1 **Iceberg properties and distributions in three Greenlandic fjords using satellite imagery**

2 Supplementary Material

3 Here, we include additional tables and figures in support of the above information. Table S1
4 includes the results of fitting power laws to individual DEMs. Figure S1 shows the probability of
5 finding ice in areas throughout each fjord over the dates for which we inspected images. Table
6 S2 includes the results of delineating ice in mélange using automatic and manual methods.
7 Figure S2 shows some typical examples of paths taken by icebergs that we tracked via GPS.

8

9 **Table S1:** Coefficients and R^2 values for power law fits relating iceberg area to volume for each DEM
10 created.

Date	DEM Creation Algorithm	Number of icebergs measured	a (±95% confidence bounds)	b (±95% confidence bounds)	R^2
3/19/11	SETSM	108	30.09 (20.81)	1.15 (0.06)	0.96
8/21/11	ASP	118	17.07 (8.28)	1.18 (0.04)	0.98
8/24/11	ASP	75	0.94 (0.93)	1.44 (0.10)	0.98
6/10/12	ASP	39	1.80 (4.65)	1.39 (0.13)	0.95
6/24/12	SETSM	56	11.21 (22.47)	1.25 (0.09)	0.97
6/29/12	ASP	101	2.95 (2.93)	1.37 (0.08)	0.99
7/31/14 – (1)	SETSM	103	2.78 (2.38)	1.33 (0.08)	0.95
7/31/14 – (2)	SETSM	112	2.60 (2.27)	1.44 (0.08)	0.95
All Together		712	5.96 (2.59)	1.30 (0.04)	0.92

11

12

13 **Table S2**: Results of classifying 16 km^2 of ice mélange automatically and manually in each of five L8
14 images and 5.4 km^2 manually in one WV image.

|	n (km^{-2})	Iceberg Vol (10^5 m^3 km^{-2})	Number of Icebergs in Size Classes (10^5 m^3) per Area of Ice Mélange (km^2)				
			0 – 1 n (%)	1 – 2 n (%)	2 – 3 n (%)	3 – 4 n (%)	4 + n (%)
Automatic Classification, All	29	131	24 (81.0)	2.4 (8.25)	0.89 (3.05)	0.49 (1.68)	1.8 (6.06)
L8 Manual, All	10	173	2.5 (24.9)	1.6 (15.6)	1.3 (12.9)	0.69 (6.88)	4.0 (39.8)
WV Manual, Single Image	30	473	16 (54.0)	2.6 (8.70)	2.0 (6.83)	0.37 (1.24)	8.7 (29.2)
Individual L8 Images							
8/7/14							
Auto	18	119	14 (80.8)	1.5 (8.54)	0.63 (3.56)	0.31 (1.78)	0.94 (5.34)
Manual	9.6	161	3.0 (31.2)	1.7 (17.5)	1.1 (11.7)	0.75 (7.79)	3.1 (31.8)
7/7/15							
Auto	31	60.3	24 (78.9)	2.4 (7.99)	0.88 (2.87)	0.69 (2.25)	2.4 (7.99)
Manual	10	82.0	2.9 (29.2)	1.6 (15.5)	1.2 (11.8)	0.50 (4.97)	3.9 (38.5)
7/16/15							
Auto	20	116	15 (76.7)	2.1 (10.5)	0.75 (3.83)	0.31 (1.60)	1.4 (7.35)
Manual	8.5	175	2.3 (26.5)	0.69 (8.09)	1.2 (14.0)	0.38 (4.41)	4.0 (47.1)
9/15/14							
Auto	41	145	34 (82.9)	3.5 (8.56)	1.2 (2.91)	0.75 (1.83)	1.6 (3.82)
Manual	13	192	2.9 (23.2)	2.8 (21.7)	1.6 (12.8)	1.0 (7.88)	4.4 (34.5)
9/22/14							
Auto	37	198	31 (82.9)	2.5 (6.77)	1.0 (2.71)	0.38 (1.02)	2.4 (6.60)
Manual	9.1	253	1.3 (14.4)	1.1 (12.3)	1.3 (14.4)	0.81 (8.90)	4.6 (50.0)

