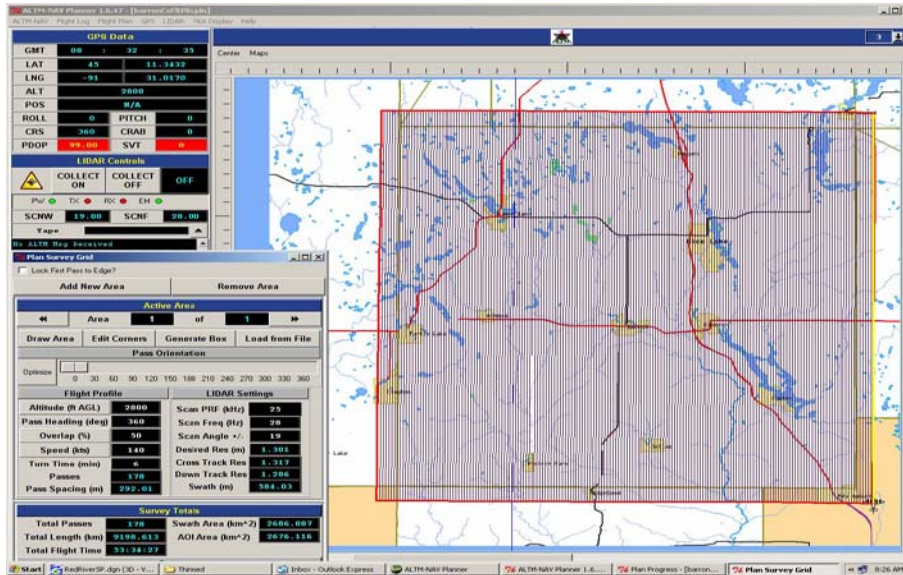


BARRON COUNTY WISCONSIN LIDAR PROJECT FLIGHT REPORT

Overview

The project consisted of 1 flight area, Twenty-one LIDAR survey missions were conducted to complete the Barron County Wisconsin LIDAR survey project. LIDAR data collection commenced on May 25, 2005 and concluded on June 8, 2005. The flight box and flight parameters are set forth below:



LIDAR Flight Parameters

Laser Firing Rate:	25000
Altitude (ft. AGL):	2800
Swath Overlap (%):	50
Approx. Ground Speed (mph):	150
Scan Rate (Hz):	28.0
Scan Angle (°±):	19.0
Computed Along Track Spacing (ft):	4.2
Computed Cross track Spacing (ft.):	4.2
Average Raw Point Spacing (ft.)	3.0
Computed Swath Width (ft.):	1928
Number of Lines Req'd:	178
Line Spacing (ft.)	964

Base Stations

A total of (3) GPS base station monuments were used for the LIDAR flights. The monuments used were;

NGS monument - Moose Ear (PID AH8947) located 6.45 MI east of the village of Cameron, 380 feet west of the centerline of 27th ST. 59 feet south of the center line of US HWY 8, 1 foot north of witness post.

NGS monument Barron (PID AH8948) located 0.8 MI (1.3 KM) west of the city of Barron in the NE 1/4 of the SE 1/4 of SEC 29, T34N,R12W, 4TH principal meridian, Town of Barron, Barron County. To reach the station from the city of Barron from the intersection of US HWY-8 and ST HWY-25 South go west along US HWY-8 0.7 mi (1.1 km) to the station on the left. Station is 408 ft (124.4 m) west of centerline of driveway house number 1388, 318 ft (96.9 m) east of centerline of driveway leading to city of Barron property, 62 ft (18.9 m) south of the centerline of US HWY-8, plastic witness posts set 1 ft (0.3 m) north and 13 ft (4.0 m) north of station.

NGS monument Almena Sportsmens (PID AH8949) station is located 1.6 mi (2.6 km) e of the village of Almena, 6.4 mi (10.3 km) w of the city of Barron in the nw 1/4 of the ne 1/4 of sec 29, t34n, r13w, 4th principal meridian, town of Clinton, Barron Co. To reach the station from the village of Almena from the intersection of US highway 8 and county trunk highway p, go east on US HWY 8 for 1.6 mi (2.6 km) to the station on the right. Located 0.35 mi (0.56 km) w of 8th street, 190 ft (57.9 m) east of the centerline of a driveway to Almena Sportsmens Club shooting range, 45 ft (13.7 m) south of the centerline of US HWY 8 and 1 ft (0.3 m) north of a witness post.

