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Tree height explains mortality risk during an intense drought

Atticus E.L. Stovall ^{1,2*}, Herman Shugart ² & Xi Yang ²

Forest mortality is accelerating due to climate change and the largest trees may be at the greatest risk, threatening critical ecological, economic, and social benefits. Here, we combine high-resolution airborne LiDAR and optical data to track tree-level mortality rates for ~2 million trees in California over 8 years, showing that tree height is the strongest predictor of mortality during extreme drought. Large trees die at twice the rate of small trees and environmental gradients of temperature, water, and competition control the intensity of the height-mortality relationship. These findings suggest that future persistent drought may cause widespread mortality of the largest trees on Earth.

¹NASA Goddard Space Flight Center, 8800 Greenbelt Rd., Greenbelt, MD, USA. ²Department of Environmental Sciences, University of Virginia, 291 McCormick Rd., Charlottesville, VA, USA. *email: atticus.e.stovall@nasa.gov