WorldView_Atlanta

Processed on: 2025-12-24 07:02:55

ASP version: 3.4.0-alpha

asp_plot version: 1.8.0

DEM Summary

Property	Value
DEM File	run-DEM.tif
Dimensions (px)	2818 x 2685
GSD (m)	2.00
CRS	EPSG:32616
Nodata (%)	4.7
Elevation Range (m)	231.7 to 309.5

Input Scenes

Input Scenes
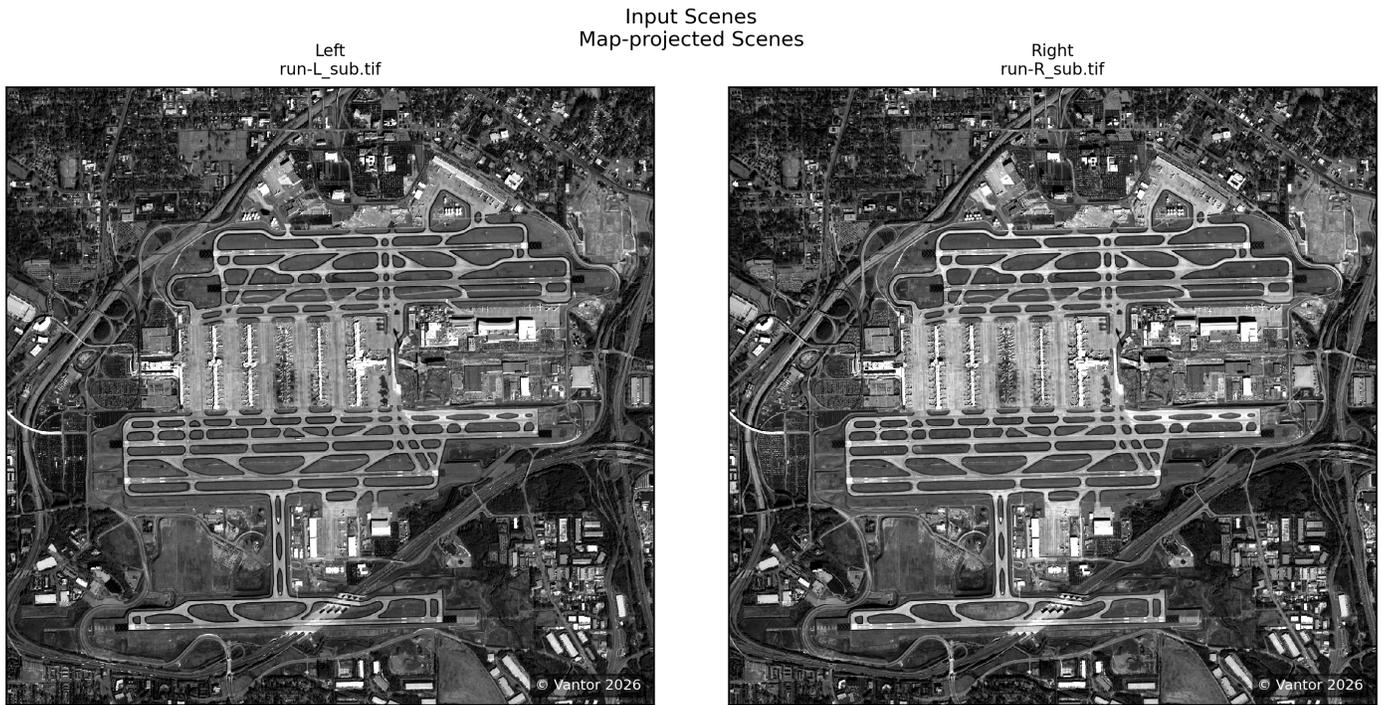Map-projected Scenes

Left
run-L_sub.tif

Right
run-R_sub.tif

Figure 1: Left and right input scenes used for stereo processing. Non-mapprojected scenes are shown after ASP's alignment step (e.g., affineepipolar), which rotates images to create