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**Amazon Gross Primary Production Inferred at Regional Scale from Satellite Carbonyl Sulfide Retrievals**

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Correctly predicting the magnitude of tropical gross primary production (GPP) is critical for carbon cycle modeling, but poorly constrained at regional scales. One promising approach is the use of atmospheric carbonyl sulfide (OCS) uptake as a proxy for regional GPP. Here, we simulate carbonyl sulfide concentrations with an atmospheric chemical transport model, driven by a variety of surface flux scenarios encompassing a wide range of model GPP estimates for the Amazon basin. We compare the model output to satellite OCS measurements in order to arrive at a regional estimate of annual GPP that is near the low extreme of the model ensemble range. This OCS-based estimate is consistent with independent constraints from solar-induced fluorescence and eddy flux tower upscaling, while incorporating the benefits of temporal and spatial integration.