

UAF BushHawk Yukon Flats - flight plan

Flight date: To be determined

Flight Time: 12 p.m. to 16 p.m. (AKDT)

Flight Time: 1:30 p.m. to 3:20 p.m. (AKDT)

Pilot: Nikki Guldager

Flight crews: Dr. Marcel Buchhorn, Patrick Graham (Geophysical Institute-UAF).

HySpex operator: Dr. Marcel Buchhorn

Field crew: To be determined

Flight details:

We plan to Yukon Flats and we have requested 15 hours flight around solar noon (2 p.m. AKDT) for at least 3 days. We selected 5 possible flight scenarios and ranked them from 1 to 5 (see table 1). Flights from 1 to 5 should be doable within a 3-hour flight.

Ranking	Sensor-object distance (ft)	Flight height (ft)	Direction	GSD (m)
1	2800 feet, W-to-E	2800 ft	West → East	0.5
2	2800 feet, N-to-S	2800 ft	North → South	0.5
3	2800 feet, W-to-E	2800 ft	West → East	0.5
4	2800 feet, W-to-E	2800 ft	West → East	0.5
5	2800 feet, W-to-E	2800 ft	West → East	0.5

The imagery will be acquired with a HySpex VNIR-1800 and HySpex SWIR-384 hyperspectral cameras from NEO (more info at http://www.hyspex.no/products/vnir_1800.php).

In all cases we plan to fly at 165 km/h (102 mph or 89 knots) and with an effective frame width 40% to 75% sidelap.

More information about each flight below.

Flight 1: Yukon Flats Area 1, 2800 feet ASL, West to East

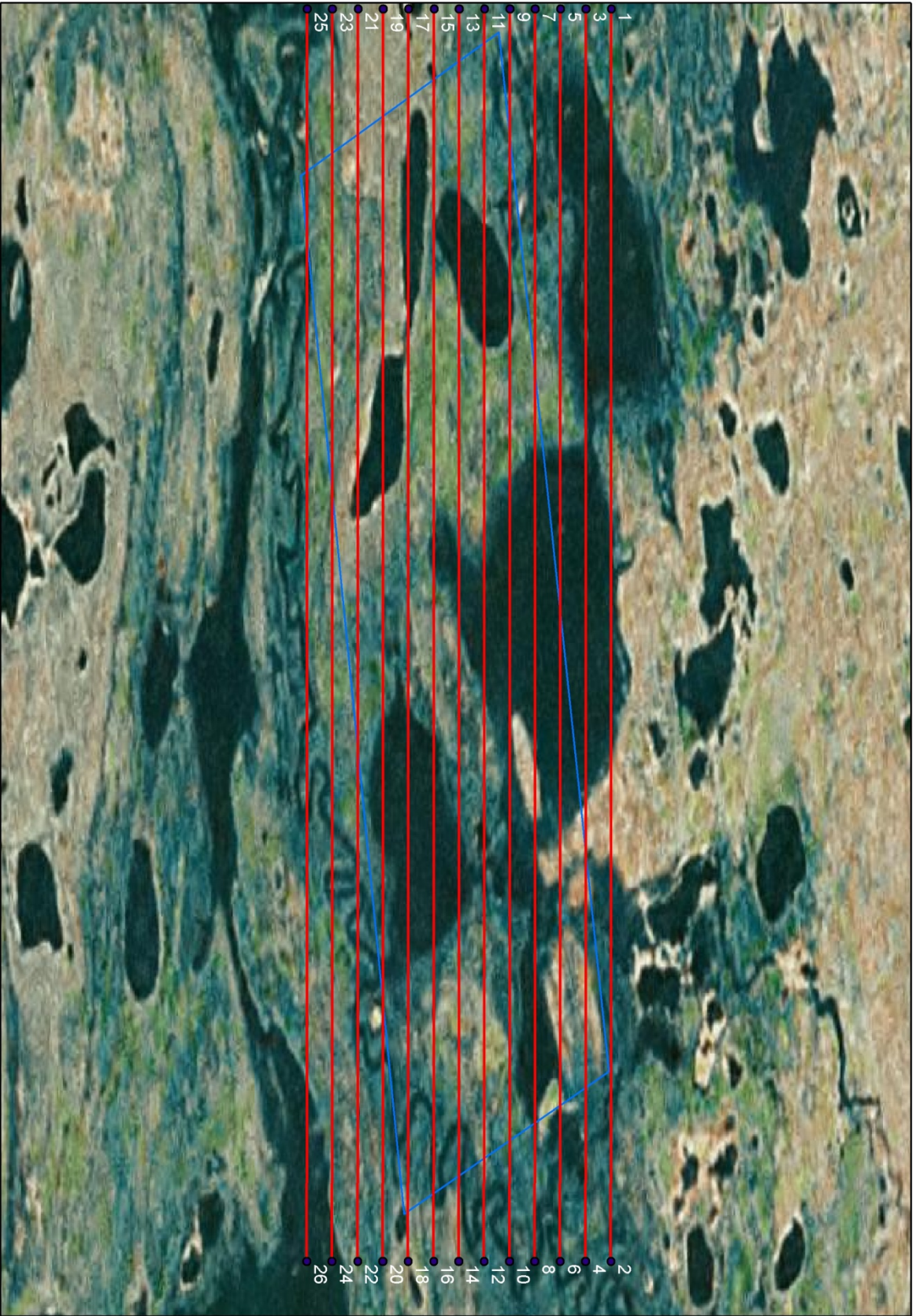
Lowest elevation (m)	100.00
Flying height (AGL in m)	2451.00
Flying height (ASL in m)	849.00
Flying height (ASL in ft)	2800.00
No of lines	13.00
Length of line (km)	5.00
Total length of flight with 3km turning radius (km)	197.00
Flying speed (km/h)	165.00
Total line time (minutes)	72.00

