

NORTH CAROLINA GEODETIC SURVEY

Claude T Bowers Building
4105 Reedy Creek Road
Raleigh, North Carolina 27607
(919)733-3836



Project Information

Prepared By: Steve Kaufman
Project Name: 2014 LiDAR QC
Sensor Info: na
Required Nominal Pulse Spacing: 0.7
Vendor Name: ESP
Units: US Survey Feet
Percent of Extent Tolerance: Extents Not Checked
Date of Aquisition: Start: 3/24/2015 Finish: 3/24/2015

Metadata Information

Tile Index:

Path: C:\Users\skaufman\Documents\Drawing Files\Current\LiDAR QC\2014 LiDAR\2014 Contractor LiDAR

Number of Polys: 0

Intensity:

Tile Index Attribute: Not Specified

Path to Data: Not Specified

Number of Data Files Matching Attribute: Not Specified

DEM:

Tile Index Attribute: Not Specified

Path to Data: Not Specified

Number of Data Files Matching Attribute: Not Specified

LAS:

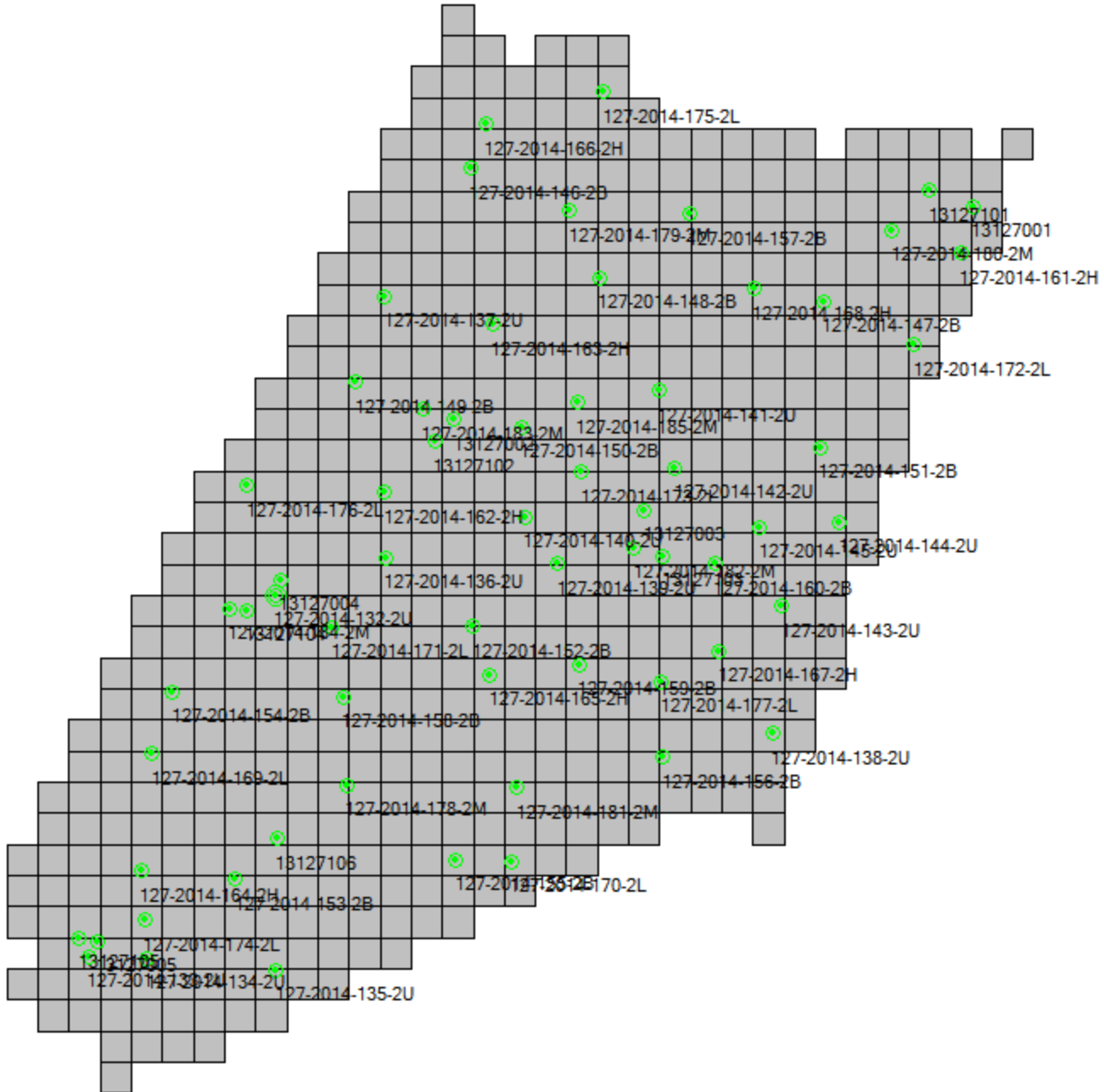
Tile Index Attribute: LiDARTiles

Path to Data: \\NCEMJFHQCLPSHP\FData\NashCoNC\Masspoints

Number of Data Files Matching Attribute: 611 out of 611



Tiled-Data Area





LiDAR Accuracy Assessment Summary

LC Type	# of Points	NVA	SVA	VVA
LAS				
ALL	65			
2U	25	0.323	0.306	
2B	15	0.385	0.308	
2H	8		0.881	0.881
2L	9		0.686	0.686
2M	8		0.360	0.360
Total	65			

Units: US Survey Feet



Coordinates and Offsets of Analyzed Locations

ID						
	Survey X	Survey Y	Z1	Z DEM	Z LAS	
			LC Type	ΔZ DEM	ΔZ LAS	
1)	127-2014-132-2U					
	2263194.232	800090.048	266.244	NaN	266.106	
			2U	NaN	-0.138	
2)	127-2014-133-2U					
	2233131.639	742002.276	281.374	NaN	281.443	
			2U	NaN	0.069	
3)	127-2014-134-2U					
	2242563.325	741647.393	222.79	NaN	222.875	
			2U	NaN	0.085	
4)	127-2014-135-2U					
	2263280.886	739707.4	256.201	NaN	256.075	
			2U	NaN	-0.126	
5)	127-2014-136-2U					
