



Plant uptake of atmospheric carbonyl sulfide over tropical Latin America

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Recent plant chamber and ambient atmospheric measurements suggest that the global uptake of atmospheric carbonyl sulfide (COS) by plants is related to photosynthesis and has been underestimated by a factor of four. Here we examine the atmospheric distribution of carbonyl sulfide during the growing season using airborne measurements from the marine and continental boundary layers in the tropical Latin America region. The airborne experiment, the NASA Tropical Composition, Cloud and Climate Coupling (TC4), included simultaneous measurements of COS, CO₂, and many other species during July and August 2007. The measured vertical gradients of COS and CO₂ are consistent with the photosynthesis-based uptake of COS. Ratios of observed COS to CO₂ are used to consider the photosynthesis and respiration components of the CO₂ sink with respect to independent estimates from ecosystem models.