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Physical Dynamics of Planet Earth and Their Implications for Global Climate Change and Mitigation: A Case Study of Sistan Plain, Balochistan Region, Southeastern Iran

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Abstract : The Sistan Plain, situated in the Balochistan region of southeastern Iran, is renowned for its arid climatic conditions and prevailing winds that persist for approximately 120 days annually. The region faces multiple challenges, including drought susceptibility, exacerbated by wind erosion, temperature fluctuations, and the influence of policies implemented by neighboring Afghanistan and Iran. This study focuses on investigating the characteristics of jet streams within the Sistan Plain and their implications for global climate change. Various models are employed to analyze convective mass fluxes, horizontal moisture transport, temporal variance, and the calculation of radiation convective equilibrium within the atmosphere. Key considerations encompass the distribution of relative humidity, dry air, and absolute humidity. Moreover, the research aims to predict the interplay between jet streams and human activities, particularly regarding their environmental impacts and water scarcity. The investigation encompasses both local and global environmental consequences, drawing upon historical climate change data and comprehensive field research. The anticipated outcomes of this study hold substantial potential for mitigating global climate change and its associated environmental ramifications. By comprehending the dynamics of jet streams and their interconnections with human activities, effective strategies can be formulated to address water scarcity and minimize environmental degradation.

Keywords : Sistani plain, Baluchistan, Hamoun lake, climate change, jet streams, environmental impact, water scarcity, mitigation
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