Distinction of deforestation drivers in the Amazon using Synthetic Aperture Radar (SAR) data

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Overview
The Amazon is the largest expanse of tropical rainforest globally and deforestation resulting from land use changes poses a major concern for sustainable resource management. Synthetic Aperture Radar (SAR) data have all-weather capability, and thus are well-suited for mapping land cover land use (LCLU) in tropical regions, which are seasonally influenced by cloud cover. Understanding drivers of deforestation is fundamental for the development of policies and measures to reduce emissions and for developing forest reference levels. Sentinel-1 data present unprecedented potential since the observations are free and openly available, providing for the first time dense and regular SAR data. This study analyzes the applicability of Sentinel-1 data (10 meters of spatial resolution) to differentiate deforestation drivers, identified as a current need for early-warning deforestation systems, in the Madre de Dios region of Peru.

Methodology

Preliminary Results

Water Threshold

Urban Threshold

Time Series

Impact

It is expected that the results from this project will complement the current forest and land cover land use monitoring systems by providing additional actionable information for decision-making. Developing a methodology that is able to know what causes deforestation is important not only towards global initiatives such as REDD+, but also to have an impact on how to prevent deforestation, and, consequently, contribute with the Amazon basin conservation.

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