment.

To combine both aspects I choose geography for my PhD research. I graduated from Grenoble University (France) in 2007. As a Post-doc my research focuses on human vulnerability to flash flood specifically looking at how people and mostly motorists react to warnings and behave in heavy rains and flash flood conditions. The originality of my research besides relying on both qualitative and quantitative methods is to use time and space scales to integrate physical and social data. This type of work requires a strong interdisciplinary partnership that I particularly appreciate.