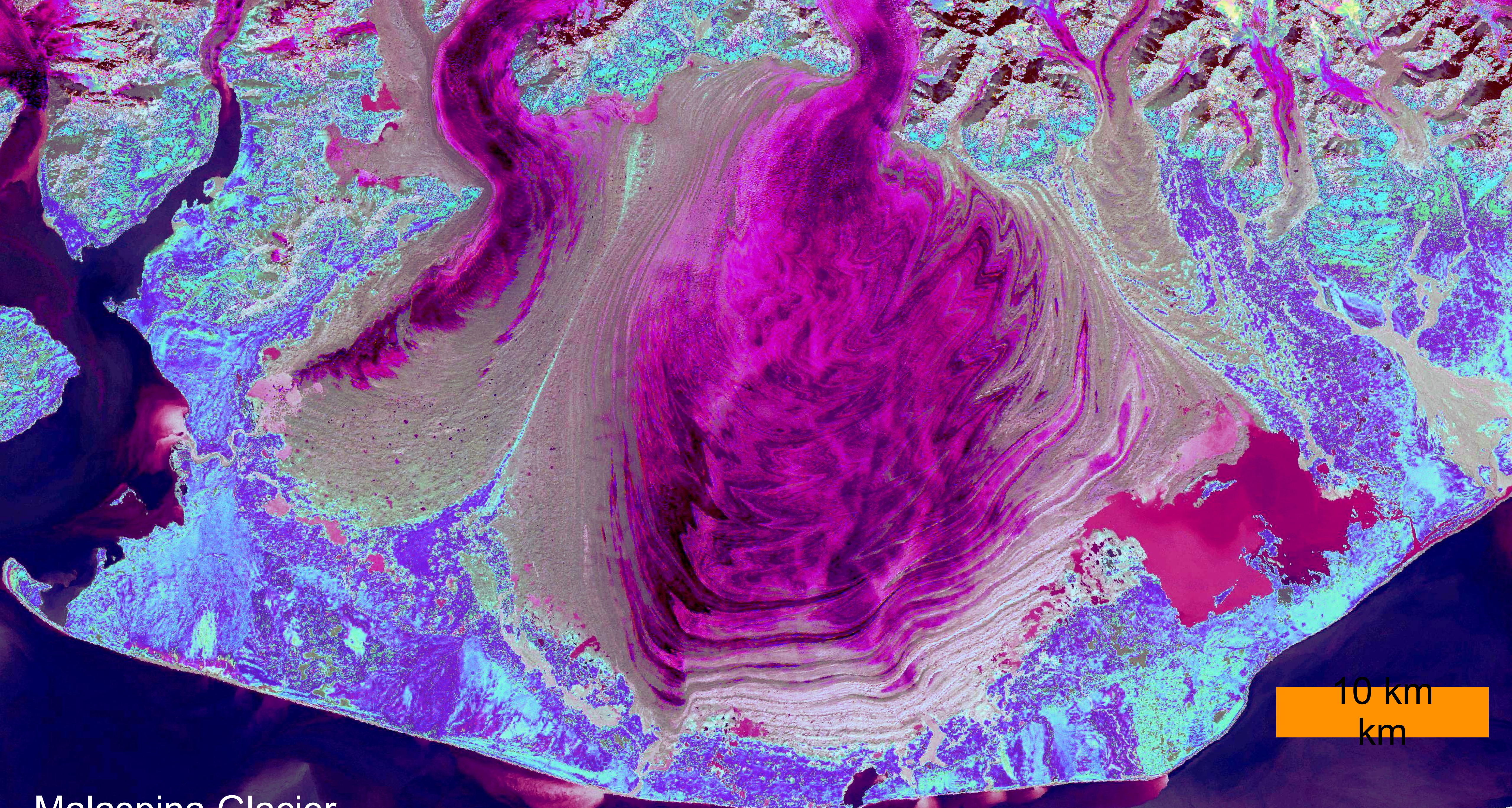


The Future of Alaska's Glacier Coasts

Hig (Bretwood Higman)
hig314@gmail.com
Ground Turth Alaska



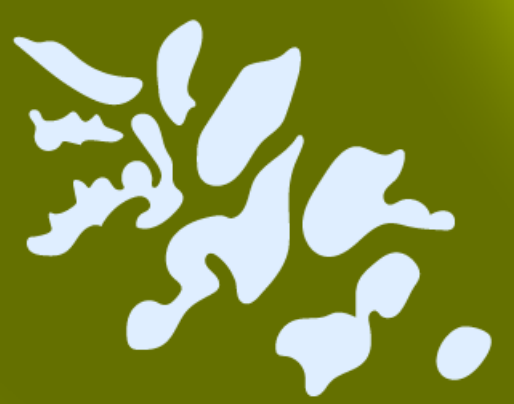
10 km
km

Malaspina Glacier



10 km

5 miles



Brabazon Range

Alsek River

The Salmon Gauntlet

Alsek Bay

St. Elias Mountains

Deception Hills

Grand Plateau Glacier

Ustay River

Tsunami Fjord

Dire Strait

Iceberg Shoals

Gulf of Alaska



10 km

5 miles



Alsek River

*Alsek Lake
(~17 m)*

Little Grand Plateau Lake breach - within 5 years