LIDAR Missions

(21)-flights were required for the Barron County WI. LIDAR survey project The occupied GPS base stations are shown below:

- Flight 1 (5/25/05)– Base station Moose Ear (PID AH8947)
- Flight 2 (5/26/05)– Base station Moose Ear (PID AH8947)
- Flight 3 (5/26/05)– Base station Moose Ear (PID AH8947)
- Flight 4 (5/27/05)– Base station Moose Ear (PID AH8947)
- Flight 5 (5/28/05)– Base station Moose Ear (PID AH8947)
- Flight 6 (5/28/05)– Base station Moose Ear (PID AH8947)
- Flight 7 (5/29/05)– Base station Barron (PID AH8948)
- Flight 8 (5/29/05)– Base station Moose Ear (PID AH8947)
- Flight 9 (5/30/05)– Base station Barron (PID AH8948)
- Flight 10 (5/30/05)– Base station Barron (PID AH8948)
- Flight 11 (5/31/05)– Base station Barron (PID AH8948)
- Flight 12 (6/1/05)– Base station Barron (PID AH8948)
- Flight 13 (6/1/05)– Base station Barron (PID AH8948)
- Flight 14 (6/2/05)– Base station Barron (PID AH8948)
- Flight 15 (6/2/05)– Base station Almena Sportsmens (PID AH8949)
- Flight 16 (6/3/05)– Base station Almena Sportsmens (PID AH8949)
- Flight 17 (6/3/05)– Base station Almena Sportsmens (PID AH8949)
- Flight 18 (6/7/05)– Base station Almena Sportsmens (PID AH8949)
- Flight 19 (6/7/05)– Base station Almena Sportsmens (PID AH8949)
- Flight 20 (6/8/05)– Base station Almena Sportsmens (PID AH8949)
- Flight 21 (6/8/05)– Base station Almena Sportsmens (PID AH8949)

Flight Lines

All project flight line positions are listed below:

	Latitude	Longitude	Latitude	Longitude
Flight Line 1	45.1890527414094	91.5169492950216	45.6545906615576	91.5169492950216
Flight Line 2	45.1890612804480	91.5206933039177	45.6546339880859	91.5206933039177
Flight Line 3	45.1891119432240	91.5244373128138	45.6546773146142	91.5244373128138
Flight Line 4	45.1891626060001	91.5281813217099	45.6547206411425	91.5281813217099
Flight Line 5	45.1892132687761	91.5319253306059	45.6547639676708	91.5319253306059
Flight Line 6	45.1892639315521	91.5356693395020	45.6548072941991	91.5356693395020
Flight Line 7	45.1893145943281	91.5394133483981	45.6548506207274	91.5394133483981
Flight Line 8	45.1893652571041	91.5431573572942	45.6548939472557	91.5431573572942
Flight Line 9	45.1894159198802	91.5469013661902	45.6549372737840	91.5469013661902
Flight Line 10	45.1894665826562	91.5506453750863	45.6549806003123	91.5506453750863
Flight Line 11	45.1895172454322	91.5543893839824	45.6550239268406	91.5543893839824
Flight Line 12	45.1896034189776	91.5581333928785	45.6550672533689	91.5581333928785
Flight Line 13	45.1896960724267	91.5618774017745	45.6550970147862	91.5618774017745
Flight Line 14	45.1897799831844	91.5656214106706	45.6551243647723	91.5656214106706
Flight Line 15	45.1898133470979	91.5693654195667	45.6551517147583	91.5693654195667
Flight Line 16	45.1898467110114	91.5731094284628	45.6551790647444	91.5731094284628
Flight Line 17	45.1898800749249	91.5768534373588	45.6552064147304	91.5768534373588
Flight Line 18	45.1899134388384	91.5805974462549	45.6552307249029	91.5805974462549
Flight Line 19	45.1899468027519	91.5843414551510	45.6552508718137	91.5843414551510
Flight Line 20	45.1899801666654	91.5880854640471	45.6552710187244	91.5880854640471
Flight Line 21	45.1900135305789	91.5918294729431	45.6552911656352	91.5918294729431
Flight Line 22	45.1900474783883	91.5955734818392	45.6553113125460	91.5955734818392
Flight Line 23	45.1901213946674	91.5993174907353	45.6553314594568	91.5993174907353
Flight Line 24	45.1901953109465	91.6030614996314	45.6553516063676	91.6030614996314
Flight Line 25	45.1902655485036	91.6068055085274	45.6553717532783	91.6068055085274
Flight Line 26	45.1903245390973	91.6105495174235	45.6553919001891	91.6105495174235
Flight Line 27	45.1903835296910	91.6142935263196	45.6554120470999	91.6142935263196
Flight Line 28	45.1904425202847	91.6180375352157	45.6554321940107	91.6180375352157
Flight Line 29	45.1905015108785	91.6217815441117	45.6554476260351	91.6217815441117
Flight Line 30	45.1905605014722	91.6255255530078	45.6554389282872	91.6255255530078
Flight Line 31	45.1905732694725	91.6292695619039	45.6554017624386	91.6292695619039
Flight Line 32	45.1905724450298	91.6330135708000	45.6553716579023	91.6330135708000
Flight Line 33	45.1905724183919	91.6367575796960	45.6554195913828	91.6367575796960
Flight Line 34	45.1906266034748	91.6405015885921	45.6554675248633	91.6405015885921
Flight Line 35	45.1906825977408	91.6442455974882	45.6555450190386	91.6442455974882
Flight Line 36	45.1907290892996	91.6479896063843	45.6556249092947	91.6479896063843
Flight Line 37	45.1907364356640	91.6517336152803	45.6556946185358	91.6517336152803
Flight Line 38	45.1907437820283	91.6554776241764	45.6557046004416	91.6554776241764
Flight Line 39	45.1907511283926	91.6592216330725	45.6557145823473	91.6592216330725
Flight Line 40	45.1907584747569	91.6629656419686	45.6557309483000	91.6629656419686
Flight Line 41	45.1907658211212	91.6667096508646	45.6557501898632	91.6667096508646
Flight Line 42	45.1907905227728	91.6704536597607	45.6557694314264	91.6704536597607
Flight Line 43	45.1908214725128	91.6741976686568	45.6558236290690	91.6741976686568
Flight Line 44	45.1908524222528	91.6779416775529	45.6558783966436	91.6779416775529

