FORECASTING NATURAL DISASTERS

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Decades of research investment has produced significant advances in the predictive skill of natural hazard forecasts such as tropical cyclone track and intensity, and flash flooding. Such advances have arisen from increased understanding of the Earth system, advances in Earth observing systems and the growth of computational power. Yet, catastrophic failures are becoming more frequent.

Society is entering a new era of natural disasters that are causing more damage than in the past. Economic losses attributed to natural disasters have increased from US$75.5 billion in the 1960s to US$659.9 billion in the 1990s, a compound annual growth rate of 8%. Indeed, total worldwide insured losses are dominated by natural catastrophes.

The dominant driver of these increasing losses is increasing exposure, meaning that natural disasters are anything but ‘natural’. The population of Florida, for example, saw a 690% increase between 1950 and 2010. The potential for the hazards themselves to become more damaging in the future with climate change will compound this increase and lead to additional societal vulnerability.

This session will lay out frontiers in forecasting natural disasters, and look into a future of useful forecasts, effective messaging, and the avoidance of catastrophic failure. The session will outline the future of probabilistic, quantitative natural hazard risk assessment in support of risk management, the role of human behavioral bias and poor decision-making, and the risk assessment and management opportunities provided by future technologies.