

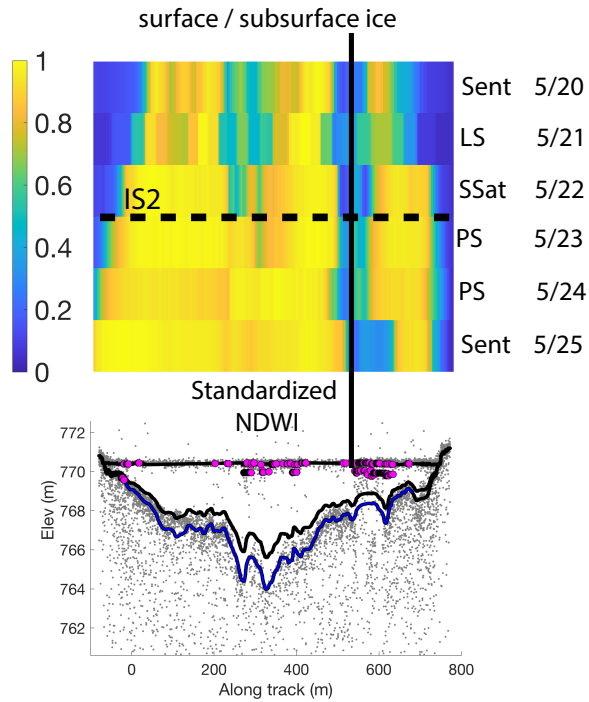
# Supplemental Tables and Figures.

## Lakes Over Sermeq Kujalleq

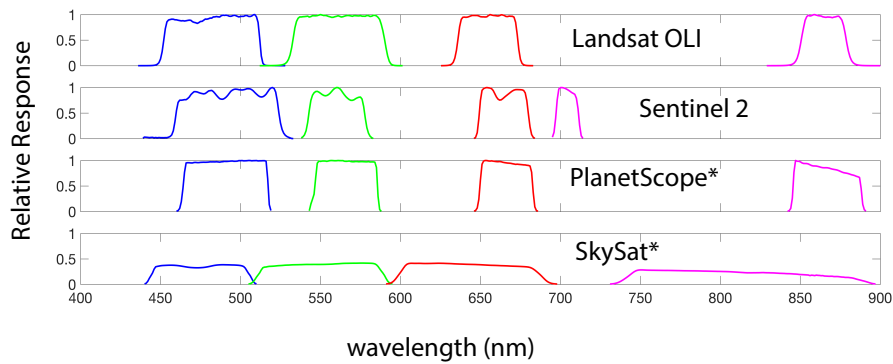
<b>Designation</b>	<b>Max Lake Surface Area from imagery (m<sup>2</sup>)</b>	<b>ICESat-2 track length (m)</b>
RGT 727 May 15 <sup>th</sup> , 2019		
1	160800	2754.44
RGT 841 May 23 <sup>rd</sup>		
1	357900	2398.82
2	880300	3092.19
3	804873	2786.51
4	880300	3372.80
5	625127	2608.30
RGT 1108 June 9 <sup>th</sup> , 2019		
1	574200	3350.97
2	574200	3123.05
3	596931	3026.49
4	956190	3360.29
5	772089	2746.55
6	54167	2665.72
7	987300	3165.52
8	738000	3172.79
9	1165500	2691.53
10	987300	2968.48
11	738000	3228.69
RGT 1169 June 13 <sup>th</sup> , 2019		
1	158400	2885.59
2	513200	2455.54
3	224100	2396.62
4	478100	3307.89
5	904600	2817.40
6	904600	2720.19
7	1113500	3698.78
8	1113500	2401.77
9	1113500	2612.26
RGT 1222 June 17 <sup>th</sup> , 2019		
1	2060100	3134.91
2	48600	2618.15
3	1635300	4089.09
4	255600	2718.01

5	1635300	4129.21
6	1692900	2679.53
7	2225700	3181.78
8	1611900	4443.29
9	998574	2541.70
10	998574	2802.32
11	1025100	3193.46
12	1611900	4210.25
13	1025100	3860.27
14	4101300	4774.88
15	2060100	3842.27
16	998574	2562.81
17	4101300	4602.40
18	5656500	4005.92
19	2982600	2899.97

*Table 1: Lakes used in this study with maximum surface area of the lake detected from imagery and the length of the ICESat-2 pass over the lake. Lake numbers correspond to profiles shown in Supplemental Figure 3.*



(a) Lake Amitav NDWI



(b) Spectral Response

Figure 1: (a) Watta calculated profile of depth, depth corrected for refraction and subsurface ice over Lake Amitav (bottom) with NDWI values co-registered to the ICESat-2 track (top) (b) Spectral Response curve for imagery sources used in main text. Note that PlanetScope and SkySat data are shown for the satellite used in imagery collected over Lake Amitav and are not representative of the entire constellation. Landsat OLI source (Barsi et al., 2014), Sentinel-2 source (<https://earth.esa.int/web/sentinel/user-guides/sentinel-2-msi>), Planet Labs SkySat and PlanetScope (see: support.planet.com)

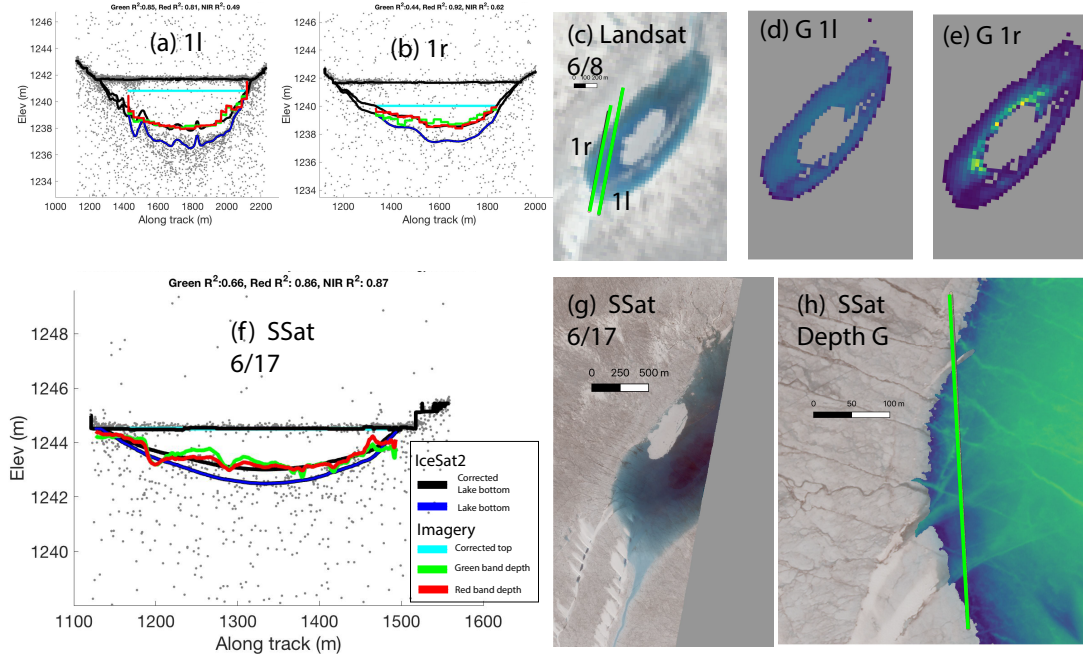


Figure S2: Watta-calculated depth, corrected depth and lake surface profiles for (top) RGT 1108 Lake 1 on June 9<sup>th</sup>, 2019, with gt1l (a,d) and gt1r (b,e). Landsat imagery collected on June 8<sup>th</sup>, 2019. (bottom) The same lake, also RGT 1222 Lake 6 on June 17<sup>th</sup>, 2019 (f-h), with SkySat imagery collected on June 17<sup>th</sup>, 2019.