	2280871.614	806106.078	257.693	NaN	257.959	
			2U	NaN	0.266	
6)	127-2014-137-2U					
	2280782.009	848148.148	310.23	NaN	310.304	
			2U	NaN	0.074	
7)	127-2014-138-2U					
	2343127.276	777781.221	142.234	NaN	142.297	
			2U	NaN	0.064	



Coordinates and Offsets of Analyzed Locations (Continued)

ID						
	Survey X	Survey Y	Z1	Z DEM	Z LAS	
			LC Type	ΔZ DEM	ΔZ LAS	
8)	127-2014-139-2U					
	2308593.501	805160.157	199.723	NaN	199.772	
			2U	NaN	0.049	
9)	127-2014-140-2U					
	2303238.08	812634.947	151.195	NaN	151.018	
			2U	NaN	-0.177	
10)	127-2014-141-2U					
	2324863.269	832902.594	205.519	NaN	205.47	
			2U	NaN	-0.049	
11)	127-2014-142-2U					
	2327346.118	820542.966	181.906	NaN	181.871	
			2U	NaN	-0.035	
12)	127-2014-143-2U					
	2344562.041	798233.365	127.62	NaN	127.798	
			2U	NaN	0.178	
13)	127-2014-144-2U					
	2353809.245	811732.47	108.229	NaN	108.539	
			2U	NaN	0.31	
14)	127-2014-145-2U					
	2341065.455	810987.249	135.199	NaN	135.147	
			2U	NaN	-0.051	



Coordinates and Offsets of Analyzed Locations (Continued)

ID						
	Survey X	Survey Y	Z1	Z DEM	Z LAS	
			LC Type	ΔZ DEM	ΔZ LAS	
15)	127-2014-146-2B					
	2294482.352	868709.529	307.712	NaN	307.73	
			2B	NaN	0.018	
16)	127-2014-147-2B					
	2351235.096	847226.609	128.509	NaN	128.655	
			2B	NaN	0.146	
17)	127-2014-148-2B					
	2315287.917	851040.655	198.048	NaN	197.808	
			2B	NaN	-0.239	
18)	127-2014-149-2B					
	2276096.712	834293.144	248.201	NaN	248.103	
			2B	NaN	-0.098	
19)	127-2014-150-2B					
	2302703.873	827110.936	193.366	NaN	193.068	
			2B	NaN	-0.298	
20)	127-2014-151-2B					
	2350713.584	823864.76	131.19	NaN	131.249	
			2B	NaN	0.059	
21)	127-2014-152-2B					
	2294890.597	794994.089	209.323	NaN	209.483	
			2B	NaN	0.16	



Coordinates and Offsets of Analyzed Locations (Continued)