Dry Bay

*Grand Plateau
Glacier*

*Grand Plateau
Lake (~17 m)*

***Little
Grand Plateau
Lake (~110 m)***

Gulf of Alaska



10 km

5 miles



*Alsek Lake
(~17 m)*

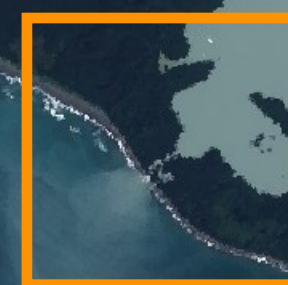
*Grand Plateau
Glacier*

*Grand Plateau
Lake (~17 m)*

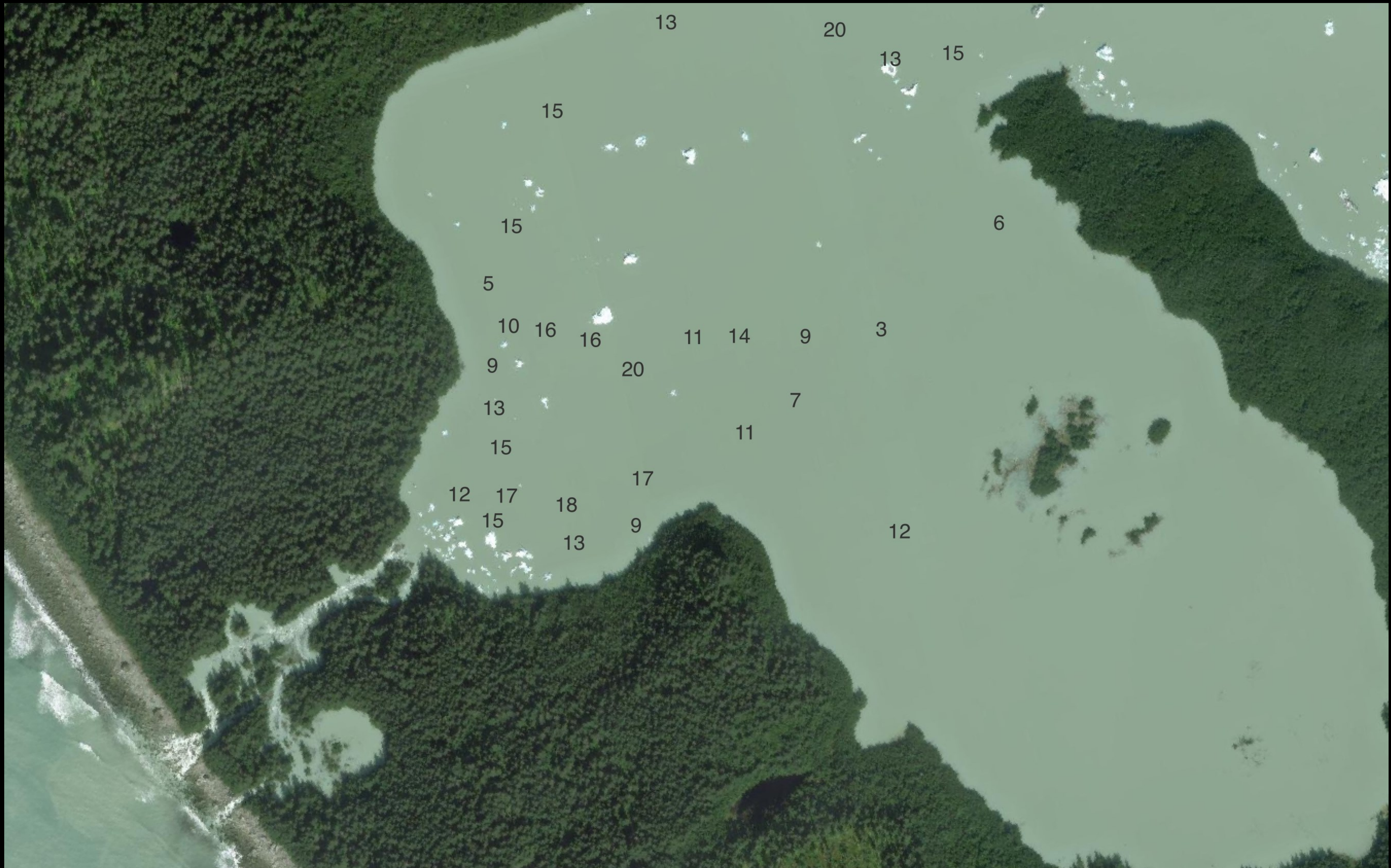
*Little
Grand Plateau
Lake (~110 m)*

Gulf of Alaska

**Breach of Grand
Plateau Lake outlet
within hours**







13

20

13

15

15

15

6

5

10

16

16

11

14

9

3

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7

