

aava\_nsflux\_dwalker\_1995\_readme\_metadata.pdf

AAVA readme file for North Slope ARCSS/LAII Flux (1995–1996)  
Vegetation Plots (February 17, 2020)

Dataset Title: North Slope ARCSS/LAII Flux (1995–1996) Vegetation  
Plots

Dataset Author: Donald A. (Skip) Walker

Alaska Arctic Vegetation Archive Dataset Name:  
nsflux\_dwalker\_(NSFLUX\_DWALKER)

#### Dataset Description:

The vegetation and soils at the North Slope Arctic System Science/  
Land–Atmosphere–Ice Interactions ARCSS/LAII Flux tower sites of F. S.  
Chapin and W. Oechel on the North Slope of Alaska were described by D.

A. Walker, J. Bockheim, and C. L. Ping in 1995 and 1996. The primary  
source documents for this dataset are a collection of unpublished data  
for 29 plots by D. A. Walker. This project was funded by a National  
Science Foundation, Office of Polar Programs grant, OPP–9318530.

The 29 plots assessed occur within 6 broad habitat types including: 1)  
willow shrub vegetation of riparian areas and warm habitats (4 plots),  
2) wet nonacidic tundra (2 plots), 3) bog vegetation, acidic mires  
including tussock tundra (11 plots), 4) ruderal community on loamy  
soil (1 plot), 5) dry to moist dwarf–shrub heath and low shrub  
vegetation on acidic nutrient poor substrates (3 plots), and 6) dry  
and mesic dwarf–shrub and graminoid vegetation on non–acidic  
substrates (8 plots).

Nineteen North Slope ARCSS/LAII flux tower sites were established in  
1995. Sites were 100 x 100–meter square, marked in the field with air  
photo panels and 4–foot lath. At most of the flux tower sites, one or  
more plots, including plant species cover and environmental data, were  
recorded for the major vegetation types using the Braun–Blanquet  
approach. During this study, vegetation plots were not established at  
Tower Site 6 (Toolik Lake) or Site 12 (W. Oechel's flux–tower site at  
Betty Pingo) however growth form data transect growth form data is  
available. GPS coordinates were obtained for most of the plots. At  
each study site, one to four 1 x 1 x 1–meter soil pits were excavated,  
and detailed soil descriptions were made. In addition, six transects  
(four 50–meter and two 70–meter transects) that radiated from the  
center point of the plot were marked with wire flags spaced at 5–meter  
intervals. Plant species composition and vegetation height were  
sampled with a Buckner optical device along the six transects at  
1.meter intervals.

Although the details of the vegetation studies were not published independently, the studies contributed to numerous papers published in a special section of the Journal of Geophysical Research (Kane and Reeburgh 1998) listed below.

Reference:

Kane, D. L. and D. S. Reeburgh. 1998. Reprint from the Journal of Geophysical Research. American Geophysical Union, Washington D.C., 106:28,913-29,093 (ISBN: 0-87590-923-X) ([http://www.geobotany.org/library/pubs/KaneDL1998\\_jgra\\_103\\_28913.pdf](http://www.geobotany.org/library/pubs/KaneDL1998_jgra_103_28913.pdf)).

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Primary Agency: Alaska Geobotany Center, University of Alaska Fairbanks

Direct Plot Archive Record Link: <http://geobotanical.portal.gina.alaska.edu/catalogs/11487-alaska-arctic.vegetation-archive-north-slope-f>

Data prepared by: Anja Kade ([ankade@alaska.edu](mailto:ankade@alaska.edu)) and Amy Breen ([albreen@alaska.edu](mailto: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 North Slope ARCSS/LAII Flux Modified Source Data

1a) North Slope ARCSS/LAII Flux Species Cover  
[aava\\_nsflux\\_dwalker\\_1995\\_spp\\_modsrc.csv](#)  
[aava\\_nsflux\\_dwalker\\_1995\\_spp\\_modsrc.xlsx](#)

