

Differences between DEMs

-for the same area

1. Resolution – pixel size
2. Interpolation (especially on steep slopes)
3. Photogrammetric v Satellite – DTM v DSM
4. Missing data – clouds (optical), steep slopes (RADAR)
5. Change over time e.g. glaciers, snow, landslides, vegetation
 new buildings, old buildings demolished

Nuth, C. and Kääb, A.: Co-registration and bias corrections of satellite elevation data sets for quantifying glacier thickness change, *The Cryosphere*, 5, 271–290, <https://doi.org/10.5194/tc-5-271-2011>, 2011.

DEM
differencing -
glaciers

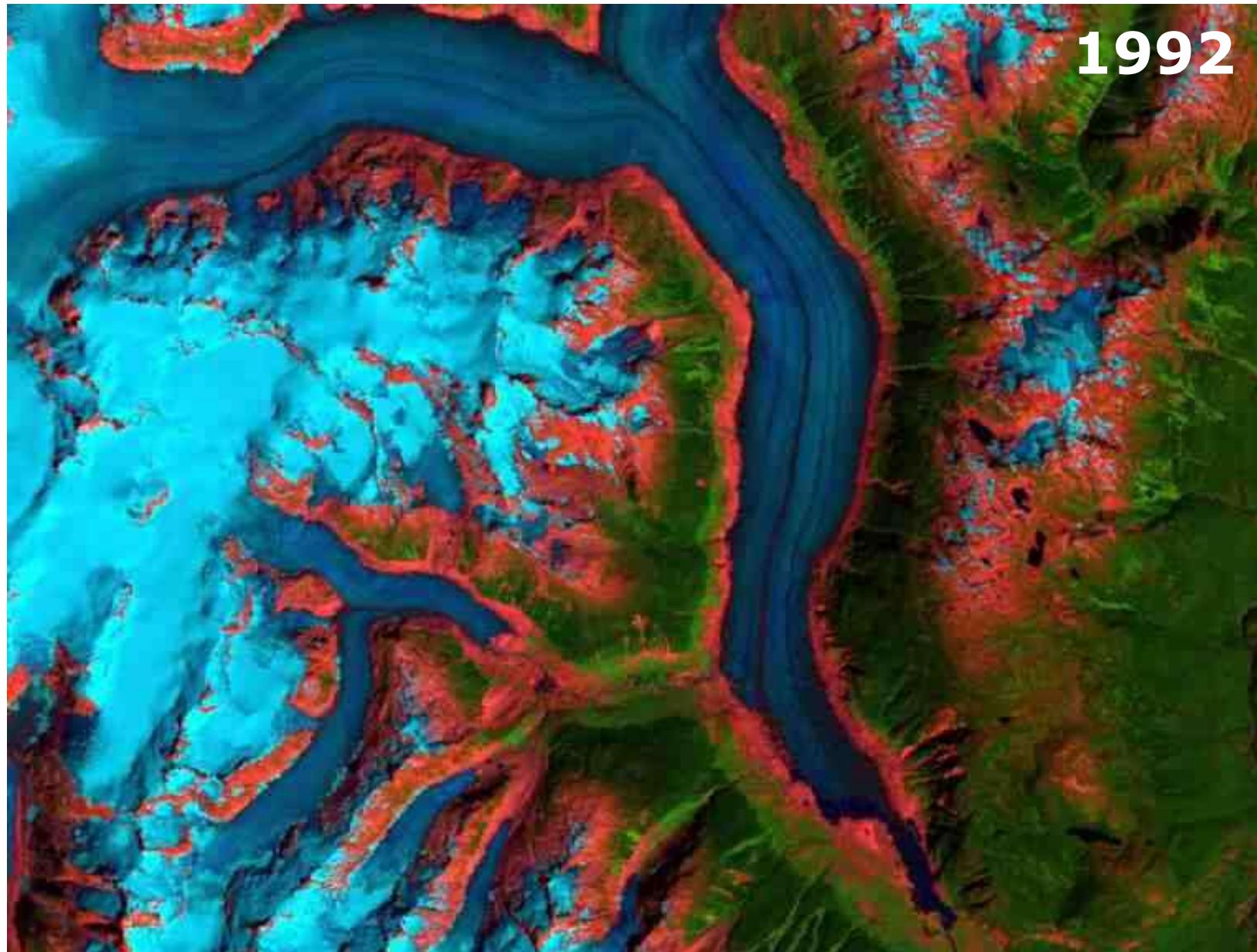
Athabasca
Glacier 1919 -
2005



Athabasca Glacier, Jasper National Park Canada in 1919 and 2005. Wheeler Survey photo (above) © 2005 Gary Braasch