ID						
	Survey X	Survey Y	Z1	Z DEM	Z LAS	
			LC Type	ΔZ DEM	ΔZ LAS	
22)	127-2014-153-2B					
	2256706.621	754371.893	260.244	NaN	260.443	
			2B	NaN	0.199	
23)	127-2014-154-2B					
	2246664.55	784551.603	284.105	NaN	284.326	
			2B	NaN	0.221	
24)	127-2014-155-2B					
	2292260.17	757506.616	183.549	NaN	183.509	
			2B	NaN	-0.04	
25)	127-2014-156-2B					
	2325446.714	774038.371	163.416	NaN	163.721	
			2B	NaN	0.305	
26)	127-2014-157-2B					
	2329683.52	861257.724	245.367	NaN	245.1	
			2B	NaN	-0.266	
27)	127-2014-158-2B					
	2273993.276	783639.588	261.077	NaN	261.216	
			2B	NaN	0.139	
28)	127-2014-159-2B					
	2311950.008	788811.146	201.284	NaN	201.599	
			2B	NaN	0.315	



Coordinates and Offsets of Analyzed Locations (Continued)

ID						
	Survey X	Survey Y	Z1	Z DEM	Z LAS	
			LC Type	ΔZ DEM	ΔZ LAS	
29)	<input checked="" type="checkbox"/> 127-2014-160-2B					
	2333770.813	805044.443	133.192	NaN	133.211	
			2B	NaN	0.019	
30)	<input checked="" type="checkbox"/> 127-2014-161-2H					
	2373365.407	855023.573	126.127	NaN	126.301	
			2H	NaN	0.174	
31)	<input checked="" type="checkbox"/> 127-2014-162-2H					
	2280697.643	816523.734	262.102	NaN	262.661	
			2H	NaN	0.559	
32)	<input checked="" type="checkbox"/> 127-2014-163-2H					
	2298029.875	843593.402	251.329	NaN	251.536	
			2H	NaN	0.207	
33)	<input checked="" type="checkbox"/> 127-2014-164-2H					
	2241611.789	755662.509	200.495	NaN	201.046	
			2H	NaN	0.551	
34)	<input checked="" type="checkbox"/> 127-2014-165-2H					
	2297666.852	787195.445	158.993	NaN	159.292	
			2H	NaN	0.299	
35)	<input checked="" type="checkbox"/> 127-2014-166-2H					
	2296954.572	875770.138	270.184	NaN	270.261	
			2H	NaN	0.077	



Coordinates and Offsets of Analyzed Locations (Continued)

ID						
	Survey X	Survey Y	Z1	Z DEM	Z LAS	
			LC Type	ΔZ DEM	ΔZ LAS	
36)	127-2014-167-2H					
	2334522.239	791034.296	127.261	NaN	127.591	
			2H	NaN	0.33	
37)	127-2014-168-2H					
	2340115.432	849258.6	157.25	NaN	156.195	
			2H	NaN	-1.055	
38)	127-2014-169-2L					
	2243422.664	774612.016	234.777	NaN	235.554	
			2L	NaN	0.778	
39)	127-2014-170-2L					
	2301064.812	757247.866	160.701	NaN	161.25	
			2L	NaN	0.549	
40)	127-2014-171-2L					
	2272257.804	794818.91	248.404	NaN	248.469	
			2L	NaN	0.065	
41)	127-2014-172-2L					
	2365850.631	840335.792	119.849	NaN	119.97	
			2L	NaN	0.121	
42)	127-2014-173-2L					
	2312440.286	819863.608	136.664	NaN	136.697	
			2L	NaN	0.033	



Coordinates and Offsets of Analyzed Locations (Continued)

ID						
	Survey X	Survey Y	Z1	Z DEM	Z LAS	
			LC Type	ΔZ DEM	ΔZ LAS	
43)	127-2014-174-2L					
	2242161.523	747771.739	224.23	NaN	224.192	
			2L	NaN	-0.038	
44)	127-2014-175-2L					
	2315947.066	880980.6	198.745	NaN	198.58	
			2L	NaN	-0.165	
45)	127-2014-176-2L					
	2258596.612	817719.335	279.935	NaN	279.811	
			2L	NaN	-0.124	
46)	127-2014-177-2L					
	2325147.886	786179.832	169.504	NaN	169.814	
			2L	NaN	0.311	
47)	127-2014-178-2M					
	2274658.777	769436.939	216.765	NaN	216.972	
			2M	NaN	0.207	
48)	127-2014-179-2M					
	2310436.438	861903.989	238.786	NaN	238.879	
			2M	NaN	0.093	
49)	127-2014-180-2M					
	2362352.979	858699.433	115.1	NaN	115.285	
			2M	NaN	0.185	



Coordinates and Offsets of Analyzed Locations (Continued)

