

aava_barrow_vsloan_2014_readme_metadata.txt

AAVA readme file for Barrow Department of Energy (DOE) Next-Generation Ecosystem Experiment (NGEE) Arctic (May 2, 2017)

Dataset Title: Alaska Arctic Vegetation Archive: Barrow DOE NGEE-Arctic

Dataset Author: Victoria L. Sloan

Alaska Arctic Vegetation Archive Dataset Name: barrow_vsloan (BRW_VS)

Dataset Description:

As part of a larger study to understand the structure and function of Arctic terrestrial ecosystems response to climate change, 48 vegetation study plots were established at the Barrow Environmental Observatory, NGEE Intensive Sampling Site 1, Areas A-D. Species cover and plot specific environmental data were recorded in 2012.

Vegetation plots are subjectively located in homogenous plant communities located along 2 perpendicular transects. Plots were distinguished as to their location within polygon rims, troughs or edges. The plots occur in four plant communities that occur in 3 habitat types including: 1) Coastal moist tundra - *Carex* stans, *Saxifraga cernua* communities (16 plots), 2) Dry coastal rush tundra (*Luzula confusa*) (4 plots), and 3) Wet nonacidic tundra *Carex* spp., *Eriophorum* spp.-*Amblystegiaceae* communities (28 plots).

Plots are 1 x 1 m with the corners permanently marked with white-1-inch PVC tubing. The canopy was assumed to have two layers i.e., the sum of vascular plant species coverage was 100 percent and the sum of moss/lichen coverage and bare ground were 100 percent.

These data were provided by the author (Victoria L. Sloan) and are in part available online, along with additional data for the Barrow Intensive Sampling Site, via the NGEE-Arctic website.

References:

Iversen, C. M., Sloan, V. L., Sullivan, P. F., Euskirchen, E. S., McGuire, A. D., Norby, R. J., Walker, A. P., Warren, J. M. and Wulfschleger, S. D. 2015. The unseen iceberg: plant roots in arctic tundra. *New Phytol*, 205: 34-58. doi:10.1111/nph.13003

Langford, Z., J. Kumar, F.M. Hoffman, R.J. Norby, S.D. Wulfschleger, V.L. Sloan, C.M. Iversen. 2016. Mapping Arctic plant functional type distributions in the Barrow Environmental Observatory using WorldView-2 and LiDAR Datasets. *Remote Sensing* 8, 733. <http://>

dx.doi.org/10.3390/rs8090733

Sloan, V. L., J. D. Brooks, S. J. Wood, J. A. Liebig, J. Siegrist, C. M. Iversen, R. J. Norby. 2014a. Plant community composition and vegetation height, Barrow, Alaska, Ver. 1. Next Generation Ecosystem Experiments Arctic Data Collection (NGEE-Arctic), Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA. Data set accessed at <http://dx.doi.org/10.5440/1129476>

Sloan, V. L., J. A. Liebig, M. S. Hahn, J. B. Curtis, J. D. Brooks, A. Rogers, C. M. Iversen, and R. J. Norby. 2014b. Soil temperature, soil moisture and thaw depth, Barrow, Alaska, Ver. 1. Next Generation Ecosystem Experiments Arctic Data Collection (NGEE-Arctic), Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA. Data set accessed at <http://dx.doi.org/10.5440/1121134>

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Other contacts: Donald A. 'Skip' Walker dawalker@alaska.edu, 907-474-2460

Primary Agency: Oak Ridge National Laboratory, Next Generation Ecosystem Experiments-Arctic, Oak Ridge, Tennessee, USA

Direct Plot Archive Record Link: <http://agc.portal.gina.alaska.edu/catalogs/10674-alaska-arctic-vegetation-archive-barrow-doe-ng>

Data prepared by: Amy Breen (albreen@alaska.edu)

Link to VegBank Record: when available

Missing data: Indicated by '-9999' for numerical data and 'n/a' for categorical or text data

Files Available for Download:

1) AAVA Barrow DOE NGEE-Arctic Modified Source Data

1a) Barrow DOE NGEE-Arctic Species Cover
[aava_barrow_vsloan_2014_spp_modsrc.csv](#)
[aava_barrow_vsloan_2014_spp_modsrc.xlsx](#)

