



GEDI's dense sample a key in calibrating forest height maps

Healey, S.P.; Yang, Z., Gorelick, N., Ilyushchenko, S. (2020) Highly Local Model Calibration with a New GEDI LiDAR Asset on Google Earth Engine Reduces Landsat Forest Height Signal Saturation Remote Sensing. 12(17), 2840
<https://doi.org/10.3390/rs12172840>

Science Question

Can the science community use GEDI's dense lidar sample to make better Landsat forest height/biomass maps?

Analysis

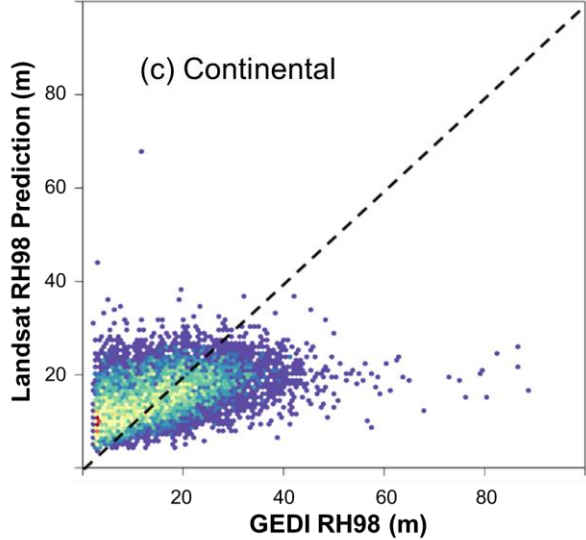
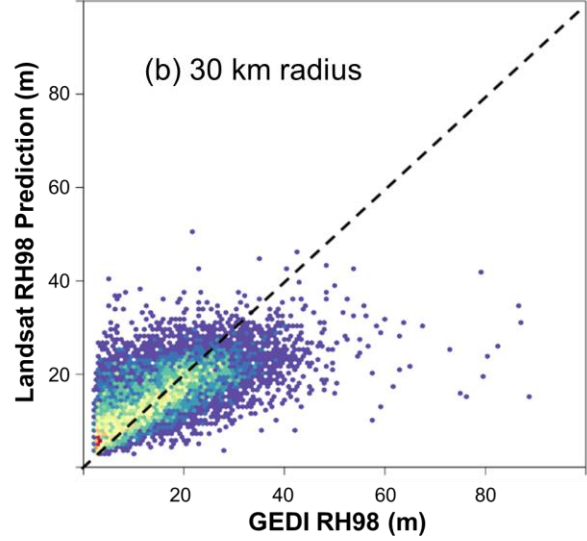
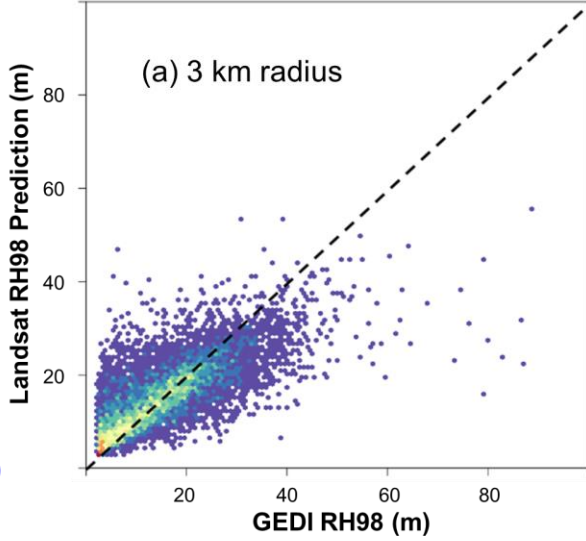
1. We created a regularly maintained GEDI asset on Google Earth Engine.
2. We tested height mapping using increasingly local calibration with GEDI's RH98 waveform metric (approximate forest canopy top height)

Results

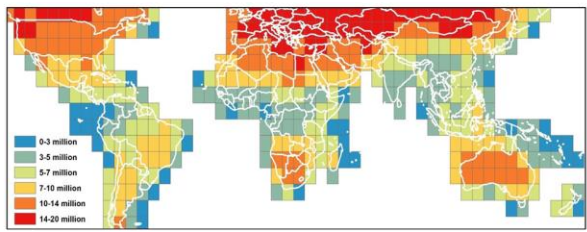
More local calibration results in significantly better height models (right).

Significance

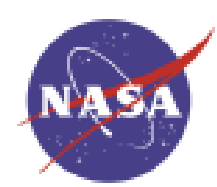
1. GEDI data is now much more accessible, particularly for analyses involving other datasets on Google Earth Engine
2. GEDI may help us overcome Landsat's long-recognized problems with biomass signal saturation



Very local calibration of Landsat height models (within 3 km of the target pixel) greatly improved prediction of high and low values in this global study.



Number of high-quality GEDI footprints in a new Google Earth Engine asset – first six months



Comments

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Project title: Piloting a GEDI-based Forest Carbon Monitoring,
Reporting, and Verification Tool