

“Deforestation and Increasing Diurnal Temperature Ranges in Amazonian Brazil and the Lowlands of Bolivia”

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Abstract

While the causes and incentives for deforestation in South America, such as the expansion of mechanized agriculture into forested areas, are well studied, the effects of large-scale forest removal on local climate are less well understood. Climate models have produced predictions for the global impact of deforestation, but the local climatic impact of deforestation often is neglected, both in its immediate relationship to the local environment and also as verification of local model predictions. This study will quantify deforestation through time in the areas surrounding Marabá in northern Brazil and Santa Cruz de la Sierra in the Bolivian lowlands, to show that, while surface albedo has increased with deforestation, it is not the dominant control on local daily temperature ranges (DTRs). Instead, I propose that increased sensitive heat flux associated with deforestation has led to increases in local DTR.

Author Commentary

Adrian Tasistro-Hart

For this paper, written in a Geosciences class, I used satellite imagery to quantify deforestation in Brazil and Bolivia since the 1980s and study how this deforestation has affected the local range in daily temperatures. This abstract came at the start of the paper and provides a brief version of my research and findings. Even though abstracts come at the beginning of the paper, I find that I can only write my abstracts after I have drafted my results, discussion, and conclusions—the bulk of the analysis in my paper. When I am at the point where I can fully articulate my abstract, my paper has fallen into place. Only when I understand how all the pieces of my motive, evidence, and argument fit together can I concisely articulate them in the three-to-four sentences of the abstract. During the writing process, I always find myself revisiting the abstract and thinking about whether everything in my paper fulfills the expectations I outline in the abstract. If my paper and abstract do not match, I have to decide which to change: the abstract if my argument has fundamentally shifted, or my paper if I have strayed aimlessly from my original course.

Fellow Commentary

Abigail M. Kelly

Adrian’s abstract effectively packs accessible orienting, his motive, and his argument into one short paragraph. In the first two sentences of this abstract, Adrian sets up his motive while simultaneously giving background. Both sentences present information on his topic—the effects of deforestation—and the prior research in the field, but Adrian uses words like “while” (first sentence) and “but” (second sentence) to turn these background phrases into motive. By the end of these two sentences, we also understand what others have overlooked in the field—deforestation’s effect on local climate. With this motivation set up, Adrian then leads us into the specifics of his actual research and finishes the abstract with his claim based on his findings. This abstract exemplifies the arc from motive to thesis in an abstract, and demonstrates how this can be done in a simple and accessible way that does not take the reader too deep into the technical details of the research. We leave this abstract with a clear understanding of where Adrian’s paper begins and aims to go, but the abstract entices us to read further to understand the details of Adrian’s research.