ID						
	Survey X	Survey Y	Z1	Z DEM	Z LAS	
			LC Type	ΔZ DEM	ΔZ LAS	
50)	127-2014-181-2M					
	2302033.457	769039.936	153.033	NaN	153.343	
			2M	NaN	0.31	
51)	127-2014-182-2M					
	2320869.978	807757.829	195.844	NaN	196.231	
			2M	NaN	0.387	
52)	127-2014-183-2M					
	2286888.975	829957.892	248.708	NaN	248.828	
			2M	NaN	0.12	
53)	127-2014-184-2M					
	2255781.376	797857.801	229.59	NaN	229.84	
			2M	NaN	0.25	
54)	127-2014-185-2M					
	2311760.419	831098.198	169.134	NaN	169.225	
			2M	NaN	0.092	
55)	13127001					
	2375230.599	862577.324	130.786	NaN	130.751	
			2U	NaN	-0.035	
56)	13127002					
	2291875.855	828339.512	233.016	NaN	232.882	
			2U	NaN	-0.133	



Coordinates and Offsets of Analyzed Locations (Continued)

		ID				
		Survey X	Survey Y	Z1	Z DEM	Z LAS
				LC Type	ΔZ DEM	ΔZ LAS
57)	<input checked="" type="checkbox"/>	13127003				
		2322482.656	813720.788	174.752	NaN	174.532
				2U	NaN	-0.221
58)	<input checked="" type="checkbox"/>	13127004				
		2264012.509	802470.912	273.388	NaN	273.327
				2U	NaN	-0.061
59)	<input checked="" type="checkbox"/>	13127005				
		2234533.228	744412.704	273.581	NaN	273.778
				2U	NaN	0.197
60)	<input checked="" type="checkbox"/>	13127101				
		2368365.145	865105.076	129.817	NaN	129.686
				2U	NaN	-0.131
61)	<input checked="" type="checkbox"/>	13127103				
		2325435.065	806319.359	184.406	NaN	184.692
				2U	NaN	0.286
62)	<input checked="" type="checkbox"/>	13127102				
		2288757.028	824697.179	257.234	NaN	257.386
				2U	NaN	0.152
63)	<input checked="" type="checkbox"/>	13127104				
		2258507.822	797654.196	248.751	NaN	248.803
				2U	NaN	0.052



Coordinates and Offsets of Analyzed Locations (Continued)

		ID				
		Survey X	Survey Y	Z1	Z DEM	Z LAS
				LC Type	ΔZ DEM	ΔZ LAS
64)	<input checked="" type="checkbox"/>	13127105				
		2231584.188	744894.234	296.229	NaN	296.375
				2U	NaN	0.146
65)	<input checked="" type="checkbox"/>	13127106				
		2263455.465	760852.47	275.958	NaN	276.316
				2U	NaN	0.359

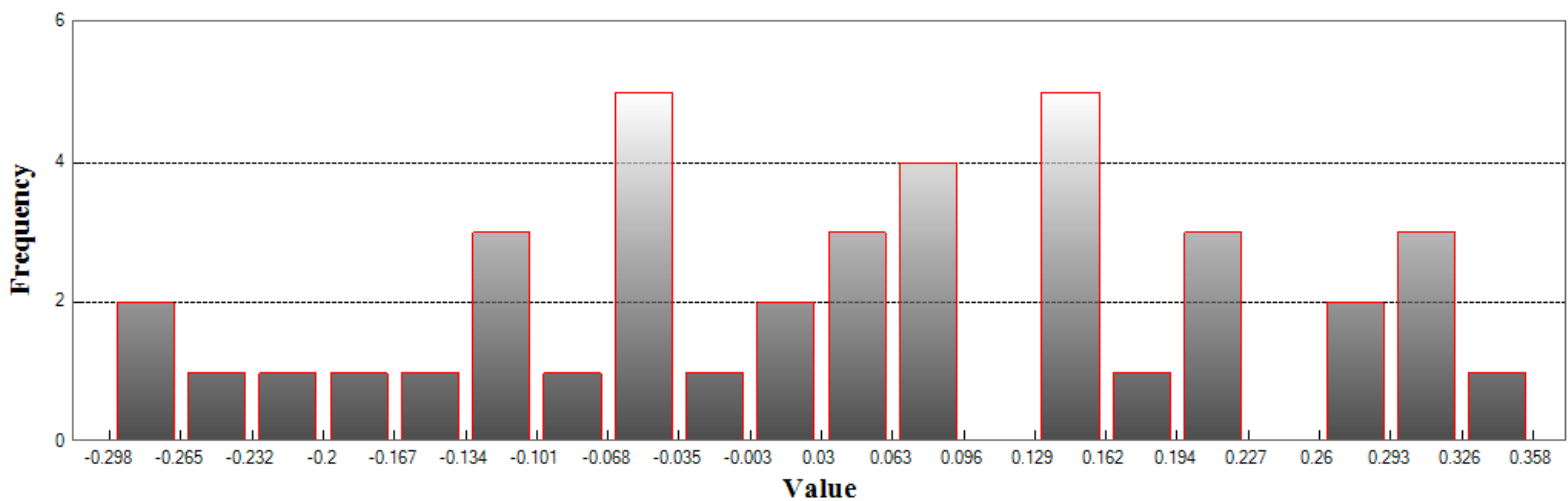


LAS

Non-vegetated Vertical Accuracy

LandCover Type: 2U, 2B
Minimum DZ: -0.298
Maximum DZ: 0.359
Mean DZ: 0.044
Mean Magnitude DZ: 0.386
Number Observations: 40
Standard Deviation DZ: 0.174
RMSE Z: 0.177
95% Confidence Level Z: 0.348
Units: US Survey Feet