horizontal epipolar lines for correlation. Mapprojected scenes require no pre-alignment and are displayed in their map-projected orientation.
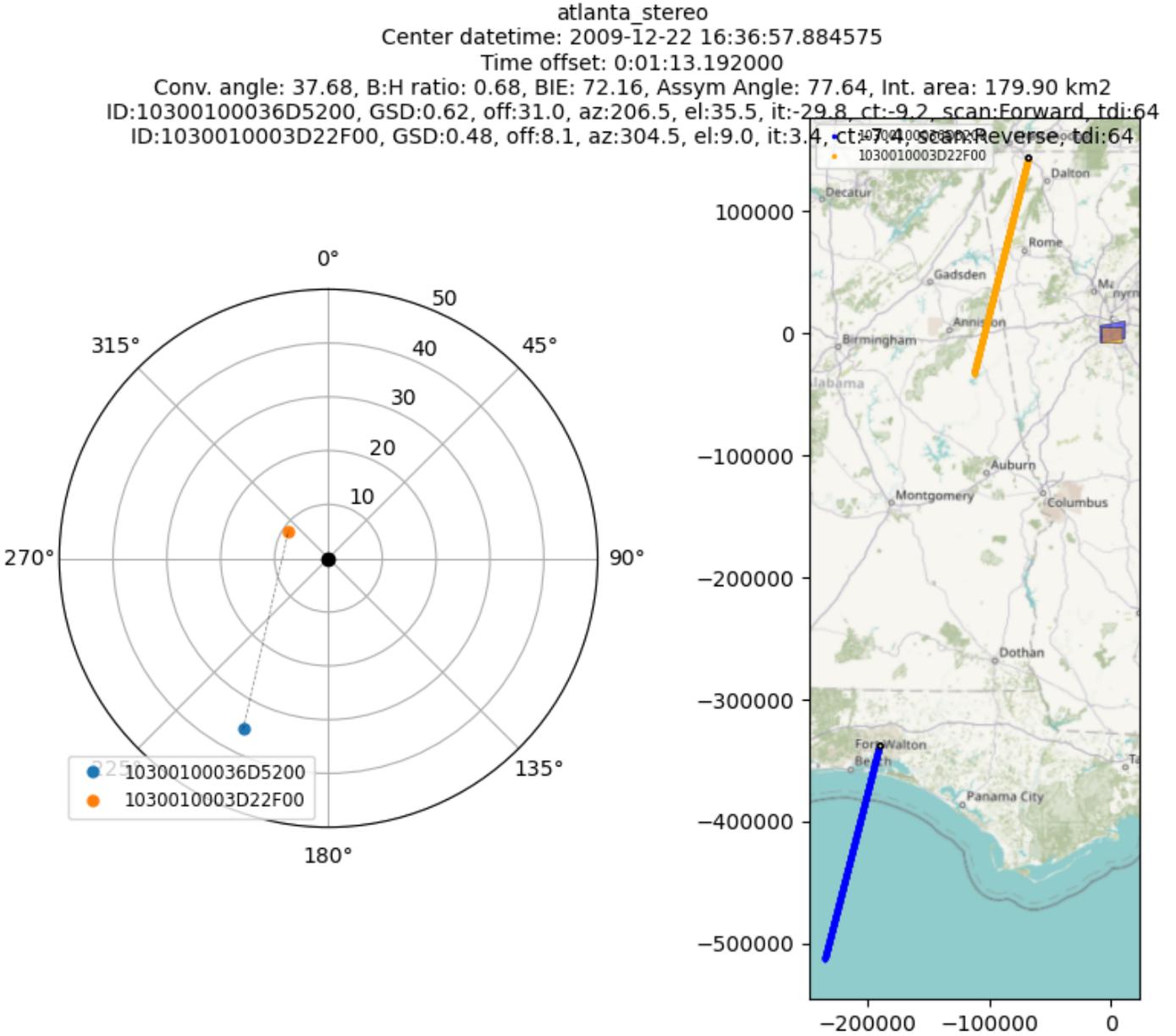
Stereo Geometry

atlanta_stereo
Center datetime: 2009-12-22 16:36:57.884575
Time offset: 0:01:13.192000
Conv. angle: 37.68, B:H ratio: 0.68, BIE: 72.16, Assym Angle: 77.64, Int. area: 179.90 km2
ID:10300100036D5200, GSD:0.62, off:31.0, az:206.5, el:35.5, it:-29.8, ct:-9.2, scan:Forward, tdi:64
ID:1030010003D22F00, GSD:0.48, off:8.1, az:304.5, el:9.0, it:3.4, ct:-7.4, scan:Reverse, tdi:64