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17

12

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18

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13

12



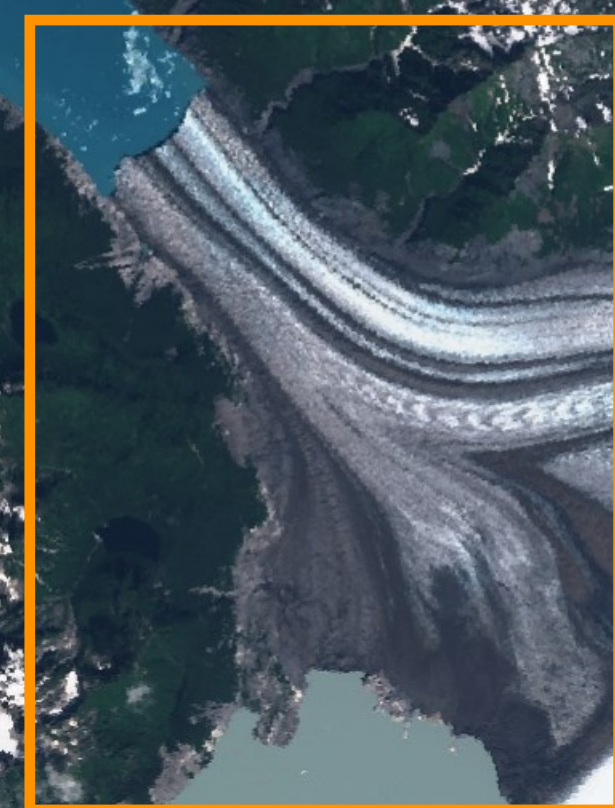
10 km

5 miles



*Alsek Lake
(~17 m)*

**Connection
established to
Alsek Lake
within 10 years**



*Grand Plateau
Glacier*

*Grand Plateau
Lake (~17 m)*

*Little
Grand Plateau
Lake (~110 m)*

Gulf of Alaska

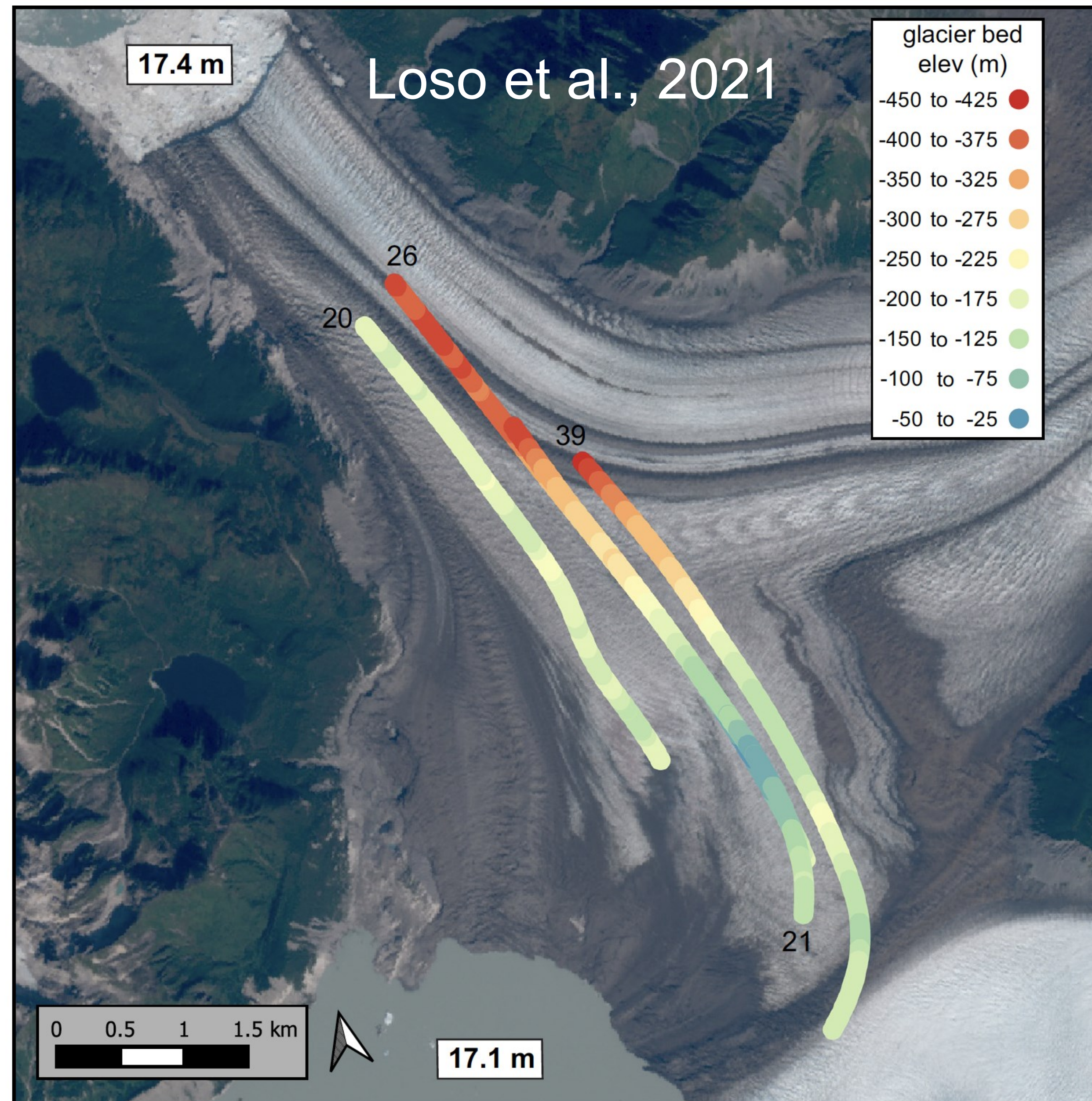


Fig. 5. Estimated glacier bed elevations along four ice-penetrating radar profiles on Grand Plateau Glacier. Underlying data, including comparison of overlapping profiles 21 and 26, are shown in the supplementary information; 2-digit codes identify individual profiles. Lake surface elevations shown over Alsek and Grand Plateau Lake are derived from 2020 laser altimetry data. Base is Sentinel-2 image acquired September 10, 2018; Albers equal area projection.



10 km

5 miles



Alsek Lake
(~17 m)

Rapid coastal
erosion and river
incision in
subsequent
decades.

