Supplementary shapefile data/geoTIFF information

**SHAPEFILES**

**Files:** Alaska\_LGM\_glacier\_polygons.shp / Alaska\_LGM\_glacier\_points.shp

These are shapefiles showing the extents of LGM glaciers as polygons or as points (XY coordinates are the center points of the polygons, with their LGM ELAs (both AAR and AABR).

*Fields*

FID: number assigned by ArcMap – irrelevant to the dataset but cannot be removed.

Shape: type of shapefile (polygons or points)

ID\_number: unique glacier ID assigned to each LGM glacier in this study.

Glacier\_Na: informal name of each glacier assigned to each LGM glacier in this study.

POLY\_AREA: glacier surface area (m2)

CENTROID\_X: x-coordinate of glacier center point (NAD 83 / Alaska Albers)

CENTROID\_Y: y-coordinate of glacier center point (NAD 83 / Alaska Albers)

ELA\_AAR: LGM ELAs calculated with AAR (m asl). Standard error of ± 66.5 m applies (Oien et al., 2021).

ELA\_AABR: LGM ELAs calculated with AABR (m asl). Standard error of ± 65.5 m applies (Oien et al., 2021).

**Files:** Alaska\_LIA\_glacier\_polygons.shp / Alaska\_LIA\_glacier\_points.shp

*Fields*

FID: number assigned by ArcMap – irrelevant to the dataset but cannot be removed.

Shape: type of shapefile (polygons or points)

ID\_number: unique glacier ID assigned to each LIA glacier in this study. The number refers to the LGM glacier catchment the LIA glacier is in, and the letters denote different LIA glaciers within that catchment.

Glacier\_Na: informal name of each glacier assigned to each LGM glacier in this study; the letters identify the various LIA glaciers within each LGM glacier catchment.

POLY\_AREA: glacier surface area (m2)

CENTROID\_X: x-coordinate of glacier center point (NAD 83 / Alaska Albers)

CENTROID\_Y: y-coordinate of glacier center point (NAD 83 / Alaska Albers)

ELA\_AAR: LIA ELAs calculated with AAR (m asl). Standard error of ± 66.5 m applies (Oien et al., 2021).

ELA\_AABR: LIA ELAs calculated with AABR (m asl). Standard error of ± 65.5 m applies (Oien et al., 2021).

**Files:** Alaska\_d\_ELA\_glacier\_polygons.shp / Alaska\_d\_ELA\_glacier\_pointss.shp

FID: number assigned by ArcMap – irrelevant to the dataset but cannot be removed.

Shape: type of shapefile (polygons or points)

ID\_number: unique glacier ID assigned to each LIA glacier in this study. The number refers to the LGM glacier catchment the LIA glacier is in, and the letters denote different LIA glaciers within that catchment.

Glacier\_Na: informal name of each glacier assigned to each LGM glacier in this study; the letters identify the various LIA glaciers within each LGM glacier catchment.

POLY\_AREA: glacier surface area (m2)

CENTROID\_X: x-coordinate of glacier center point (NAD 83 / Alaska Albers)

CENTROID\_Y: y-coordinate of glacier center point (NAD 83 / Alaska Albers)

1: average ELA\_LIA calculated with AAR (for LGM glacier catchments with multiple LIA glaciers; m asl).

2: ELA\_LIA AAR error (mean of LIA AAR ELAs for LGM catchments with multiple glaciers; otherwise, standard error of ± 66.5 m applies; Oien et al., 2021).

3: ∆ELA (ELA\_LIA – ELA\_LGM) for AAR ELAs

4: ∆ELA error for AAR calculated by adding LIA and LGM AAR ELA errors.

5: average ELA\_LIA calculated with AABR (for LGM glacier catchments with multiple LIA glaciers; m asl).

6: ELA\_LIA AABR error (mean of LIA AABR ELAs for LGM catchments with multiple glaciers; otherwise, standard error of ± 66.5 m applies; Oien et al., 2021).

7: ∆ELA (ELA\_LIA – ELA\_LGM) for AABR ELAs.

8: ∆ELA error for AABR calculated by adding LIA and LGM AABR ELA errors

**References**

Oien, R. P., Rea, B. R., Spagnolo, M., Barr, I. D., and Bingham, R. G.: Testing the area–altitude

balance ratio (AABR) and accumulation–area ratio (AAR) methods of calculating glacier equilibrium-line altitudes, Journal of Glaciology, 1-12, doi:10.1017/jog.2021.100, 2021.