

FL Suwannee River Lidar DEM Interpolation

Produced for U.S. Geological Survey

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DEM Interpolation in Tidal Waters

The southwest corner of block three (3) contains tidal waters (Figure 1). Within the tidal waters, there are a few complex areas where inlets flow into open tidal waters near islands. The elevations of these tidal breaklines have been verified to be flat from bank to bank, inlets have been verified to flow downhill into the open tidal waters, and the breaklines are below the surrounding terrain. However, when the terrain enforced with these breaklines is converted to raster (using linear interpolation), the raster must interpolate between the changing tidal elevations of the inlets and open water. The interpolation triangulations are most visible when inlets empty into open tidal waters near islands (Figure 2). Most of the interpolation artifacts and monotonic discrepancies are less than 0.1 feet in elevation change (Figures 3 and 4). However, Dewberry can correct these areas if necessary by applying stair steps to the tidal breaklines where a single elevation is enforced for each “step.” Dewberry is raising this issue for USGS’ consideration and will apply corrections to these areas if desired.

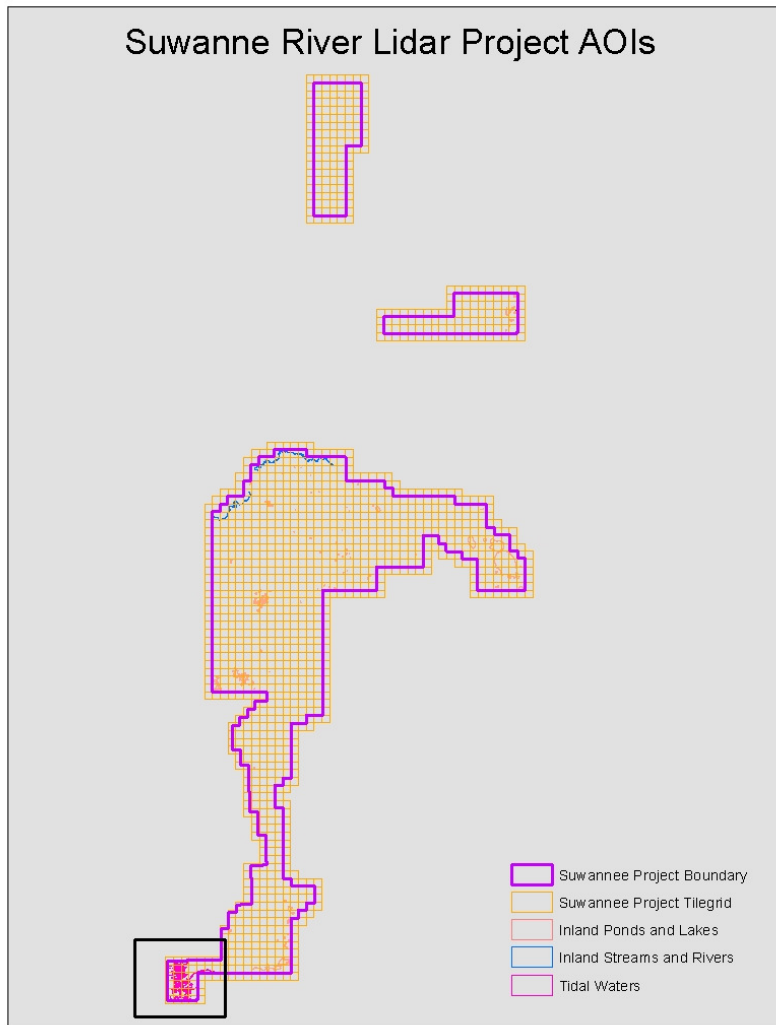


Figure 1 – The Suwannee River Lidar project AOIs. Tidal waters are present in the southwest corner of AOI/block 3, identified with the black outline.