Grand Plateau
Glacier

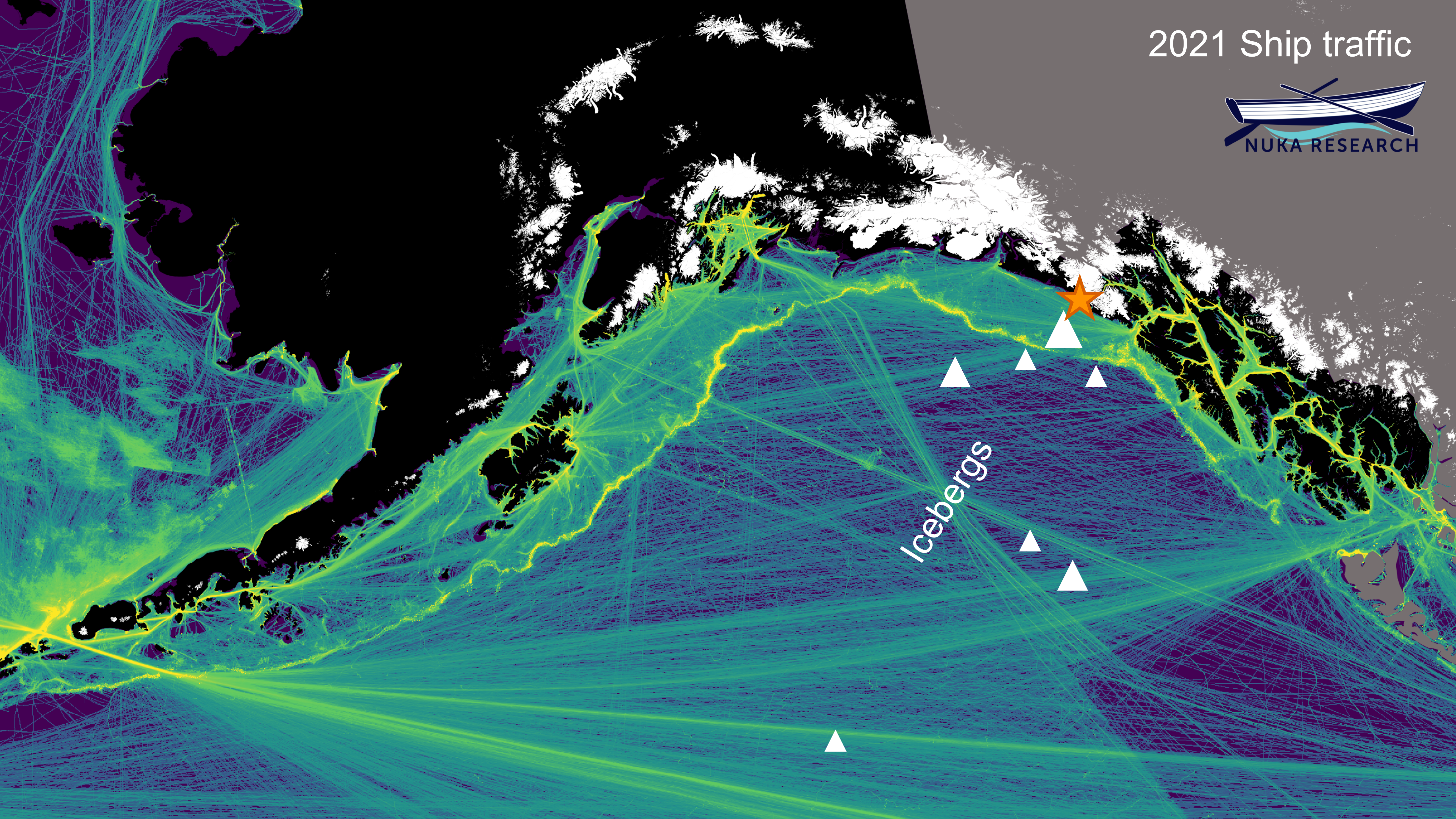
Grand Plateau
Lake (~17 m)

Little
Grand Plateau
Lake (~110 m)

Who cares?