Histogram



Min: -0.298
Max: 0.359
Number Of Bins: 20
Bin Interval: 0.033

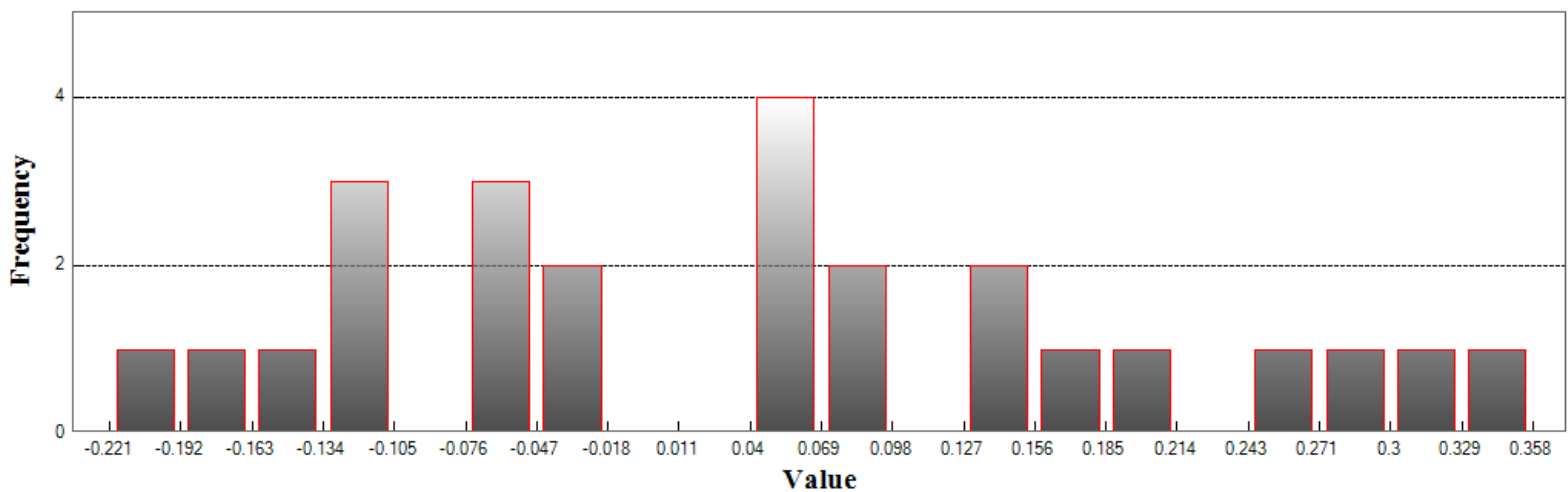


LAS (Continued)

Supplemental Vertical Accuracy

LandCover Type: 2U
Minimum DZ: -0.221
Maximum DZ: 0.359
Mean DZ: 0.045
Mean Magnitude DZ: 0.371
Number Observations: 25
Standard Deviation DZ: 0.162
RMSE Z: 0.165
95th Percentile: 0.306
Units: US Survey Feet