Figure 2: Stereo acquisition geometry skyplot and map view showing satellite viewing angles and scene footprints.
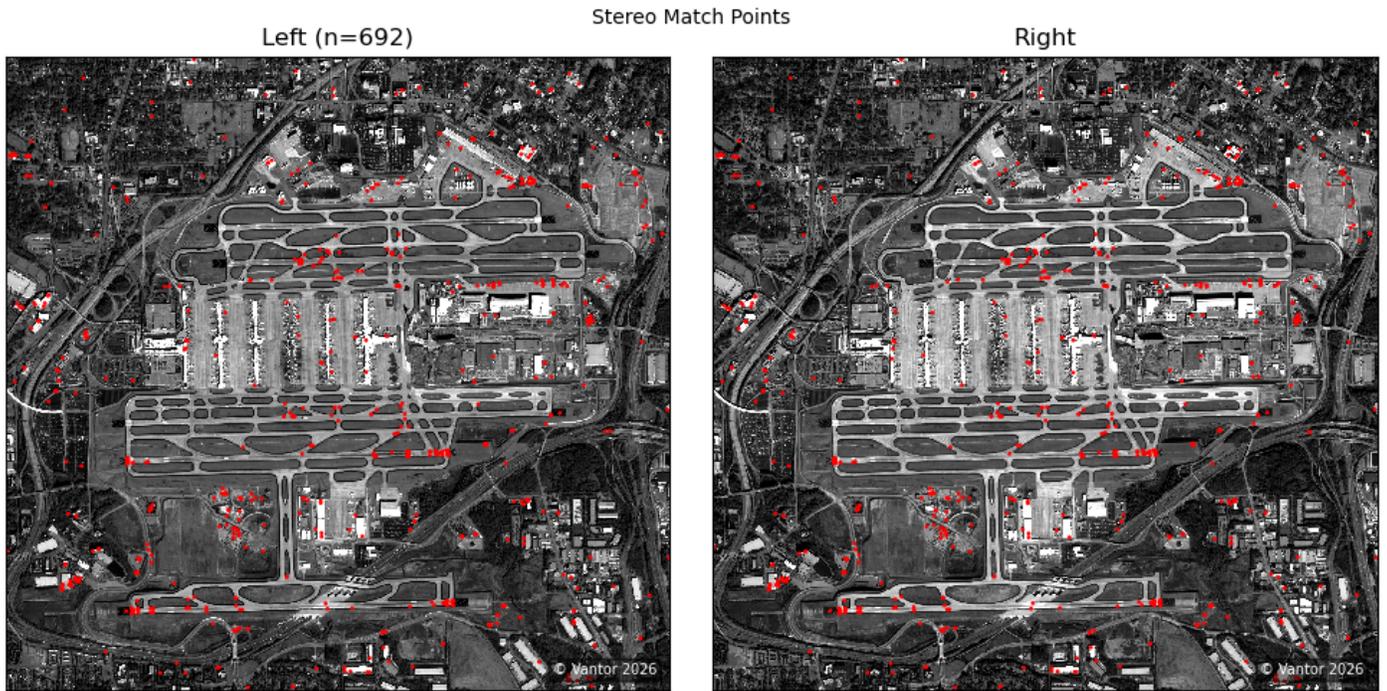
Match Points

Figure 3: Interest point matches between left and right images identified during stereo correlation.

Bundle Adjust Residuals (Log Scale)

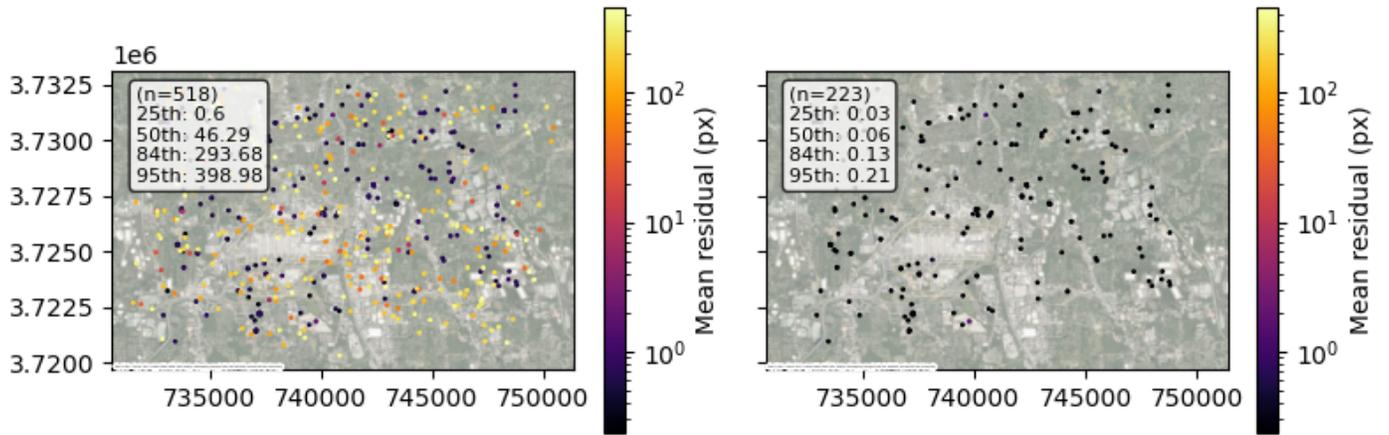Bundle Adjust Initial and Final Residuals (Log Scale)