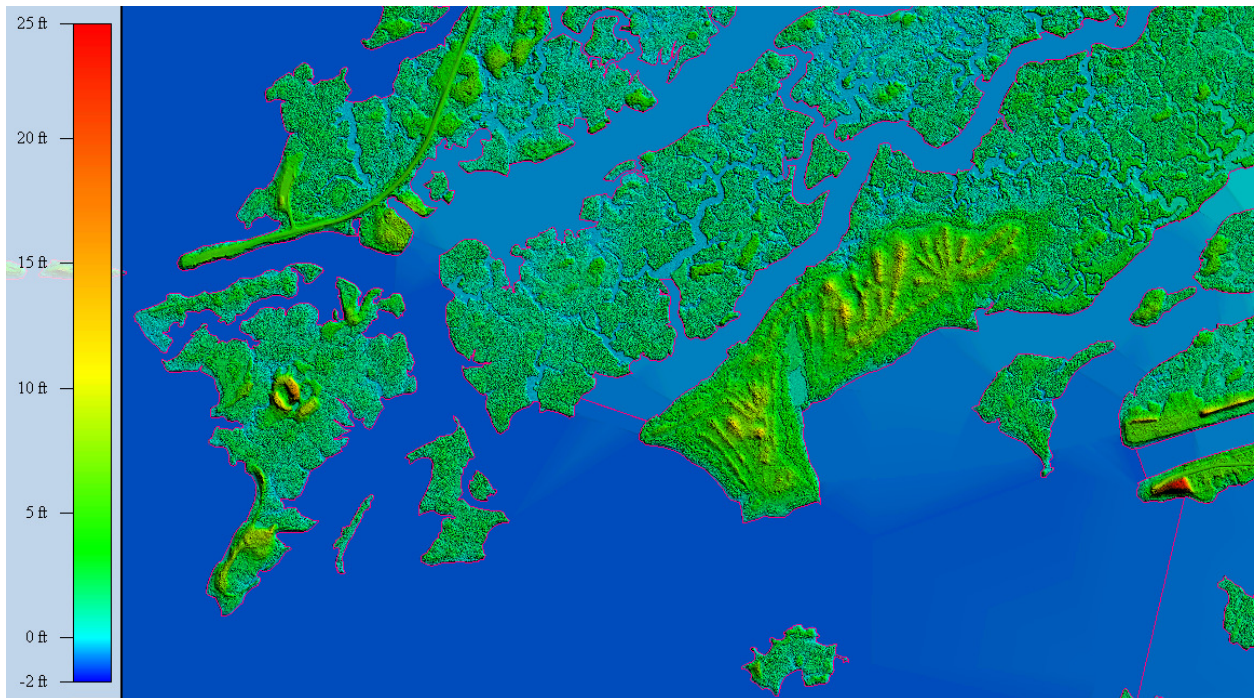


Figure 2 – Interpolation triangulation is most visible when inlets drain into open tidal waters near islands (-82.752724 W 28.998374 N).