Gulf of Alaska

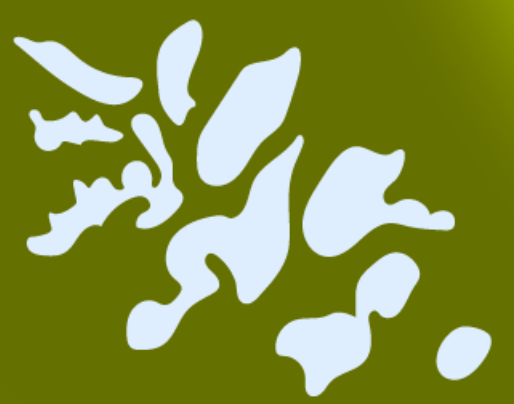
2021 Ship traffic





10 km

5 miles



Brabazon Range

Alsek River

The Salmon Gauntlet

Alsek Bay

St. Elias Mountains

Deception Hills

Grand Plateau Glacier

Ustay River

Tsunami Fjord

Dire Strait

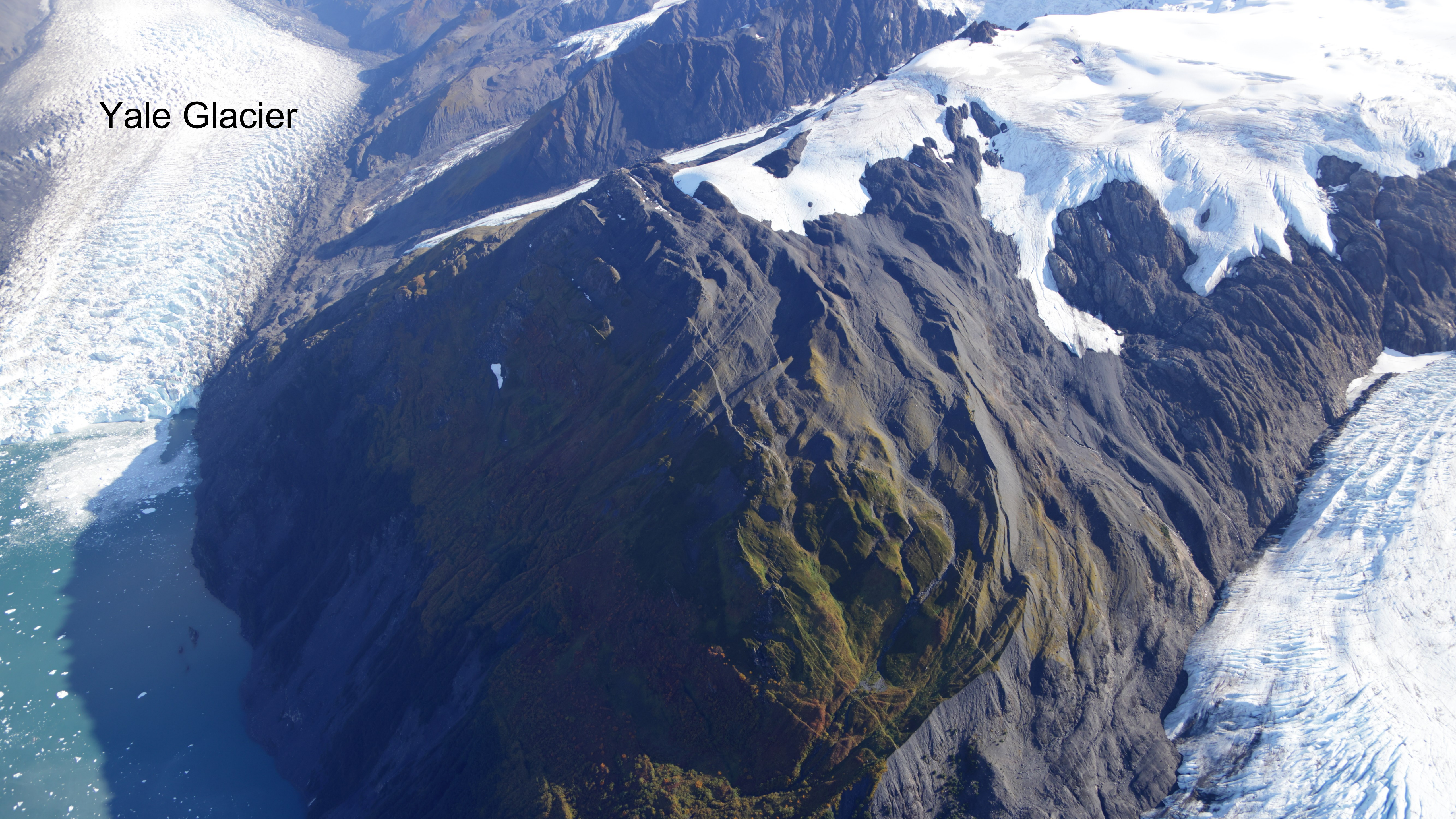
