

LIDAR Accuracy Assessment Report - Robeson County

Robeson County

The preliminary checkpoint spreadsheets were received from NCGS on June 15, 2001. Two spreadsheets were included for each county, which compared the independent QAQC survey checkpoints with the interpolated LIDAR "Z" value as provided by the contractors. The spreadsheet summaries included:

1. All the checkpoints with the RMSE calculation for combined land cover
2. 95% of the checkpoints with the RMSE calculation (5% of points having the largest error removed)

All data was reviewed and further analyzed to assess the quality of the data. The review process examined the statistics for the combined land cover and the trends for each specific land cover type. The following graphs and figures illustrate the data quality as per the RMSE criteria.

Table 1 summarizes the RMSE using:

- 100% of the checkpoints
- 95% of the checkpoints
- Checkpoints categorized by land cover type

Table 1. RMSE by Land Class				
%	RMSE (cm)	# of Points	Land Class	RMSE Criteria (cm)
100	25.5	127	All	
95	19.1	121	All	25
18	15.5	23	Grass	
16	15.2	20	Weeds/Crop	
15	25.9	19	Scrub	
31	19.5	40	Forest	
15	17.6	19	Built-up	

The LIDAR data for Robeson meets the specification as per the RMSE criteria of 25 cm.

All figures represent the data with the 95% data set. The data is of good quality. It can be noted that the cover type "Scrub" is slightly high in comparison to the other land cover types. However when factored into the overall statistics, the RMS easily exceeds the criteria.

Figure 1 illustrates the RMSE by specific land cover class.

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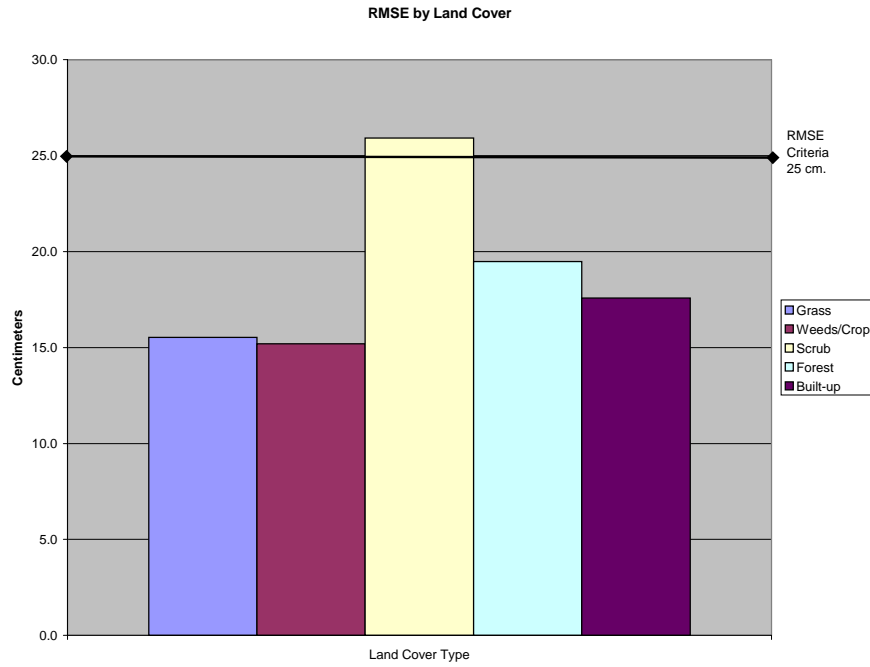


Figure 1

Figure 2 illustrates the magnitude of the differences between the checkpoints and LIDAR data by specific land class type and sorted from lowest to highest.