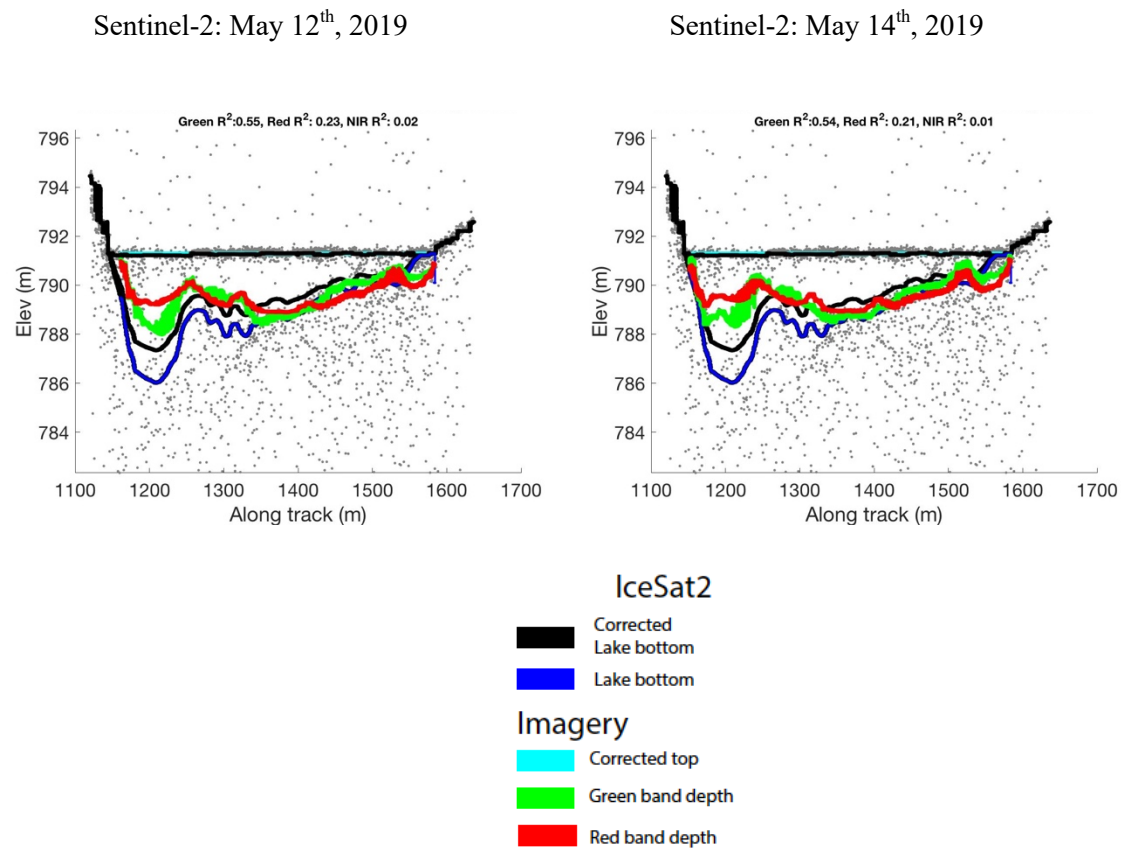


**Figure: S3. Lake Depth Profiles (corresponding to Table S1)**

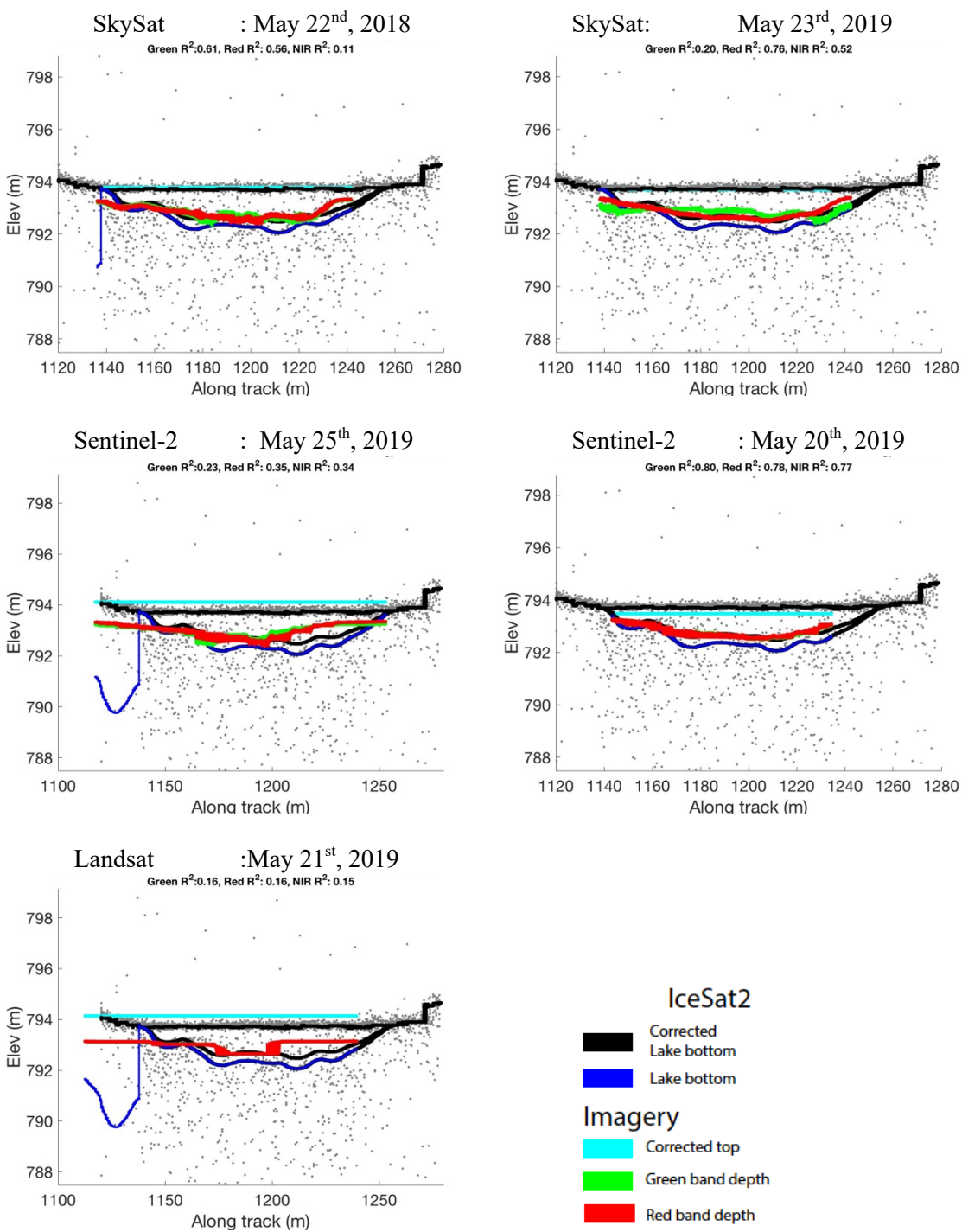
**RGT 727**

**May 15<sup>th</sup>, 2019**

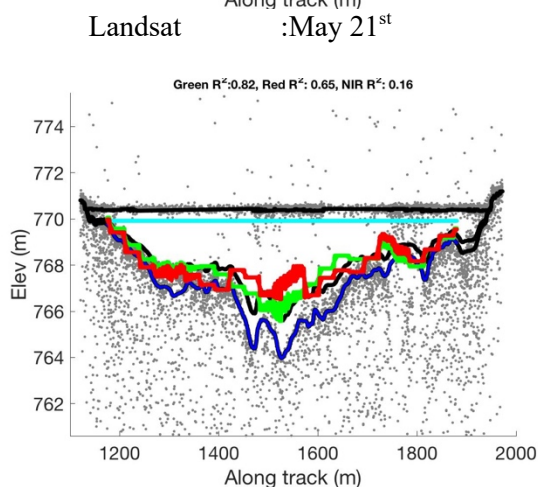
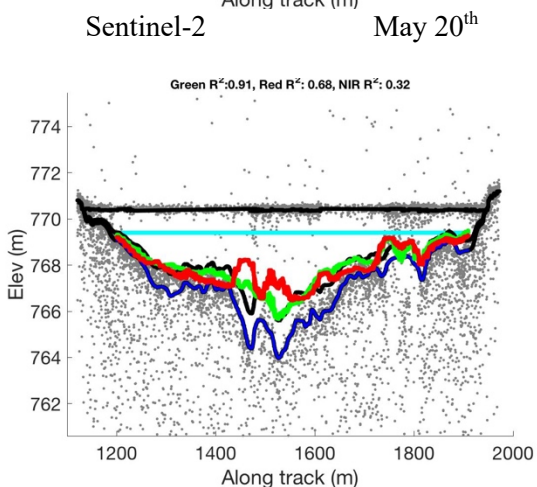
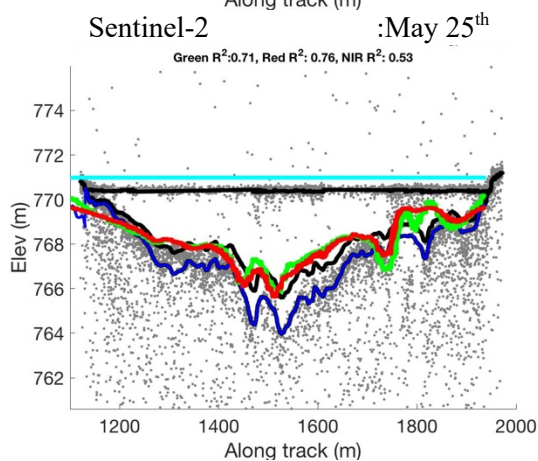
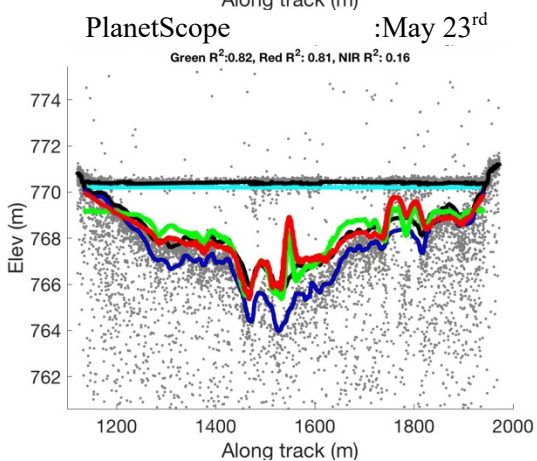
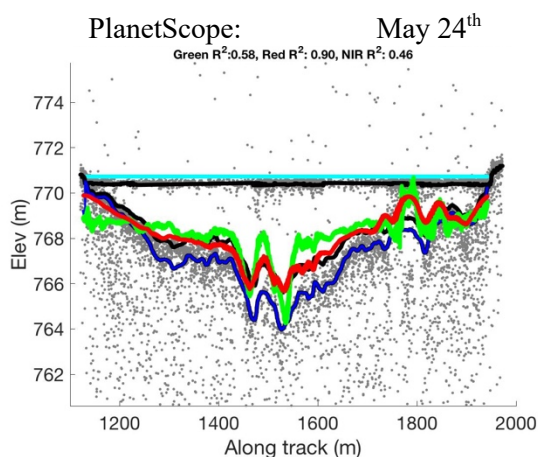
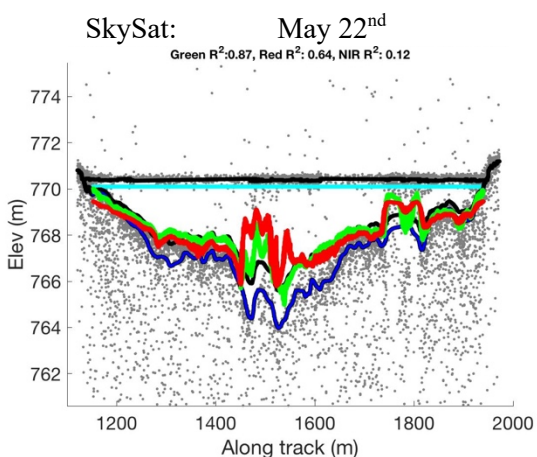
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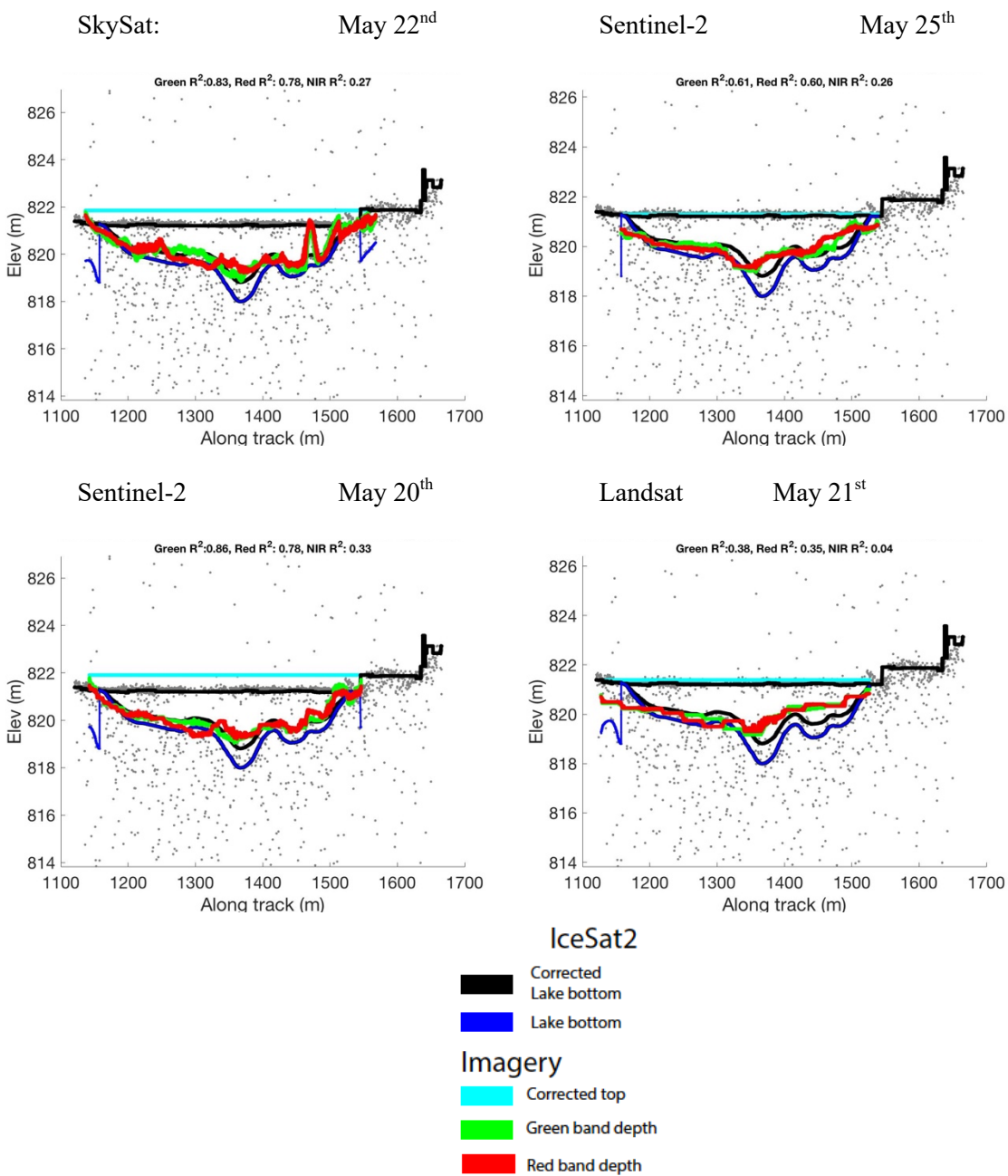
## Lake 1



