NGEE Arctic Leaf Spectral Reflectance, Barrow, Alaska 2013

Record_id: NGA158

Review and follow the current NGEE Data and Fair-Use Policies prior to using these data (http://ngee-arctic.ornl.gov/content/ngee-arctic-data-management-policies-and-plans).

Summary

Measurements of full-spectrum (i.e. 350-2500 nm) leaf spectral reflectance of 9 Arctic plant species within the BEO, Barrow, Alaska. Spectra were collected using an ASD Field Spec 3 full range spectroradiometer with a leaf clip assembly attached to a plant probe with an internally calibrated light source. Data were collected in July 2013, and sample LMA, N content and chlorophyll content are available in related datasets.

Species measured - *Arctophila fulva*, *Arctagrostis latifolia*, *Carex aquatilis*, *Dupontia fisheri*, *Eriophorum angustifolium*, *Petasites frigidus*, *Salix pulchra*, *Vaccinium vitis-idaea*, and *Saxifraga punctata*.

Samples collected in vegetation plots and outside vegetation plots over an area of approximate 1 km2 centered at 71.275 degrees N, 156.641 degrees W.

Please use this citation to reference the data.

Shawn Serbin, Alistair Rogers, Jennifer Liebig. 2018. NGEE Arctic Leaf Spectral Reflectance, Barrow, Alaska 2013. Next Generation Ecosystem Experiments Arctic Data Collection, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tennessee, USA. Dataset accessed on [insert_date] at https://doi.org/10.5440/1441203.

Related Datasets

Alistair Rogers, Stefanie Lasota, Kim Ely, Shawn Serbin, Victoria Sloan, Ingrid Slette, Jennifer Liebig. 2018. Leaf Chlorophyll and Total Carotenoid Content, Barrow, Alaska, 2013-2015. Next Generation Ecosystem Experiments Arctic Data Collection, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tennessee, USA. Dataset accessed on [insert_date] at https://doi.org/10.5440/1429875.

Alistair Rogers, Kim Ely, Shawn Serbin, Stefanie Lasota, Wil Lieberman-Cribbin. 2017. Leaf Mass Area, Leaf Carbon and Nitrogen Content, Barrow, Alaska, 2012-2016. Next Generation Ecosystem Experiments Arctic Data Collection, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tennessee, USA. Dataset accessed on [insert_date] at https://doi.org/10.5440/1336812.

Data Characteristics

Data File

Leaf_Spectra_Barrow_2013.csv

Documentation File

Leaf_Spectral_Reflectance_Barrow_2013_user_guide

Location	Barrow Environmental Observatory, Barrow, AK, USA
Latitude	71.275N
Longitude	156.641W
Altitude	5-10 m ASL

Data summary	
Number of records	69
Date from	2013-07-25
Date to	2013-07-25

Data Dictionary

Leaf_Spectra_Barrow_2013.csv

column_name	units/format	Description
Sample_ID		Sample tracking barcode (BNL internal use only)
USDA_Species		See table for definitions
Spectra		Spectra file name
Wave_xxxx (Columns 4- 2154)	**nm**	Reflectance ratio (0-1) for each interpolated wavelength 350-2500 nm

Example Data Records:

Sample_ID,USDA_Species,Spectra,Wave_350,Wave_351,Wave_352,Wave_353,Wave_354,
[…]
Wave_2491,Wave_2492,Wave_2493,Wave_2494,Wave_2495,Wave_2496,Wave_2497,Wave_2498,Wave_2499,Wave_2500

Data Acquisition Materials and Methods

Instrument
ASD Field Spec 3 full range spectroradiometer with a leaf clip assembly attached to a plant probe with an internally calibrated light source.

References

Sloan VL, Brooks JD, Wood SJ, Liebig JA, Siegrist J, Iversen CM, Norby RJ. 2014. Plant community composition and vegetation height, Barrow, Alaska, Ver. 1. Next Generation Ecosystem Experiments Arctic Data Collection, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tennessee, USA. Dataset accessed on [insert_date] at https://doi.org/10.5440/1129476.

USDA, NRCS. 2017. The PLANTS Database (http://plants.usda.gov). National Plant Data Team, Greensboro, NC 27401-4901 USA.

Supplemental Files

Plant species identification resources, plant functional type groupings, vegetation plot diagram and vegetation plot locations are found in Sloan, et. al., 2014.

USDA species code from the USDA PLANTS Database.

USDA_Species_Code	Species	Citation	Common_Name	PFT	Link
ARFU2	*Arctophila fulva*	(Trin.) Andersson	Pendantgrass	wet tundra graminoid	http://plants.usda.gov/core/profile?symbol=arfu2
ARLA2	*Arctagrostis latifolia*	(R.Br.) Griseb.	Wideleaf polargrass	dry tundra graminoid	http://plants.usda.gov/core/profile?symbol=ARLA2
CAAQ	*Carex aquatilis*	Wahlenb.	Water sedge	wet tundra graminoid	http://plants.usda.gov/core/profile?symbol=CAAQ
DUFI	*Dupontia fisheri*	R.Br.	Fisher's tundragrass	wet tundra graminoid	http://plants.usda.gov/core/profile?symbol=DUFI
ERAN6	*Eriophorum angustifolium*	Honck.	Tall cottongrass	wet tundra graminoid	http://plants.usda.gov/core/profile?symbol=ERAN6
PEFR5	*Petasites frigidus*	(L.) Fr.	Arctic sweet coltsfoot	forb	http://plants.usda.gov/core/profile?symbol=PEFR5
SAPU15	*Salix pulchra*	Cham.	Tealeaf willow	deciduous shrub	http://plants.usda.gov/core/profile?symbol=SAPU15
VAVI	*Vaccinium vitis-idaea*	L.	lignonberry	evergreen shrub	http://plants.usda.gov/core/profile?symbol=VAVI
SAPU6	*Saxifraga punctata*	L.	dotted saxifrage	forb	USDA code may not reflect correct subspecies, listing in ThePlantList

Data Access

Disclaimer of Liability

Data and documents available from the NGEE Arctic web site (http://ngee.ornl.gov/) were prepared as an account of work sponsored by an agency of the U.S. Government. Neither the U.S. Government nor any agency thereof, or any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or

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