

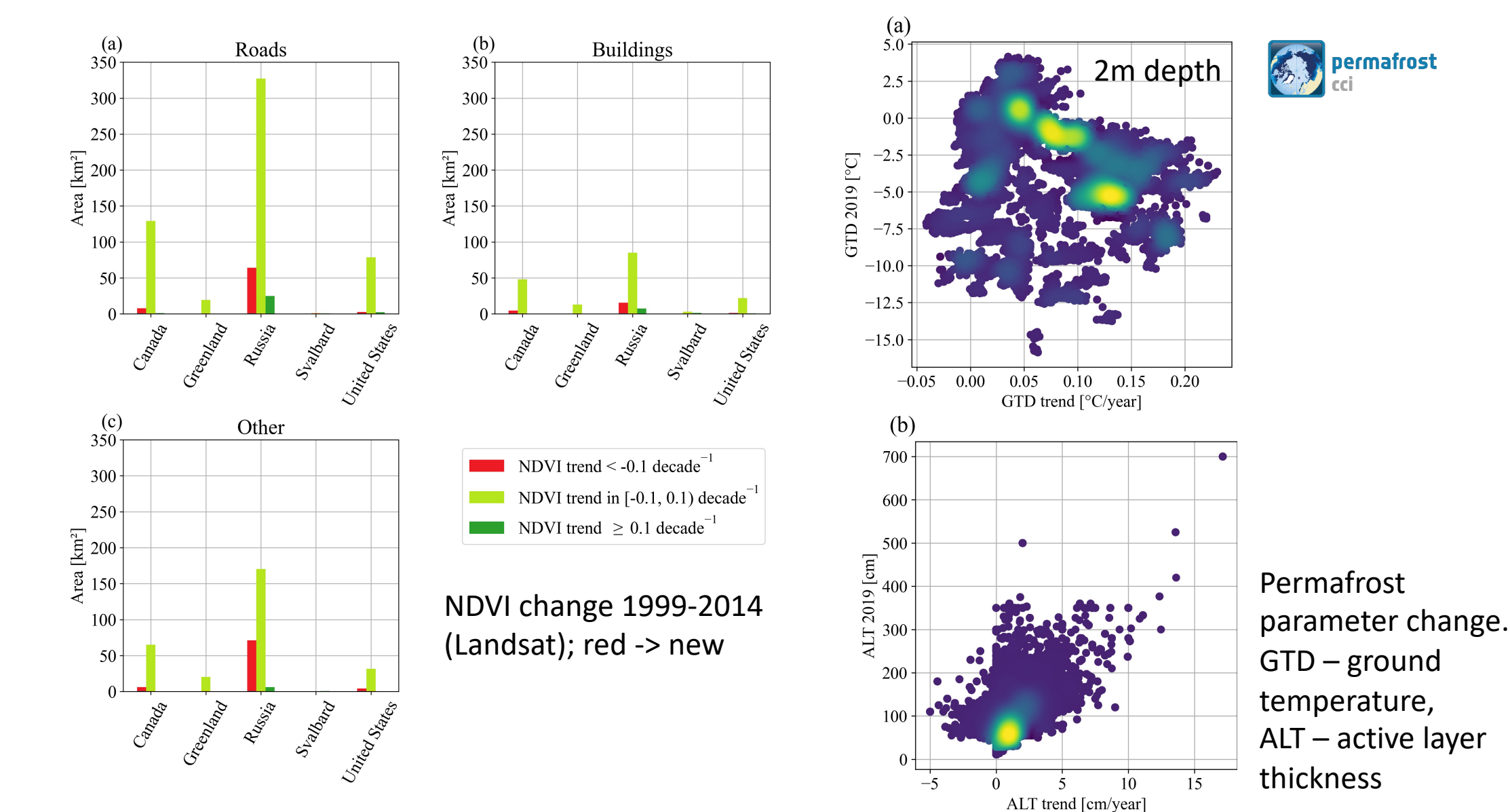
Recent industrial development across the Arctic as visible from space