Figure 4: Initial and final bundle adjustment residuals on a logarithmic scale.
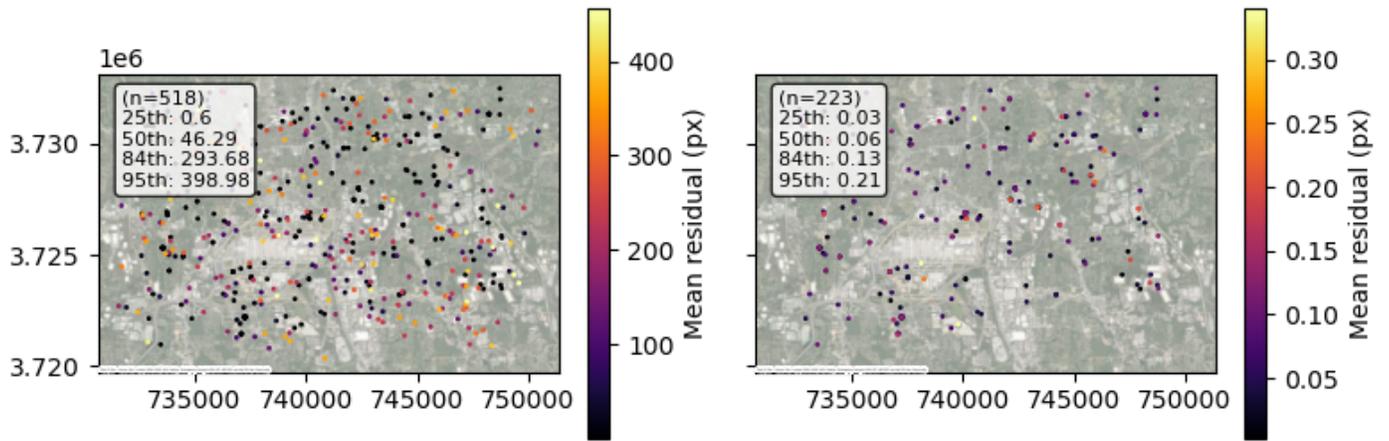
Bundle Adjust Residuals (Linear Scale)

Figure 5: Initial and final bundle adjustment residuals on a linear scale.
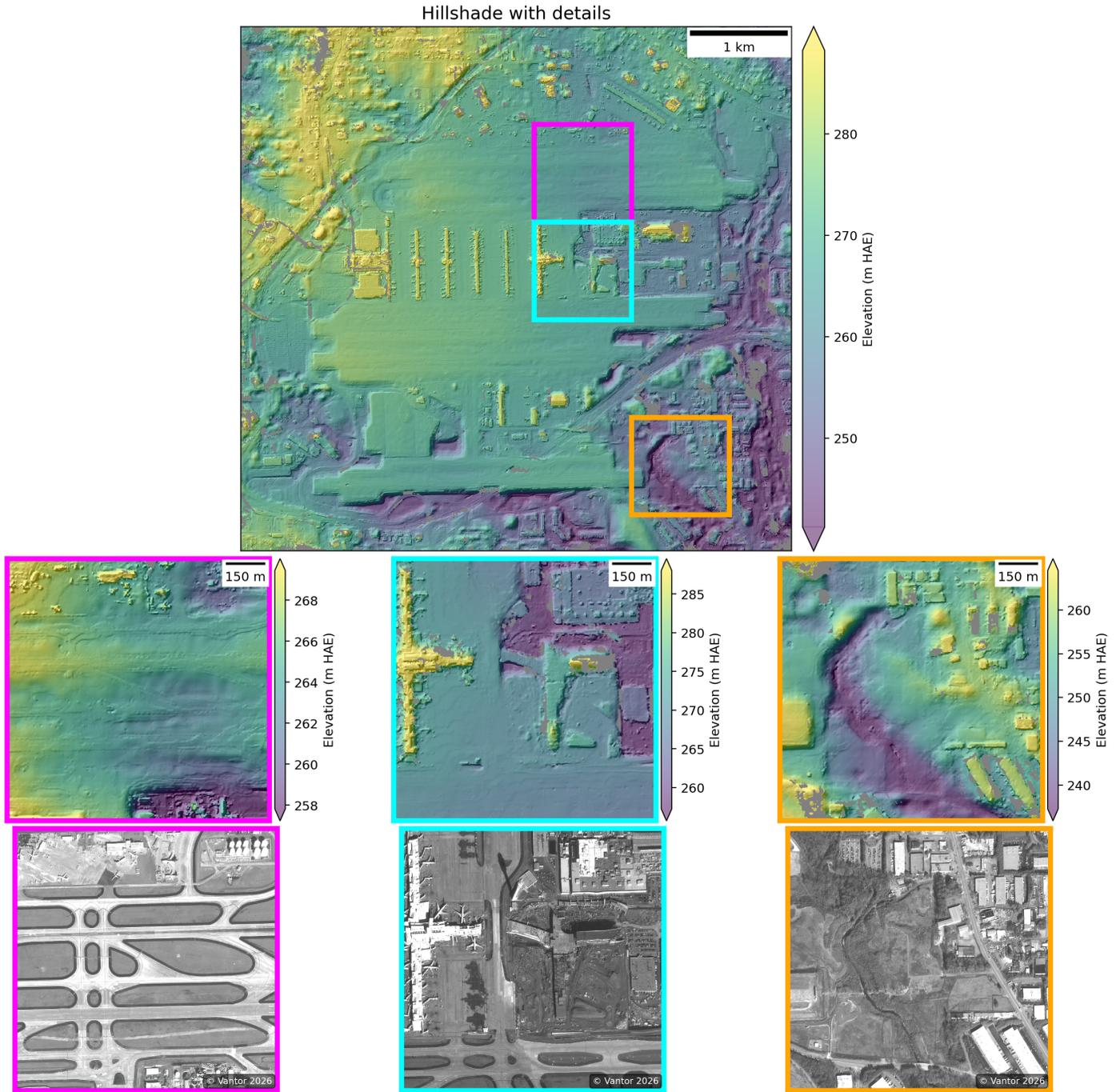
Detailed Hillshade