15
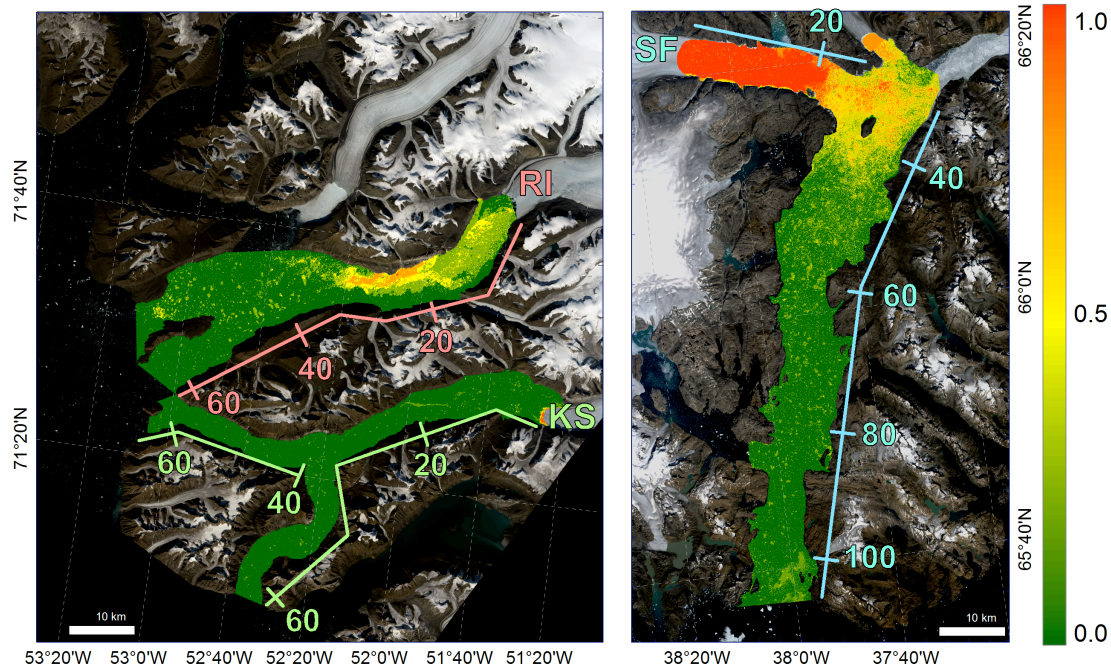
Figure S1: Probability of ice presence in full fjord images from later than July 15th in RI (4 images) and KS (7 images) (left panel) and later than July 1st in SF (5 images) (right panel).
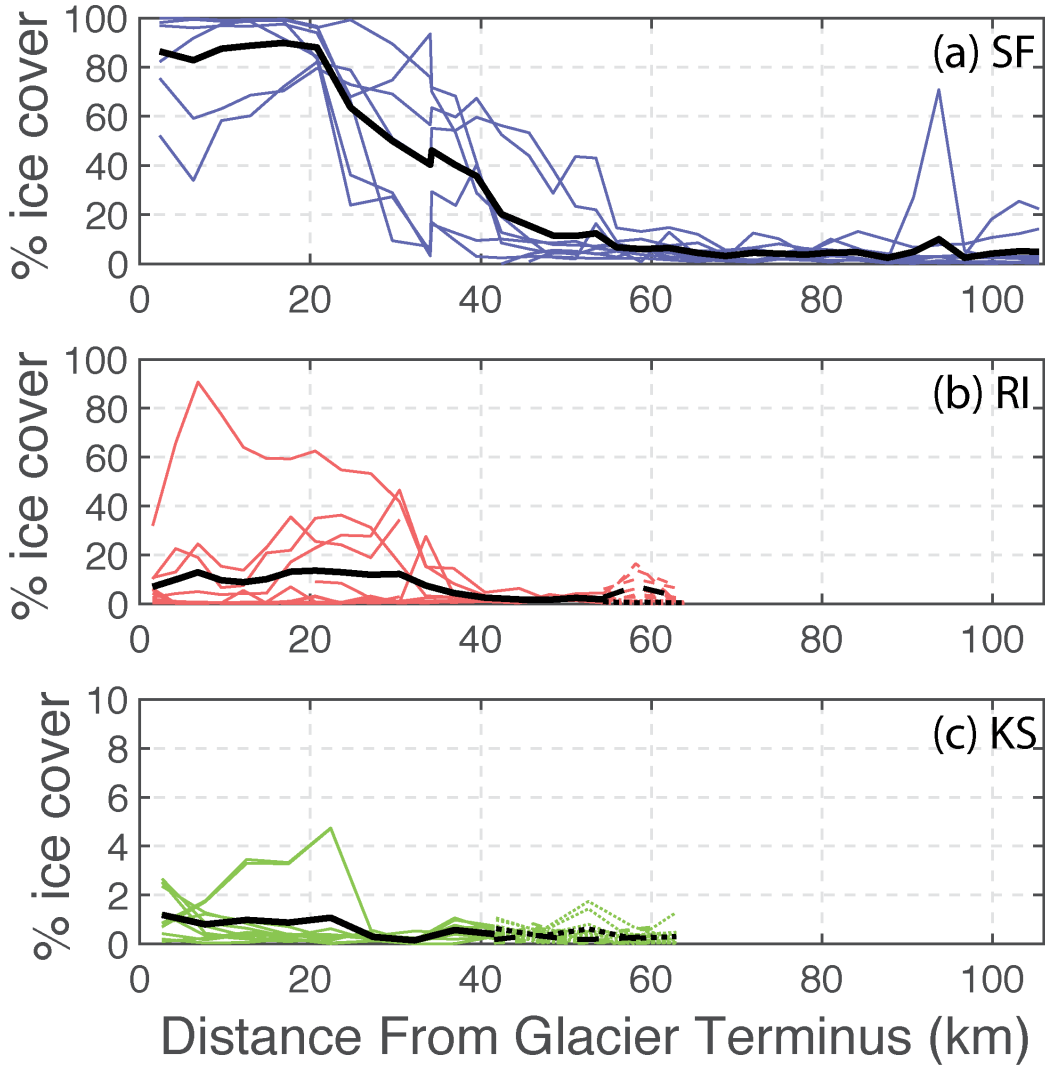
16

