

## Climate Change and Extreme Weather: Understanding Interconnections and Implications

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**Abstract :** Climate change is undeniably altering the frequency, intensity, and geographic distribution of extreme weather events worldwide. In this paper, we explore the complex interconnections between climate change and extreme weather phenomena, drawing upon research from atmospheric science, geology, and climatology. We examine the underlying mechanisms driving these changes, the impacts on natural ecosystems and human societies, and strategies for adaptation and mitigation. By synthesizing insights from interdisciplinary research, this paper aims to provide a comprehensive understanding of the multifaceted relationship between climate change and extreme weather, informing efforts to address the challenges posed by a changing climate.

**Keywords :** climate change, extreme weather, atmospheric science, geology, climatology, impacts, adaptation, mitigation

**Conference Title :** ICGGEE 2026 : International Conference on Geosciences, Geophysics and Environmental Engineering

**Conference Location :** Miami, United States

**Conference Dates :** March 11-12, 2026