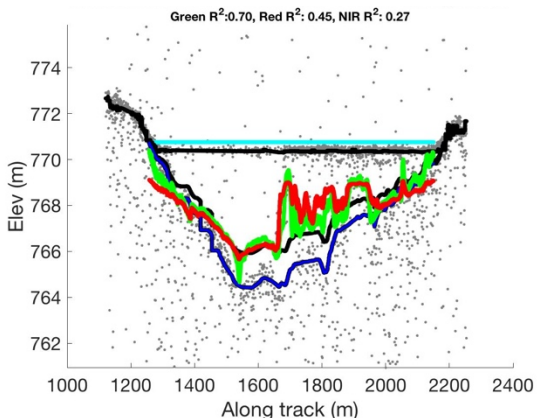
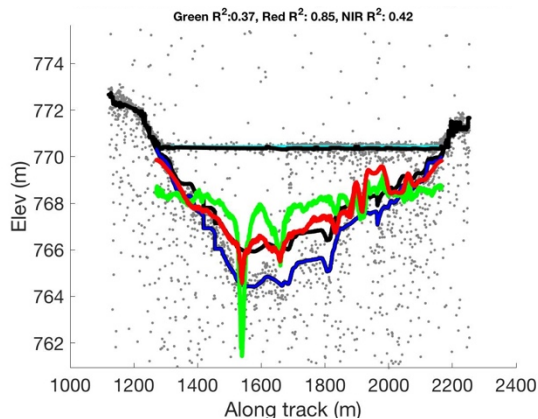
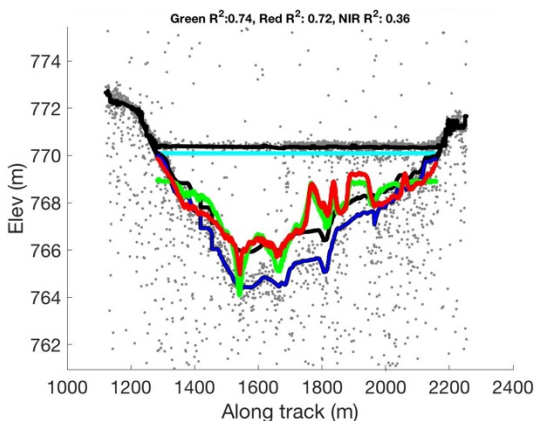
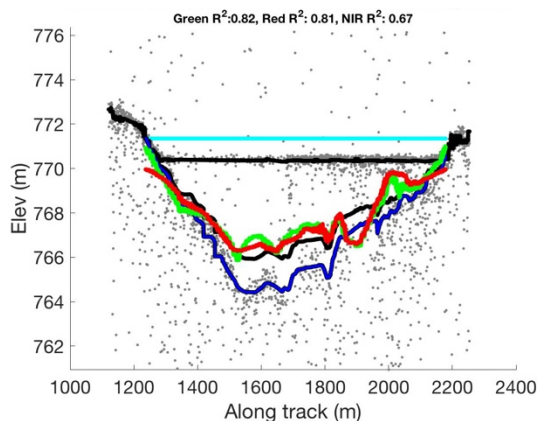
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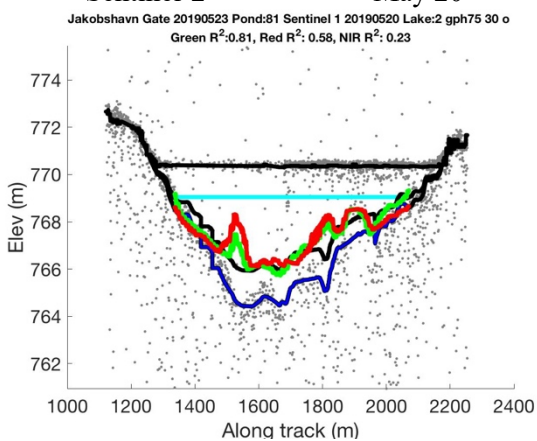
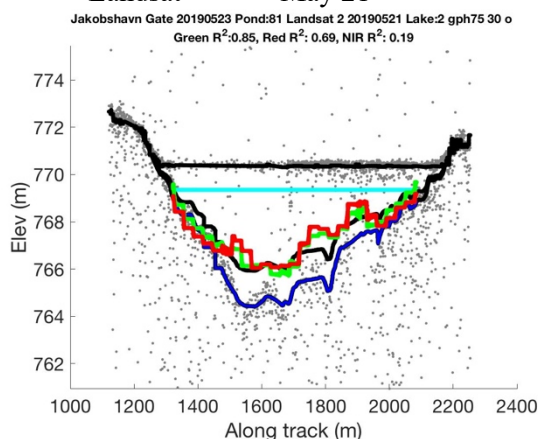
## Lake 3:



## Lake 4:

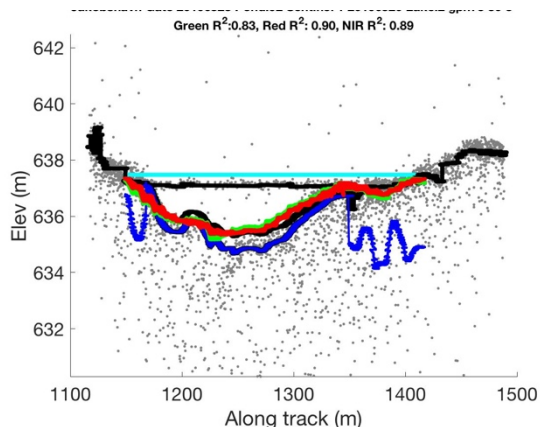
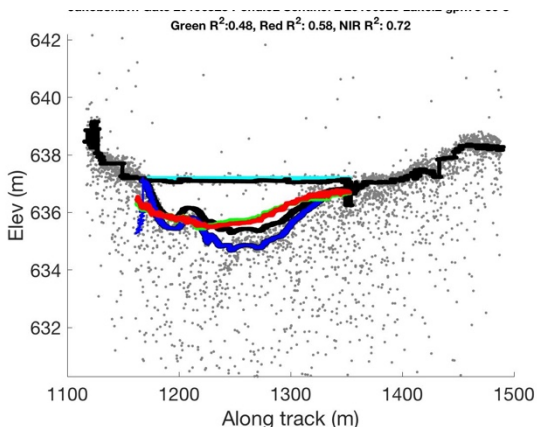
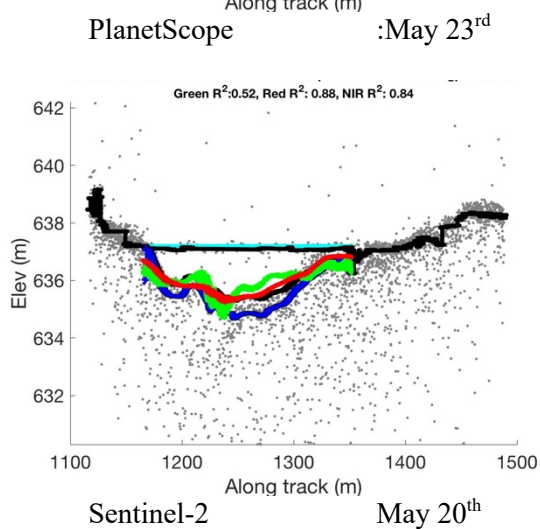
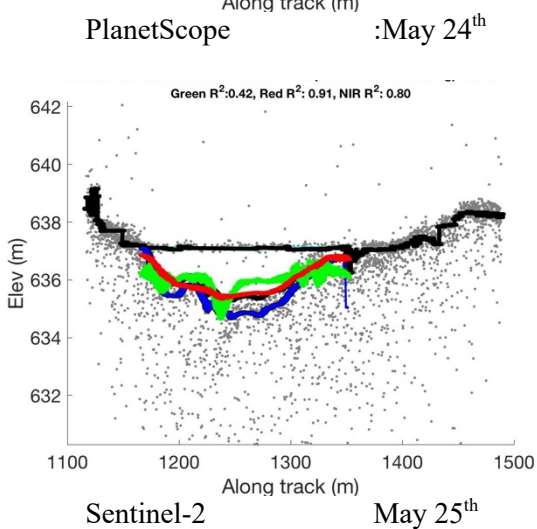
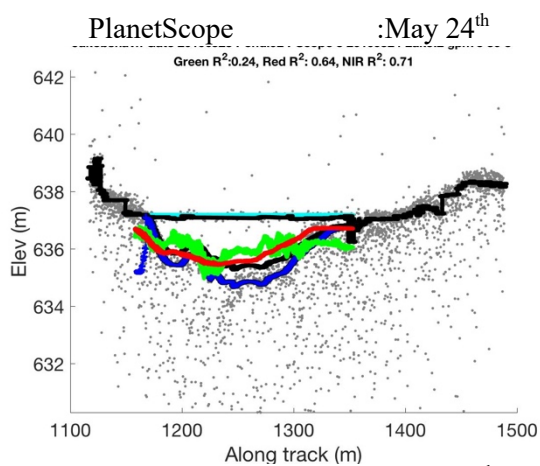
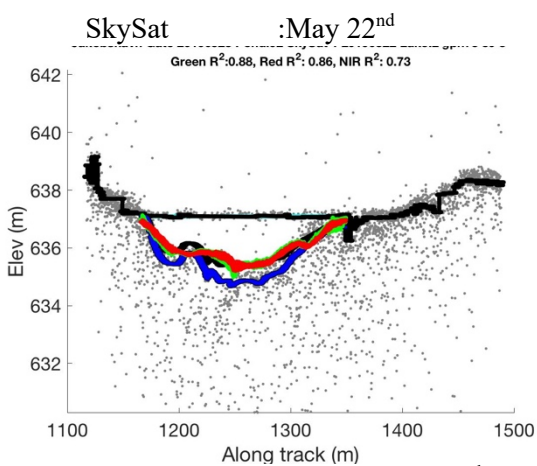
SkySat :May 22<sup>nd</sup>PlanetScope :May 24<sup>th</sup>PlanetScope :May 23<sup>rd</sup>Sentinel-2 May 25<sup>th</sup>

