Dataset and code on classification of artificial light sources

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The purpose of this activity is twofold: first, to examine sources of nighttime artificial light emissions in arctic regions and their trends, and second to provide a demonstration of the use of the "Radiance Light Trends" web application developed in the iCUPE project GEOEssential.

The dataset consists of a classified list of the types and positions of major light sources in the Yamal Peninsula in Western Siberia. Further details are available in the report by Beamish et al.

That report also includes figures showing trends in the number and area of individual light sources in the whole Arctic region (e.g. Figure 1). The data publication includes a python routine that can be used to replicate the results.

References

Beamish, A., Kyba, C., Coesfeld, J., Chabrillat, S., Salzano, R., Salvatori, R., 2020: Deliverable 3.2.1: A technical report on the assessment of the capabilities and limitations of advanced optical satellite missions for snow, vegetation, and gas flaring mapping applications in Arctic areas. ttps://doi.org/10.2312/GFZ.1.4.2020.001

Kyba, C.C.M., 2019: Online artificial light trends analysis tool, http://www.geoessential.eu/wp-content/uploads/2019/10/GEOEssential-D5.4-Final.pdf

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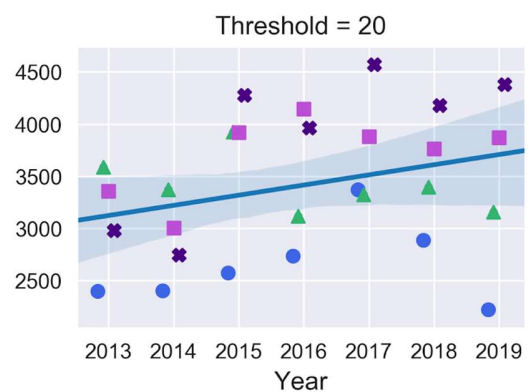
Figure 1: *Total number of sites detected with light emissions above a threshold of 20 nW/cm^{2}sr during 2012-2019. Additional plots in the report.*