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The purpose of this project is to quantify the human impact of extreme events. Specifically, we investigate the space-time impact of anticipated precipitation extremes on human population in South America. The project attempts to integrate two recent and ongoing lines of research. In the first study (Sabesan et al., 2006; Abercrombie et al, 2006) LandScan[®] high-resolution population data sets were used to develop threat metrics in space and time. In the second study (Khan et al, 2006; Ganguly et al., 2005) grid-based observations of precipitation time series in South America were utilized to quantify the probability of extreme precipitation events in space and time. This project utilizes the probability of extreme precipitation events along with threat impacts based on the population distribution at risk to generate maps that visually represents the expected risk contours in space and time. The task is performed within the ArcGIS[®] software framework developed by ESRI and involves overlaying the high-resolution population distributions with the parameters for precipitation extremes in South America. The research methodologies can be generalized to develop threat profiles for extreme events in multiple domains.

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