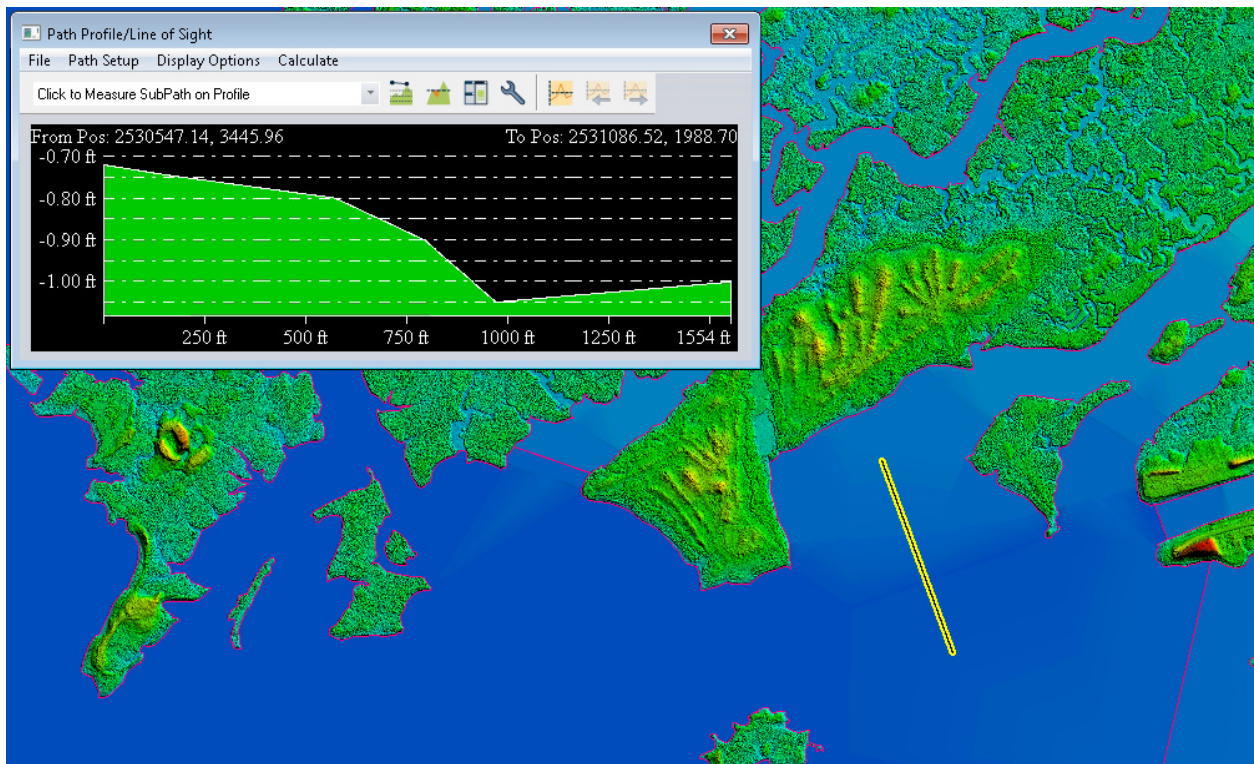


Figure 3-Most interpolation artifacts and monotonic discrepancies are 0.1 feet or less in vertical elevation change.

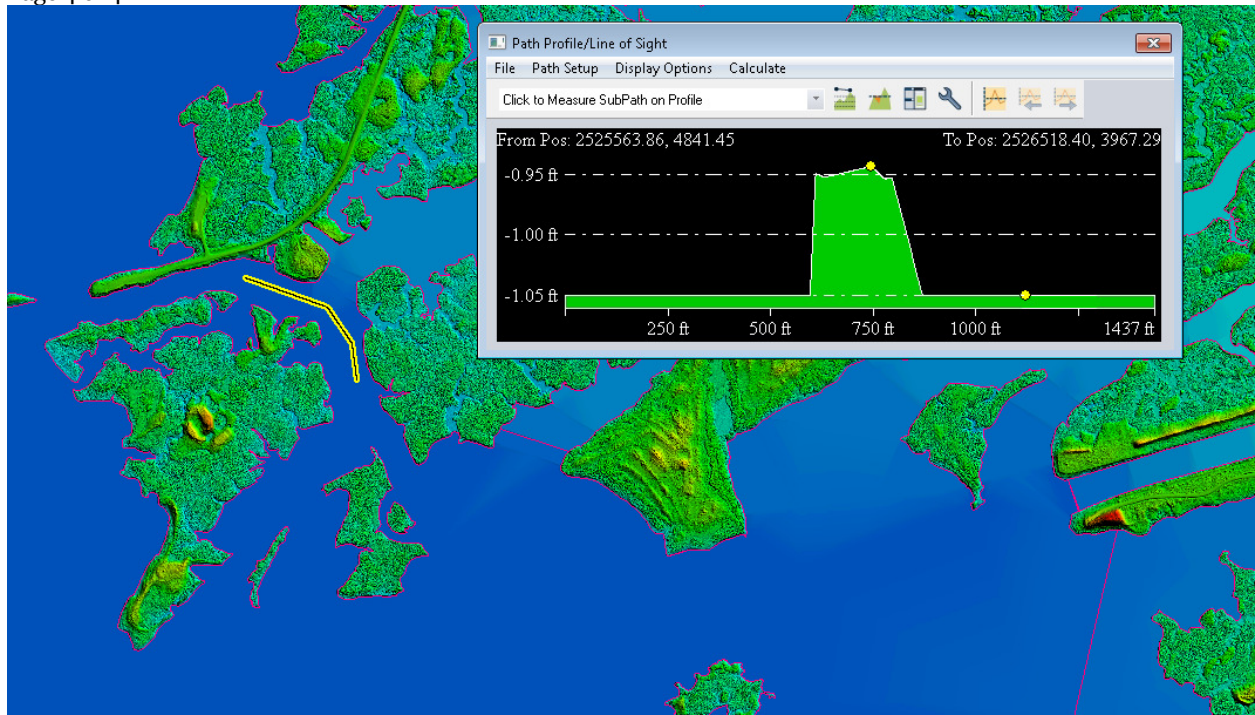


Figure 4-Most interpolation artifacts and monotonic discrepancies are 0.1 feet or less in vertical elevation change.