

“Cross-Disciplinary Approaches to Explaining Environmental and Climatic Processes: The Possibilities of Historic Context and Long-term Datasets”

Fiona WILLIAMSON

Research Fellow, Asia Research Institute, National University of Singapore

Debate over the impacts of an acceleration in anthropogenic global warming and how to better manage the increasing frequency and scale of environmental disasters, together represent one of the dominant environmental narratives of the twenty-first century. At a time when predicting future climates and determining how different communities and their associated settings might be affected by and respond to climate change has undeniably become an issue of global and political importance; establishing a multidisciplinary dialogue and approach to climate research, past, present and future, has arguably never been more important. This paper will focus on two main areas: the recovery of historic data for climate modelling and reanalysis, and longer-term evidence based research for environmental disasters.

Historic data recovery is rapidly becoming an established research field. Several dedicated organisations exist to facilitate the sourcing of previously unknown historic meteorological records, and to ‘recover’ the same through a process of imaging and digitisation. Data can then be assimilated (reanalysis) to produce the longest possible instrument-based estimates of global weather and climate for comparison to paleoclimate reconstructions and climate model simulations. Those involved in the field of environmental disaster have also highlighted the importance of long-term evidence based research for improved disaster risk management and reduction. Historic documents can provide the raw observational data vital to the development of probabilistic flood models for instance, essential to the reinsurance industry, governmental and non-governmental organisations. Historic records not only provide data however, but they also provide narrative and context. For instance, urban inundations have historically, in the main, not been attributed to exceptional rainfall, but to human mismanagement of the environment. Inadequate drainage, river siltation, and the wanton destruction of natural landscapes in riparian zones, caused many of the flood events affecting rapidly developing nineteenth century colonial towns. Thus rainfall records alone might not be enough to highlight the occurrence or scale of past environmental disasters. Narrative records therefore serve as a useful counterpoint to data that has the potential to be misleading in the absence of context.