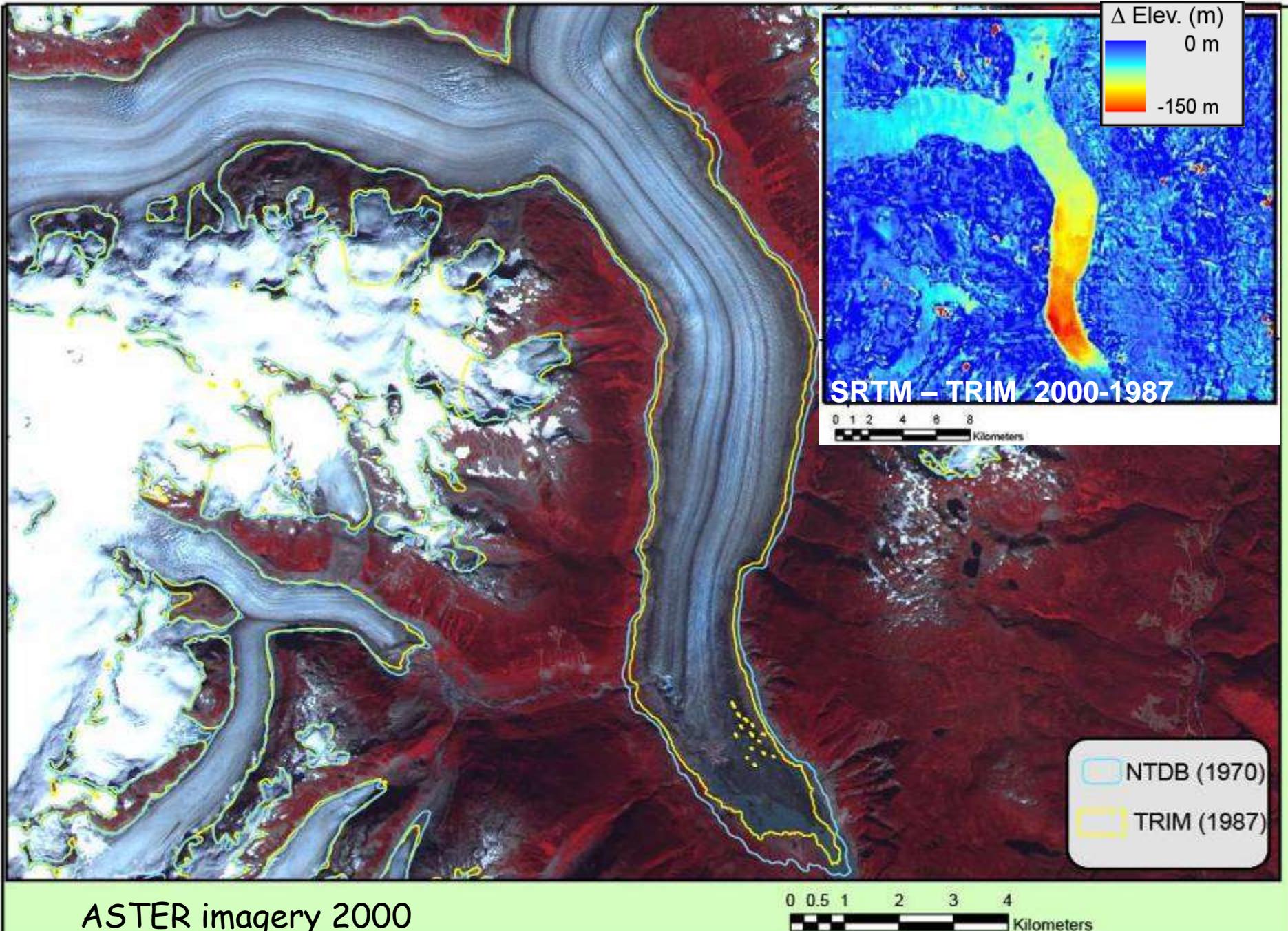


Animation series, implying elevation change: Klinaklini Glacier





2006



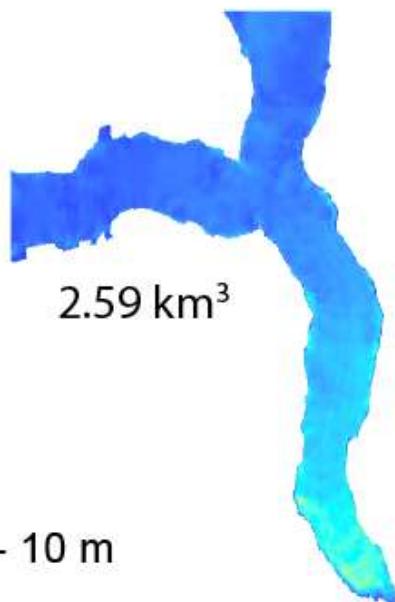
(Homathko River Park)