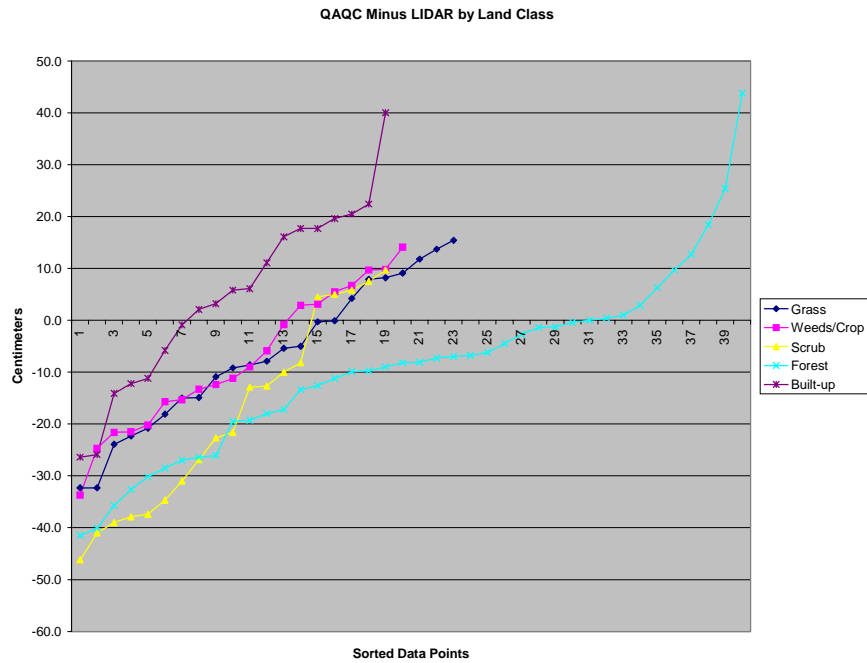


Figure 2

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Table 2 illustrates the Delta between the QAQC survey checkpoints and that of the interpolated LIDAR.

Table 2: Elevation Delta	
Delta (cm)	Land Cover
-32.3	Grass
-32.3	Grass
-23.9	Grass
-22.3	Grass
-20.8	Grass
-18.1	Grass
-15.0	Grass
-14.9	Grass
-10.9	Grass
-9.2	Grass
-8.6	Grass
-7.9	Grass
-5.4	Grass
-5.0	Grass
-0.3	Grass
-0.1	Grass
4.2	Grass
7.9	Grass
8.2	Grass
9.1	Grass
11.8	Grass
13.7	Grass
15.4	Grass
-33.7	Weeds/Crop
-24.7	Weeds/Crop
-21.6	Weeds/Crop
-21.5	Weeds/Crop
-20.2	Weeds/Crop
-15.7	Weeds/Crop
-15.3	Weeds/Crop
-13.3	Weeds/Crop
-12.4	Weeds/Crop
-11.2	Weeds/Crop
-9.0	Weeds/Crop
-5.9	Weeds/Crop
-0.8	Weeds/Crop
2.9	Weeds/Crop
3.1	Weeds/Crop
5.5	Weeds/Crop

6.7	Weeds/Crop
9.7	Weeds/Crop
9.8	Weeds/Crop
14.1	Weeds/Crop
-46.2	Scrub
-41.0	Scrub
-39.0	Scrub
-37.9	Scrub
-37.4	Scrub
-34.7	Scrub
-31.0	Scrub
-26.9	Scrub
-22.7	Scrub
-21.6	Scrub
-12.9	Scrub
-12.7	Scrub
-10.0	Scrub
-8.2	Scrub
4.5	Scrub
5.0	Scrub
5.8	Scrub
7.5	Scrub
9.7	Scrub
-41.5	Forest
-40.1	Forest
-35.7	Forest
-32.6	Forest
-30.2	Forest
-28.5	Forest
-27.0	Forest
-26.4	Forest
-26.1	Forest
-19.5	Forest
-19.3	Forest
-18.0	Forest
-17.2	Forest
-13.4	Forest
-12.6	Forest
-11.2	Forest
-9.9	Forest
-9.7	Forest
-9.0	Forest

-8.2	Forest
-8.1	Forest
-7.3	Forest
-7.0	Forest
-6.8	Forest
-6.2	Forest
-4.5	Forest
-2.7	Forest
-1.4	Forest
-1.3	Forest
-0.4	Forest
0.0	Forest
0.4	Forest
1.0	Forest
2.9	Forest
6.3	Forest
9.7	Forest
12.7	Forest
18.4	Forest
25.4	Forest
43.8	Forest
-26.4	Built-up
-25.9	Built-up
-14.1	Built-up
-12.2	Built-up
-11.2	Built-up
-5.8	Built-up
-0.9	Built-up
2.1	Built-up
3.2	Built-up
5.8	Built-up
6.1	Built-up
11.1	Built-up
16.1	Built-up
17.7	Built-up
17.7	Built-up
19.6	Built-up
20.5	Built-up
22.4	Built-up
40.0	Built-up

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Table 3 illustrates the overall statistics for the checkpoint data.

Table 3. Overall Descriptive Statistics								
	RMSE (cm)	Mean (cm)	Median (cm)	Skew	Std Dev	# of Points	Min (cm)	Max (cm)
Total	19.1	-7.7	-8.2	0.12	17.50	121	-46.2	43.8
Grass	15.5	-6.8	-7.9	-0.15	14.27	23	-32.3	15.4
Weeds/Crop	15.2	-7.7	-10.1	-0.05	13.46	20	-33.7	14.1
Scrub	25.9	-18.4	-21.6	0.17	18.75	19	-46.2	9.7
Forest	19.5	-9.0	-8.2	0.52	17.47	40	-41.5	43.8
Built-up	17.6	4.5	5.8	-0.11	17.46	19	-26.4	40.0