Histogram



Min: -0.221

Max: 0.359

Number Of Bins: 20

Bin Interval: 0.029

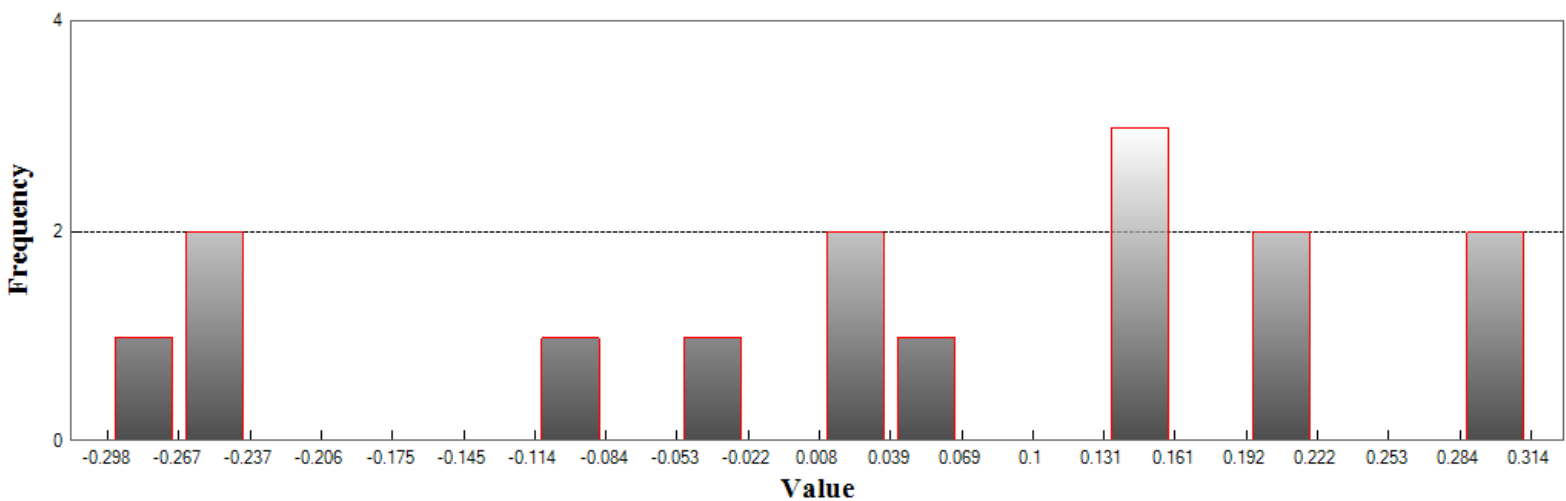


LAS (Continued)

Supplemental Vertical Accuracy

LandCover Type: 2B
Minimum DZ: -0.298
Maximum DZ: 0.315
Mean DZ: 0.043
Mean Magnitude DZ: 0.41
Number Observations: 15
Standard Deviation DZ: 0.199
RMSE Z: 0.196
95th Percentile: 0.308
Units: US Survey Feet

Histogram



Min: -0.298

Max: 0.315

Number Of Bins: 20

Bin Interval: 0.031

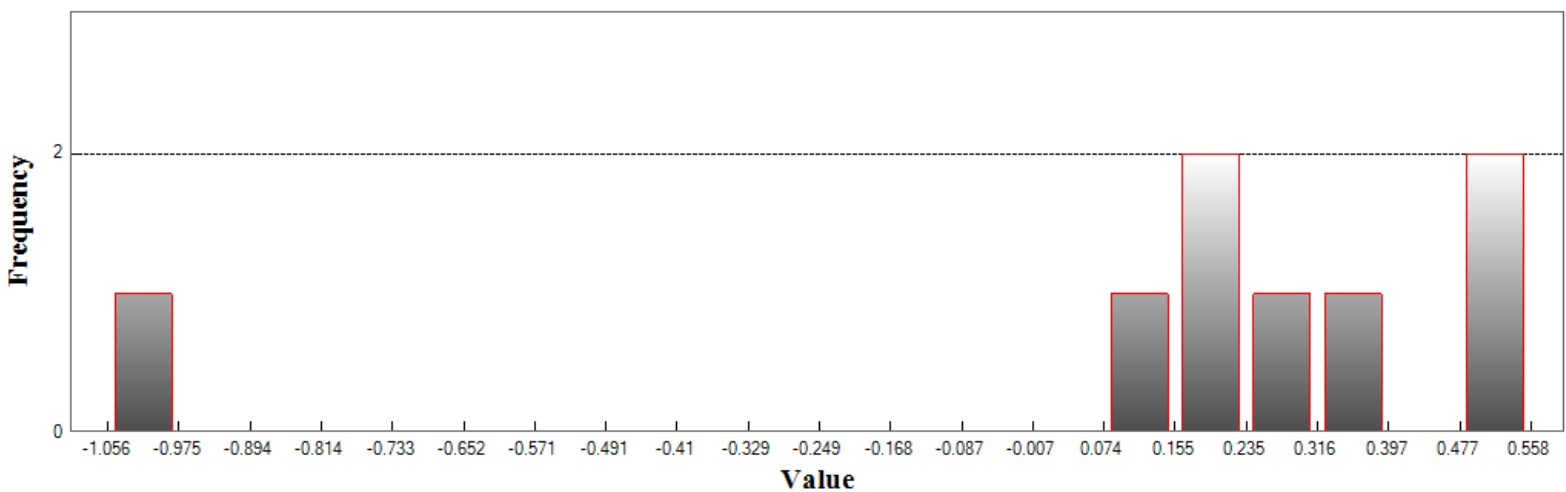


LAS (Continued)