Thinning of Klinaklini Glacier

Result of subtraction of 2 DEMs

TRIM - NTDB

1987 - 1970

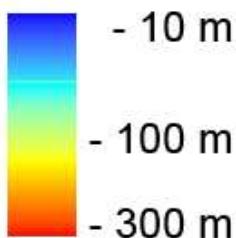
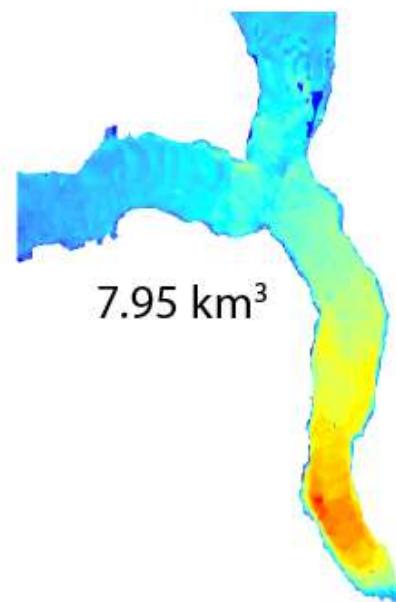


2000 - 1987



SRTM - NTDB

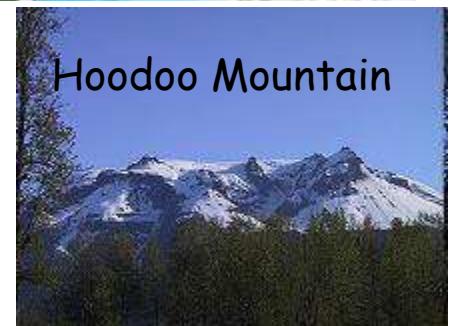
2000 - 1970



0 4.5 9 18 Kilometers

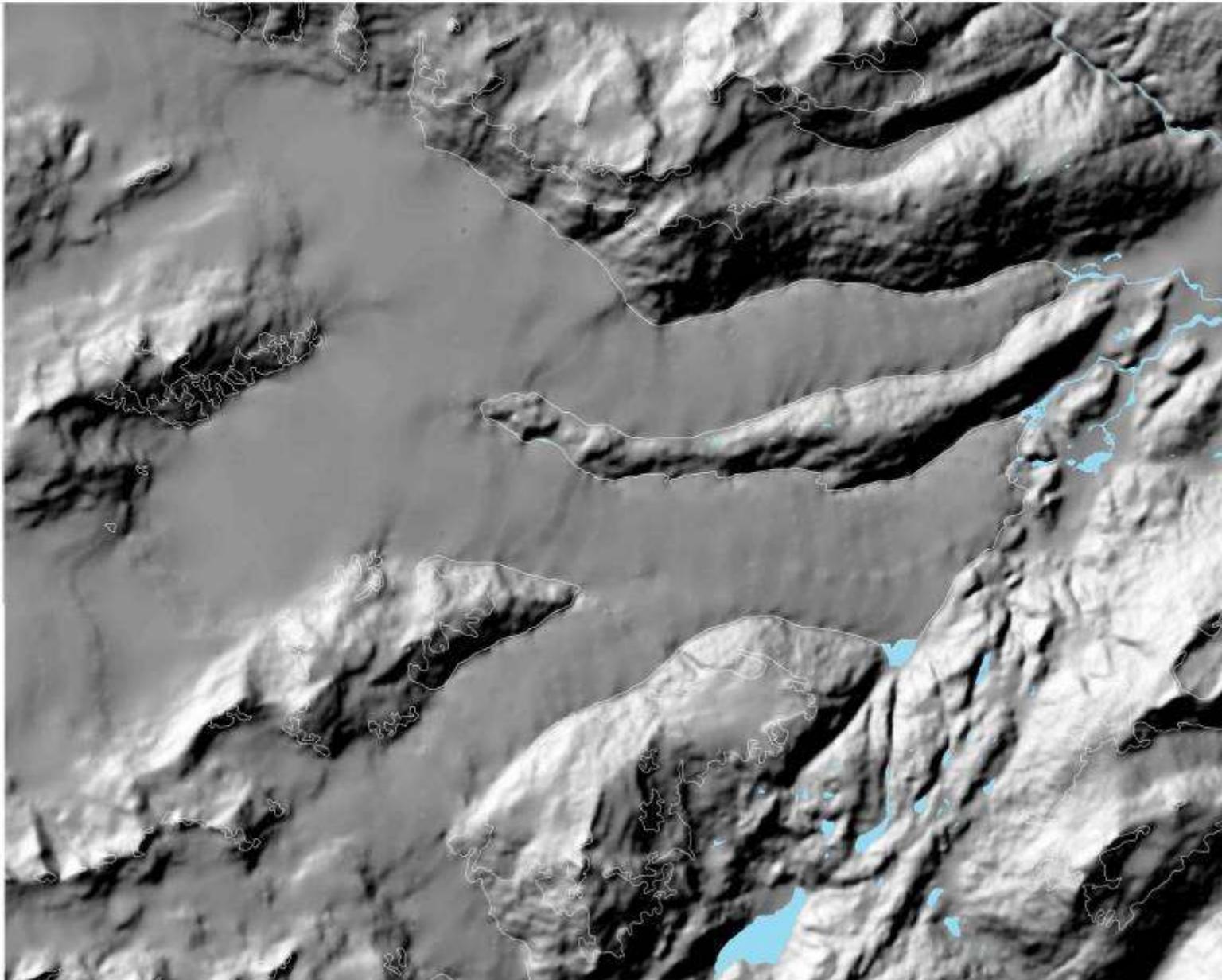