S

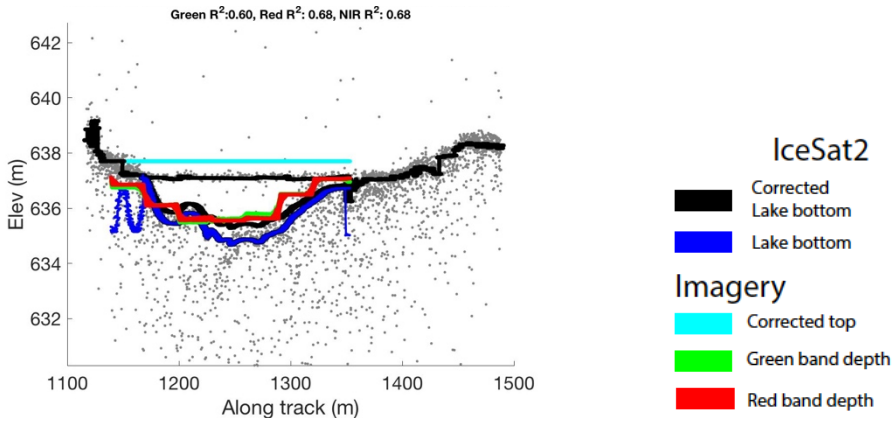
Sentinel-2 May 20<sup>th</sup>Landsat May 21<sup>st</sup>

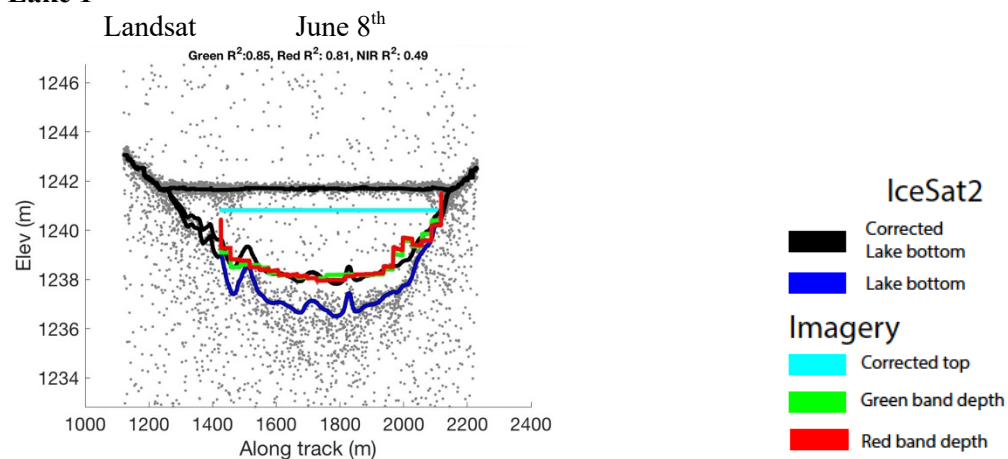
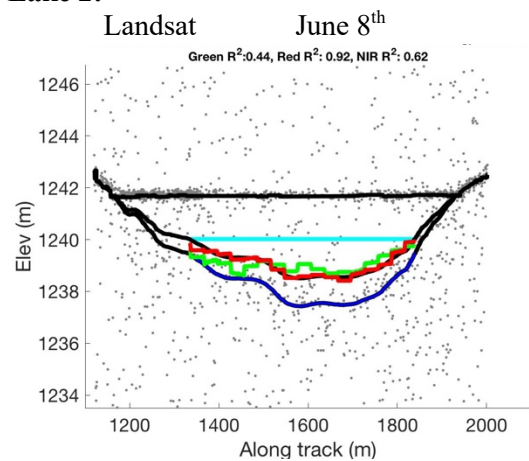
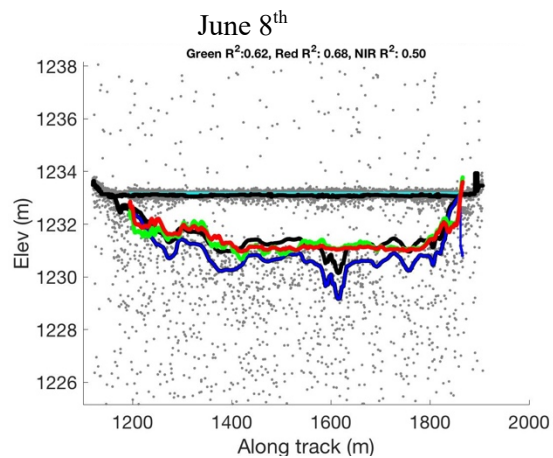
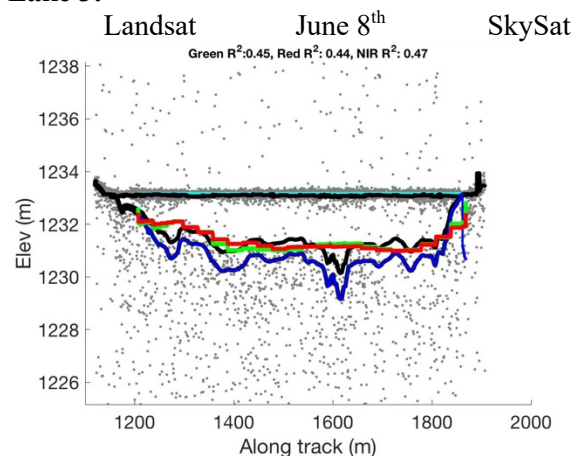


## Lake 5:



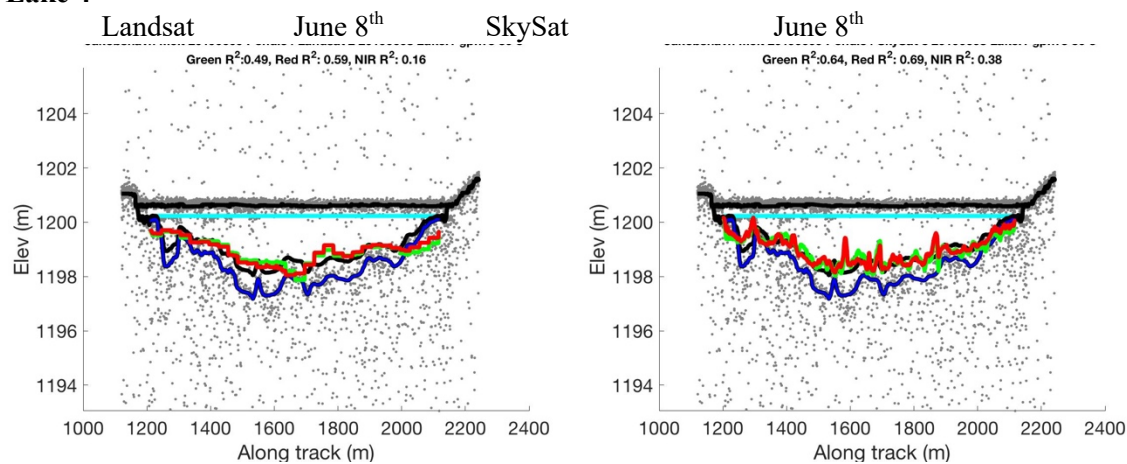
## Lake 5 cont...