Flight Line 45	45.1908833719927	91.6816856864489	45.6559180832482	91.6816856864489
Flight Line 46	45.1909143217327	91.6854296953450	45.6559168939412	91.6854296953450
Flight Line 47	45.1909388283024	91.6891737042411	45.6559125748912	91.6891737042411
Flight Line 48	45.1909434822323	91.6929177131371	45.6559082558412	91.6929177131371
Flight Line 49	45.1909481361622	91.6966617220332	45.6559039367913	91.6966617220332
Flight Line 50	45.1909527900921	91.7004057309293	45.6558996177413	91.7004057309293
Flight Line 51	45.1909574440220	91.7041497398254	45.6558952986914	91.7041497398254
Flight Line 52	45.1909620979519	91.7078937487214	45.6558946573674	91.7078937487214
Flight Line 53	45.1909800055805	91.7116377576175	45.6558949061036	91.7116377576175
Flight Line 54	45.1910024329221	91.7153817665136	45.6558951548399	91.7153817665136
Flight Line 55	45.1910248602636	91.7191257754097	45.6558954035761	91.7191257754097
Flight Line 56	45.1910472876052	91.7228697843057	45.6558955782307	91.7228697843057
Flight Line 57	45.1910697149467	91.7266137932018	45.6558940652375	91.7266137932018
Flight Line 58	45.1910888142461	91.7303578020979	45.6558889852174	91.7303578020979
Flight Line 59	45.1910993675309	91.7341018109940	45.6558839051973	91.7341018109940
Flight Line 60	45.1911099208157	91.7378458198901	45.6558788251771	91.7378458198901
Flight Line 61	45.1911204741005	91.7415898287861	45.6558737451570	91.7415898287861
Flight Line 62	45.1911310273853	91.7453338376822	45.6558686651369	91.7453338376822
Flight Line 63	45.1911415806701	91.7490778465783	45.6558655163432	91.7490778465783
Flight Line 64	45.1911560395017	91.7528218554744	45.6558628270402	91.7528218554744
Flight Line 65	45.1911714818355	91.7565658643704	45.6558601377372	91.7565658643704
Flight Line 66	45.1911713155968	91.7603098732665	45.6558574484342	91.7603098732665
Flight Line 67	45.1911585821519	91.7640538821626	45.6558547591312	91.7640538821626
Flight Line 68	45.1911472178347	91.7677978910586	45.6558575413441	91.7677978910586
Flight Line 69	45.1911379537353	91.7715418999547	45.6558608533695	91.7715418999547
Flight Line 70	45.1911286896360	91.7752859088508	45.6558641653948	91.7752859088508
Flight Line 71	45.1911194255366	91.7790299177469	45.6558674774202	91.7790299177469
Flight Line 72	45.1911101614373	91.7827739266429	45.6558707894455	91.7827739266429
Flight Line 73	45.1911008973379	91.7865179355390	45.6558741014709	91.7865179355390
Flight Line 74	45.1910993998007	91.7902619444351	45.6558774134962	91.7902619444351
Flight Line 75	45.1911422158852	91.7940059533312	45.6558807255216	91.7940059533312
Flight Line 76	45.1911932877051	91.7977499622272	45.6558840375469	91.7977499622272
Flight Line 77	45.1912443595249	91.8014939711233	45.6558873495723	91.8014939711233
Flight Line 78	45.1912954313447	91.8052379800194	45.6558899512661	91.8052379800194
Flight Line 79	45.1913465031646	91.8089819889155	45.6558892669662	91.8089819889155
Flight Line 80	45.1912892324192	91.8127259978115	45.6558860763173	91.8127259978115
Flight Line 81	45.1912292890403	91.8164700067076	45.6558828856683	91.8164700067076
Flight Line 82	45.1911693456615	91.8202140156037	45.6558796950193	91.8202140156037
Flight Line 83	45.1911094022827	91.8239580244998	45.6558765043704	91.8239580244998
Flight Line 84	45.1910527427232	91.8277020333958	45.6558784925044	91.8277020333958
Flight Line 85	45.1910541344598	91.8314460422919	45.6558867090559	91.8314460422919
Flight Line 86	45.1910795394477	91.8351900511880	45.6558949256074	91.8351900511880
Flight Line 87	45.1911049444357	91.8389340600841	45.6559031421588	91.8389340600841
Flight Line 88	45.1911303494236	91.8426780689801	45.6559113587103	91.8426780689801
Flight Line 89	45.1911557544116	91.8464220778762	45.6559194141155	91.8464220778762
Flight Line 90	45.1911811593995	91.8501660867723	45.6559269579249	91.8501660867723
Flight Line 91	45.1912065643875	91.8539100956684	45.6559345017344	91.8539100956684

