A Comparison of Mangrove Canopy Height Using Multiple Independent Measurements from Land, Air, and Space

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Tree height is a strong predictor of biomass in forests. Very high resolution optical (VHR) and TanDEM-X radar (TDX) satellite imagery can be used to create highly accurate canopy models for remote mangrove forests, providing a step forward for repeat and cost-effective measures for monitoring Blue Carbon ecosystems.

- Repeat 3D models highlight the importance of developing height-based allometric equations
- Vertical accuracy (±2m) of VHR and TanDEM-X canopy models allow for cost-effective monitoring compared to airborne lidar

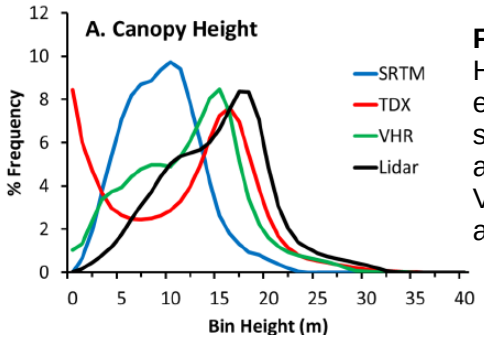

Figure 1
Height distributions for each of the remote sensing models. There is a close match between VHR, TanDEM-X (TDX), and airborne lidar

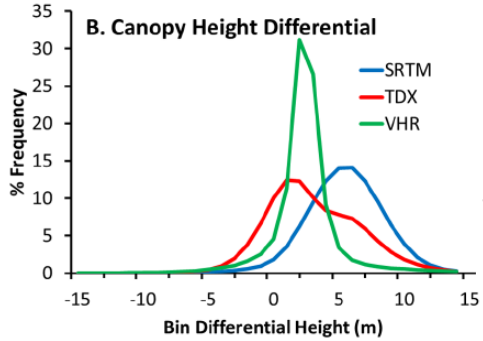

Figure 2
Distribution of the height differences between airborne lidar and each of the spaceborne models; SRTM, VHR, and TDX.

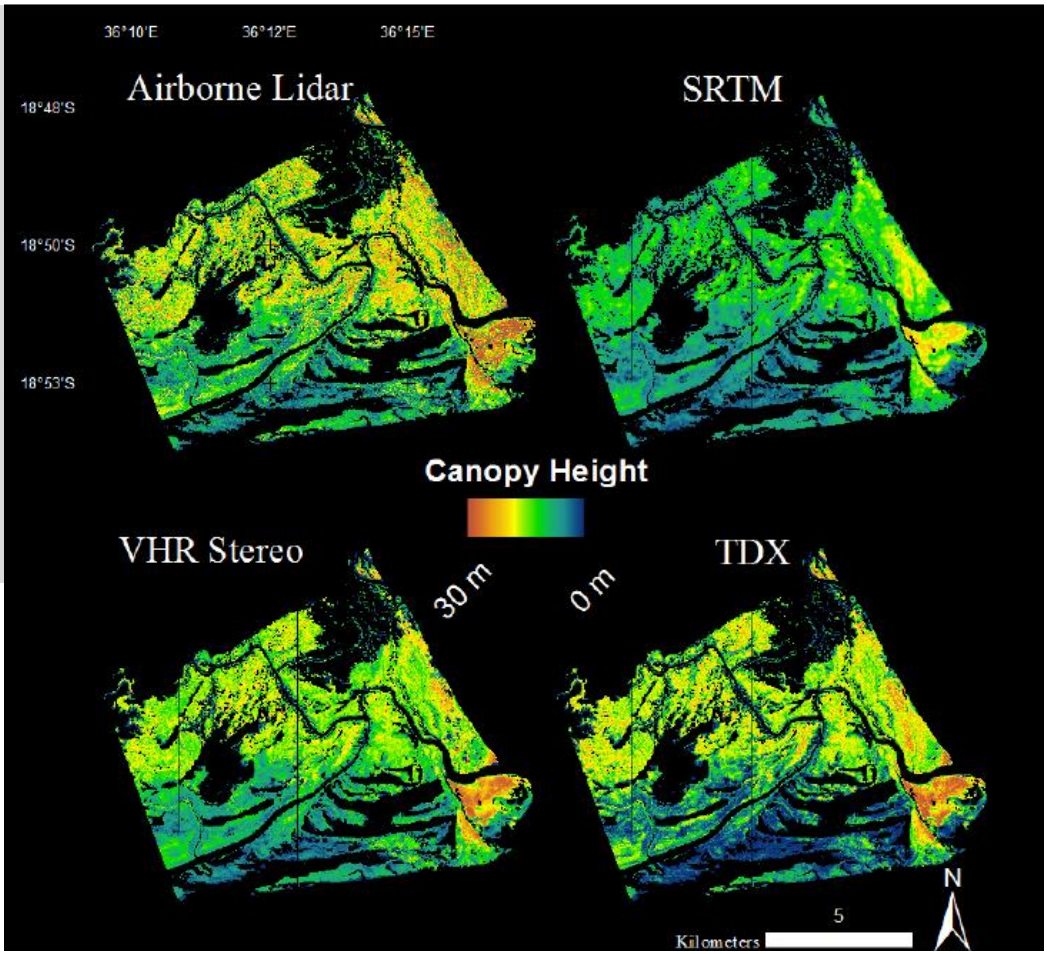

Figure 3: Four canopy height maps for the Zambezi delta modeled using four different sensors: airborne lidar, SRTM, very-high resolution (VHR) and TanDEM-X (TDX). VHR and TDX canopy models closely match height estimates from airborne lidar.

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