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The SACHI (Sentinel-1/2 derived Arctic Coastal Human Impact) dataset has been primarily developed as part of the HORIZON2020 project Nunataryuk. It covers a 100km buffer from the Arctic Coast (land area), for areas with permafrost near the coast. It is based on Sentinel-1 and Sentinel-2 data from 2016-2020 using the algorithms described in Bartsch et al. (2020). It is a supplement to Bartsch et al. (2021)

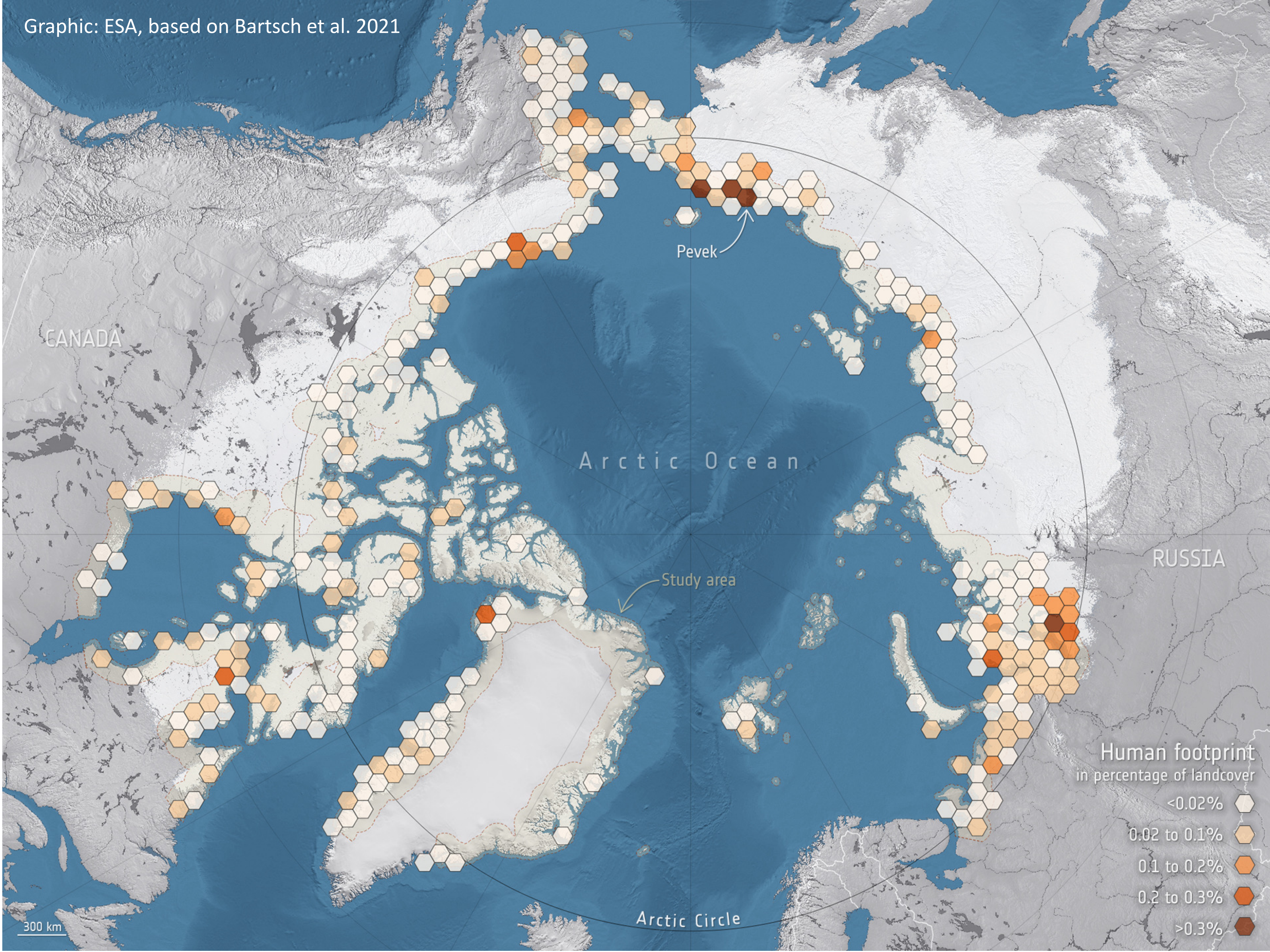


SACHI includes polygons of all identified objects with infrastructure/impact classes and auxiliary information