Map from BC Mapserver
www.lrdw.ca - imap

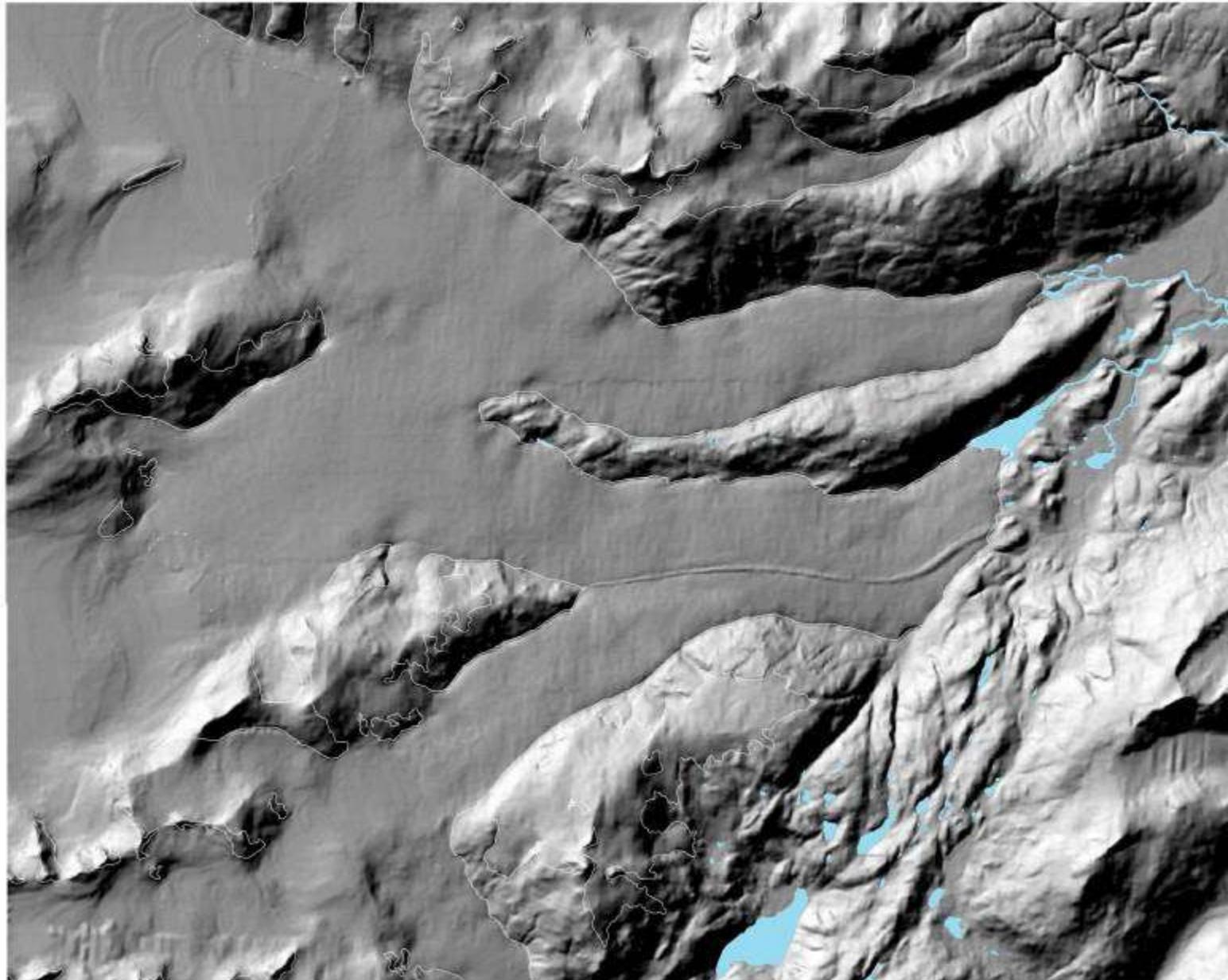


Federal mapping 1965

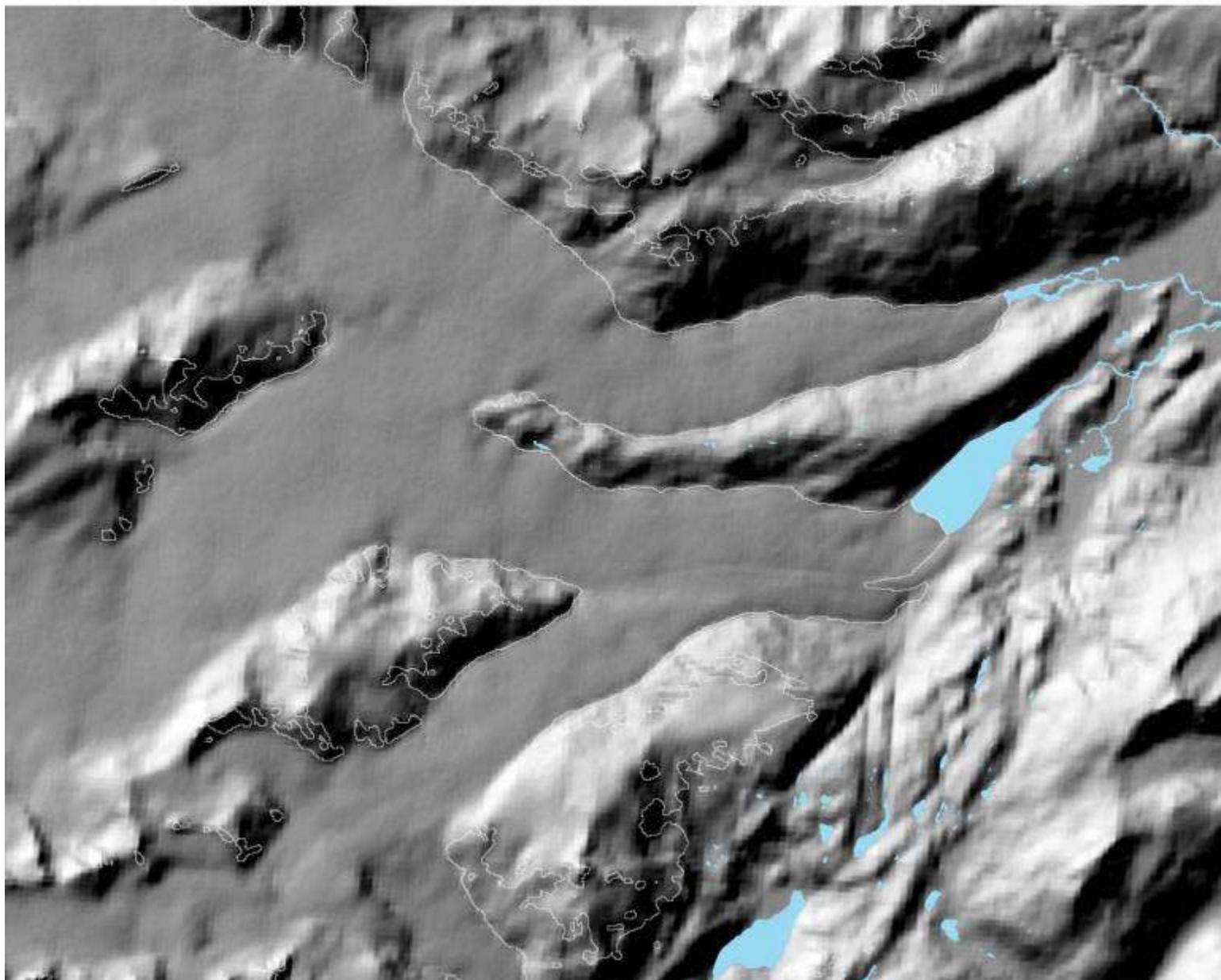
5 km