Supplemental Vertical Accuracy

LandCover Type: 2H
Minimum DZ: -1.055
Maximum DZ: 0.559
Mean DZ: 0.143
Mean Magnitude DZ: 0.638
Number Observations: 8
Standard Deviation DZ: 0.513
RMSE Z: 0.501
95th Percentile: 0.881
Units: US Survey Feet

Histogram



Min: -1.055

Max: 0.559

Number Of Bins: 20

Bin Interval: 0.081

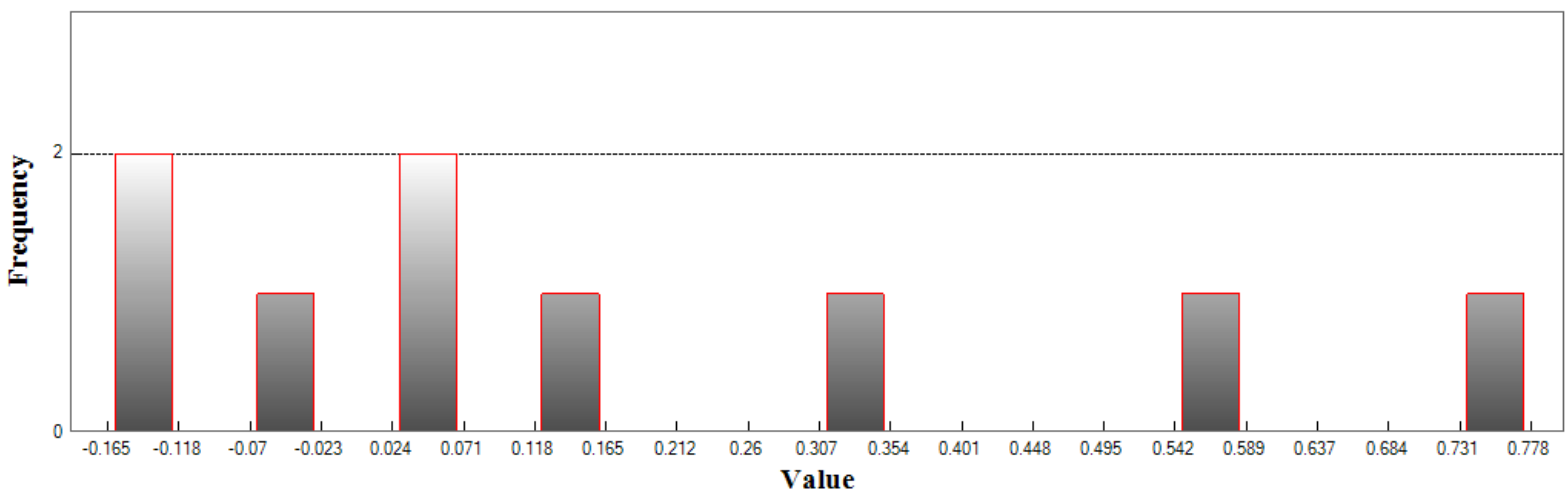


LAS (Continued)

Supplemental Vertical Accuracy

LandCover Type: 2L
Minimum DZ: -0.165
Maximum DZ: 0.778
Mean DZ: 0.17
Mean Magnitude DZ: 0.493
Number Observations: 9
Standard Deviation DZ: 0.318
RMSE Z: 0.344
95th Percentile: 0.686
Units: US Survey Feet