These files contain species cover data for the Barrow DOE NGEE vegetation plots in both (.csv) and (.xlsx) format. Victoria L. Sloan provided the species cover data. Cover classes are by percentage. Both the author's determination and the current taxonomy according to the Panarctic Species List (PASL) are listed. Taxa are listed in

alphabetical order according to the accepted PASL name. The plot numbers in the source data are the author's. Author plot numbers follow the pattern letter/number/letter and represent: letter (areas A–D in Intensive Study Site 1), number (plot number), and letter (where in the polygon the plot is located, C–center, E–edge, or T–trough). The main plot numbers in the Turboveg database are accession numbers and will differ.

1b) Barrow DOE NGEE–Arctic Environmental Data
aava_barrow_vsloan_2014_allenv_modsrc.csv
aava_barrow_vsloan_2014_allenv_modsrc.xlsx

These files contain modified environmental data for the Barrow DOE NGEE vegetation plots in both (.csv) and (.xlsx) format. These data were obtained from the author Victoria L. Sloan. The plot numbers in the source data are the author's. Author plot numbers follow the pattern letter/number/letter and represent: letter (areas A–D in Intensive Study Site 1), number (plot number), and letter (where in the polygon the plot is located, C–center, E–edge, or T–trough). The main plot numbers in the Turboveg database are accession numbers and will differ. The main plot numbers in the Turboveg database are accession numbers and will differ. The author's plot numbers are retained in the 'Field releve number' field in the Turboveg database.

Additions to the source data include: 1) habitat types which were assigned by D. A. 'Skip' Walker in 2016.

2) AAVA Barrow DOE NGEE–Arctic Turboveg Database
aava_barrow_vsloan_2014_tv.zip

This file is the Barrow (V. Sloan) Turboveg Database (.dbf). Turboveg is a software program for managing vegetation–plot data (see <http://www.synbiosys.alterra.nl/turboveg/>). The database includes both species cover and environmental header data. The header data for the database are consistent across all datasets in the AAVA. There are both required and recommended fields for inclusion in the AAVA. The species nomenclature used in the database is according to the Panarctic Species List created for the Arctic Vegetation Archive. The current data dictionary and PASL files are required for the correct use of this data in Turboveg. These files are updated periodically and available for download via 'Data and Resources' section of the data record.

Changes to the environmental and species data include: 1) elevation was rounded to the nearest meter, slope to the nearest degree, soil pH to the nearest tenth, and mean vegetation, shrub and herb heights to the nearest centimeter, and 2) Cover of plant functional types and soil, rock, water and litter were calculated in the office and are maintained in the modified source data files but not included in Turboveg which requires field estimates.

3) AAVA Barrow DOE NGEE-Arctic Ancillary Data

3a) Barrow NGEE Plot Location Map

aava_barrow_vsloan_2014_plotmap_anc.jpg

aava_barrow_vsloan_2014_plotmap_lidar_anc.pdf

These files include a plot location map on a LiDar source image (.pdf) provided by Dr. Craig Tweedie, and a second as an aerial photograph (.jpg) of the of the Barrow NGEE permanent vegetation plot locations.

3b) Barrow DOE NGEE-Arctic Plot Photos

aava_barrow_vsloan_2014_plotphotos_anc.pdf

This file (.pdf) contains plot photos of the Barrow NGEE permanent vegetation plots taken in 3 different months, June, July, and August of 2012.

3e) Barrow DOE NGEE-Arctic Publications

Iverson et al. 2015, and Langford et al. 2016 are available from their respective publication sources.

4) AAVA Barrow DOE NGEE-Arctic Metadata

aava_barrow_vsloan_2014_readme_metadata.pdf

aava_barrow_vsloan_2014_readme_metadata.txt

This is a metadata file provided in several formats (.txt and .pdf) specific to the Barrow DOE NGEE permanent vegetation dataset.

Modifications to environmental source data:

The table below in comma separated values format indicates the modifications made to source data in the preparation of the AAVA Barrow DOE NGEE-Arctic Modified Source Environmental Data files (aava_barrow_vsloan_2014_allenv_modsrc.csv and aava_barrow_vsloan_2014_allenv_modsrc.xlsx) and fields that were used to crosswalk these data to the Turboveg database (aava_barrow_vsloan_2014_tv.zip).

