

C-2 Report on Multiple Discrete Returns

The USGS Lidar Base Specification Version 2.1 states: "Deriving and delivering multiple discrete returns are required in all conventional lidar data collection efforts. Data collection shall be capable of at least three returns per pulse. Full waveform collection is acceptable and is promoted; however, full waveform data are regarded as supplemental information."

The purpose of this section is to report on the presence and quantities of lidar returns in the LAS data. Empty return columns can indicate a collection or processing problem dealing with lidar return attribute information.

[Data Source - D:\00_Cherry\swaths](#)

File	First return	Second return	Third return	Other returns	Total points
CS_01000.las	133,919,477	630,919	61,208	2,348	134,613,952
CS_01001.las	342,694,199	2,793,048	253,378	8,012	345,748,637
CS_01002.las	300,110,751	4,286,854	444,124	14,750	304,856,479
CS_01003.las	345,414,331	6,103,312	612,709	18,313	352,148,665
CS_01004.las	296,457,013	6,516,743	739,396	26,549	303,739,701
CS_01005.las	345,491,342	8,363,940	1,100,877	50,983	355,007,142
CS_01006.las	291,326,224	5,734,447	737,752	31,876	297,830,299
CS_01007.las	203,415,316	4,371,324	590,559	29,570	208,406,769
CS_01008.las	133,157,075	1,404,531	204,674	11,562	134,777,842
CS_01009.las	143,298,871	2,988,122	415,782	20,797	146,723,572
CS_01010.las	22,240,972	697,009	101,014	5,043	23,044,038
CS_01011.las	152,684,146	4,784,589	654,920	32,968	158,156,623
CS_01012.las	354,780,422	10,308,077	1,424,114	72,197	366,584,810
CS_01013.las	278,417,465	10,237,247	1,402,888	69,798	290,127,398
CS_01014.las	357,005,803	13,994,241	2,081,312	111,175	373,192,531
CS_01015.las	273,741,983	9,633,851	1,318,599	63,133	284,757,566
CS_01016.las	272,135,092	13,049,140	1,940,066	101,068	287,225,366
CS_01017.las	16,592,271	937,331	118,343	3,989	17,651,934
CS_01018.las	53,769,874	2,361,362	305,138	14,161	56,450,535
CS_01019.las	75,401,176	4,969,654	706,288	33,901	81,111,019
CS_01020.las	46,197,781	415,706	45,712	2,801	46,662,000
Total	4,438,251,584	114,581,447	15,258,853	724,994	4,568,816,878