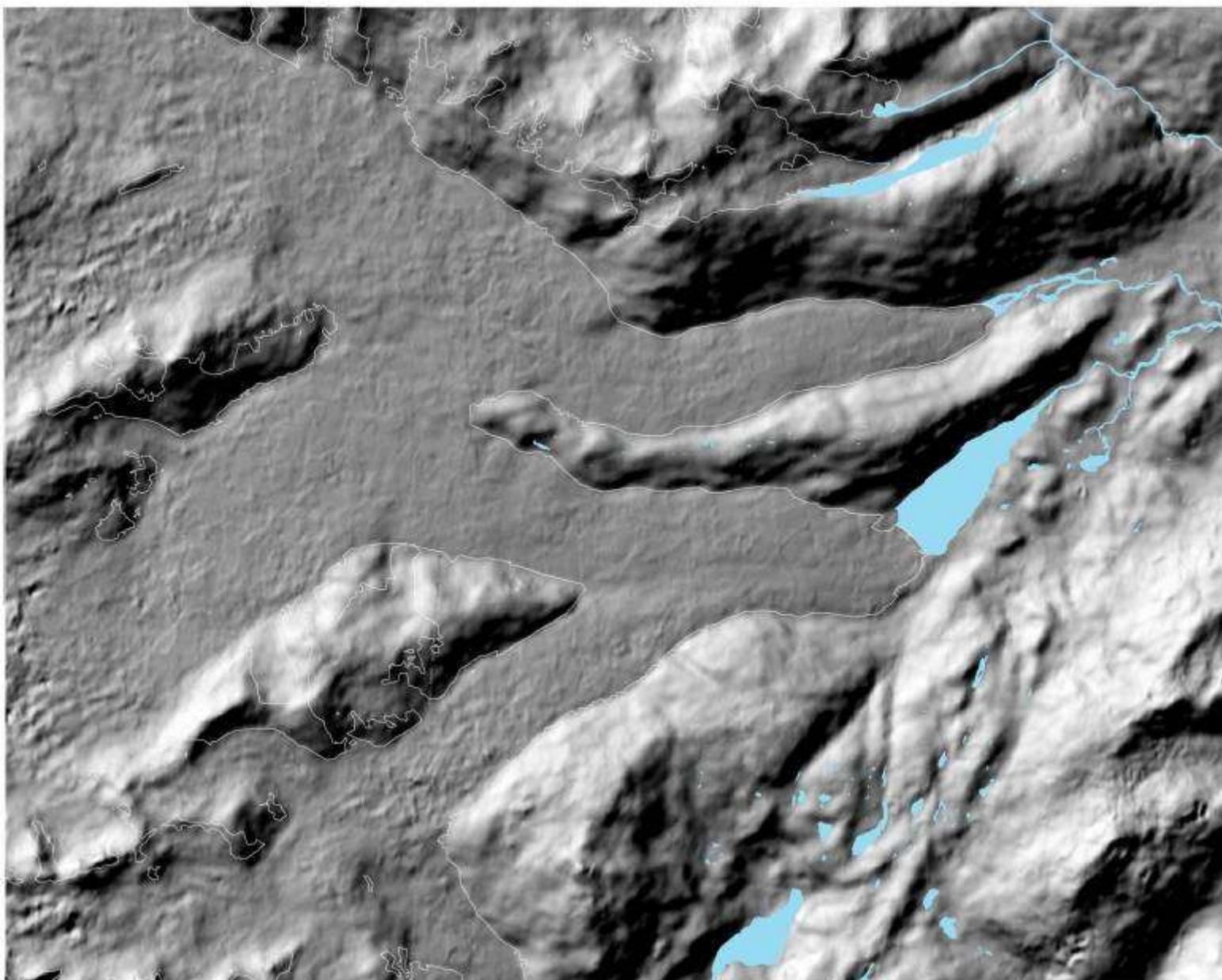
BC provincial 'TRIM' 1982



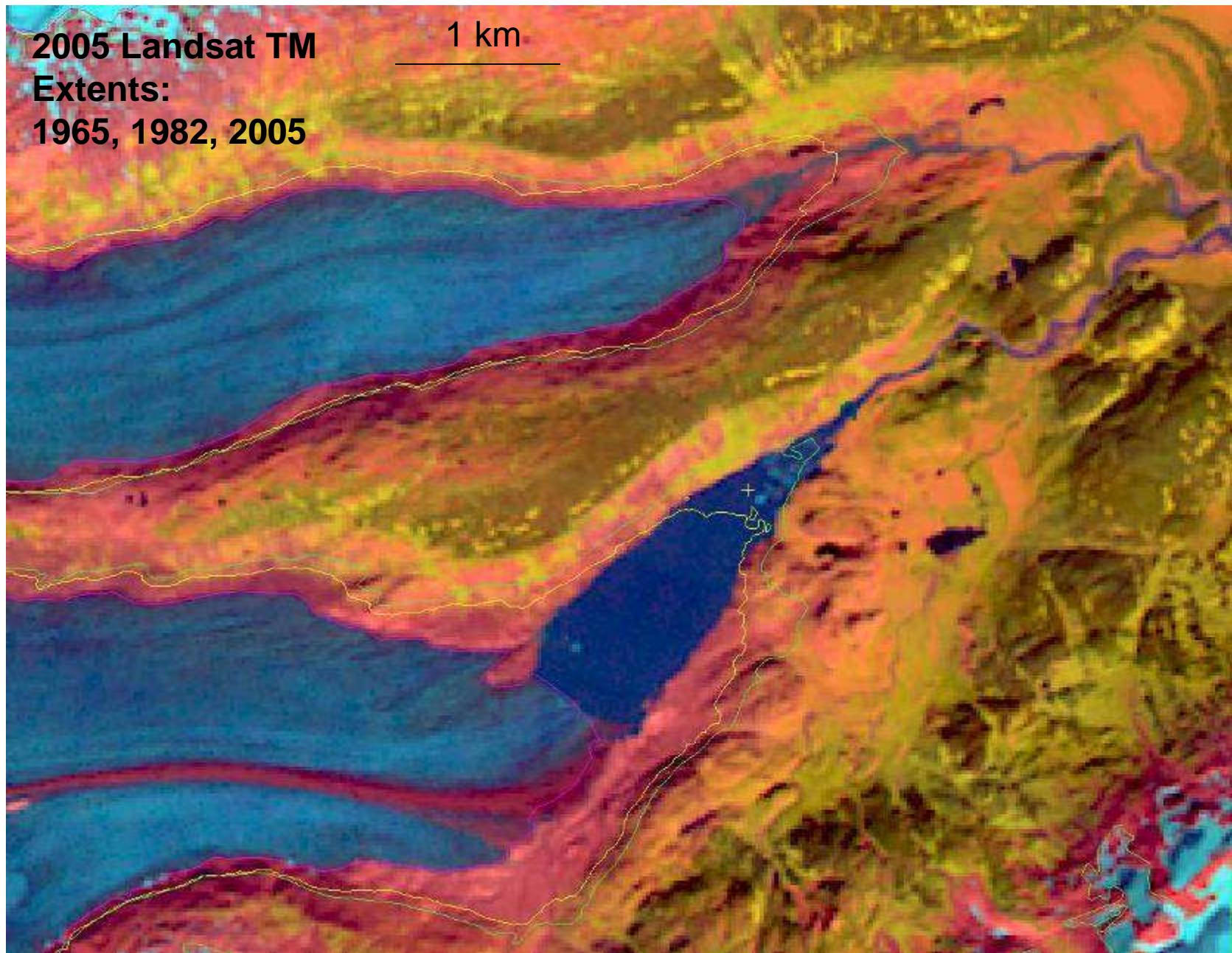
Shuttle Radar Topography Mission (SRTM) 1999



