Quantification of uncertainty in aboveground biomass estimates derived from small-footprint airborne LiDAR

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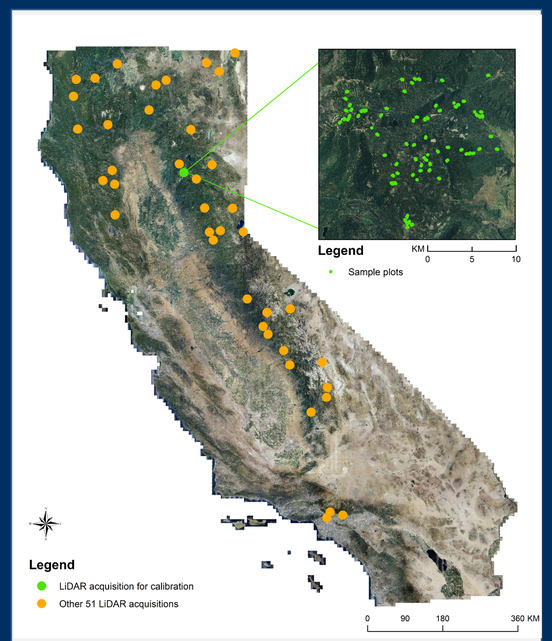
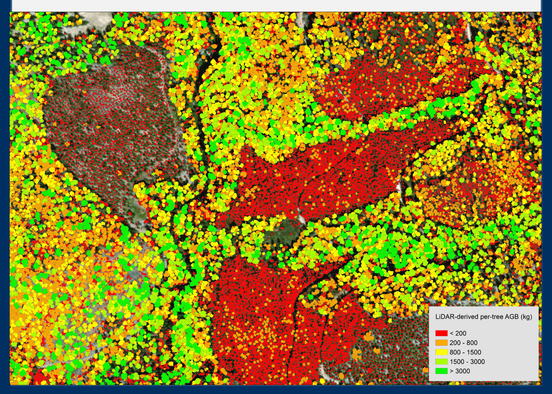
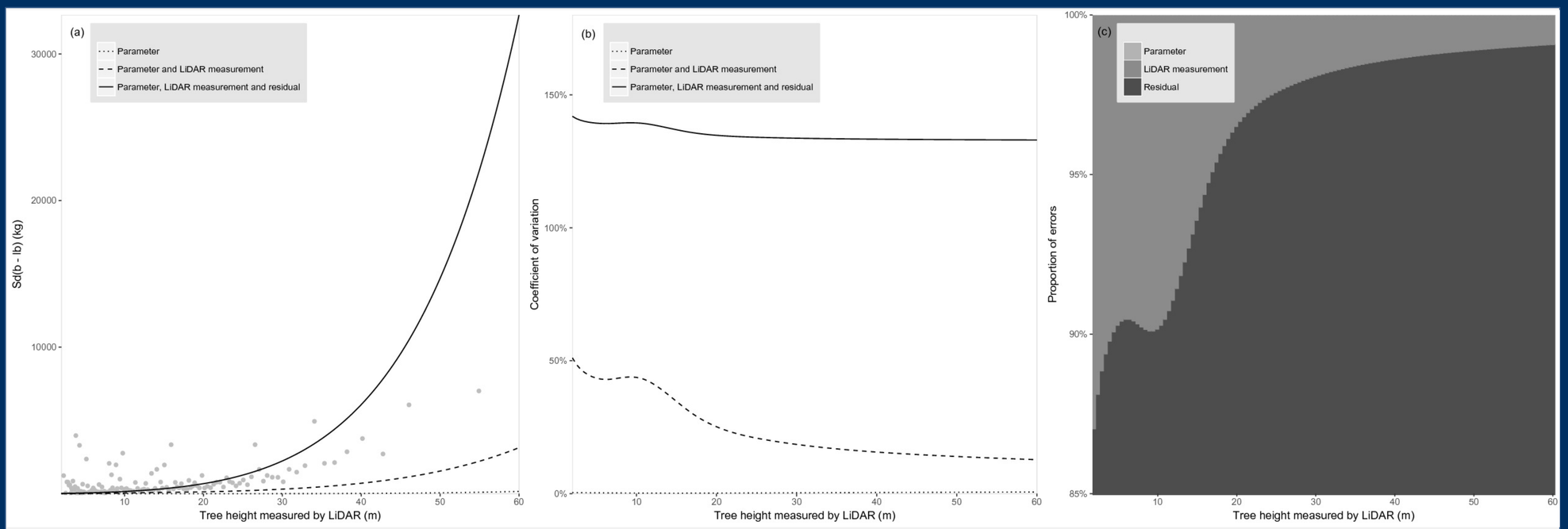