These files contain species cover data for the North Slope ARCSS/LAII Flux plots in both .csv and .xlsx format. The source of these data, collected by D. A. Walker are from unpublished datasheets. Species cover classes are the old Braun-Blanquet cover-abundance scale: r (rare), + (common, but less than 1 percent cover), 1 (1-5 percent), 2 (6 to 25 percent), 3 (26 to 50 percent), 4 (51 to 75 percent), and 5 (76 to 100 percent). 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. The main plot numbers in the Turboveg database are accession numbers and will

differ. The author's plot numbers are retained in the 'Field plot number' field in the Turboveg database. During this study, vegetation plots were not established at Tower Site 6 (Toolik Lake) or Site 12

(W. Oechel's flux-tower site at Betty Pingo) however growth form data transect growth form data is available.

#### 1b) AAVA North Slope ARCSS/LAII Flux Environmental Data

aava\_nsflux\_dwalker\_1995\_allenv\_modsrc.csv

aava\_nsflux\_dwalker\_1995\_allenv\_modsrc.xlsx

These files contain modified environmental data for the North Slope ARCSS/LAII Flux vegetation plots (see 1a) above) in both .csv and .xlsx format. The source of these data are unpublished data records by D.A. Walker. The plot numbers in the source data are the author's. The main plot numbers in the Turboveg database are accession numbers and will differ. The author's plot numbers are retained in the 'Field plot number' field in the Turboveg database. The codes used in this file are in the Legend for Environmental Variables file in the project metadata folder (aava\_nsflux\_dawalker\_1995\_envlegend\_metadata.pdf).

Changes to the data include: 1) converting latitude and longitude measurements from decimal, minute, seconds to decimal degrees, 2) latitude and longitude accuracy estimates were made in consultation with the author, and 3) the conversion of elevation in feet to meters.

#### 2) AAVA North Slope ARCSS/LAII Flux Turboveg Database

aava\_nsflux\_dwalker\_1995\_tv.zip

This file is the North Slope ARCSS/LAII Flux 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. Consequently, only a subset of the modified source environmental data are included in the database and these may be cross-walked to the AAVA data dictionary. 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 these data in Turboveg. These files are updated periodically and available for download via 'Data and Resources' section of the data record.

For the cross-walk from the source data to the Turboveg database, we made the following changes: 1) Braun-Blanquet species functional cover

code values of + and r in the biotic data were changed to 1 percent as the database requires an whole number, and 2) plant functional cover values of less than 1 percent were also changed to 1 percent for the Turboveg database, and 3) the original data included percent cover values for deciduous and evergreen shrubs, which were summed to get a total percentage shrub cover. Habitat types were assigned by D. A. 'Skip' Walker in 2013, modified by Jozef Sibik and D. A. 'Skip' Walker in 2016, and modified again by Sibik and Walker in November 2019. All habitat type code changes are documented in the modified source environmental data file for the project. A history of habitat type code changes is detailed in a metadata folder titled 'Habitat\_type\_history\_metadata\_2013-2019.'

#### AAVA North Slope ARCSS/LAII Flux Ancillary Data

##### 3a) North Slope ARCSS/LAII Flux Growth Form Summaries

aava\_nsflux\_dwalker\_1995\_growthforms\_anc.csv  
aava\_nsflux\_dwalker\_1995\_growthforms\_anc.xlsx

These files summarize the point-count data along transects within each study grid by growth form. Cover values are given for both live and dead vegetation.

##### 3b) North Slope ARCSS/LAII Flux Study Plot Location Map

aava\_nsflux\_dwalker\_1995\_plotmap\_anc.pdf

This map shows the North Slope ARCSS/LAII Flux Study vegetation plots. Plot 19 is not depicted as the GPS coordinates were not available.

##### 3c) North Slope ARCSS/LAII Flux CIR Imagery

aava\_nsflux\_dwaker\_1995\_aerialphotolog.pdf

This .pfd file contains a photolog of the aerial color infrared images (scale 1:3000) for many of the study sites. Sites 11, 12, 17, 18 and 19 were not photographed from the air. The file aava\_nsflux\_dwalker\_1995\_cir\_images-plot\_num\_anc.xlsx (and .csv) give a crosswalk between plot numbers and study sites. The actual location of vegetation plots is not marked on the aerial photograph images.