Iceberg Shoals

Gulf of Alaska



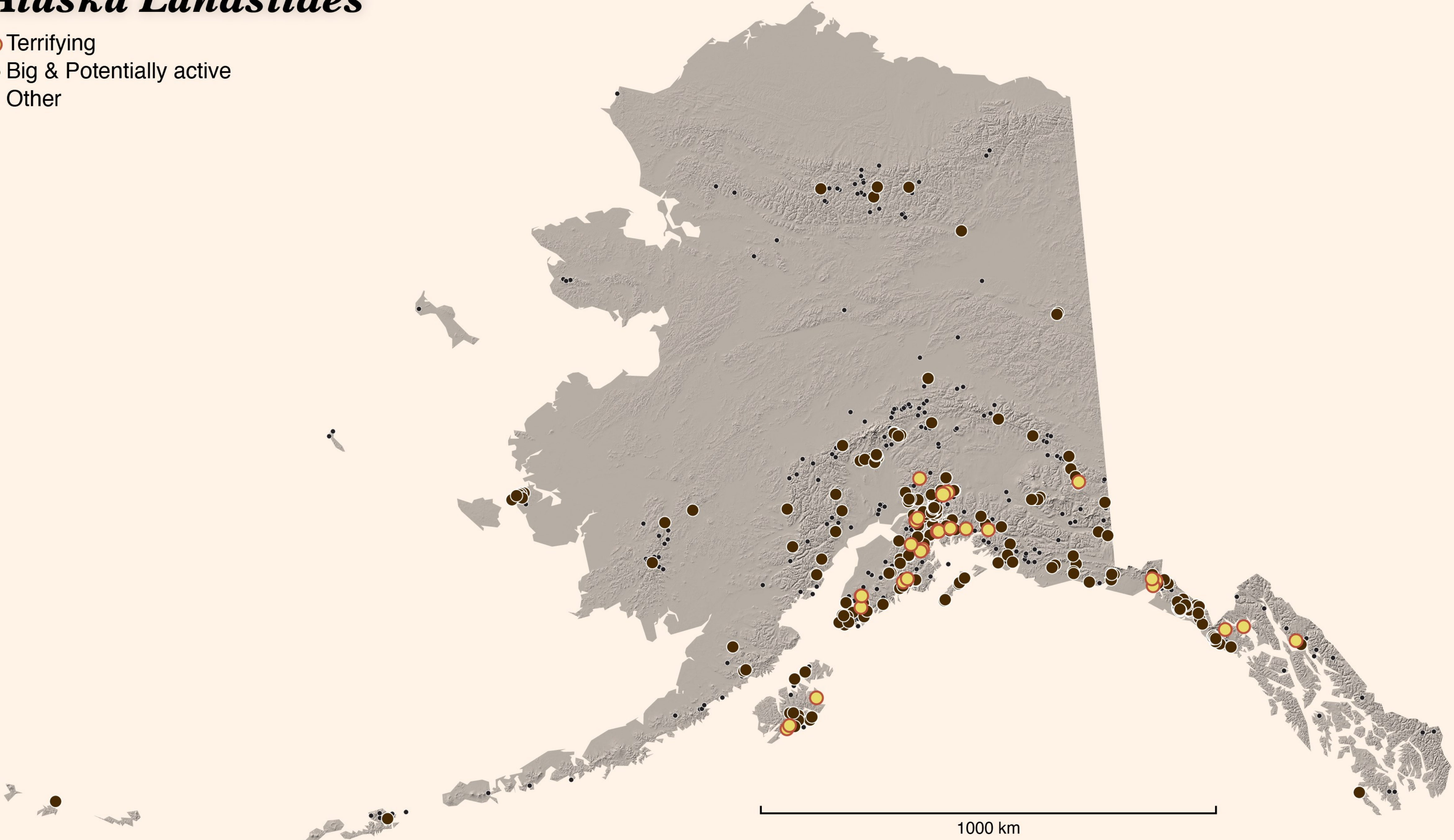
**Sitkagi Lagoon,
Malaspina Glacier, 2011**

Yale Glacier



Alaska Landslides

- Terrifying
- Big & Potentially active
- Other



An age of emerging hazards



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