Landsat May 23<sup>rd</sup>

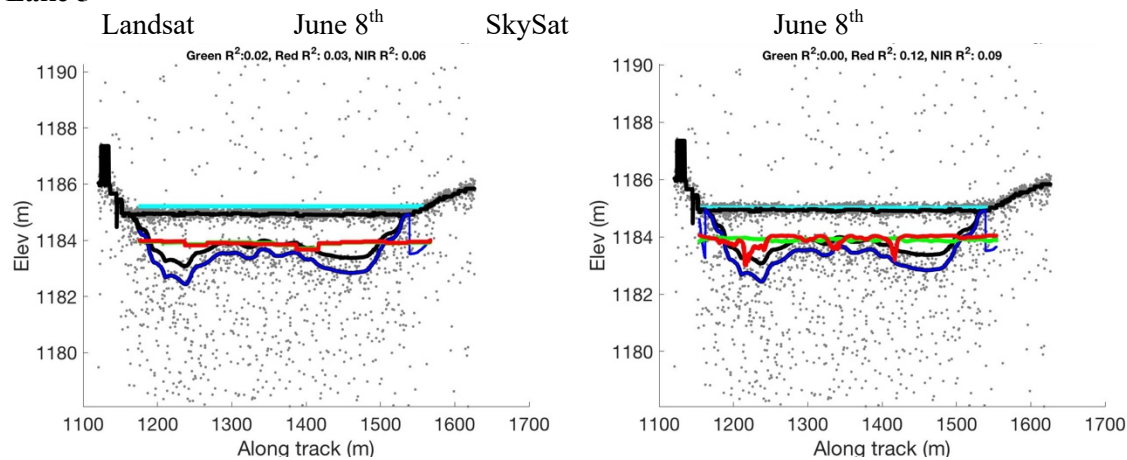
**Lake 1****Lake 2:****Lake 3:**



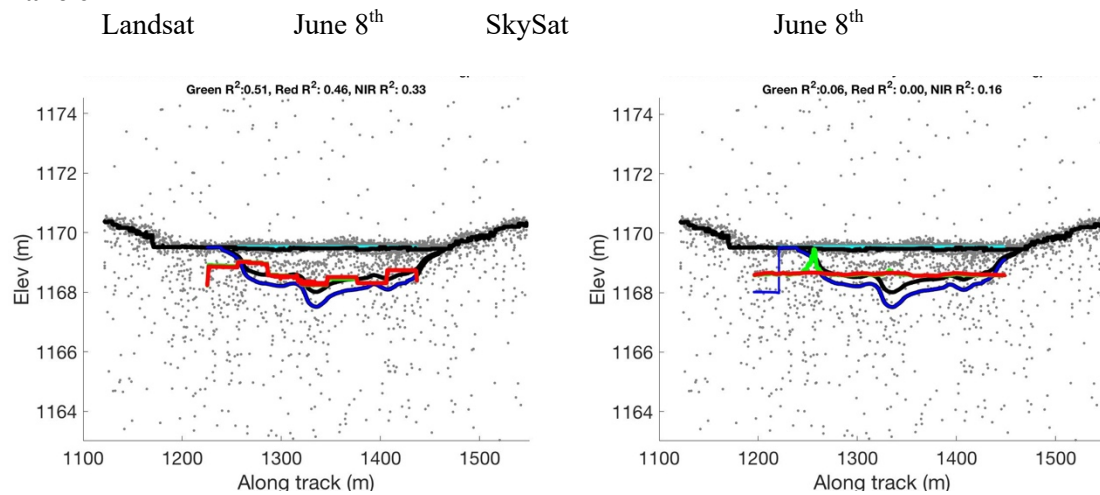
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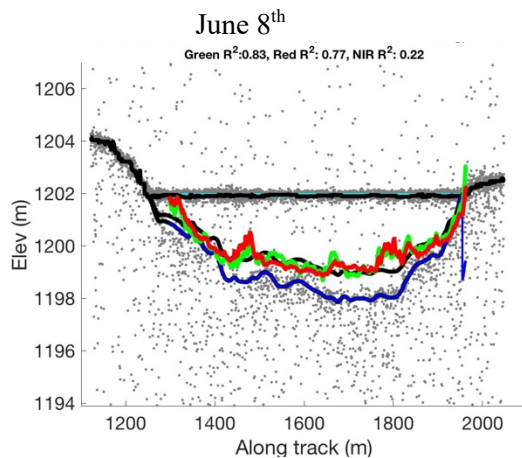
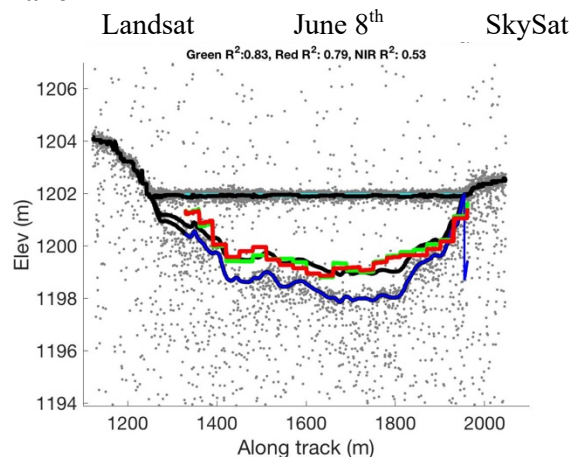
## Lake 5



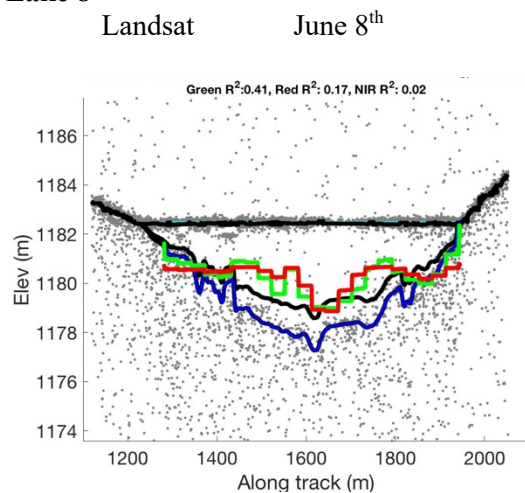
## Lake 6



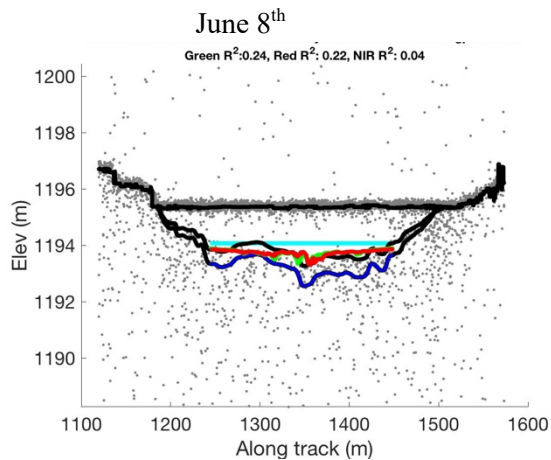
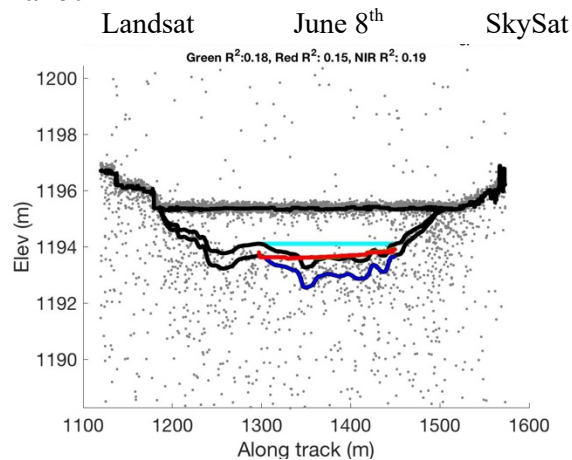
## Lake 7



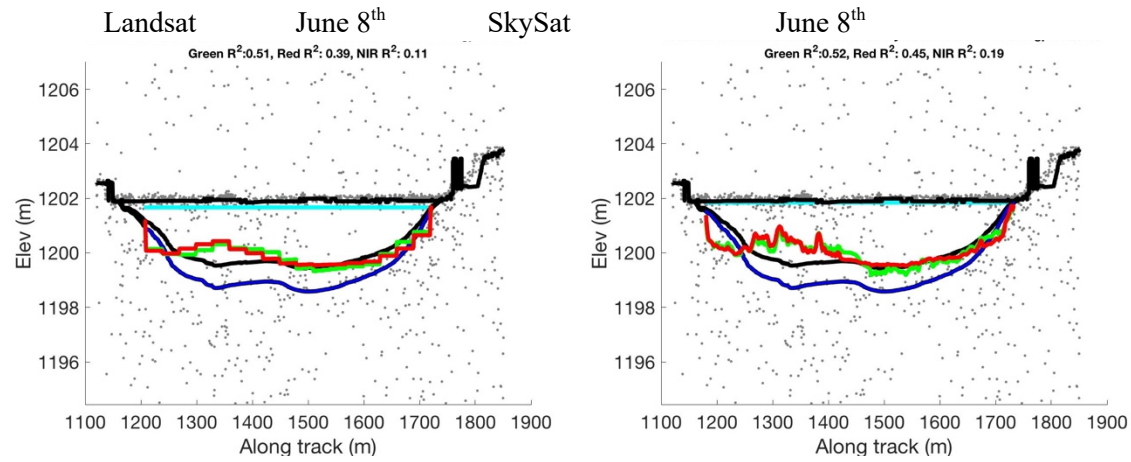
## Lake 8



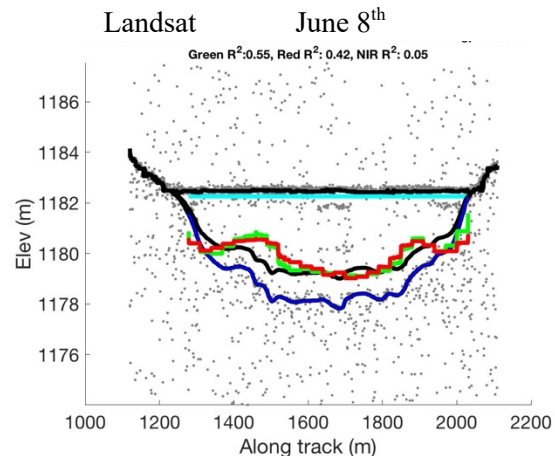
## Lake 9



## Lake 10



## Lake 11

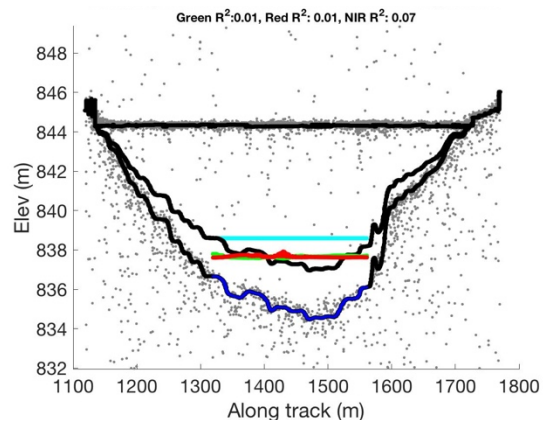
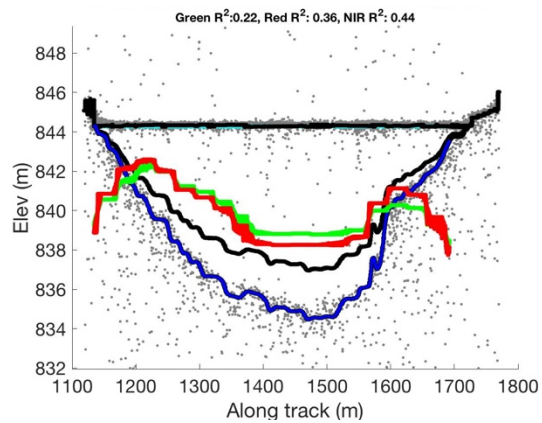