Figure 6: DEM hillshade. If the intersection error is available, zoomed subsets selected from low, medium, and high (left to right) uncertainty areas are displayed in the second row. If the mapprojected image is available, corresponding ortho image subsets are displayed in the bottom row.
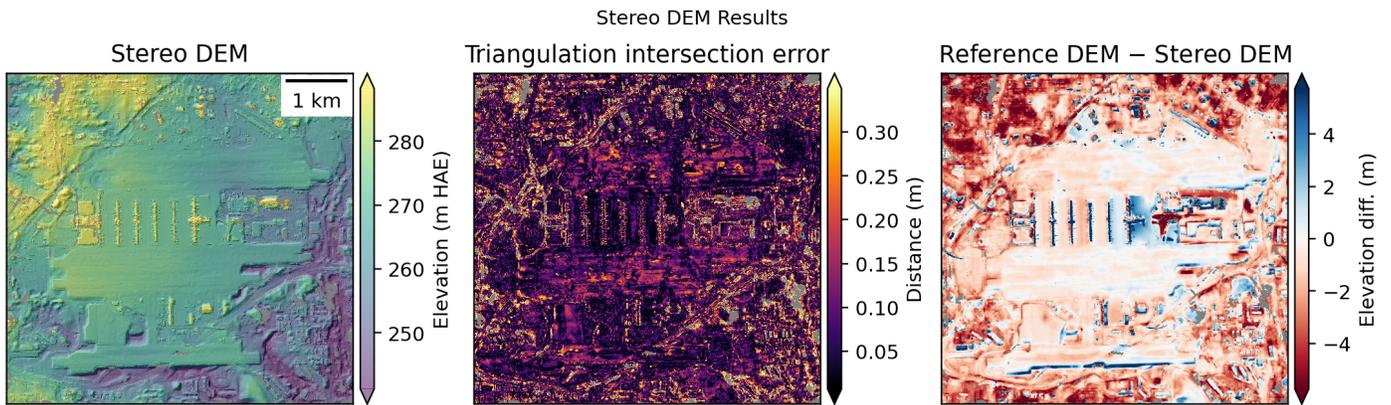
DEM Results

Figure 7: Output DEM with intersection error map and difference relative to the reference DEM used in processing.
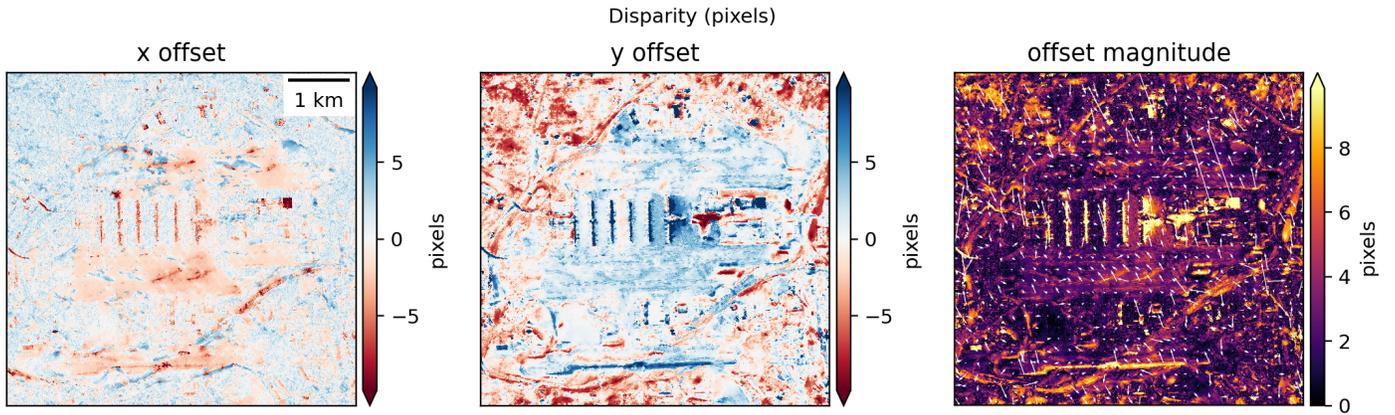
Disparity