##### 3d) North Slope ARCSS/LAII Flux 1995 Soil Data

aava\_nsflux\_dwalker\_1995\_soildescript\_anc.pdf

This file is a compilation of written data sheets that contain the field soil descriptions for the 1995 North Slope ARCSS/LAII Flux Study sites.

##### 3e) North Slope ARCSS/LAII Flux 1995 Field Summary

aava\_nsflux\_dwalker\_1995\_fieldsummary\_anc.pdf

This file is a summary dated 12 September 1995 detailing fieldwork

completed during the period 12–26 August 1995.

4) AAVA North Slope ARCSS/LAII Flux Metadata  
aava\_nsflux\_dwalker\_1995\_readme\_metadata.pdf  
aava\_nsflux\_dwalker\_1995\_readme\_metadata.txt  
aava\_nsflux\_dwalker\_1995\_envlegend\_metadata.pdf  
aava\_nsflux\_dwalker\_1995\_envlegend\_metadata.doc  
Folder: Habitat\_type\_history\_metadata\_2013–2019

These files are metadata for the North Slope ARCSS/LAII Flux Study vegetation plots and include a readme file and metadata legend for the modified environmental data that are specific to this dataset. Habitat types changed during the course of the project through review and analysis. A history of these changes is included in the metadata folder titled 'Habitat\_type\_history\_metadata\_2013–2019.'

Modifications to environmental source data:

The table below in comma-separated value format indicates the modifications made to source data in the preparation of the AAVA North Slope ARCSS/LAII Flux Study Modified Source Environmental Data files (aava\_nsflux\_dwalker\_1995\_allenv\_modsrc.csv and aava\_nsflux\_dwalker\_1995\_allenv\_modsrc.xlsx) and fields that were used to crosswalk these data to the Turboveg database (aava\_nsflux\_dwalker\_1995\_tv.zip).

VARIABLE, IN MODIFIED SOURCE ENVIRONMENTAL DATA FILE, IN TURBOVEG FILE, SOURCE AND CHANGES MADE TO DATA  
RELEVE NUMBER, Y, Y, North Slope ARCSS/LAII flux study field datasheets.  
DATE, Y, Y, North Slope ARCSS/LAII flux study field datasheets.  
OBSERVER, Y, N, North Slope ARCSS/LAII flux study field datasheets.  
VEGETATION, Y, N, North Slope ARCSS/LAII flux study field datasheets.  
STUDY AREA DESCRIPTION, Y, N, North Slope ARCSS/LAII flux study field datasheets. Used these descriptors for Turboveg's 'location' field.  
WEATHER, Y, N, North Slope ARCSS/LAII flux study field datasheets.  
LATITUDE (WGS 84), Y, Y, North Slope ARCSS/LAII flux study field datasheets. Changed decimal minute seconds to decimal degrees WGS 84 for Turboveg.  
LONGITUDE (WGS 84), Y, Y, North Slope ARCSS/LAII flux study field datasheets. Changed decimal minute seconds to decimal degrees WGS 84 for Turboveg.  
ELEVATION (M), Y, Y, North Slope ARCSS/LAII flux study field datasheets. Changed feet to meters for 1996 data set.  
PH (PASTE), Y, Y, North Slope ARCSS/LAII flux study field datasheets. Note that pH values are from the surface of the mineral horizon.  
LANDFORMS (CODE), Y, N, North Slope ARCSS/LAII flux study field datasheets.  
SURFICIAL GEOLOGY (CODE), Y, Y, "North Slope ARCSS/LAII flux study field datasheets. Plots 96–13 originally recorded as 6 and 14 (undifferentiated hill slope colluvium and eolian deposit), retained 6 for Turboveg."

SURFICIAL GEOMORPHOLOGY (CODE),Y,N, North Slope ARCSS/LAII flux study field datasheets.

SITE MOISTURE (SCALAR),Y,Y, North Slope ARCSS/LAII flux study field datasheets.

SOIL MOISTURE (SCALAR),Y,N, North Slope ARCSS/LAII flux study field datasheets.