Histogram



Min: -0.165

Max: 0.778

Number Of Bins: 20

Bin Interval: 0.047

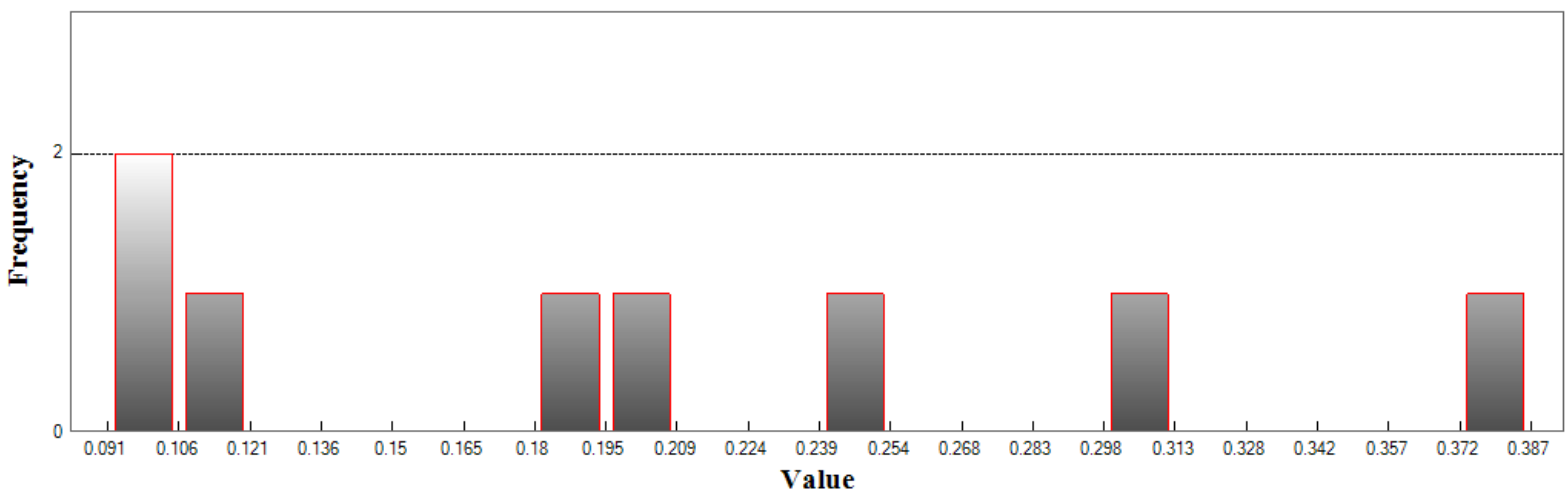


LAS (Continued)

Supplemental Vertical Accuracy

LandCover Type: 2M
Minimum DZ: 0.092
Maximum DZ: 0.387
Mean DZ: 0.206
Mean Magnitude DZ: 0.453
Number Observations: 8
Standard Deviation DZ: 0.106
RMSE Z: 0.228
95th Percentile: 0.36
Units: US Survey Feet

Histogram



Min: 0.092

Max: 0.387

Number Of Bins: 20

Bin Interval: 0.015



LAS (Continued)

Vegetated Vertical Accuracy

LandCover Type: 2H, 2L, 2M

Minimum DZ: -1.055

Maximum DZ: 0.778

Mean DZ: 0.173

Mean Magnitude DZ: 0.532

Number Observations: 25

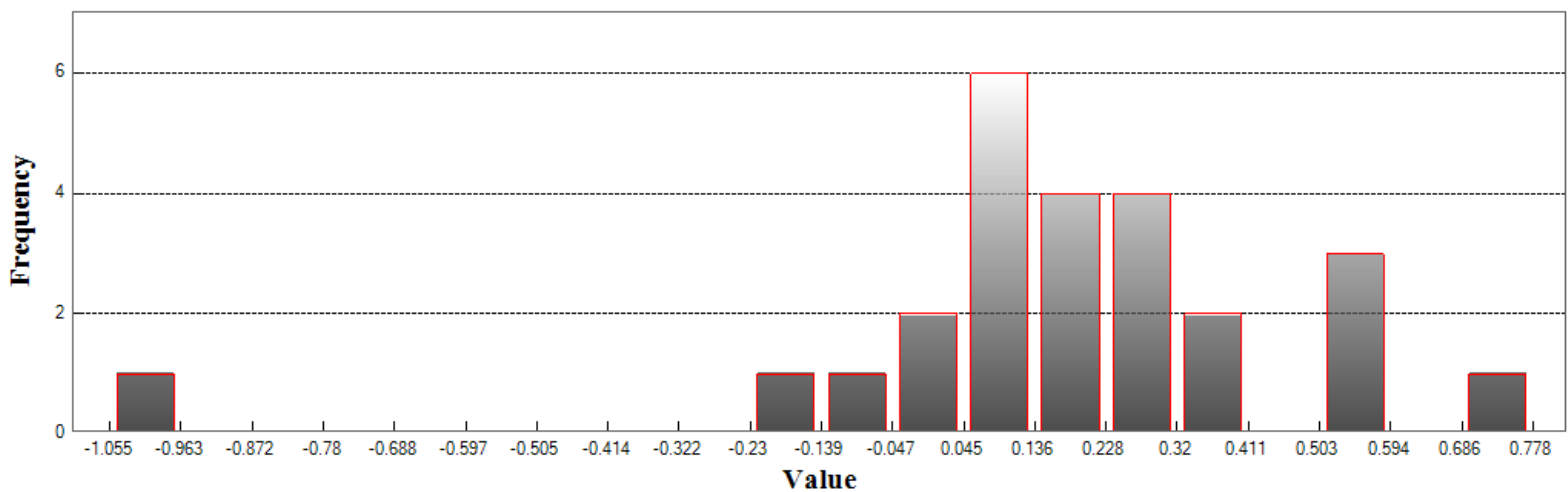
Standard Deviation DZ: 0.338

RMSE Z: 0.374

95th Percentile: 0.734

Units: US Survey Feet

Histogram



Min: -1.055

Max: 0.778

Number Of Bins: 20

Bin Interval: 0.092