VARIABLE,IN ENVIRONMENTAL MODIFIED SOURCE DATA FILE,IN TURBOVEG FILE
AS THE SAME NAMED FIELD,DATA SOURCE AND CHANGES MADE TO DATA
TURBOVEG PLOT NUMBER,Y,Y,Turboveg assigned numbers.
FIELD PLOT NUMBER,Y,Y,Victoria Sloan pers. comm. Field plot numbers
are retained in Turboveg under 'field plot number.'
DATE,Y,Y,Victoria Sloan pers. comm.
RELEVE AREA (SQUARE METERS) ,Y,Y,Victoria Sloan pers. comm.
SHAPE,Y,Y,Victoria Sloan pers. comm.
SPECIES COVERSCALE,Y,Y,Victoria Sloan pers. comm.
FIELD COMMUNITY NAME,Y,Y,Victoria Sloan pers. comm.

AUTHOR,Y,Y,Victoria Sloan pers. comm.
LOCATION,Y,Y,Victoria Sloan pers. comm.
GEOREFERENCE SOURCE,Y,Y,Victoria Sloan pers. comm.
ACCURACY (M),Y,Y,Victoria Sloan pers. comm.
LATITUDE,Y,Y,Victoria Sloan pers. comm.
LONGITUDE,Y,Y,Victoria Sloan pers. comm.
ELEVATION (M),Y,Y,Victoria Sloan pers. comm. For Turboveg these data were rounded to the nearest meter.
SLOPE (DEGREES),Y,Y,Victoria Sloan pers. comm. For Turboveg these data were rounded to the nearest degree.
ASPECT (DEGREES),Y,Y,Victoria Sloan pers. comm.
HABITAT TYPE,Y,Y,Victoria Sloan pers. comm. Assigned by D. A. 'Skip' Walker in 2016.
SITE MOISTURE REGIME,Y,Y,Victoria Sloan pers. comm.
ORGANIC DEPTH (CM),Y,Y,Victoria Sloan pers. comm.
SOIL PH,Y,Y,Victoria Sloan pers. comm. For Turboveg these data were rounded to the nearest tenth.
COVER OF TREES (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.
COVER OF SHRUBS (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.
COVER OF TALL SHRUB (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.
COVER OF LOW SHRUB (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.
COVER OF DWARF SHRUB (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.
COVER OF PROSTRATE DWARF SHRUB (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.
COVER OF GRAMINOID (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.
COVER OF TUSSOCK GRAMINOID (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.
COVER OF FORB (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from

species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates. COVER OF SEEDLESS VASCULAR PLANTS (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.

COVER OF MOSS (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.

COVER OF LICHEN (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.

COVER OF SOIL CRUST (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.

COVER OF ALGAE (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.

COVER OF SOIL (PERCENT),Y,N,Victoria Sloan pers. comm. Turboveg standards require field estimates.

COVER OF ROCK (PERCENT),Y,N,Victoria Sloan pers. comm. Turboveg standards require field estimates.

COVER OF WATER (PERCENT),Y,N,Victoria Sloan pers. comm. Turboveg standards require field estimates.

COVER OF LITTER (PERCENT),Y,N,Victoria Sloan pers. comm. Turboveg standards require field estimates.

COVER VEGETATION (PERCENT),Y,N,Victoria Sloan pers. comm. Calculated from species cover in office and maintained in the modified source file. Not included in Turboveg as the standards require field estimates.

MEAN VEGETATION HEIGHT (CM),Y,Y,Victoria Sloan pers. comm. For Turboveg these data were rounded to the nearest centimeter.

SHRUB HEIGHT (CM),Y,Y,Victoria Sloan pers. comm. For Turboveg these data were rounded to the nearest centimeter.

HERB HEIGHT (CM),Y,Y,Victoria Sloan pers. comm. For Turboveg these data were rounded to the nearest centimeter.

POLYGON TYPE,Y,Y,Victoria Sloan pers. comm. In Turboveg 'Remarks' column.