line	heading	ASL (ft)	Speed (knots)	start		end	
				Lat (DD)	Long (DD)	Lat (DD)	Long (DD)
1	East	2800	89	64.877738	-147.859608	64.844373	-147.859608
2	East	2800	89	64.877738	-147.8542852	64.844373	-147.8542918
3	East	2800	89	64.877738	-147.8489624	64.844373	-147.8489756
4	East	2800	89	64.877738	-147.8436396	64.844373	-147.8436594
5	East	2800	89	64.877738	-147.8383168	64.844373	-147.8383432
6	East	2800	89	64.877738	-147.832994	64.844373	-147.833027
7	East	2800	89	64.877737	-147.8276711	64.844373	-147.8277108
8	East	2800	89	64.877737	-147.8223483	64.844373	-147.8223945
9	East	2800	89	64.877737	-147.8170255	64.844372	-147.8170783
10	East	2800	89	66.255518	-148.9537303	66.255478	-148.8419673
11	East	2800	89	66.253258	-148.9537303	66.253218	-148.8419673
12	East	2800	89	66.250998	-148.9537303	66.250958	-148.8419673
13	East	2800	89	66.248738	-148.9537303	66.248698	-148.8419673

Max. Frame period: 10.9 ms

Used Frame period:

Used Integration Time: VNIR:



Flight 2: Yukon Flats Area 2, 2800 feet ASL, North to South

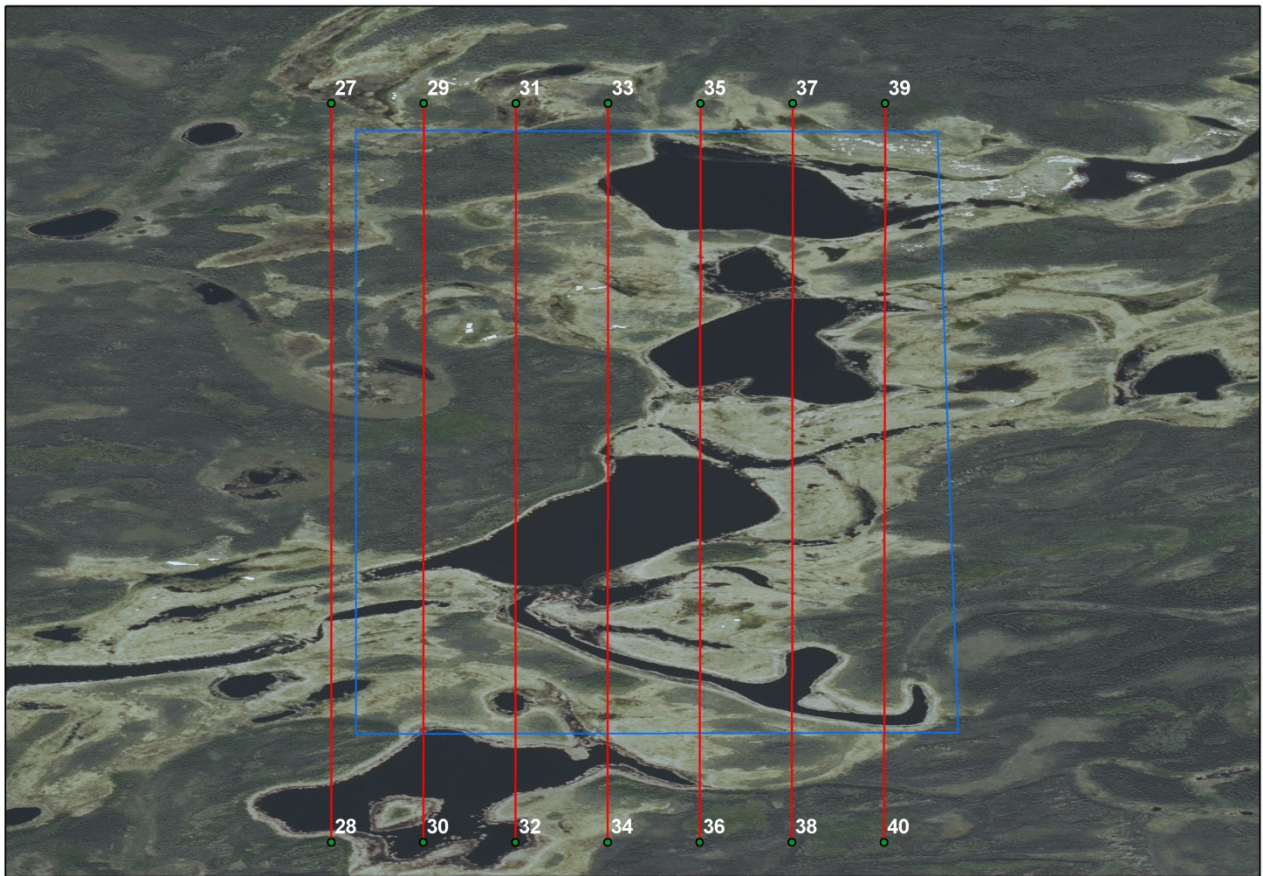
Lowest elevation (m)	100.00
Flying height (AGL in m)	2451.00
Flying height (ASL in m)	849.00
Flying height (ASL in ft)	2800.00
No of lines	7.00
Length of line (km)	5.00
Total length of flight with 3km turning radius (km)	101.00
Flying speed (km/h)	165.00
Total line time (minutes)	37.00

line	heading	ASL (ft)	Speed (knots)	start		end	
				Lat (DD)	Long (DD)	Lat (DD)	Long (DD)
1	South	2800	89	66.320673	-148.12740	66.275707	-148.127409
2	South	2800	89	66.320673	-148.12178	66.275707	-148.1217922
3	South	2800	89	66.320673	-148.11615	66.275707	-148.1161755
4	South	2800	89	66.320673	-148.11052	66.275707	-148.1105588
5	South	2800	89	66.320673	-148.10490	66.275707	-148.1049421
6	South	2800	89	66.320673	-148.09927	66.275707	-148.0993254
7	South	2800	89	66.320673	-148.09364	66.275706	-148.0937087

Max. Frame period: 10.9 ms

Used Frame period:

Used Integration Time: VNIR:



Flight 3: Yukon Flats Area 3, 2800 feet ASL, West to East

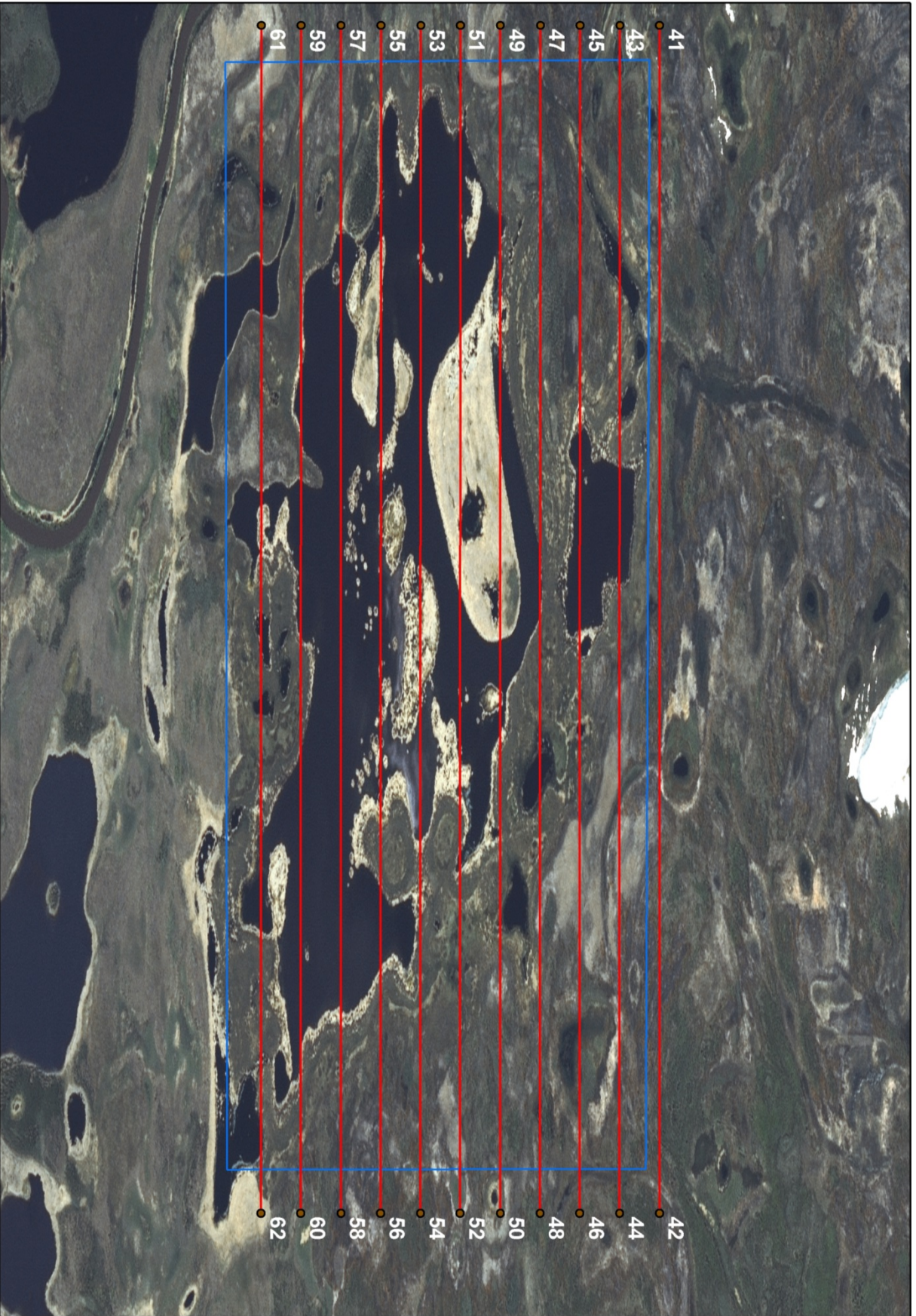
Lowest elevation (m)	100.00
Flying height (AGL in m)	2451.00
Flying height (ASL in m)	849.00
Flying height (ASL in ft)	2800.00
No of lines	11.00
Length of line (km)	3.00
Total length of flight with 3km turning radius (km)	123.00
Flying speed (km/h)	165.00
Total line time (minutes)	45.00

