

CLIMATE CHANGE AND THEIR EFFECTS IN FOREST LOST IN GUATEMALA

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Abstract

Guatemala is a tropical Central American country located between Pacific and Atlantic oceans. Climate anomalies driven by El Niño-Southern oscillation (ENSO) and changes in the land use are likely to decrease forest mass due to forest fire and deforestation. Subsequently, the deterioration of the environment features have negatively influenced in the ecosystems, water bodies, atmosphere, flora, fauna and soil. Since the last 15 years Guatemala has showed acceleration in the lost of the forest mass as well as changes in the frequency and intensity of precipitation paired with temperatures above to the average. In addition, land use has pressured to transform forest in crop areas. Therefore, this analysis aims to show the land use changes, climate anomalies in last 15 years and in what extend they could drive forest loss trend. For that, secondary data about urban and agriculture growth is compared thru the application of Geographic Information System (GIS) in the land use maps along with the analysis of precipitation patterns influenced by ENSO based on data from National Oceanic and Atmospheric Administration (NOAA) and the United States Geographical Survey (USGS), with the objective to understand the relationship and effects of precipitation anomalies and land changes with the forest loss. As a result, a relationship between changes in land use and forest deterioration was found, mainly in the northern area of Guatemala, caused mostly by anthropological deforestation and in less extend by forest fire. There was no strong relationship found between precipitation anomalies and their influence in forest loss. These results helped to verify the hypothesis about the effects of hand made land use changes on forest loss, deteriorating Guatemala's forests and showing an upward trend from 1995.

Keywords: ENSO, climate change, land use, forest loss.