Flight Line 92	45.1912319693754	91.8576541045644	45.6559420455438	91.8576541045644
Flight Line 93	45.1912573743634	91.8613981134605	45.6559495893533	91.8613981134605
Flight Line 94	45.1912475925601	91.8651421223566	45.6559571331628	91.8651421223566
Flight Line 95	45.1912370414982	91.8688861312527	45.6559886446921	91.8688861312527
Flight Line 96	45.1912366932865	91.8726301401487	45.6560273268960	91.8726301401487
Flight Line 97	45.1912474373401	91.8763741490448	45.6560595563081	91.8763741490448
Flight Line 98	45.1912585480759	91.8801181579409	45.6560599705218	91.8801181579409
Flight Line 99	45.1912696588118	91.8838621668370	45.6560603847355	91.8838621668370
Flight Line 100	45.1912807695477	91.8876061757330	45.6560622648466	91.8876061757330
Flight Line 101	45.1912898177542	91.8913501846291	45.6560681293010	91.8913501846291
Flight Line 102	45.1912768985994	91.8950941935252	45.6560739937554	91.8950941935252
Flight Line 103	45.1912639794446	91.8988382024213	45.6560798582098	91.8988382024213
Flight Line 104	45.1912510602898	91.9025822113173	45.6560857226642	91.9025822113173
Flight Line 105	45.1912381411351	91.9063262202134	45.6560915871186	91.9063262202134
Flight Line 106	45.1912257244482	91.9100702291095	45.6561281397929	91.9100702291095
Flight Line 107	45.1912269768783	91.9138142380056	45.6561669850592	91.9138142380056
Flight Line 108	45.1912591786130	91.9175582469016	45.6562124079160	91.9175582469016
Flight Line 109	45.1912913803476	91.9213022557977	45.6562802743001	91.9213022557977
Flight Line 110	45.1913235820822	91.9250462646938	45.6563481406842	91.9250462646938
Flight Line 111	45.1913557838168	91.9287902735899	45.6563914951507	91.9287902735899
Flight Line 112	45.1913879855514	91.9325342824859	45.6564065274565	91.9325342824859
Flight Line 113	45.1914019854366	91.9362782913820	45.6564215597622	91.9362782913820
Flight Line 114	45.1914024648380	91.9400223002781	45.6564365920680	91.9400223002781
Flight Line 115	45.1914029442393	91.9437663091742	45.6564516243738	91.9437663091742
Flight Line 116	45.1914189298315	91.9475103180702	45.6564666566795	91.9475103180702
Flight Line 117	45.1914373505838	91.9512543269663	45.6565120932038	91.9512543269663
Flight Line 118	45.1914557713360	91.9549983358624	45.6565601333547	91.9549983358624
Flight Line 119	45.1914741920882	91.9587423447585	45.6566013182721	91.9587423447585
Flight Line 120	45.1914926128405	91.9624863536545	45.6566220567601	91.9624863536545
Flight Line 121	45.1915110335927	91.9662303625506	45.6566427952480	91.9662303625506
Flight Line 122	45.1915294543450	91.9699743714467	45.6566666431848	91.9699743714467
Flight Line 123	45.1915478750972	91.9737183803428	45.6566946383312	91.9737183803428
Flight Line 124	45.1915662958494	91.9774623892388	45.6567226334776	91.9774623892388
Flight Line 125	45.1915847166017	91.9812063981349	45.6567506286240	91.9812063981349
Flight Line 126	45.1916031373539	91.9849504070310	45.6567786237704	91.9849504070310
Flight Line 127	45.1916215581062	91.9886944159271	45.6568066189168	91.9886944159271
Flight Line 128	45.1916399788584	91.9924384248231	45.6568346140632	91.9924384248231
Flight Line 129	45.1916608117043	91.9961824337192	45.6568626092096	91.9961824337192
Flight Line 130	45.1916876938001	91.9999264426153	45.6568993311673	91.9999264426153
Flight Line 131	45.1917145758959	92.0036704515114	45.6569611413586	92.0036704515114
Flight Line 132	45.1917414579916	92.0074144604074	45.6570229515499	92.0074144604074
Flight Line 133	45.1917683400874	92.0111584693035	45.6570662723831	92.0111584693035
Flight Line 134	45.1917400996707	92.0149024781996	45.6570944543370	92.0149024781996
Flight Line 135	45.1916800786981	92.0186464870957	45.6571226362909	92.0186464870957
Flight Line 136	45.1916362070358	92.0223904959917	45.6571508182448	92.0223904959917
Flight Line 137	45.1916327722841	92.0261345048878	45.6571790001988	92.0261345048878
Flight Line 138	45.1916293375323	92.0298785137839	45.6572070735712	92.0298785137839