We mapped about 790 million trees using airborne LiDAR data across 52 forest sites in California.

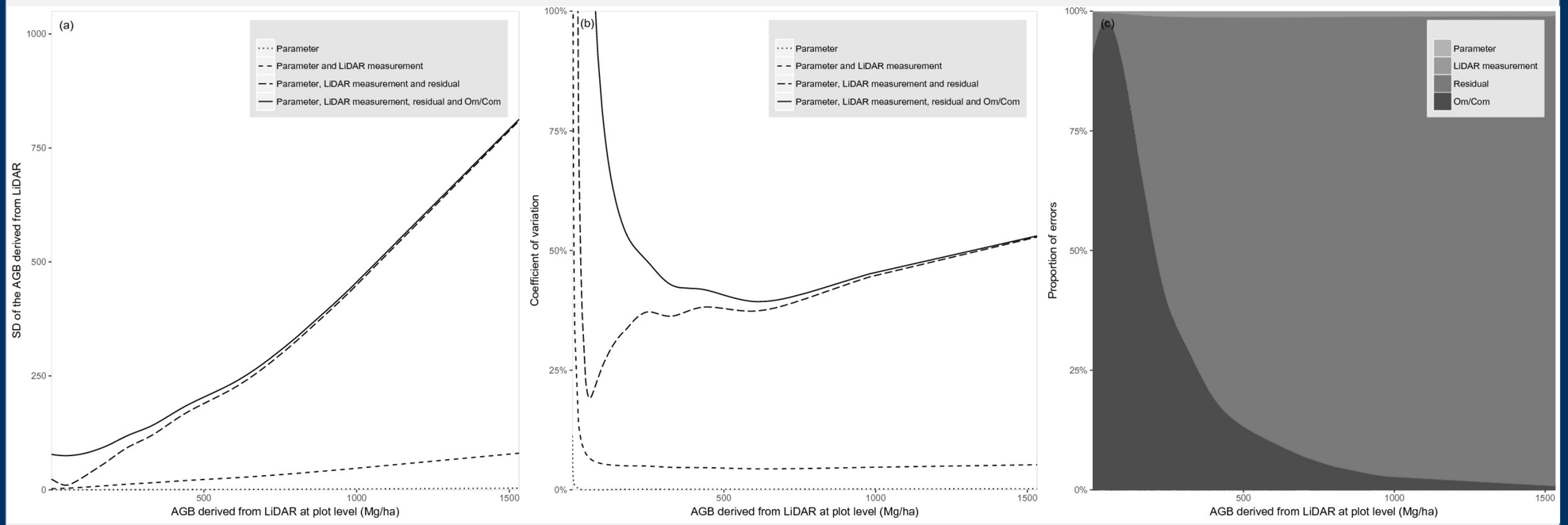
We attributed each of them with LiDAR-derived tree height, crown diameters, biomass and its errors.

This huge dataset was archived on ORNL DAAC, and was made public since the publication of the paper by the Remote Sensing of Environment in July 2018.





Larger uncertainty than previously reported was found at the tree level when AGB was derived from airborne LiDAR. On average, per-tree AGB error was 135% of the estimated AGB. The allometric equation constituted the largest proportion of the overall uncertainty in per-tree biomass.



Larger uncertainty was found at the plot level as well. On average, per-plot AGB error was 214% of the estimated AGB. The largest proportion of errors was due to the errors from the allometric equation.