# Modeling Anthropogenic Effects on the Burn Area of Forest and Land in Kalimantan Indonesia Using Random Forests

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**Abstract:** *Forest and land fires in Indonesia, especially in Kalimantan, are considered a potential threat to sustainable development because of their direct effects on ecosystems, their contribution in increasing carbon emissions and their impact on biodiversity. Forest and land fires are influenced by two main factors, climate conditions, and human activity. The influence of anthropogenic factors on the extent of forest and land fires can be analyzed by using the output of the CMIP5 model with a statistical technique called the Random Forests. The data used in this research include climate data and forest and land fire index data in Kalimantan. The results showed that during 1997 to 2005 the higher burn area of land and forest in Kalimantan accured in 1997 and 2002. The MRI-CGCM3 model has an interannual correlation of 0.907. It indicated that historical burn area of forest and land in Kalimantan increased in June, reached a peak in September and decreased in November. The extent of forest and land fires affected by natural factors experienced a rise in July and decreased in October. While the extent of forest and land fires in Kalimantan affected by anthropogenic factors has increased in June, it reached a peak in September and began to decline in November. June to July, anthropogenic factors positively influence (negative value), while August to October have a negative effect (positive value).*

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