



Flash flooding: Toward an Interdisciplinary and Integrated Strategy for Disaster Reduction in a Global Environmental Change Perspective

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How do people answer to heavy precipitation and flood warnings? How do they adapt their daily schedule and activity to the fast evolution of the environmental circumstances? More generally, how do social processes interact with physical ones? Such questions address the dynamical interactions between hydro-meteorological variables, human perception and representation of the environment, and actual individual and social behavioral responses. It also poses the question of scales and hierarchy issues through seamless interactions between smaller and larger scales. These questions are relevant for both social and physical scientists. They are more and more pertinently addressed in the Global Environmental Change perspective through the concepts of Coupled Human And Natural Systems (CHANS), resilience or panarchy developed in the context of interdisciplinary collaborations. Nevertheless those concepts are complex and not easy to handle, specially when facing with operational goals.

One of the main difficulty to advance these integrated approaches is the access to empirical data informing the processes at various scales. In fact, if physical and social processes are well studied by distinct disciplines, they are rarely jointly explored within similar spatial and temporal resolutions. Such coupled observation and analysis poses methodological challenges, specially when dealing with responses to short-fuse and extreme weather events. In fact, if such coupled approach is quite common to study large scale phenomenon like global change (for instance using historical data on green house gaz emissions and the evolution of temperatures worldwide), it is rarer for studing smaller nested sets of scales of human-nature systems where finer resolution data are sparse.

Another problem arise from the need to produce comparable analysis on different case studies where social, physical and even cultural contexts may be diverse. Generic and robust framework for data collection, modeling and analysis are needed to allow cross comparison and deeper understanding of the processes accross scales.

This presentation will address these issues based on concrete exemples from empirical studies on past flash flooding events across Europe and USA.