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abstract = {Climate detection and attribution assessments have been instrumental in informing policymakers and the public about how climate change affects extreme weather events and can increase the vulnerability of social and environmental systems. This chapter explores the emerging role of extreme event attribution (EEA) in improving climate adaptation efforts for civil infrastructure systems. EEA is a rapidly evolving field that examines how human-induced changes in the global climate system alter the likelihood and characteristics of extreme events. By integrating EEA into adaptation planning, decision-makers can strategically mitigate the impacts of extreme events and better protect critical infrastructure and the communities it serves. This chapter describes the methodology for incorporating EEA results into probabilistic risk analysis for infrastructure systems and cost-effectiveness analysis for adaptation strategies, with illustrative case studies. It also identifies future research needs, including improving the capacity for decadal climate modeling, preparing for shifts in engineering practices to accommodate different levels of climate warming, and developing climate services that leverage EEA capabilities alongside near-term climate projections.},

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