Disparity (pixels)

x offset   y offset   offset magnitude

Figure 8: Horizontal and vertical disparity maps in pixels with quiver overlay.

ICESat-2 ATL06-SR Map
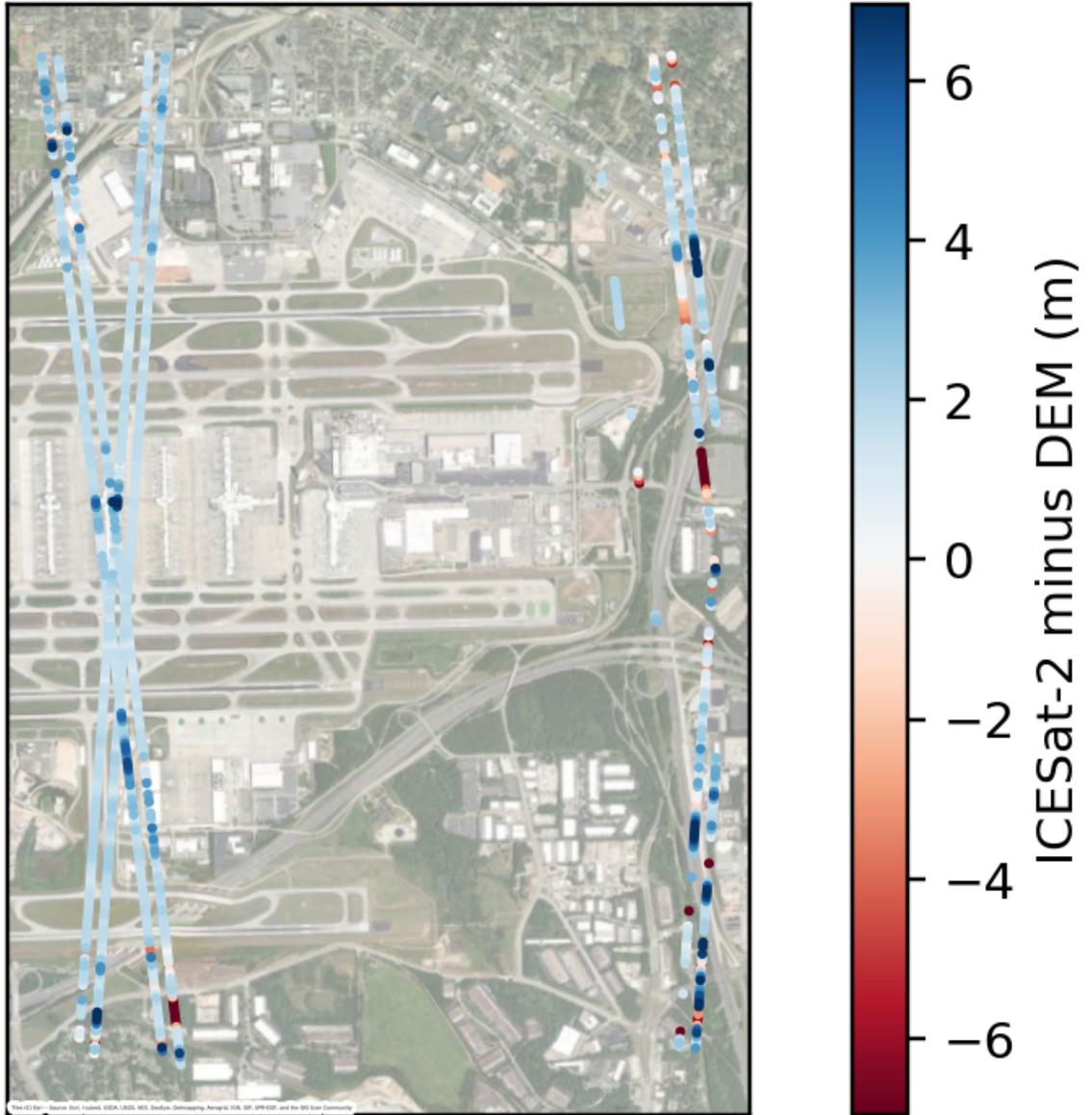
Figure 9: ICESat-2 ATL06-SR elevation differences vs. ASP DEM.
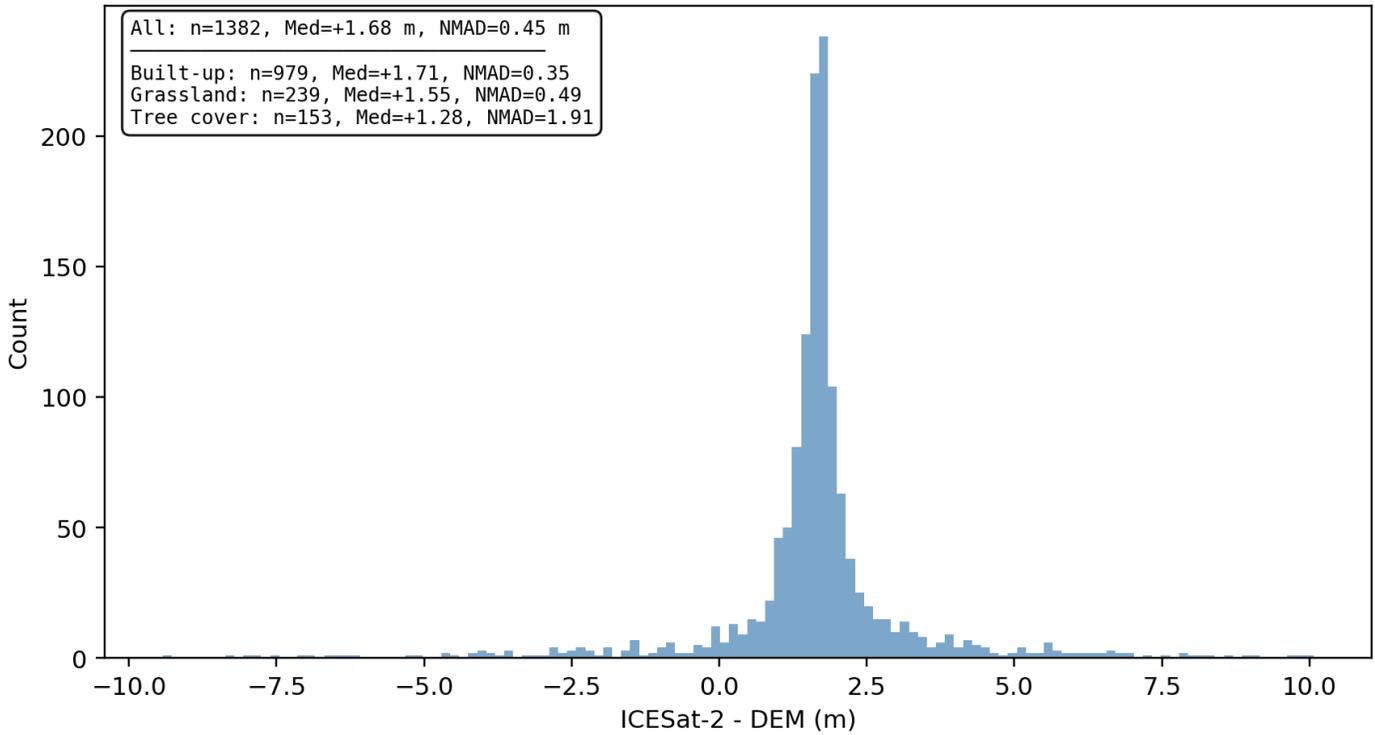
ICESat-2 ATL06-SR Histogram

