

# Riverbank erosion forecasts for Huslia, Alaska (2020-2050)

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## Overview

Riverbank erosion can be observed and measured from satellite imagery. Analysis of high-resolution satellite imagery over the period 2016-2022 reveals erosion rates of 0 to 40 feet per year along the Koyukuk River near Huslia, Alaska (Figure 1). Here, we extrapolate the erosion rates measured over the period 2016-2022 to make preliminary erosion forecasts for 2030, 2040, and 2050. These erosion forecasts should be viewed only as a reasonable guess—rather than certain predictions—since they rely on the assumption that the river behaves in the same way over the next 30 years as it has behaved over the last 5–10 years.

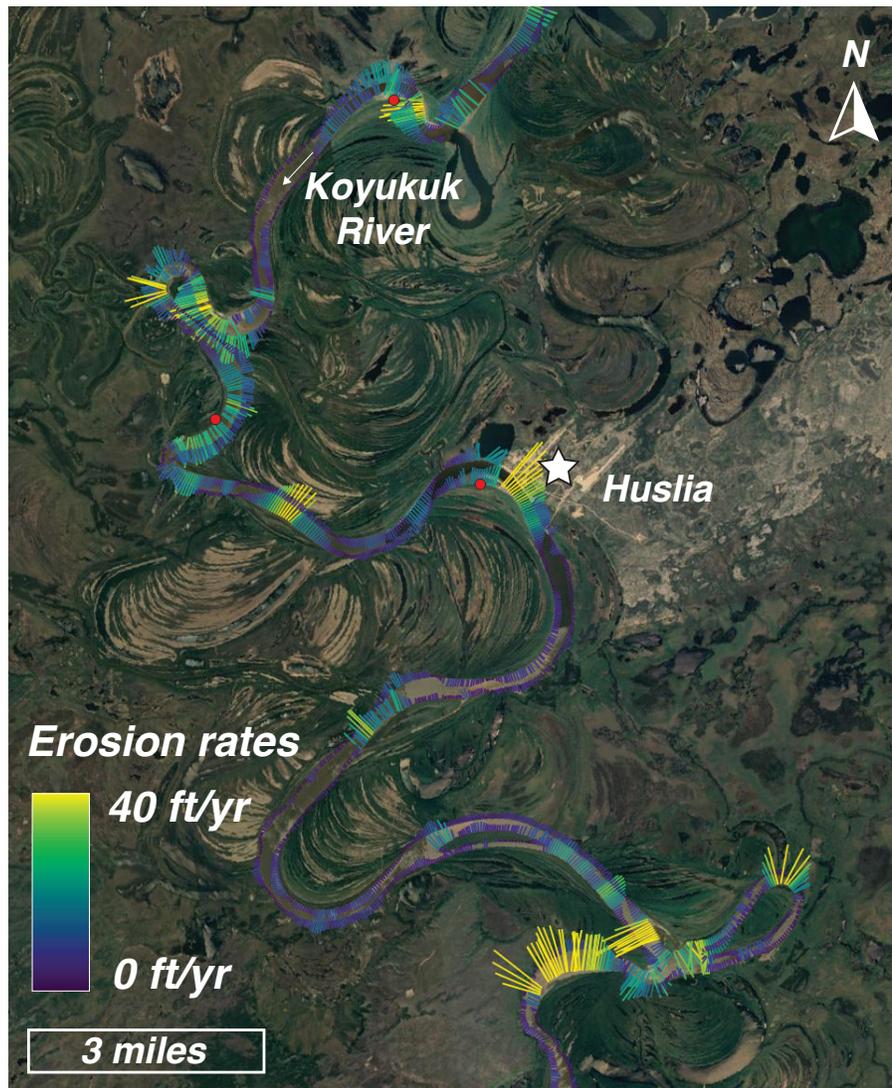


Fig. 1: Average riverbank erosion rates along the Koyukuk River near Huslia, Alaska. The erosion rates are measured from satellite imagery over the interval 2016-2022<sup>1,2</sup>.