GLACIAL GEOLOGY (CODE),Y,N, North Slope ARCSS/LAII flux study field datasheets.

TOPOGRAPHIC POSITION (CODE),Y,Y, North Slope ARCSS/LAII flux study field datasheets.

ESTIMATED SNOW DURATION (SCALAR),Y,N, North Slope ARCSS/LAII flux study field datasheets.

STABILITY (SCALAR),Y,N, North Slope ARCSS/LAII flux study field datasheets.

EXPOSURE SCALE (SCALAR),Y,N, North Slope ARCSS/LAII flux study field datasheets.

ASPECT,Y,Y, North Slope ARCSS/LAII flux study field datasheets.

SLOPE (DEGREES),Y,Y,"North Slope ARCSS/LAII flux study field datasheets. Converted 'flat' to -1, too flat to determine for Turboveg."

DECIDUOUS SHRUB COVER (PERCENT),Y,N, North Slope ARCSS/LAII flux study field datasheets. Used sum of deciduous and evergreen shrub cover for Turboveg's 'cover shrub layer percent'

EVERGREEN SHRUB COVER (PERCENT),Y,N, North Slope ARCSS/LAII flux study field datasheets. Used sum of deciduous and evergreen shrub cover for Turboveg's 'cover shrub layer percent.'

FORB COVER (PERCENT),Y,Y,"North Slope ARCSS/LAII flux study field datasheets. Plots 95-FT-1a, -1b, -2a, -2b, -3b, -3c, -4, -5b, -7a, -7c, -8, -10b originally recorded as +; changed to 1 percent for Turboveg. Plots 96-13, 96-14a, 96-17a, 96-19 originally recorded as less than 1 percent; changed to 1 percent for Turboveg."

GRAMINOID COVER (PERCENT),Y,Y,"North Slope ARCSS/LAII flux study field datasheets. Plots 95-FT-3b, 95-FT-5a, 95-FT-10a originally recorded as +; changed to 1 percent for Turboveg. Plot 96-18 originally recorded as less than 1 percent; changed to 1 percent for Turboveg."

MOSS COVER (PERCENT),Y,Y,"North Slope ARCSS/LAII flux study field datasheets. Plots 95-FT-3b, 95-FT-5a originally recorded as +; changed to 1 percent for Turboveg. Plot 96-17b originally recorded as less than 1 percent; changed to 1 percent for Turboveg."

LICHEN COVER (PERCENT),Y,Y,"North Slope ARCSS/LAII flux study field datasheets. Plots 95-FT-3b, -3c, -4, -7a, -11 originally recorded as +; changed to 1 percent for Turboveg. Plots 96-15, 96-17a, 96-17b, 96-19 originally recorded as less than 1 percent; changed to 1 percent for Turboveg."

ROCK COVER (PERCENT),Y,Y, North Slope ARCSS/LAII flux study field datasheets.

BARE SOIL COVER (PERCENT),Y,Y,"North Slope ARCSS/LAII flux study field datasheets. Plots 95-FT-1a, 95-FT-4, 95-FT-11 originally recorded as +; changed to 1 percent for Turboveg. Plot 96-19 originally recorded as less than 1 percent; changed to 1 percent for Turboveg."

WATER COVER (PERCENT),Y,Y,"North Slope ARCSS/LAII flux study field datasheets. Plot 95-FT-7c originally recorded as +; changed to 1 percent for Turboveg. Plots 96-13, 96-19 originally recorded as less than 1 percent; changed to 1 percent for Turboveg."

MEAN MAXIMUM SHRUB HEIGHT (CM),Y,Y, North Slope ARCSS/LAII flux study field datasheets. Used these values for Turboveg's 'mean shrub layer height cm.'

HABITAT TYPE 2013-2016 (CODE),Y,N,Habitat types assigned for Turboveg by D. A. 'Skip' Walker.

HABITAT TYPE 2016-2018 (CODE),Y,N,Turboveg habitat types modified by Jozef Sibik and D. A. 'Skip' Walker.

HABITAT TYPE 20191113 (CODE),Y,Y,Turboveg habitat types modified by Jozef Sibik and D. A. 'Skip' Walker.