**Lake 1**

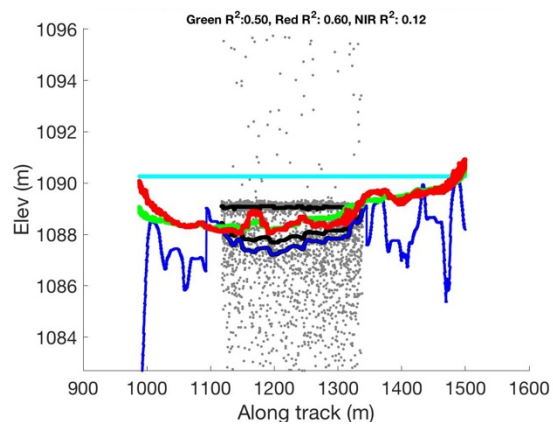
Landsat

June 8<sup>th</sup>

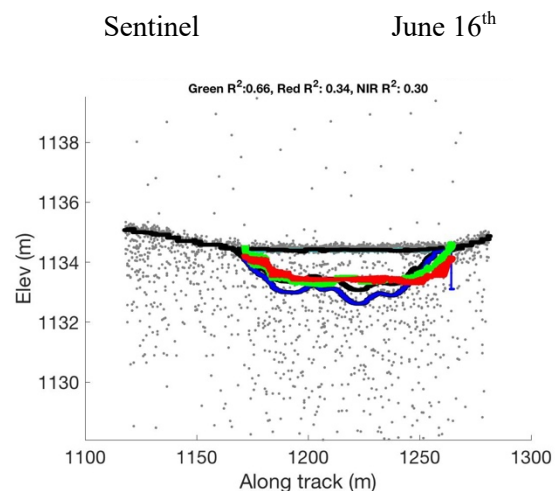
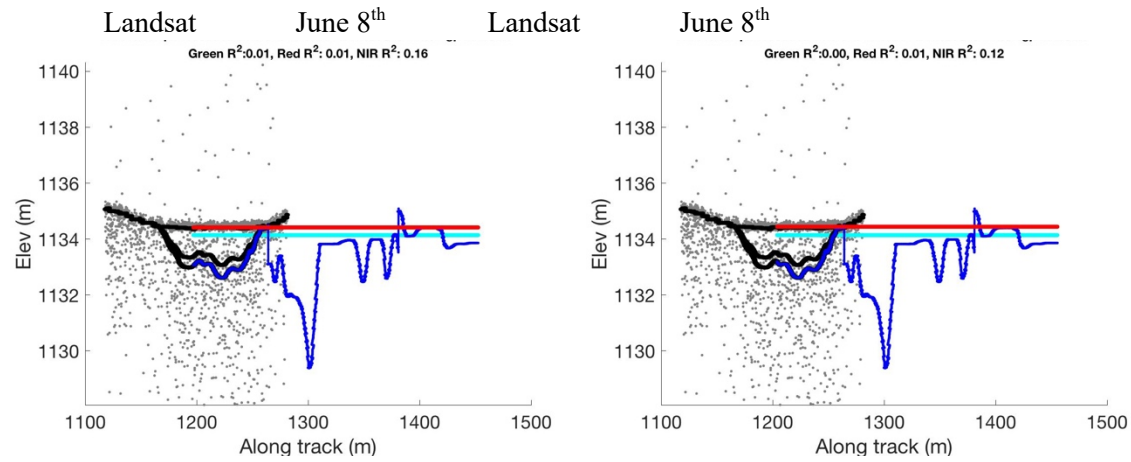
Sentinel-2

June 16<sup>th</sup>**Lake 2**

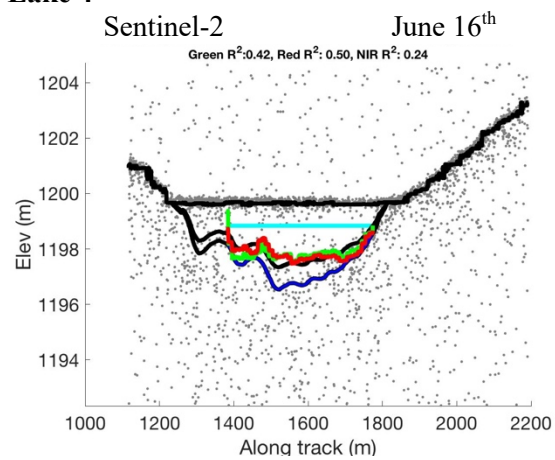
Sentinel-2

June 16<sup>th</sup>

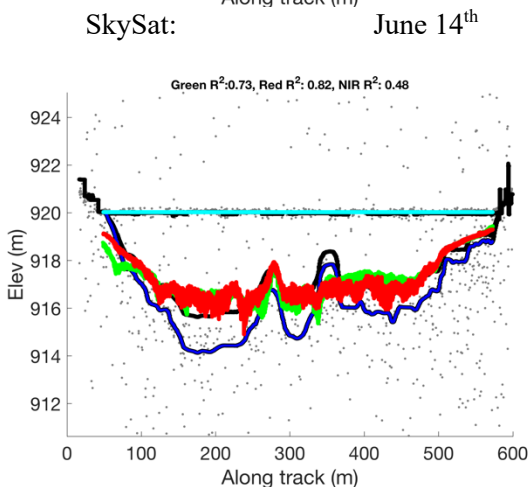
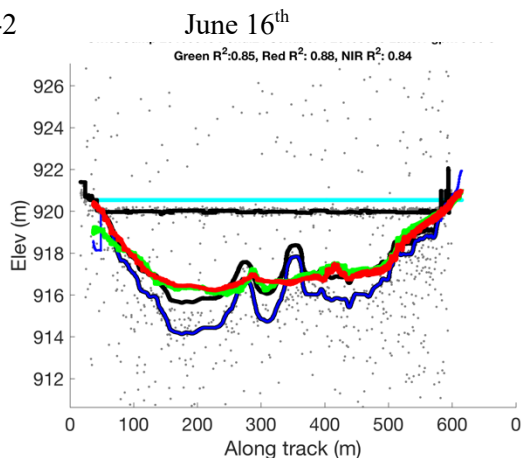
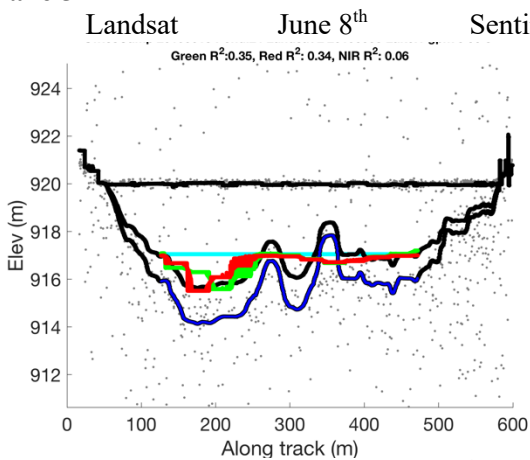
## Lake 3



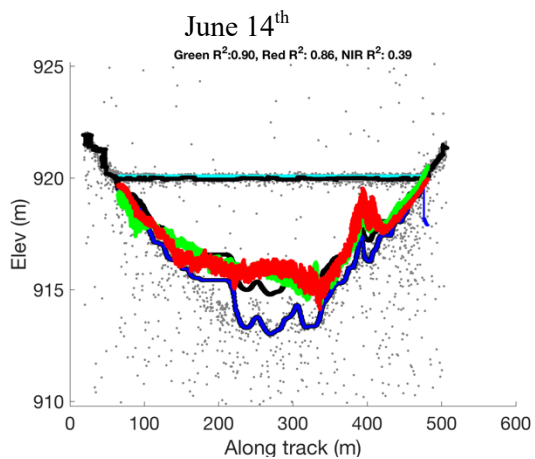
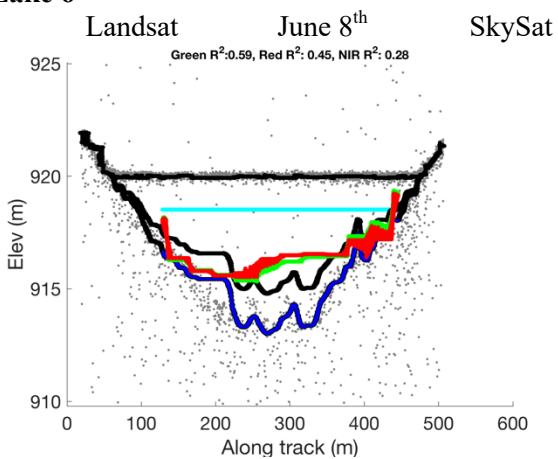
## Lake 4



