

US-Taiwan Partnership for International Research and Education(PIRE) on Extreme Weather and Decision-making

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Abstract

In the US, floods annually cause an average 89 fatalities and \$8.2 billion in damages. In Taiwan, flooding has led to nearly 1,000 fatalities and over \$12.8 billion NT in damages since 2000 (NWS, 2014). These numbers are expected to grow due to climate change, population growth, and increased vulnerability and exposure to extreme weather events (IPCC, AR5). Coastal and inland communities both in Taiwan and the northeastern (NE) US are examples of communities that are becoming more vulnerable and exposed to increasing extreme precipitation trends associated with changing large-scale patterns. The US–Taiwan PIRE on Extreme Weather and Decision-Making is conducting research aimed at mitigating the impacts/risks of extreme precipitation through improved weather and climate prediction and effective interpretation of this information and associated uncertainties in decision-making by emergency managers. Specific research includes: (1) better understanding of trends in weather extremes on a regional scale (particularly in East Asia and the NE US); (2) examination of NWP ensemble techniques that better capture the uncertainty of events and; (3) investigation of the efficacy of decision-making and the response of emergency managers with probabilistic weather and impacts information. US–Taiwan PIRE also has the following education objectives. (1) Train the next generation of scientists and experts with crosscutting knowledge of climate and weather prediction and risk decision-making during extreme weather events. (2) Foster a culture of interdisciplinarity in weather and climate and social science in devising solutions that build resilience to the impacts of increasing weather extremes. (3) Advance the globalization of US and Taiwan undergraduate and graduate students by building cross-cultural literacy into the PIRE’s study abroad experiences. (4) Broaden the participation of underrepresented groups through integrated, inter-institutional academic programming involving PIRE universities and practitioner partners. A quick overview of the project will be given and its progress to date.

Key words: PIRE , Extreme Weather