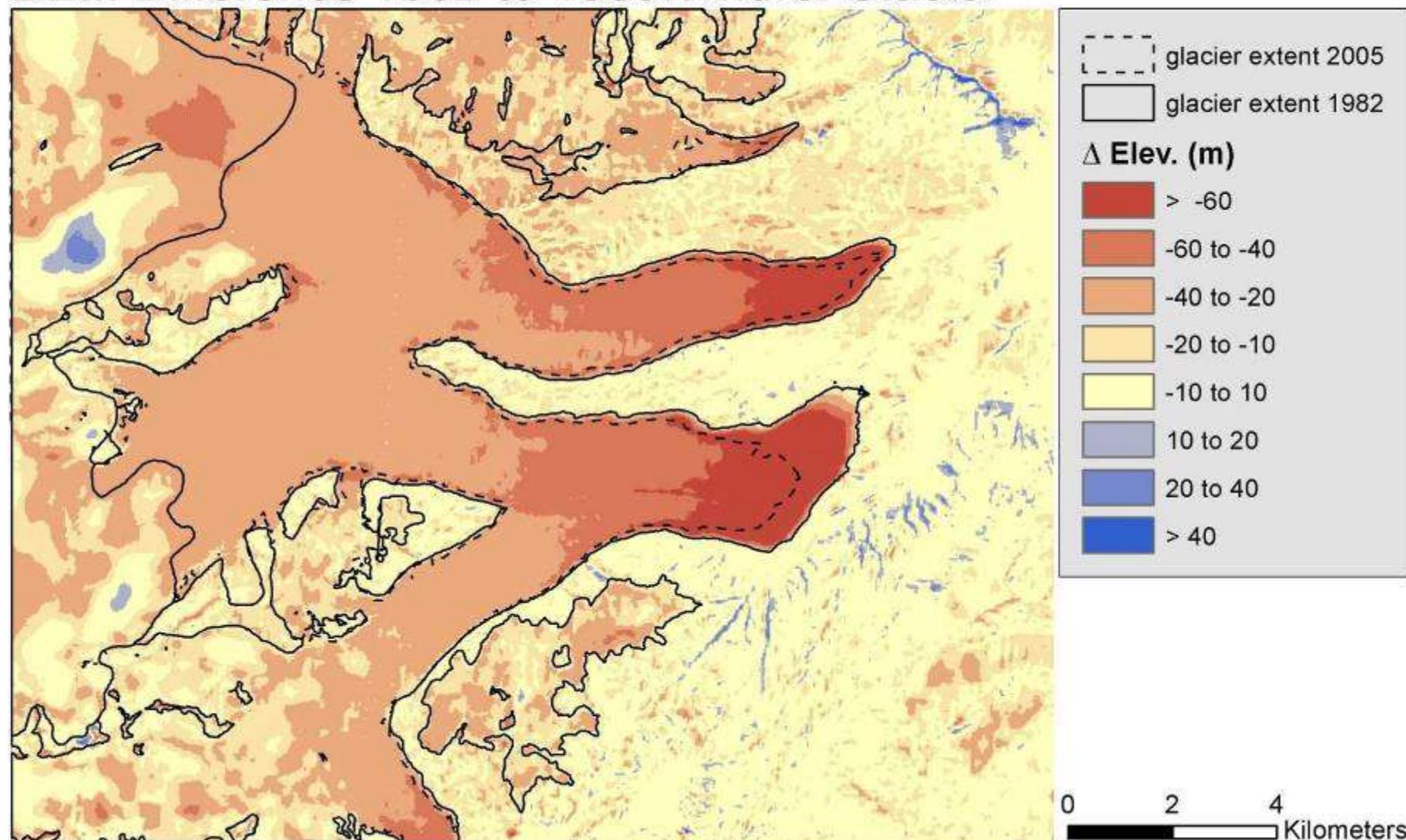
Aster 2000 -2008 (2005 glacier vectors)