17

18

19

20

21
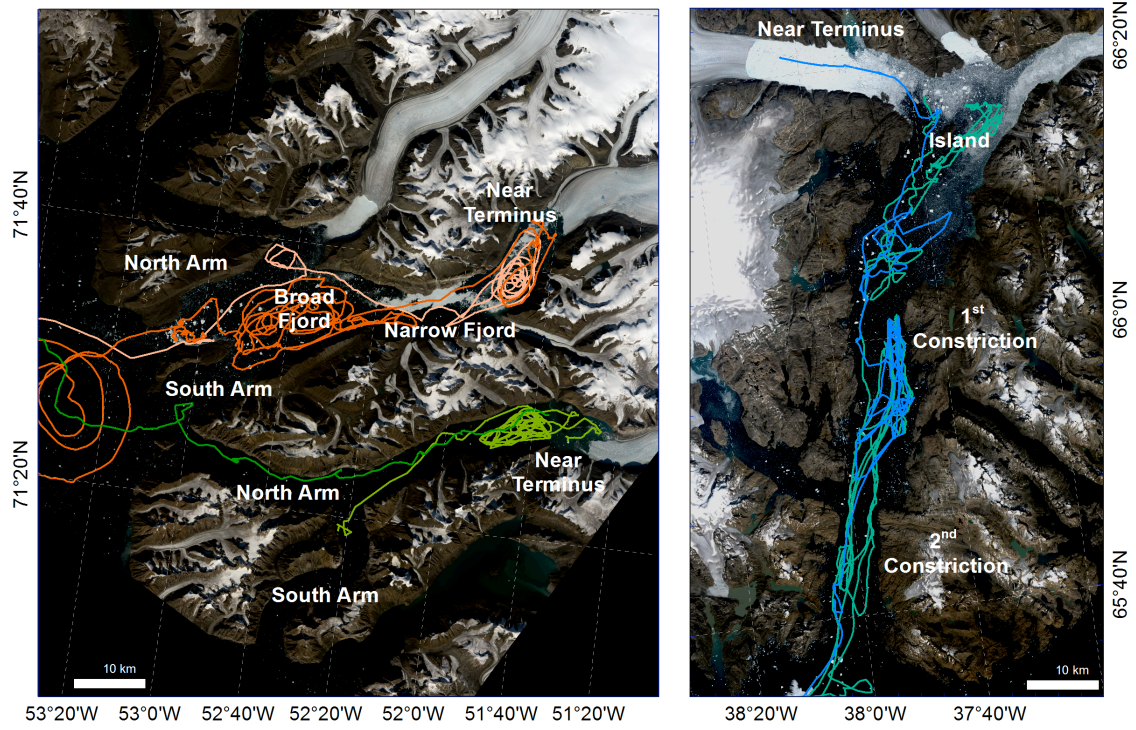
Figure S2: Example GPS tracker paths from RI and KS overlain on a L8 image from 7/8/14 (left), and from SF overlain on a L8 image from 8/7/14 (right).

Figure S3: Percent ice cover in each fjord (*a-c*) over all images analyzed (faint colored lines). The mean percentages are shown in black and correspond to the lines shown in the main text in Fig. 4. In RI and KS, dashed lines represent the northern arms of the fjords, while dotted lines represent the southern arms.