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## **Fire Regimes in Tropical Forests: Ecological Effects and Climate Modeling**

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### **Editorial**

The study of fire regimes in forested areas is crucial for understanding their impacts on biodiversity and ecological functions, such as carbon storage. These studies are also vital for assessing the potential for forest regeneration, especially in light of the increasing frequency of fires. Accurate information on fire behavior is essential for effective planning of fire control and suppression actions. Tropical forests, which store large amounts of carbon in the form of biomass and have high primary productivity, account for a significant portion of global productivity [1]. However, these forests are facing increasing anthropogenic pressure and are becoming more susceptible to fires. Research employing diverse methodologies, such as Remote Sensing, fire models integrated with meteorological data, and analyses of future scenarios proposed by the Intergovernmental Panel on Climate Change (IPCC), shows promise for monitoring and numerical simulation of disasters associated with fire risk [2-3]. These approaches allow for the integration of data from various sources, which enhances the accuracy of predictions and the understanding of factors contributing to the occurrence and spread of fires. The use of Remote Sensing facilitates continuous and large-scale observation of affected areas, while fire models, by incorporating meteorological data, offer detailed insights into the conditions influencing fire dynamics. Additionally, analyzing future scenarios proposed by the IPCC provides a comprehensive view of potential changes in the environment and climate, allowing for the anticipation of impacts and the development of mitigation strategies. These methodologies are especially relevant for forests that still hold large carbon reserves, as preserving these ecosystems is crucial for global climate regulation and biodiversity maintenance. Thus, the combination of these techniques not only contributes to improving fire prediction and management models but also to the conservation of natural resources vital for environmental balance.

### **Keywords**

Fire regimes, Biodiversity, Ecological functions, Mitigation strategies

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