Flight Line 139	45.1916274398457	92.0336225226800	45.6572347327063	92.0336225226800
Flight Line 140	45.1916396820454	92.0373665315760	45.6572623918413	92.0373665315760
Flight Line 141	45.1916670386708	92.0411105404721	45.6572793154408	92.0411105404721
Flight Line 142	45.1916943952961	92.0448545493682	45.6572683126828	92.0448545493682
Flight Line 143	45.1917217519215	92.0485985582643	45.6572399650730	92.0485985582643
Flight Line 144	45.1917491085469	92.0523425671603	45.6572128075842	92.0523425671603
Flight Line 145	45.1917764651723	92.0560865760564	45.6572284857952	92.0560865760564
Flight Line 146	45.1918096585086	92.0598305849525	45.6572441640061	92.0598305849525
Flight Line 147	45.1918429874531	92.0635745938486	45.6572598422170	92.0635745938486
Flight Line 148	45.1918763163975	92.0673186027446	45.6572755204279	92.0673186027446
Flight Line 149	45.1919096453420	92.0710626116407	45.6572911986388	92.0710626116407
Flight Line 150	45.1919429742864	92.0748066205368	45.6573068768498	92.0748066205368
Flight Line 151	45.1919710119671	92.0785506294329	45.6573225550607	92.0785506294329
Flight Line 152	45.1919948935169	92.0822946383289	45.6573317584811	92.0822946383289
Flight Line 153	45.1920187750667	92.0860386472250	45.6573263816136	92.0860386472250
Flight Line 154	45.1920426566166	92.0897826561211	45.6573133619395	92.0897826561211
Flight Line 155	45.1920665381664	92.0935266650172	45.6573003422654	92.0935266650172
Flight Line 156	45.1920890775752	92.0972706739132	45.6572812474281	92.0972706739132
Flight Line 157	45.1921035390063	92.1010146828093	45.6572584112284	92.1010146828093
Flight Line 158	45.1921180004374	92.1047586917054	45.6572355750288	92.1047586917054
Flight Line 159	45.1921324618686	92.1085027006014	45.6572127388292	92.1085027006014
Flight Line 160	45.1921469232997	92.1122467094975	45.6571899026296	92.1122467094975
Flight Line 161	45.1921613847308	92.1159907183936	45.6571670355677	92.1159907183936
Flight Line 162	45.1921758461620	92.1197347272897	45.6571438642198	92.1197347272897
Flight Line 163	45.1921903075931	92.1234787361857	45.6571206928719	92.1234787361857
Flight Line 164	45.1922047690242	92.1272227450818	45.6570975215241	92.1272227450818
Flight Line 165	45.1922192304554	92.1309667539779	45.6570743501762	92.1309667539779
Flight Line 166	45.1922336918865	92.1347107628740	45.6570511788283	92.1347107628740
Flight Line 167	45.1922481533176	92.1384547717700	45.6570304191137	92.1384547717700
Flight Line 168	45.1922626147488	92.1421987806661	45.6570112735163	92.1421987806661
Flight Line 169	45.1922770761799	92.1459427895622	45.6569921279189	92.1459427895622
Flight Line 170	45.1922915376110	92.1496867984583	45.6569729823214	92.1496867984583
Flight Line 171	45.1923059990422	92.1534308073544	45.6569538367240	92.1534308073544
Flight Line 172	45.1923204604733	92.1571748162504	45.6569346911266	92.1571748162504
Flight Line 173	45.1923349219044	92.1609188251465	45.6569155455291	92.1609188251465
Flight Line 174	45.1923493833356	92.1646628340426	45.6568963999317	92.1646628340426
Flight Line 175	45.1923638447667	92.1684068429387	45.6568772543342	92.1684068429387
Flight Line 176	45.1923783061978	92.1721508518347	45.6568581087368	92.1721508518347
Flight Line 177	45.1923927676290	92.1758948607308	45.6568389631394	92.1758948607308
Flight Line 178	45.1924072290601	92.1796388696269	45.6568198175419	92.1796388696269

Summary

All the LIDAR flights were executed as planned. No unusual occurrences were encountered and all equipment operated normally. Airborne GPS flight trajectories were processed using POS GPS processing software. Forward/reverse separations typically averaged 1-5cm horizontally, and 1-9cm vertically. All trajectories were very high quality and were then processed in the POS PROC smoothing software to further enhance their precision.