Title: Dataset associated with “Aufeis as a Major Forcing Mechanism for Channel Avulsion and Implications of Warming Climate”

Abstract: Prompted by field observation of an aufeis-induced channel avulsion along the Hula Hula River in June 2021, we use measurements of channel migration zone width along 15 rivers flowing north across the Arctic coastal plain in Alaska, USA. We differentiated sites with aufeis that covered > 1 km2 in early summer during the period 2017-2021 from sites without such aufeis formation. All but 4 of the 28 sites with aufeis have widths greater than the 95% confidence interval and 20 sites fall outside of the 95% prediction interval for channel width based on drainage area. Pairwise comparison indicates that the population of aufeis sites have significantly wider channel migration zones ($p < 0.0001$) than non-aufeis sites after accounting for drainage area. Seasonal aufeis facilitates lateral channel migration and associated heterogeneity. Loss of aufeis under warming climate may reduce habitat diversity in these river corridors.

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Format of data files – .csv

Location where data were collected – Arctic coastal plain in Alaska: 68.54, -149.29

Time period during which data were collected – 2016-2022

File Information –

The dataset is a comma separated values (CSV) file that contains the basic data used in analyses:

- river name (River)
- reach number (Reach)
- channel migration zone width in meters (W_meters)
- latitude and longitude of each measurement site (lat, long)
- drainage area in km2 at each measurement site (DA_km)
- indication of presence/absence of persistent aufeis accumulation (Aufeis)