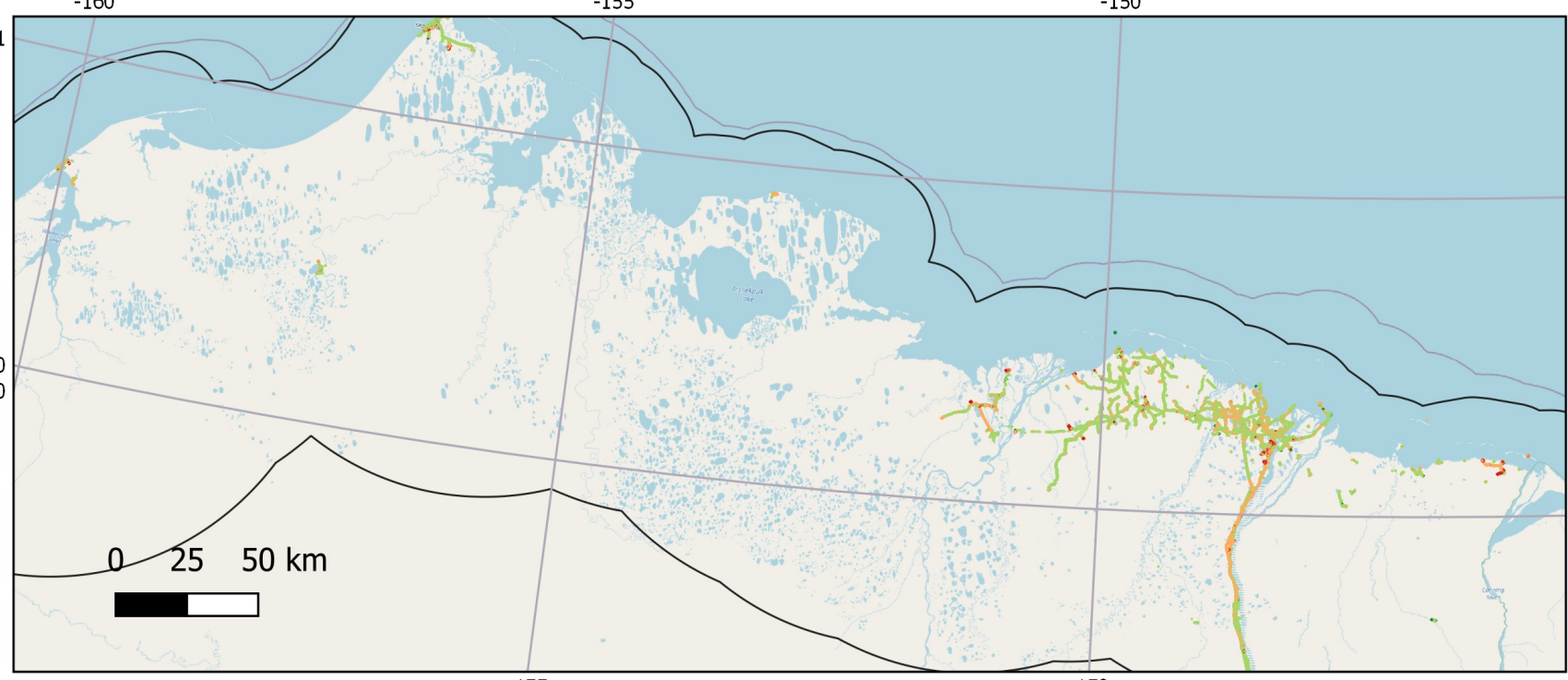
- permafrost status and trends,
- nightlight radiance,
- vegetation zone,
- Normalized Difference Vegetation Index trends,
- settlement names (closest known, max 40 km distance; incl. land use/industry type)

SACHI class values:

- 1=linear transport infrastructure,
- 2=buildings (and other constructions such as bridges),
- 3=other impacted area (includes gravel pads, mining sites)



NDVI change, Alaskan North Slope



Night-time lights (in nWcm-2sr-1; extracted from Elvidge et al. 2021), Alaskan North Slope, PBO