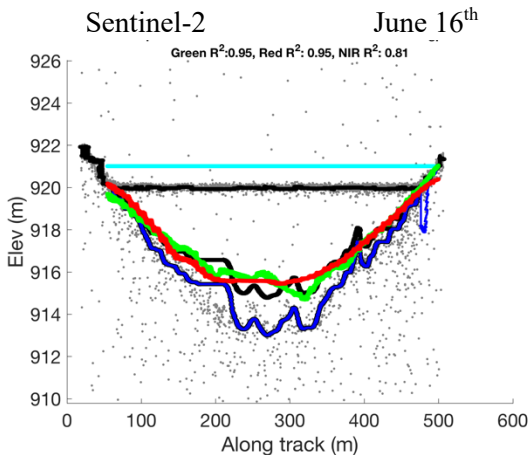
## Lake 5



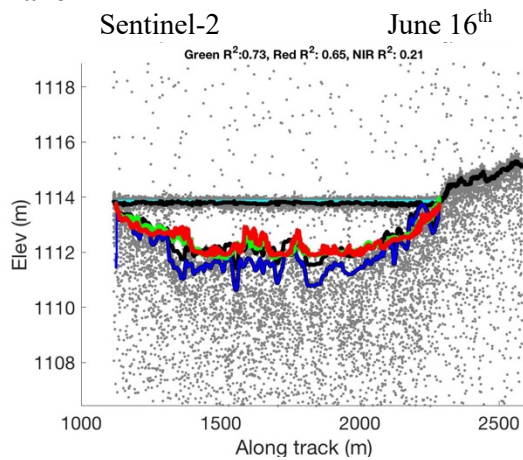
## Lake 6



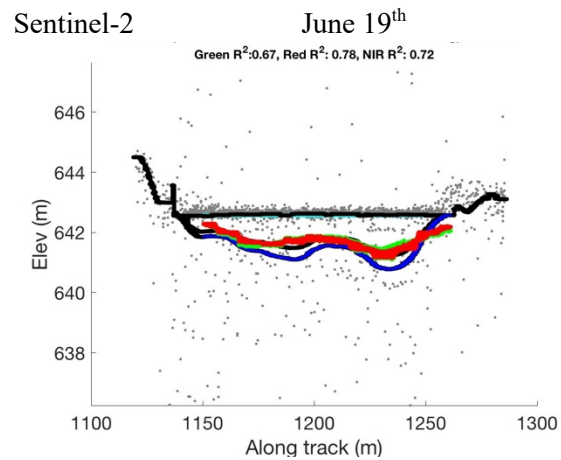
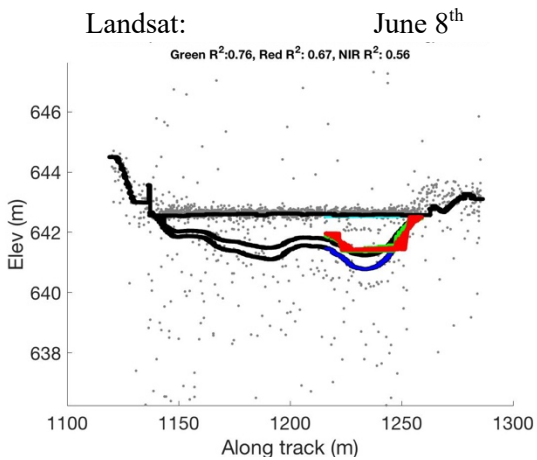
## Lake 6 cont...



## Lake 7

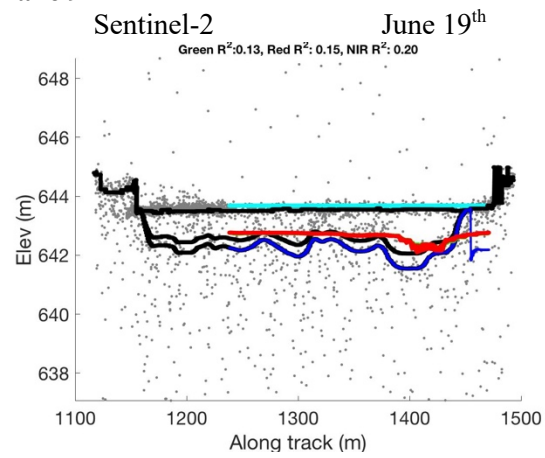


## Lake 8

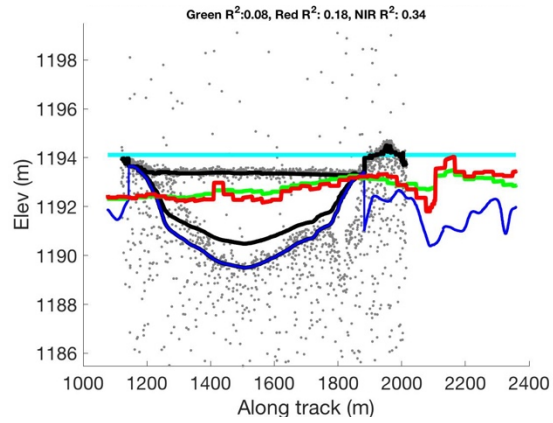
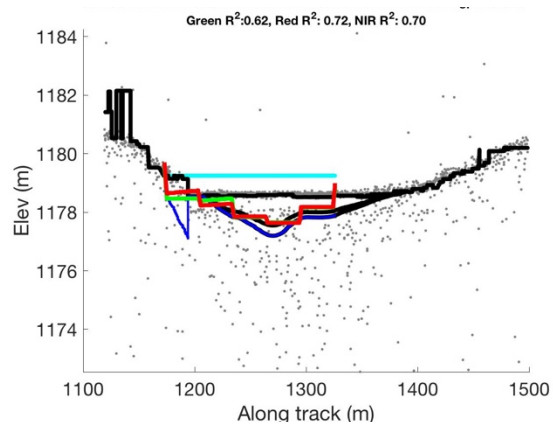
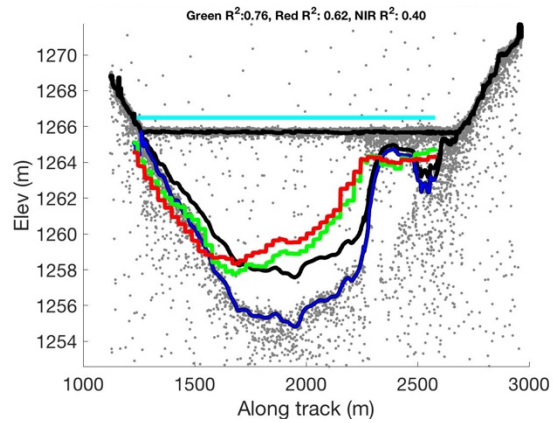