line	heading	ASL (ft)	Speed (knots)	Start		end	
				Lat (DD)	Long (DD)	Lat (DD)	Long (DD)
1	East	2800	89	66.403320	-146.39853	66.403305	-146.3311339
2	East	2800	89	66.401060	-146.39853	66.401046	-146.3311339
3	East	2800	89	66.398800	-146.39853	66.398786	-146.3311339
4	East	2800	89	66.396540	-146.39853	66.396526	-146.3311339
5	East	2800	89	66.394281	-146.39853	66.394266	-146.3311339
6	East	2800	89	66.392021	-146.39853	66.392006	-146.3311339
7	East	2800	89	66.389761	-146.39853	66.389746	-146.3311339
8	East	2800	89	66.387501	-146.39853	66.387487	-146.3311339
9	East	2800	89	66.385241	-146.39853	66.385227	-146.3311339
10	East	2800	89	66.382982	-146.39853	66.382967	-146.3311339
11	East	2800	89	66.380722	-146.39853	66.380707	-146.3311339

Max. Frame period: 10.9 ms

Used Frame period:

Used Integration Time: VNIR:



Flight 4: Yukon Flats Area 4, 2800 feet ASL, West to East

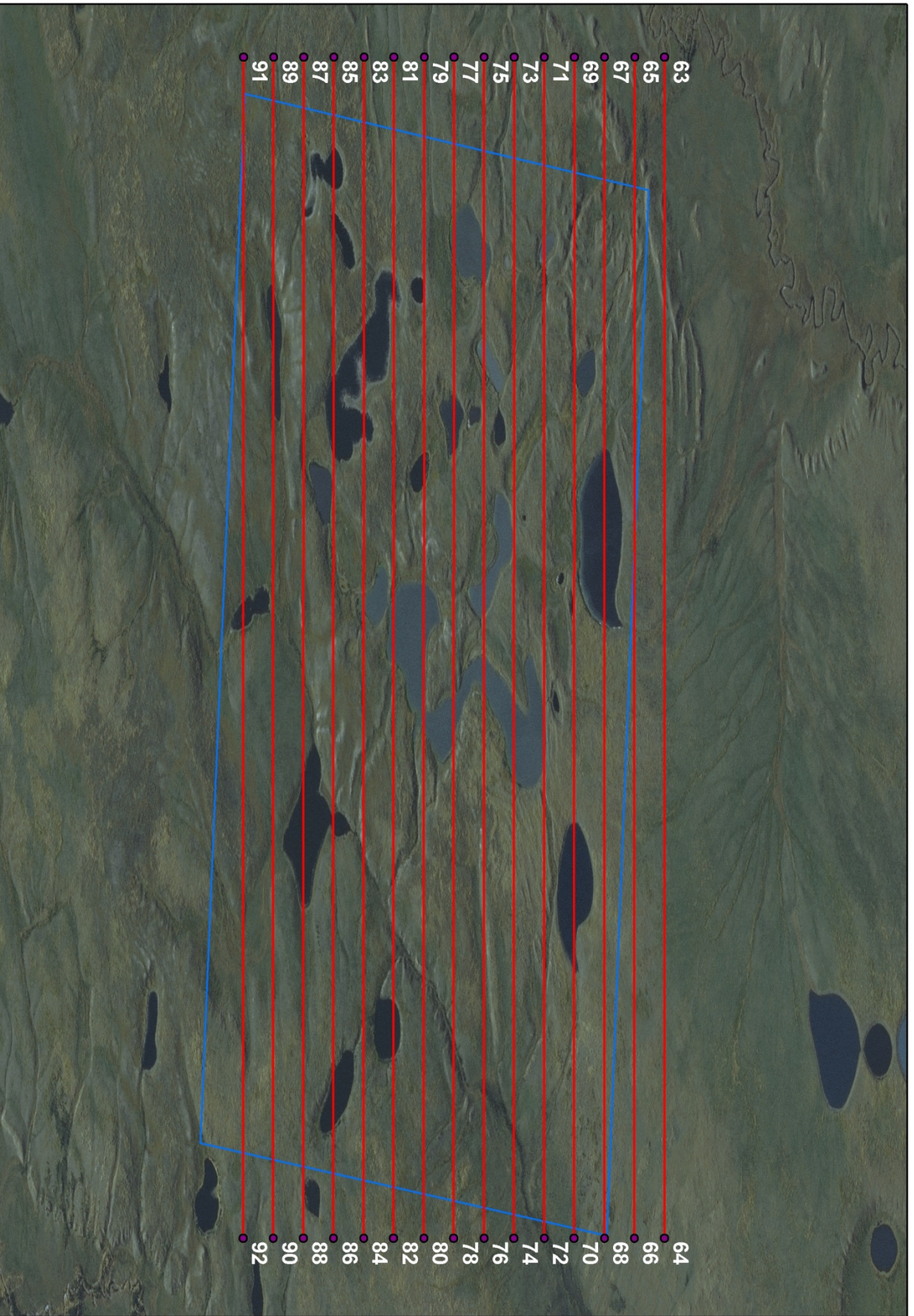
Lowest elevation (m)	100.00
Flying height (AGL in m)	2451.00
Flying height (ASL in m)	849.00
Flying height (ASL in ft)	2800.00
No of lines	15.00
Length of line (km)	4.00
Total length of flight with 3km turning radius (km)	200.00
Flying speed (km/h)	165.00
Total line time (minutes)	73.00

