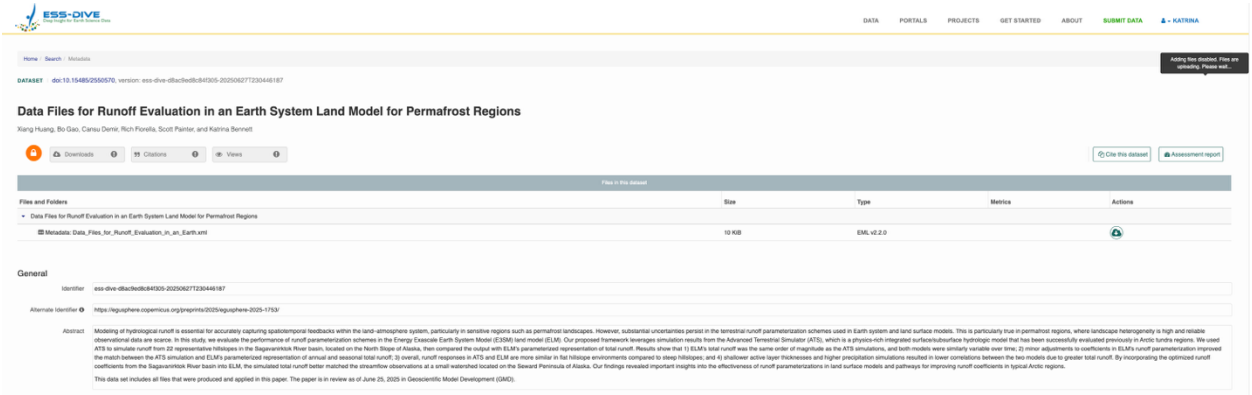
Code and data availability

All data sets used in this work are archived at the Environmental System Science Data Infrastructure for a Virtual Ecosystem (ESS-DIVE). ERA5 forcing data to run the ELM model can be downloaded from the ECMWF Climate Data Store: https://cds.climate.copernicus.eu/datasets/reanalysis-era5-single-levels?tab=overview. ATS forcings data can be retrieved from Daymet version 4 dataset (Thornton et al., 2020). ELM and ATS data sets are archived here: https://doi.org/10.15485/2550570. Streamflow data was derived from Busey et al. (2019): Surface Water: Stage, Temperature and Discharge, Teller Road Mile Marker 27, Seward Peninsula, Alaska, beginning 2016. Next-Generation Ecosystem Experiments (NGEE) Arctic, ESSDIVE repository. Dataset. https://doi.org/10.5440/1618330. The description and codes of E3SM v3.0 (including ELM v3.0) are publicly available at https://www.osti.gov/doecode/biblio/123310 (E3SM Project, 2024).



Huang X ; Gao B ; Demir C ; Fiorella R ; Painter S ; Bennett K (2025): Data Files for Runoff Evaluation in an Earth System Land Model for Permafrost Regions. Next-Generation Ecosystem Experiments (NGEE) Arctic, ESS-DIVE repository. Dataset. doi:10.15485/2550570 accessed via https://data.ess-dive.lbl.gov/datasets/doi:10.15485/2550570 on 2025-06-27

Busey B ; Wales N ; Newman B ; Wilson C ; Bolton B (2019): Surface Water: Stage, Temperature and Discharge, Teller Road Mile Marker 27, Seward Peninsula, Alaska, 2016-2021. Next-Generation Ecosystem Experiments (NGEE) Arctic, ESS-DIVE repository. Dataset. https://doi.org/10.5440/1618330.

DOE Code Repository Software Policy

https://www.osti.gov/doecode/policy