## Lake 9



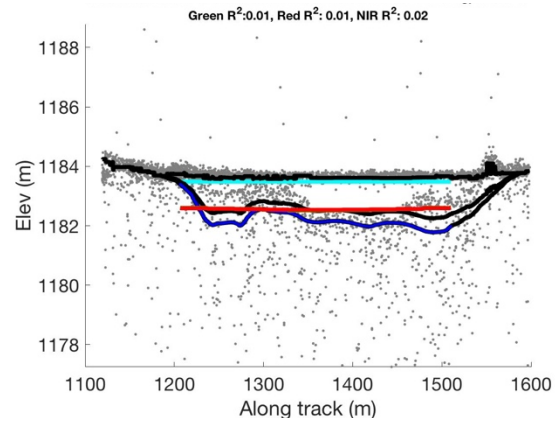


**Lake 1**Landsat June 17<sup>th</sup>**Lake 2**Landsat June 17<sup>th</sup>**Lake 3**Landsat June 17<sup>th</sup>

**Lake 4**

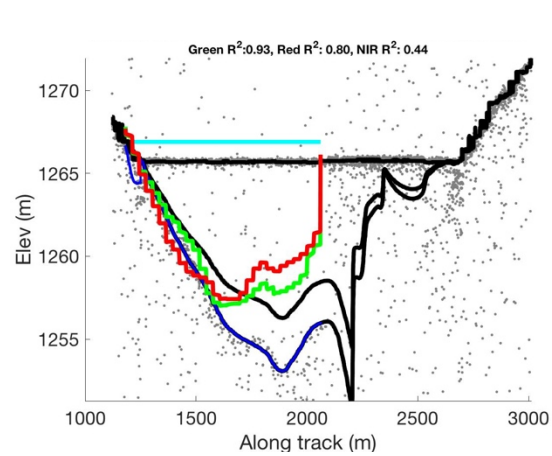
Landsat

June 17th

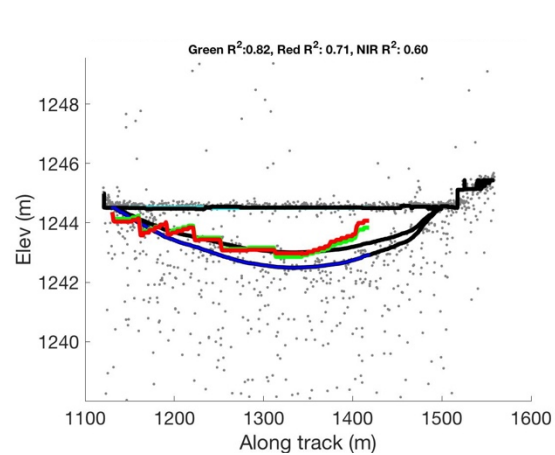
**Lake 5:**

Landsat

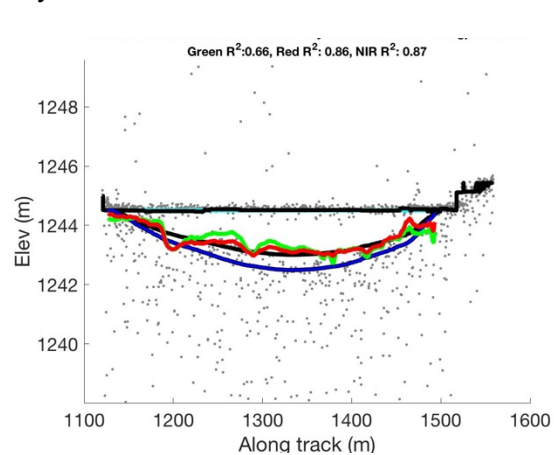
June 17th

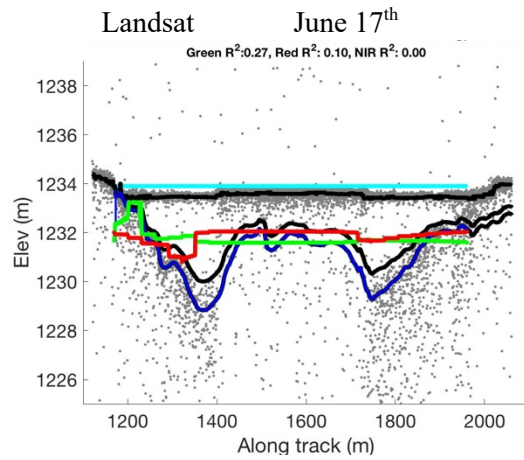
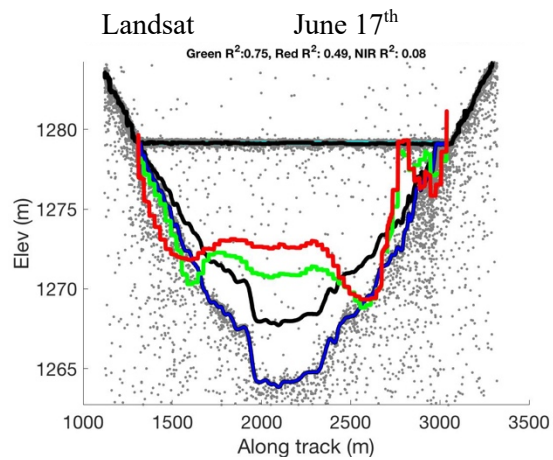
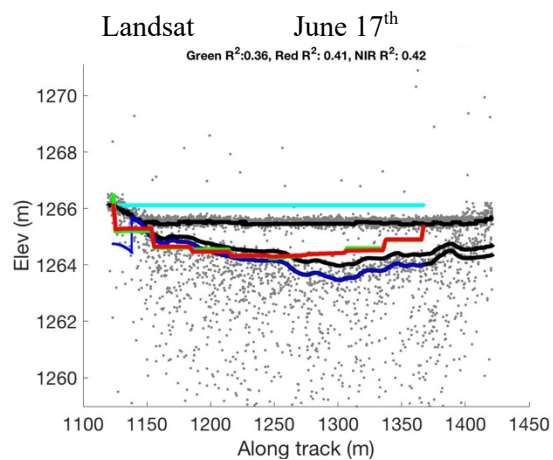
**Lake 6**

Landsat

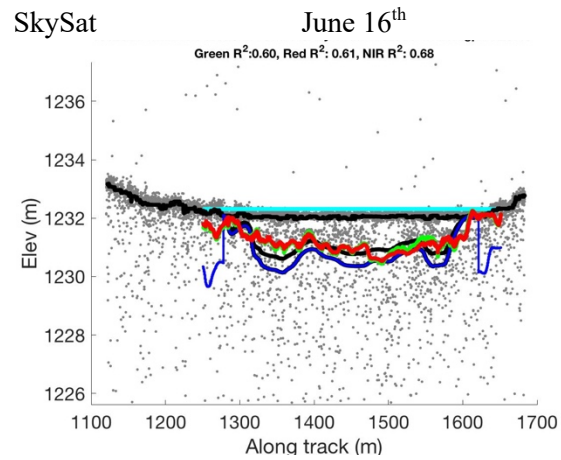
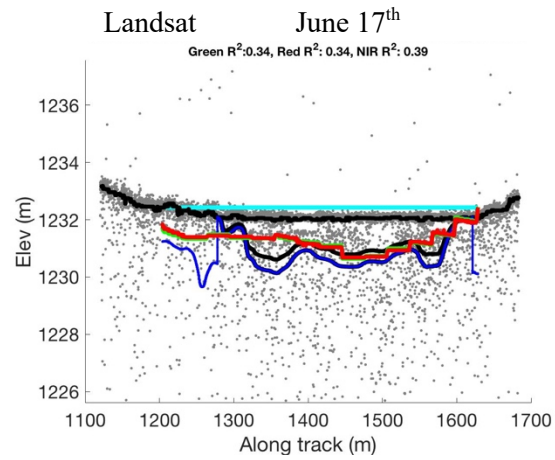
June 17<sup>th</sup>

SkySat

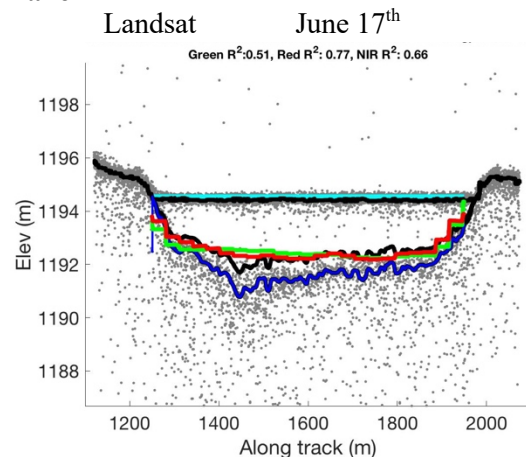
June 17<sup>th</sup>

**Lake 7:****Lake 8:****Lake 9:**

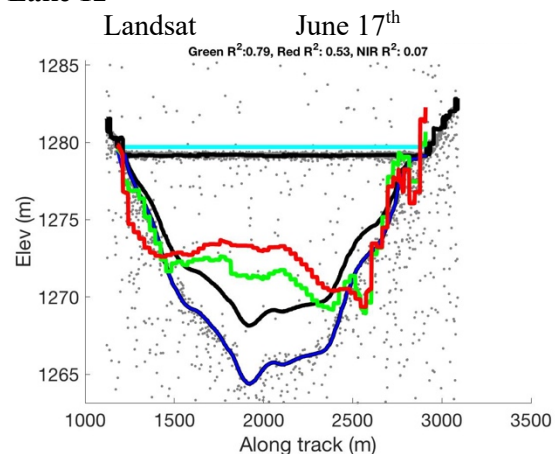
## Lake 10

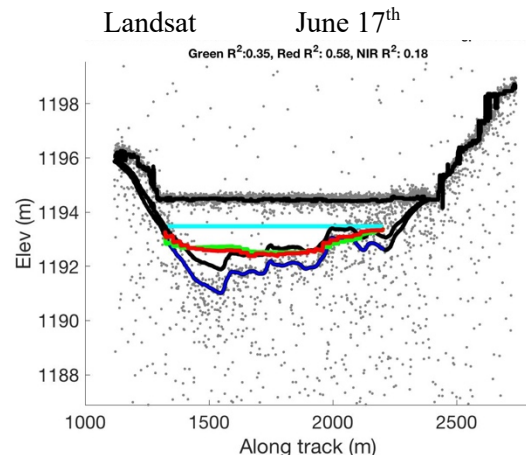
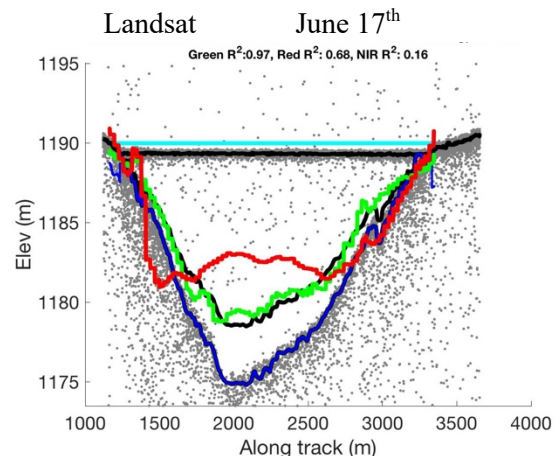
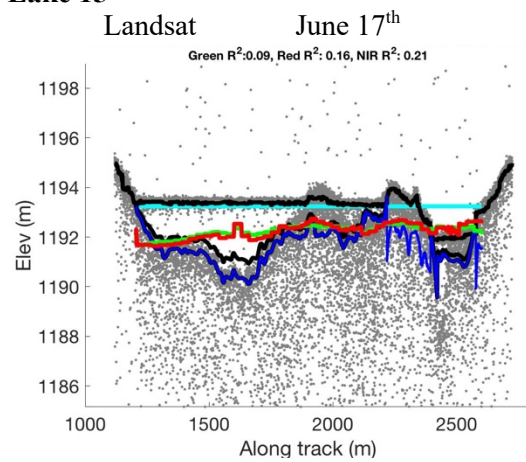


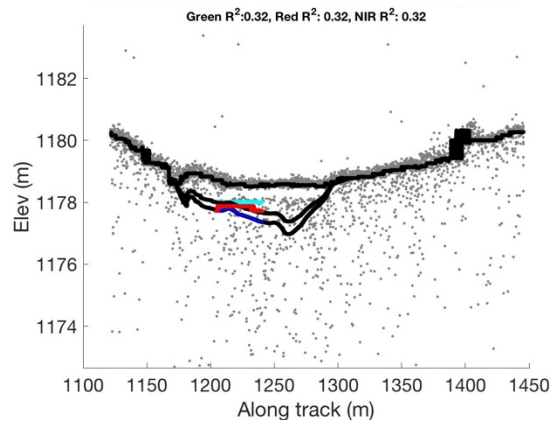
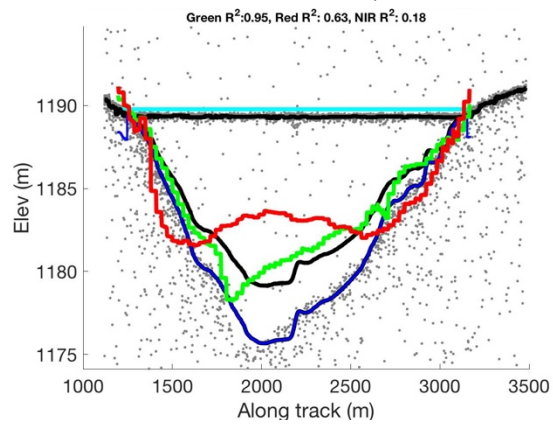
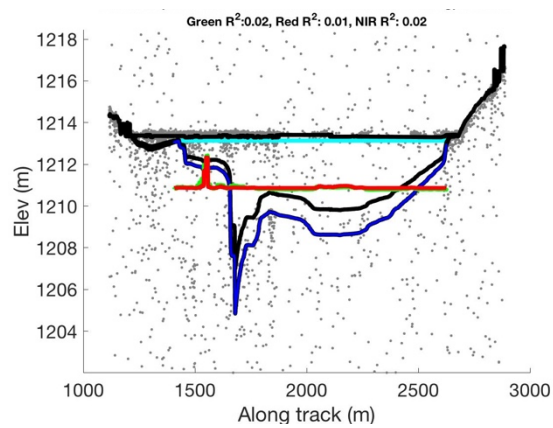
## Lake 11



## Lake 12



**Lake 13****Lake 14****Lake 15**

**Lake 16**Landsat June 17<sup>th</sup>**Lake 17**Landsat June 17<sup>th</sup>**Lake 18**Sentinel-2 June 16<sup>th</sup>

**Lake 19**

Sentinel-2

June 16<sup>th</sup>