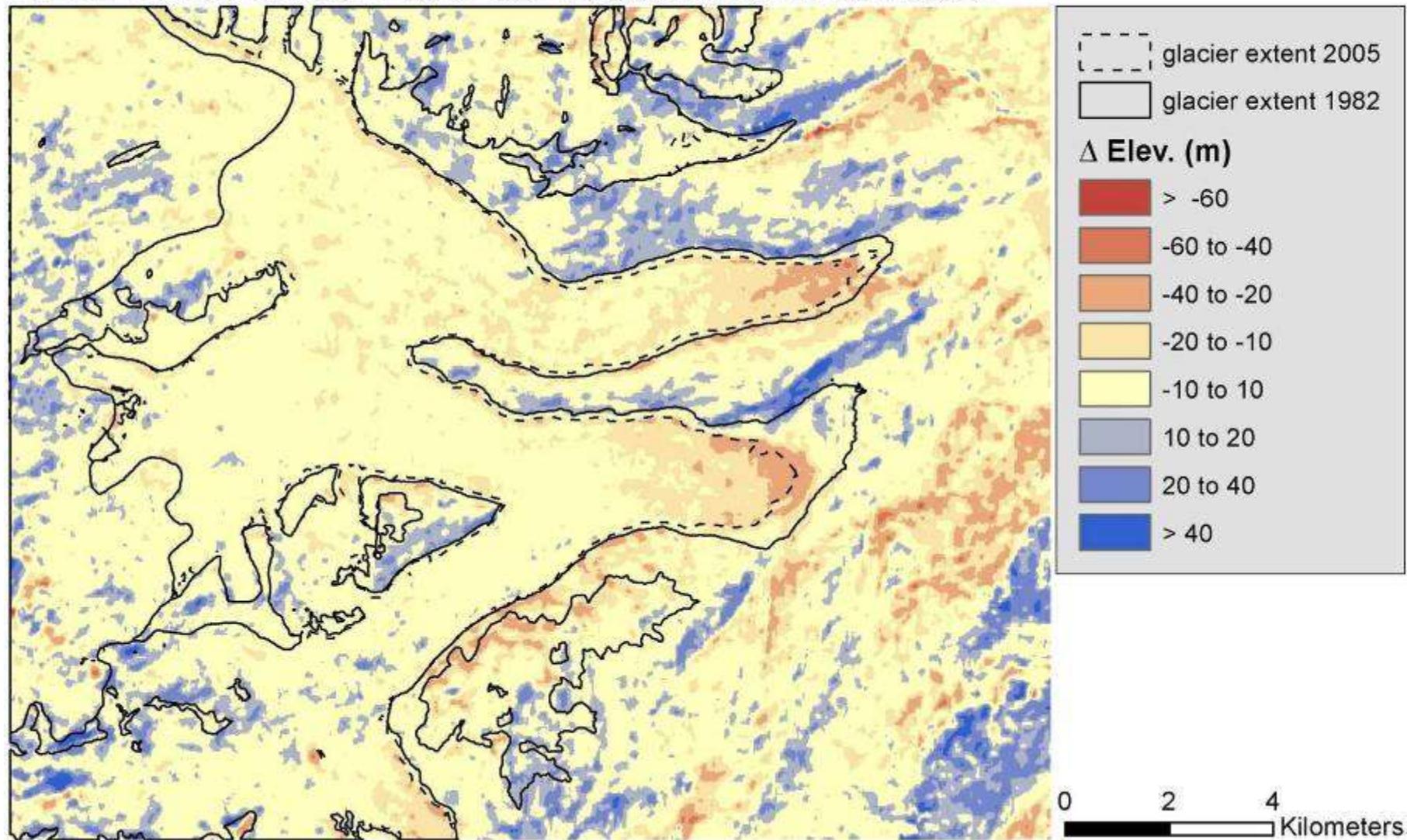
Andrei / Forrest Kerr Glaciers



DEM Difference 1982 to 1999: Andrei Glacier



DEM Difference 1999 to 2005: Andrei Glacier



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