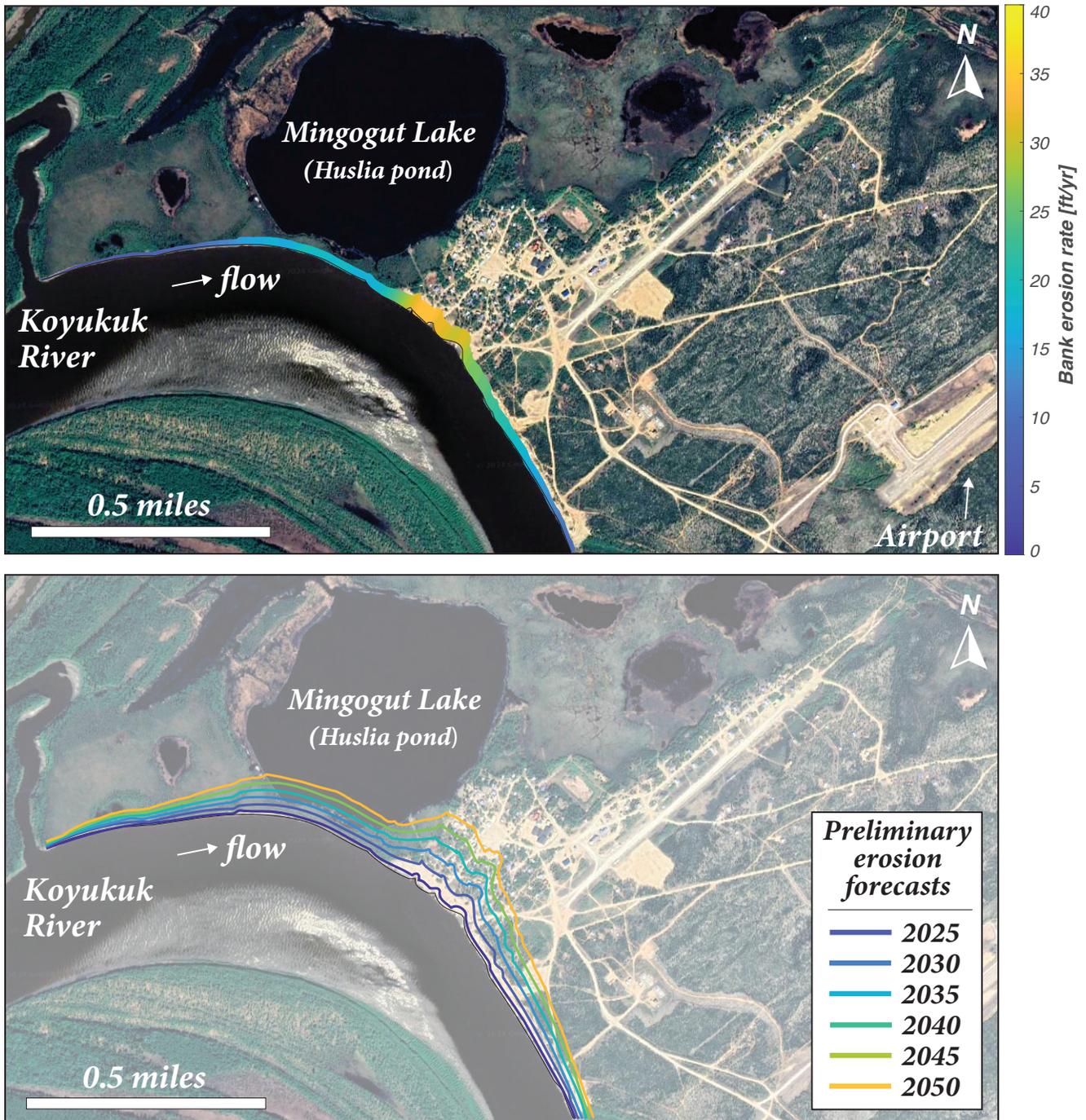


Fig. 2: Riverbank erosion rates along the Koyukuk River next to the town of Huslia, Alaska. The erosion rates are measured from satellite imagery over the interval 2016-2022<sup>1,2</sup>. We extrapolate the modern erosion rates to make preliminary estimates for the riverbank position from 2025-2050. At the location of maximum erosion, the bank is retreating at a rate of approximately 33 feet per year.

## References

- [1]. Geyman, E. *et al.* Quantifying river migration rates in the Yukon River Watershed from optical satellite imagery. *Arctic Data Center* (doi: 10.18739/A2WW7719J) (2024).
- [2]. Geyman, E. C., Douglas, M. M., Avouac, J.-P. & Lamb, M. P. Permafrost slows Arctic riverbank erosion. *Nature* **634**, 359–365 (2024).