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In order to keep the spatial resolution of the DEMs for this collection consistent, OpenTopography created a 50 cm Digital Surface Model (DSM) to accompany the 50 cm Digital Terrain Model (DTM) provided by NCALM. The 50 cm DSM was produced from the classified lidar point cloud using LAStools. Points classified as noise (ASPRS classes 7 and 18) were excluded, and remaining isolated points were removed with lasnoise (points with fewer than 3 neighbors within a $3 \times 3 \times 3$ neighborhood of 2 m voxels). From all remaining returns, the highest point within each 0.5 m grid cell was retained (lasthin -highest). These points were triangulated into a TIN, which was linearly interpolated at the 0.5 m cell centers (blast2dem). This "highest-return" approach represents the top of the canopy and structures, and avoids the pits that occur when lower returns that penetrate canopy gaps are included in the surface.

Processing was done in 1 km tiles with a 30 m overlap buffer to prevent edge artifacts, and the tiles were mosaicked into a single Cloud Optimized GeoTIFF. Horizontal coordinates are NAD83(2011) / UTM Zone 11N (EPSG:6340); elevations are NAVD88 orthometric heights (EPSG:5703) in meters with respect to GEOID18.

This DSM differs in method from the 1 m DSM produced by NCALM, which was interpolated by kriging from a highest-return model. On bare ground the two agree closely (median difference 0.00 m). In vegetation and on structures, this DSM is typically 10–20 cm lower, mainly because kriging smooths across canopy and building edges.

The original 1.0 m DSM created by NCALM is available from OpenTopography in the bulk download section of this data collection.