Figure 10: Distribution of elevation differences between ICESat-2 ATL06-SR and ASP DEM with per-landcover statistics.

ICESat-2 ATL06-SR Profile

RGT 1094, Cycle 25, Spot 5 (2024-11-26) — n=264
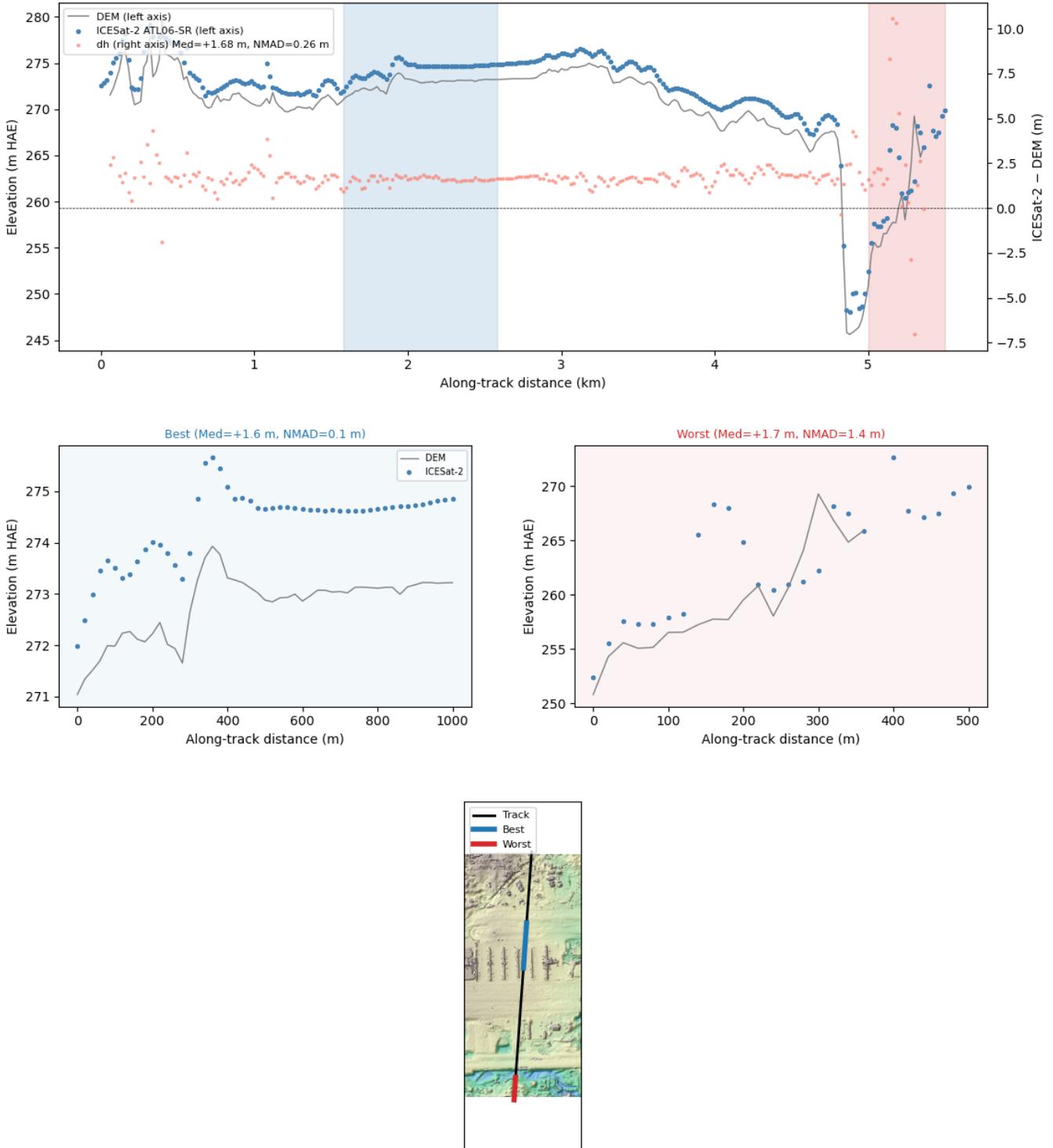2024-03-11 to 2026-03-11

Figure 11: Elevation profile along the ICESat-2 track with the most valid points, comparing ATL06-SR and DEM.

Processing Parameters

Runtime Summary

Step	Runtime
Bundle Adjust	0 hours and 2 minutes
Stereo	0 hours and 45 minutes
point2dem	0 hours and 1 minutes

Reference DEM:

```
ref/cop30_atlanta_wgs84_utm.tif
```

Bundle Adjust Command:

```
bundle_adjust --threads 24 --ip-per-image 10000 --tri-weight 0.1 --tri-robust-threshold 0.1 --camera-weight 0
10300100036D5200_P002_corr.tif 1030010003D22F00_P001_corr.tif 10300100036D5200_P002.xml 1030010003D22F00_P001.xml -o
ba/run
```

Stereo Command:

```
stereo --stereo-algorithm asp_mgm --subpixel-mode 9 --alignment-method none --bundle-adjust-prefix ba/run --corr-seed-
mode 1 --compute-point-cloud-center-only --threads 48 10300100036D5200_P002_corr_map.tif
1030010003D22F00_P001_corr_map.tif 10300100036D5200_P002.xml 1030010003D22F00_P001.xml stereo/run
ref/cop30_atlanta_wgs84_utm.tif
```

point2dem Command:

```
point2dem --tr 2 --t_srs EPSG:32616 --errorimage stereo/run-PC.tif
```

Report Generation Command:

```
asp_plot --directory /Users/ben/Library/CloudStorage/Dropbox/UW_Shean/asp_plot-test_data/docs_examples/atlanta_stereo/
--bundle_adjust_directory ba/ --stereo_directory stereo/ --map_crs EPSG:32616 --report_filename WorldView_Atlanta-asp-
plot-report.pdf --report_title WorldView_Atlanta
```