line	heading	ASL (ft)	Speed (knots)	Start		end	
				Lat (DD)	Long (DD)	Lat (DD)	Long (DD)
1	East	2800	89	66.403320	-146.39853	66.403305	-146.3311339
2	East	2800	89	66.401060	-146.39853	66.401046	-146.3311339
3	East	2800	89	66.398800	-146.39853	66.398786	-146.3311339
4	East	2800	89	66.396540	-146.39853	66.396526	-146.3311339
5	East	2800	89	66.394281	-146.39853	66.394266	-146.3311339
6	East	2800	89	66.392021	-146.39853	66.392006	-146.3311339
7	East	2800	89	66.389761	-146.39853	66.389746	-146.3311339
8	East	2800	89	66.387501	-146.39853	66.387487	-146.3311339
9	East	2800	89	66.385241	-146.39853	66.385227	-146.3311339
10	East	2800	89	66.382982	-146.39853	66.382967	-146.3311339
11	East	2800	89	66.380722	-146.39853	66.380707	-146.3311339

Max. Frame period: 10.9 ms

Used Frame period:

Used Integration Time: VNIR:



Flight 5: Yukon Flats Area 5, 2800 feet ASL, West to East

Lowest elevation (m)	100.00
Flying height (AGL in m)	2451.00
Flying height (ASL in m)	849.00
Flying height (ASL in ft)	2800.00
No of lines	9.00
Length of line (km)	3.50
Total length of flight with 3km turning radius (km)	107.00
Flying speed (km/h)	165.00
Total line time (minutes)	39.00

line	heading	ASL (ft)	Speed (knots)	Start		end	
				Lat (DD)	Long (DD)	Lat (DD)	Long (DD)
1	East	2800	89	66.186060	-148.03060	66.186040	-147.9526482
2	East	2800	89	66.183800	-148.03060	66.183780	-147.9526482
3	East	2800	89	66.181540	-148.03060	66.181520	-147.9526482
4	East	2800	89	66.179280	-148.03060	66.179261	-147.9526482
5	East	2800	89	66.177020	-148.03060	66.177001	-147.9526482
6	East	2800	89	66.174761	-148.03060	66.174741	-147.9526482
7	East	2800	89	66.172501	-148.03060	66.172481	-147.9526482
8	East	2800	89	66.170241	-148.03060	66.170221	-147.9526482
9	East	2800	89	66.167981	-148.03060	66.167962	-147.9526482

Max. Frame period: 10.9 ms

Used Frame period:

Used Integration Time: VNIR:

