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Volume 128

BOREAS TE-1 SSA-Fen Soil Profile Nutrient Data

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BOREAS TE-1 SSA-Fen Soil Profile Nutrient Data

Darwin Anderson, Andrea Papagno

Summary

The BOREAS TE-1 team collected various data to characterize the soil-plant systems in the BOREAS SSA. Particular emphasis was placed on nutrient biochemistry, the stores and transfers of organic carbon, and how the characteristics were related to measured methane fluxes. The overall transect in the Prince Albert National Park (Saskatchewan, Canada) included the major plant communities and related soils that occurred in that section of the boreal forest. Soil physical, chemical, and biological measurements along the transect were used to characterize the static environment, which allowed them to be related to methane fluxes. Chamber techniques were used to provide a measure of methane production/uptake. Chamber measurements coupled with flask sampling were used to determine the seasonality of methane fluxes. This particular data set contains soil profile measurements of various nutrients at the SSA-Fen site. The data were collected from 23-May to 21-Oct-1994. The data are stored in tabular ASCII files.

Table of Contents

1. Data Set Overview

1.1 Data Set Identification

BOREAS TE-01 SSA-Fen Soil Profile Nutrient Data

1.2 Data Set Introduction

This data set contains soil profile measurements of various nutrients taken at the BOReal Ecosystem-Atmosphere Study (BOREAS) Southern Study Area (SSA)-Fen flux tower site.

1.3 Objective/Purpose

The objective of the research was to characterize the nutrients in soil profiles at the SSA-Fen site.

1.4 Summary of Parameters

The main parameters are soil profile nutrient concentrations.

1.5 Discussion

None given.

1.6 Related Data Sets

BOREAS TF-11 SSA-Fen Flux and Meteorological Data
BOREAS TF-11 Biomass Data over the SSA-Fen
BOREAS TF-11 CO2 and CH4 Concentration data from the SSA-Fen
BOREAS TF-11 CO2 and CH4 Flux data from the SSA-Fen
BOREAS TF-11 Decomposition Data over the SSA-Fen
BOREAS TGB-01/TGB-03 NEE Data over the NSA Fen
BOREAS TGB-05 Dissolved Organic Carbon Data from NSA Beaver Ponds

2. Investigator(s)

2.1 Investigator(s) Name and Title

Dr. Darwin Anderson
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University of Saskatchewan

2.2 Title of Investigation

Stores and Dynamics of Organic Matter in Boreal Ecosystems

2.3 Contact Information

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3. Theory of Measurements

None given.

4. Equipment

4.1 Sensor/Instrument Description
None given.

4.1.1 Collection Environment
Nutrient concentrations were determined under all ambient environmental conditions.

4.1.2 Source/Platform
Ground.

4.1.3 Source/Platform Mission Objectives
The mission objective was to determine the nutrients concentrations over at the SSA-Fen.

4.1.4 Key Variables
The key variables measured were the nutrient concentrations.

4.1.5 Principles of Operation
None given.

4.1.6 Sensor/Instrument Measurement Geometry
Not applicable.

4.1.7 Manufacturer of Sensor/Instrument
None given.

4.2 Calibration

4.2.1 Specifications
None given.

4.2.1.1 Tolerance
None given.

4.2.2 Frequency of Calibration
None given.

4.2.3 Other Calibration Information
None given.

5. Data Acquisition Methods

None given.

6. Observations

6.1 Data Notes
None given.

6.2 Field Notes
None given.

7. Data Description

7.1 Spatial Characteristics

7.1.1 Spatial Coverage

The North American Datum of 1983 (NAD83) coordinates of the SSA-Fen flux tower (site id F0L9T), close to where the measurements were taken, are 53.80206° N Lat, 104.61798° W Long, Universal Transverse Mercator (UTM) Zone 13, N: 5,961,566.6, E: 525,159.8.

7.1.2 Spatial Coverage Map

Not available.

7.1.3 Spatial Resolution

These are point source measurements along a transect near the given location.

7.1.4 Projection

Not applicable.

7.1.5 Grid Description

Not applicable.

7.2 Temporal Characteristics

7.2.1 Temporal Coverage

The data were collected from 23-May to 21-Oct-1994.

7.2.2 Temporal Coverage Map

Not available.

7.2.3 Temporal Resolution

Measurements were taken on a daily basis. Three methane flux measurements, one obtained from each of the closed chambers, were averaged every two to four days from 23-May to 21-Oct-1994.

7.3 Data Characteristics

7.3.1 Parameter/Variable

The parameters contained in the data files on the CD-ROM are:

Column Name
SITE_NAME
SUB_SITE
DATE_OBS
SITE_COMMENTS
MEAN_CH4_FLUX
SDEV_CH4_FLUX
MEDIAN_CH4_FLUX
FIRST_QUARTILE
FOURTH_QUARTILE
WATER_LVL
PEAT_TEMP_10CM
PEAT_TEMP_50CM
PEAT_TEMP_100CM
PEAT_TEMP_150CM

PEAT_TEMP_200CM
PEAT_TEMP_250CM
TOT_C_CONC_SURF
TOT_C_CONC_50CM
TOT_C_CONC_100CM
TOT_C_CONC_150CM
TOT_C_CONC_200CM
TOT_C_CONC_250CM
DIC_CONC_SURF
DIC_CONC_50CM
DIC_CONC_100CM
DIC_CONC_150CM
DIC_CONC_200CM
DIC_CONC_250CM
DOC_CONC_SURF
DOC_CONC_50CM
DOC_CONC_100CM
DOC_CONC_150CM
DOC_CONC_200CM
DOC_CONC_250CM
TOT_N_CONC_SURF
TOT_N_50CM
TOT_N_100CM
TOT_N_CONC_150CM
TOT_N_CONC_200CM
TOT_N_CONC_250CM
NO3_CONC_SURF
NO3_CONC_50CM
NO3_CONC_100CM
NO3_CONC_150CM
NO3_CONC_200CM
NO3_CONC_250CM
NH4_CONC_SURF
NH4_CONC_50CM
NH4_CONC_100CM
NH4_CONC_150CM
NH4_CONC_200CM
NH4_CONC_250CM
ORGANIC_N_CONC_SURF
ORGANIC_N_CONC_50CM
ORGANIC_N_CONC_100CM
ORGANIC_N_CONC_150CM
ORGANIC_N_CONC_200CM
ORGANIC_N_CONC_250CM
TOT_S_SURF
TOT_S_CONC_50CM
TOT_S_CONC_100CM
TOT_S_CONC_150CM
TOT_S_CONC_200CM
TOT_S_CONC_250CM
SO4_CONC_SURF
SO4_CONC_50CM
SO4_CONC_100CM
SO4_CONC_150CM

SO4_CONC_200CM
SO4_CONC_250CM
INORGANIC_P_CONC_SURF
INORGANIC_P_CONC_50CM
INORGANIC_P_CONC_100CM
INORGANIC_P_CONC_150CM
INORGANIC_P_CONC_200CM
INORGANIC_P_CONC_250CM
PH_SURF
PH_50CM
PH_100CM
PH_150CM
PH_200CM
PH_250CM
CRTFCN_CODE
REVISION_DATE

7.3.2 Variable Description/Definition

The descriptions of the parameters contained in the data files on the CD-ROM are:

Column Name	Description
SITE_NAME	The identifier assigned to the site by BOREAS, in the format SSS-TTT-CCCCC, where SSS identifies the portion of the study area: NSA, SSA, REG, TRN, and TTT identifies the cover type for the site, 999 if unknown, and CCCCC is the identifier for site, exactly what it means will vary with site type.
SUB_SITE	The identifier assigned to the sub-site by BOREAS, in the format GGGGG-IIIII, where GGGGG is the group associated with the sub-site instrument, e.g. HYD06 or STAFF, and IIIII is the identifier for sub-site, often this will refer to an instrument.
DATE_OBS	The date on which the data were collected.
SITE_COMMENTS	Descriptive information to clarify or enhance the site information.
MEAN_CH4_FLUX	Mean of all daily methane flux measurements.
SDEV_CH4_FLUX	The standard deviation of all daily methane flux measurements.
MEDIAN_CH4_FLUX	Median of all daily methane flux measurements.
FIRST_QUARTILE	1ST quartile of all daily methane flux measurements.
FOURTH_QUARTILE	4TH quartile of all daily methane flux measurements.
WATER_LVL	The water level from peat surface.
PEAT_TEMP_10CM	Peat temperature at 10 cm depth.
PEAT_TEMP_50CM	Peat temperature at 50 cm depth.
PEAT_TEMP_100CM	Peat temperature at 100 cm depth.
PEAT_TEMP_150CM	Peat temperature at 150 cm depth.
PEAT_TEMP_200CM	Peat temperature at 200 cm depth.
PEAT_TEMP_250CM	Peat temperature at 250 cm depth.
TOT_C_CONC_SURF	Total carbon concentration in the peat surface.

TOT_C_CONC_50CM	Total carbon concentration in the peat at 50 cm depth.
TOT_C_CONC_100CM	Total carbon concentration in the peat at 100 cm depth.
TOT_C_CONC_150CM	Total carbon concentration in the peat at 150 cm depth.
TOT_C_CONC_200CM	Total carbon concentration in the peat at 200 cm depth.
TOT_C_CONC_250CM	Total carbon concentration in the peat at 250 cm depth.
DIC_CONC_SURF	Dissolved inorganic carbon concentration in the surface of the peat.
DIC_CONC_50CM	Dissolved inorganic carbon concentration in the peat at 50 cm depth.
DIC_CONC_100CM	Dissolved inorganic carbon concentration in the peat at 100 cm depth.
DIC_CONC_150CM	Dissolved inorganic carbon concentration in the peat at 150 cm depth.
DIC_CONC_200CM	Dissolved inorganic carbon concentration in the peat 200 cm depth.
DIC_CONC_250CM	Dissolved inorganic carbon concentration in the peat at 250 cm depth.
DOC_CONC_SURF	Dissolved organic carbon concentration in the surface of the peat.
DOC_CONC_50CM	Dissolved organic carbon concentration in the peat 50 cm depth.
DOC_CONC_100CM	Dissolved organic carbon concentration in the peat at 100 cm depth.
DOC_CONC_150CM	Dissolved organic carbon concentration in the peat at 150 cm depth.
DOC_CONC_200CM	Dissolved organic carbon concentration in the peat at 200 cm depth.
DOC_CONC_250CM	Dissolved organic carbon concentration in the peat at 250 cm depth.
TOT_N_CONC_SURF	Total nitrogen concentration in the surface of the peat.
TOT_N_50CM	Total nitrogen concentration in the peat at 50 cm depth.
TOT_N_100CM	Total nitrogen concentration in the peat at 100 cm depth.
TOT_N_CONC_150CM	Total nitrogen concentration in the peat at 150 cm depth.
TOT_N_CONC_200CM	Total nitrogen concentration in the peat at 200 cm depth.
TOT_N_CONC_250CM	Total nitrogen concentration in the peat at 250 cm depth.
NO3_CONC_SURF	Nitrate concentration at the peat surface.
NO3_CONC_50CM	Nitrate concentration in the peat at 50 cm depth.
NO3_CONC_100CM	Nitrate concentration in the peat at 100 cm depth.
NO3_CONC_150CM	Nitrate concentration in the peat at 150 cm depth.
NO3_CONC_200CM	Nitrate concentration in the peat at 200 cm depth.

NO3_CONC_250CM	Nitrate concentration in the peat at 250 cm depth.
NH4_CONC_SURF	Ammonia concentration at the peat surface.
NH4_CONC_50CM	Ammonia concentration in the peat at 50 cm depth.
NH4_CONC_100CM	Ammonia concentration in the peat at 100 cm depth.
NH4_CONC_150CM	Ammonia concentration in the peat at 150 cm depth.
NH4_CONC_200CM	Ammonia concentration in the peat at 200 cm depth.
NH4_CONC_250CM	Ammonia concentration in the peat at 250 cm depth.
ORGANIC_N_CONC_SURF	Organic nitrogen concentration at the peat surface.
ORGANIC_N_CONC_50CM	Organic nitrogen concentration in the peat at 50 cm depth.
ORGANIC_N_CONC_100CM	Organic nitrogen concentration in the peat at 100 cm depth.
ORGANIC_N_CONC_150CM	Organic nitrogen concentration in the peat at 150 cm depth.
ORGANIC_N_CONC_200CM	Organic nitrogen concentration in the peat at 200 cm depth.
ORGANIC_N_CONC_250CM	Organic nitrogen concentration in the peat at 250 cm depth.
TOT_S_SURF	Total sulfur concentration at the peat surface.
TOT_S_CONC_50CM	Total sulfur concentration in the peat at 50 cm depth.
TOT_S_CONC_100CM	Total sulfur concentration in the peat at 100 cm depth.
TOT_S_CONC_150CM	Total sulfur concentration in the peat at 150 cm depth.
TOT_S_CONC_200CM	Total sulfur concentration in the peat at 200 cm depth.
TOT_S_CONC_250CM	Total sulfur concentration in the peat at 250 cm depth.
SO4_CONC_SURF	SO4 concentration at the peat surface.
SO4_CONC_50CM	SO4 concentration in the peat at 50 cm depth.
SO4_CONC_100CM	SO4 concentration in the peat at 100 cm depth.
SO4_CONC_150CM	SO4 concentration in the peat at 150 cm depth.
SO4_CONC_200CM	SO4 concentration in the peat at 200 cm depth.
SO4_CONC_250CM	SO4 concentration in the peat at 250 cm depth.
INORGANIC_P_CONC_SURF	Inorganic phosphorous concentration at the peat surface.
INORGANIC_P_CONC_50CM	Inorganic phosphorous concentration in the peat at 50 cm depth.
INORGANIC_P_CONC_100CM	Inorganic phosphorous concentration in the peat at 100 cm depth.
INORGANIC_P_CONC_150CM	Inorganic phosphorous concentration in the peat at 150 cm depth.
INORGANIC_P_CONC_200CM	Inorganic phosphorous concentration in the peat at 200 cm depth.
INORGANIC_P_CONC_250CM	Inorganic phosphorous concentration in the peat at 250 cm depth.
PH_SURF	The pH of the peat at the surface.

PH_50CM	The pH of the peat at 50 cm depth.
PH_100CM	The pH of the peat at 100 cm depth.
PH_150CM	The pH of the peat at 150 cm depth.
PH_200CM	The pH of the peat at 200 cm depth.
PH_250CM	The pH of the peat at 250 cm depth.
CRTFCN_CODE	The BOREAS certification level of the data. Examples are CPI (Checked by PI), CGR (Certified by Group), PRE (Preliminary), and CPI-??? (CPI but questionable).
REVISION_DATE	The most recent date when the information in the referenced data base table record was revised.

7.3.3 Unit of Measurement

The measurement units for the parameters contained in the data files on the CD-ROM are:

Column Name	Units
SITE_NAME	[none]
SUB_SITE	[none]
DATE_OBS	[DD-MON-YY]
SITE_COMMENTS	[none]
MEAN_CH4_FLUX	[micromoles][meter^-2][second^-1]
SDEV_CH4_FLUX	[micromoles][meter^-2][second^-1]
MEDIAN_CH4_FLUX	[micromoles][meter^-2][second^-1]
FIRST_QUARTILE	[micromoles][meter^-2][second^-1]
FOURTH_QUARTILE	[micromoles][meter^-2][second^-1]
WATER_LVL	[millimeters]
PEAT_TEMP_10CM	[degrees Celsius]
PEAT_TEMP_50CM	[degrees Celsius]
PEAT_TEMP_100CM	[degrees Celsius]
PEAT_TEMP_150CM	[degrees Celsius]
PEAT_TEMP_200CM	[degrees Celsius]
PEAT_TEMP_250CM	[degrees Celsius]
TOT_C_CONC_SURF	[micrograms][milliliter^-1]
TOT_C_CONC_50CM	[micrograms][milliliter^-1]
TOT_C_CONC_100CM	[micrograms][milliliter^-1]
TOT_C_CONC_150CM	[micrograms][milliliter^-1]
TOT_C_CONC_200CM	[micrograms][milliliter^-1]
TOT_C_CONC_250CM	[micrograms][milliliter^-1]
DIC_CONC_SURF	[milligrams][liter^-1]
DIC_CONC_50CM	[milligrams][liter^-1]
DIC_CONC_100CM	[milligrams][liter^-1]
DIC_CONC_150CM	[milligrams][liter^-1]
DIC_CONC_200CM	[milligrams][liter^-1]
DIC_CONC_250CM	[milligrams][liter^-1]
DOC_CONC_SURF	[milligrams][liter^-1]
DOC_CONC_50CM	[milligrams][liter^-1]
DOC_CONC_100CM	[milligrams][liter^-1]
DOC_CONC_150CM	[milligrams][liter^-1]
DOC_CONC_200CM	[milligrams][liter^-1]
DOC_CONC_250CM	[milligrams][liter^-1]
TOT_N_CONC_SURF	[micrograms][milliliter^-1]
TOT_N_50CM	[micrograms][milliliter^-1]
TOT_N_100CM	[micrograms][milliliter^-1]

TOT_N_CONC_150CM	[micrograms][milliliter^-1]
TOT_N_CONC_200CM	[micrograms][milliliter^-1]
TOT_N_CONC_250CM	[micrograms][milliliter^-1]
NO3_CONC_SURF	[micrograms][milliliter^-1]
NO3_CONC_50CM	[micrograms][milliliter^-1]
NO3_CONC_100CM	[micrograms][milliliter^-1]
NO3_CONC_150CM	[micrograms][milliliter^-1]
NO3_CONC_200CM	[micrograms][milliliter^-1]
NO3_CONC_250CM	[micrograms][milliliter^-1]
NH4_CONC_SURF	[micrograms][milliliter^-1]
NH4_CONC_50CM	[micrograms][milliliter^-1]
NH4_CONC_100CM	[micrograms][milliliter^-1]
NH4_CONC_150CM	[micrograms][milliliter^-1]
NH4_CONC_200CM	[micrograms][milliliter^-1]
NH4_CONC_250CM	[micrograms][milliliter^-1]
ORGANIC_N_CONC_SURF	[micrograms][milliliter^-1]
ORGANIC_N_CONC_50CM	[micrograms][milliliter^-1]
ORGANIC_N_CONC_100CM	[micrograms][milliliter^-1]
ORGANIC_N_CONC_150CM	[micrograms][milliliter^-1]
ORGANIC_N_CONC_200CM	[micrograms][milliliter^-1]
ORGANIC_N_CONC_250CM	[micrograms][milliliter^-1]
TOT_S_SURF	[micrograms][milliliter^-1]
TOT_S_CONC_50CM	[micrograms][milliliter^-1]
TOT_S_CONC_100CM	[micrograms][milliliter^-1]
TOT_S_CONC_150CM	[micrograms][milliliter^-1]
TOT_S_CONC_200CM	[micrograms][milliliter^-1]
TOT_S_CONC_250CM	[micrograms][milliliter^-1]
SO4_CONC_SURF	[micrograms][milliliter^-1]
SO4_CONC_50CM	[micrograms][milliliter^-1]
SO4_CONC_100CM	[micrograms][milliliter^-1]
SO4_CONC_150CM	[micrograms][milliliter^-1]
SO4_CONC_200CM	[micrograms][milliliter^-1]
SO4_CONC_250CM	[micrograms][milliliter^-1]
INORGANIC_P_CONC_SURF	[micrograms][milliliter^-1]
INORGANIC_P_CONC_50CM	[micrograms][milliliter^-1]
INORGANIC_P_CONC_100CM	[micrograms][milliliter^-1]
INORGANIC_P_CONC_150CM	[micrograms][milliliter^-1]
INORGANIC_P_CONC_200CM	[micrograms][milliliter^-1]
INORGANIC_P_CONC_250CM	[micrograms][milliliter^-1]
PH_SURF	[pH]
PH_50CM	[pH]
PH_100CM	[pH]
PH_150CM	[pH]
PH_200CM	[pH]
PH_250CM	[pH]
CRTFCN_CODE	[none]
REVISION_DATE	[DD-MON-YY]

7.3.4 Data Source

The sources of the parameter values contained in the data files onthe CD-ROM are:

Column Name	Data Source
SITE_NAME	[BORIS Designation]
SUB_SITE	[BORIS Designation]
DATE_OBS	[Human Observer]
SITE_COMMENTS	[Human Observer]
MEAN_CH4_FLUX	[Laboratory Equipment]
SDEV_CH4_FLUX	[Laboratory Equipment]
MEDIAN_CH4_FLUX	[Laboratory Equipment]
FIRST_QUARTILE	[Laboratory Equipment]
FOURTH_QUARTILE	[Laboratory Equipment]
WATER_LVL	[Laboratory Equipment]
PEAT_TEMP_10CM	[Thermometer]
PEAT_TEMP_50CM	[Thermometer]
PEAT_TEMP_100CM	[Thermometer]
PEAT_TEMP_150CM	[Thermometer]
PEAT_TEMP_200CM	[Thermometer]
PEAT_TEMP_250CM	[Thermometer]
TOT_C_CONC_SURF	[Laboratory Equipment]
TOT_C_CONC_50CM	[Laboratory Equipment]
TOT_C_CONC_100CM	[Laboratory Equipment]
TOT_C_CONC_150CM	[Laboratory Equipment]
TOT_C_CONC_200CM	[Laboratory Equipment]
TOT_C_CONC_250CM	[Laboratory Equipment]
DIC_CONC_SURF	[Laboratory Equipment]
DIC_CONC_50CM	[Laboratory Equipment]
DIC_CONC_100CM	[Laboratory Equipment]
DIC_CONC_150CM	[Laboratory Equipment]
DIC_CONC_200CM	[Laboratory Equipment]
DIC_CONC_250CM	[Laboratory Equipment]
DOC_CONC_SURF	[Laboratory Equipment]
DOC_CONC_50CM	[Laboratory Equipment]
DOC_CONC_100CM	[Laboratory Equipment]
DOC_CONC_150CM	[Laboratory Equipment]
DOC_CONC_200CM	[Laboratory Equipment]
DOC_CONC_250CM	[Laboratory Equipment]
TOT_N_CONC_SURF	[Laboratory Equipment]
TOT_N_50CM	[Laboratory Equipment]
TOT_N_100CM	[Laboratory Equipment]
TOT_N_CONC_150CM	[Laboratory Equipment]
TOT_N_CONC_200CM	[Laboratory Equipment]
TOT_N_CONC_250CM	[Laboratory Equipment]
NO3_CONC_SURF	[Laboratory Equipment]
NO3_CONC_50CM	[Laboratory Equipment]
NO3_CONC_100CM	[Laboratory Equipment]
NO3_CONC_150CM	[Laboratory Equipment]
NO3_CONC_200CM	[Laboratory Equipment]
NO3_CONC_250CM	[Laboratory Equipment]
NH4_CONC_SURF	[Laboratory Equipment]
NH4_CONC_50CM	[Laboratory Equipment]
NH4_CONC_100CM	[Laboratory Equipment]

NH4_CONC_150CM	[Laboratory Equipment]
NH4_CONC_200CM	[Laboratory Equipment]
NH4_CONC_250CM	[Laboratory Equipment]
ORGANIC_N_CONC_SURF	[Laboratory Equipment]
ORGANIC_N_CONC_50CM	[Laboratory Equipment]
ORGANIC_N_CONC_100CM	[Laboratory Equipment]
ORGANIC_N_CONC_150CM	[Laboratory Equipment]
ORGANIC_N_CONC_200CM	[Laboratory Equipment]
ORGANIC_N_CONC_250CM	[Laboratory Equipment]
TOT_S_SURF	[Laboratory Equipment]
TOT_S_CONC_50CM	[Laboratory Equipment]
TOT_S_CONC_100CM	[Laboratory Equipment]
TOT_S_CONC_150CM	[Laboratory Equipment]
TOT_S_CONC_200CM	[Laboratory Equipment]
TOT_S_CONC_250CM	[Laboratory Equipment]
SO4_CONC_SURF	[Laboratory Equipment]
SO4_CONC_50CM	[Laboratory Equipment]
SO4_CONC_100CM	[Laboratory Equipment]
SO4_CONC_150CM	[Laboratory Equipment]
SO4_CONC_200CM	[Laboratory Equipment]
SO4_CONC_250CM	[Laboratory Equipment]
INORGANIC_P_CONC_SURF	[Laboratory Equipment]
INORGANIC_P_CONC_50CM	[Laboratory Equipment]
INORGANIC_P_CONC_100CM	[Laboratory Equipment]
INORGANIC_P_CONC_150CM	[Laboratory Equipment]
INORGANIC_P_CONC_200CM	[Laboratory Equipment]
INORGANIC_P_CONC_250CM	[Laboratory Equipment]
PH_SURF	[Laboratory Equipment]
PH_50CM	[Laboratory Equipment]
PH_100CM	[Laboratory Equipment]
PH_150CM	[Laboratory Equipment]
PH_200CM	[Laboratory Equipment]
PH_250CM	[Laboratory Equipment]
CRTFCN_CODE	[BORIS Designation]
REVISION_DATE	[BORIS Designation]

7.3.5 Data Range

The following table gives information about the parameter values found in the data files on the CD-ROM.

Column Name	Minimum Data Value	Maximum Data Value	Missng Data Value	Unrel Data Value	Below Detect Limit	Data Not Cllctd
SITE_NAME	SSA-FEN-FLXTR	SSA-FEN-FLXTR	None	None	None	None
SUB_SITE	9TE01-FLX01	9TE01-FLX01	None	None	None	None
DATE_OBS	23-MAY-94	21-OCT-94	None	None	None	None
SITE_COMMENTS	N/A	N/A	None	None	None	None
MEAN_CH4_FLUX	-.0002813	.97361111	-999	None	None	None
SDEV_CH4_FLUX	-.0076	30.23	-999	None	None	None
MEDIAN_CH4_FLUX	-.0002778	.97361111	-999	None	None	None
FIRST_QUARTILE	-.0002778	.87708333	-999	None	None	None
FOURTH_QUARTILE	-.0002778	1.18981481	-999	None	None	None
WATER_LVL	-180	210	-999	None	None	None
PEAT_TEMP_10CM	.6	21.6	-999	None	None	None

PEAT_TEMP_50CM	2	15.5	-999	None	None	None
PEAT_TEMP_100CM	3.1	10.7	-999	None	None	None
PEAT_TEMP_150CM	2.2	8.6	-999	None	None	None
PEAT_TEMP_200CM	1.5	6.8	-999	None	None	None
PEAT_TEMP_250CM	3.3	5.4	-999	None	None	None
TOT_C_CONC_SURF	43.6	87	-999	None	None	None
TOT_C_CONC_50CM	29.5	80.3	-999	None	None	None
TOT_C_CONC_100CM	27.9	63.4	-999	None	None	None
TOT_C_CONC_150CM	25	81.4	-999	None	None	None
TOT_C_CONC_200CM	19.3	78.7	-999	None	None	None
TOT_C_CONC_250CM	46.8	72.5	-999	None	None	None
DIC_CONC_SURF	21.4	48.8	-999	None	None	None
DIC_CONC_50CM	3.9	34.7	-999	None	None	None
DIC_CONC_100CM	6.9	29.5	-999	None	None	None
DIC_CONC_150CM	3.3	35.1	-999	None	None	None
DIC_CONC_200CM	1.4	27.6	-999	None	None	None
DIC_CONC_250CM	19.7	31.9	-999	None	None	None
DOC_CONC_SURF	21.1	53.2	-999	None	None	None
DOC_CONC_50CM	11.4	48.6	-999	None	None	None
DOC_CONC_100CM	15.7	48.6	-999	None	None	None
DOC_CONC_150CM	15.5	60.4	-999	None	None	None
DOC_CONC_200CM	17.2	52.4	-999	None	None	None
DOC_CONC_250CM	27.1	48.6	-999	None	None	None
TOT_N_CONC_SURF	.72	48.6	-999	None	None	None
TOT_N_50CM	.59	48.6	-999	None	None	None
TOT_N_100CM	.59	48.6	-999	None	None	None
TOT_N_CONC_150CM	.72	48.6	-999	None	None	None
TOT_N_CONC_200CM	.82	48.6	-999	None	None	None
TOT_N_CONC_250CM	1.27	48.6	-999	None	None	None
NO3_CONC_SURF	0	48.6	-999	None	None	None
NO3_CONC_50CM	0	48.6	-999	None	None	None
NO3_CONC_100CM	0	48.6	-999	None	None	None
NO3_CONC_150CM	0	48.6	-999	None	None	None
NO3_CONC_200CM	0	48.6	-999	None	None	None
NO3_CONC_250CM	.002	48.6	-999	None	None	None
NH4_CONC_SURF	0	48.6	-999	None	None	None
NH4_CONC_50CM	.025	48.6	-999	None	None	None
NH4_CONC_100CM	0	48.6	-999	None	None	None
NH4_CONC_150CM	.1	48.6	-999	None	None	None
NH4_CONC_200CM	.2	48.6	-999	None	None	None
NH4_CONC_250CM	.5	48.6	-999	None	None	None
ORGANIC_N_CONC_SURF	.67	48.6	-999	None	None	None
ORGANIC_N_CONC_50CM	.54	48.6	-999	None	None	None
ORGANIC_N_CONC_100CM	.52	48.6	-999	None	None	None
ORGANIC_N_CONC_150CM	.47	48.6	-999	None	None	None
ORGANIC_N_CONC_200CM	.56	48.6	-999	None	None	None
ORGANIC_N_CONC_250CM	.54	48.6	-999	None	None	None
TOT_S_SURF	.343	48.6	-999	None	None	None
TOT_S_CONC_50CM	.251	48.6	-999	None	None	None
TOT_S_CONC_100CM	.154	48.6	-999	None	None	None
TOT_S_CONC_150CM	.162	48.6	-999	None	None	None
TOT_S_CONC_200CM	.209	48.6	-999	None	None	None
TOT_S_CONC_250CM	.363	48.6	-999	None	None	None
SO4_CONC_SURF	.002	48.6	-999	None	None	None

SO4_CONC_50CM	.002	48.6	-999	None	None	None
SO4_CONC_100CM	0	48.6	-999	None	None	None
SO4_CONC_150CM	.005	48.6	-999	None	None	None
SO4_CONC_200CM	0	48.6	-999	None	None	None
SO4_CONC_250CM	.037	48.6	-999	None	None	None
INORGANIC_P_CONC_SURF	.002	48.6	-999	None	None	None
INORGANIC_P_CONC_50CM	.002	48.6	-999	None	None	None
INORGANIC_P_CONC_100CM	0	48.6	-999	None	None	None
INORGANIC_P_CONC_150CM	.005	48.6	-999	None	None	None
INORGANIC_P_CONC_200CM	0	215	-999	None	None	None
INORGANIC_P_CONC_250CM	48.6	48.6	-999	None	None	None
PH_SURF	7.62	48.6	-999	None	None	None
PH_50CM	7.04	48.6	-999	None	None	None
PH_100CM	7.49	48.6	-999	None	None	None
PH_150CM	7.14	48.6	-999	None	None	None
PH_200CM	7.67	48.6	-999	None	None	None
PH_250CM	7.84	48.6	-999	None	None	None
CRTFCN_CODE	CPI	CPI	None	None	None	None
REVISION_DATE	12-NOV-96	13-NOV-96	None	None	None	None

Minimum Data Value -- The minimum value found in the column.
Maximum Data Value -- The maximum value found in the column.
Missng Data Value -- The value that indicates missing data. This is used to indicate that an attempt was made to determine the parameter value, but the attempt was unsuccessful.
Unrel Data Value -- The value that indicates unreliable data. This is used to indicate an attempt was made to determine the parameter value, but the value was deemed to be unreliable by the analysis personnel.
Below Detect Limit -- The value that indicates parameter values below the instruments detection limits. This is used to indicate that an attempt was made to determine the parameter value, but the analysis personnel determined that the parameter value was below the detection limit of the instrumentation.
Data Not Cllctd -- This value indicates that no attempt was made to determine the parameter value. This usually indicates that BORIS combined several similar but not identical data sets into the same data base table but this particular science team did not measure that parameter.

Blank -- Indicates that blank spaces are used to denote that type of value.
N/A -- Indicates that the value is not applicable to the respective column.
None -- Indicates that no values of that sort were found in the column.

7.4 Sample Data Record

The following are wrapped versions of data record from a sample data file on the CD-ROM.

```
SITE_NAME,SUB_SITE,DATE_OBS,SITE_COMMENTS,MEAN_CH4_FLUX,SDEV_CH4_FLUX,
MEDIAN_CH4_FLUX,FIRST_QUARTILE,FOURTH_QUARTILE,WATER_LVL,PEAT_TEMP_10CM,
PEAT_TEMP_50CM,PEAT_TEMP_100CM,PEAT_TEMP_150CM,PEAT_TEMP_200CM,PEAT_TEMP_250CM,
TOT_C_CONC_SURF,TOT_C_CONC_50CM,TOT_C_CONC_100CM,TOT_C_CONC_150CM,
TOT_C_CONC_200CM,TOT_C_CONC_250CM,DIC_CONC_SURF,DIC_CONC_50CM,DIC_CONC_100CM,
DIC_CONC_150CM,DIC_CONC_200CM,DIC_CONC_250CM,DOC_CONC_SURF,DOC_CONC_50CM,
DOC_CONC_100CM,DOC_CONC_150CM,DOC_CONC_200CM,DOC_CONC_250CM,TOT_N_CONC_SURF,
TOT_N_50CM,TOT_N_100CM,TOT_N_CONC_150CM,TOT_N_CONC_200CM,TOT_N_CONC_250CM,
NO3_CONC_SURF,NO3_CONC_50CM,NO3_CONC_100CM,NO3_CONC_150CM,NO3_CONC_200CM,
NO3_CONC_250CM,NH4_CONC_SURF,NH4_CONC_50CM,NH4_CONC_100CM,NH4_CONC_150CM,
NH4_CONC_200CM,NH4_CONC_250CM,ORGANIC_N_CONC_SURF,ORGANIC_N_CONC_50CM,
ORGANIC_N_CONC_100CM,ORGANIC_N_CONC_150CM,ORGANIC_N_CONC_200CM,
ORGANIC_N_CONC_250CM,TOT_S_SURF,TOT_S_CONC_50CM,TOT_S_CONC_100CM,
TOT_S_CONC_150CM,TOT_S_CONC_200CM,TOT_S_CONC_250CM,SO4_CONC_SURF,SO4_CONC_50CM,
SO4_CONC_100CM,SO4_CONC_150CM,SO4_CONC_200CM,SO4_CONC_250CM,
INORGANIC_P_CONC_SURF,INORGANIC_P_CONC_50CM,INORGANIC_P_CONC_100CM,
INORGANIC_P_CONC_150CM,INORGANIC_P_CONC_200CM,INORGANIC_P_CONC_250CM,PH_SURF,
PH_50CM,PH_100CM,PH_150CM,PH_200CM,PH_250CM,CRTFCN_CODE,REVISION_DATE
'SSA-FEN-FLXTR','9TE01-FLX01',23-MAY-94,'deeppeatbay',.00520833,.3,.00428241,
.00324074,.00902778,10.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,
-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,
-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,
-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,
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-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,'CPI',12-NOV-96
'SSA-FEN-FLXTR','9TE01-FLX01',23-MAY-94,'sandyupland',-.0001609,-999.0,-.000162,
-.000162,-.000162,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,
-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,
-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,
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-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,
-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,-999.0,'CPI',12-NOV-96
```

8. Data Organization

8.1 Data Granularity

The smallest unit of data tracked by the BOREAS Information System (BORIS) was the data collected at a given site on a given date.

8.2 Data Format(s)

The Compact Disk-Read-Only Memory (CD-ROM) files contain American Standard Code for Information Interchange (ASCII) numerical and character fields of varying length separated by commas. The character fields are enclosed with single apostrophe marks. There are no spaces between the fields.

Each data file on the CD-ROM has four header lines of Hyper-Text Markup Language (HTML) code at the top. When viewed with a Web browser, this code displays header information (data set title, location, date, acknowledgments, etc.) and a series of HTML links to associated data files and related data sets. Line 5 of each data file is a list of the column names, and line 6 and following lines contain the actual data.

9. Data Manipulations

9.1 Formulae

9.1.1 Derivation Techniques and Algorithms
None given.

9.2 Data Processing Sequence

9.2.1 Processing Steps
None given.

9.2.2 Processing Changes
None given.

9.3 Calculations

9.3.1 Special Corrections/Adjustments
None given.

9.3.2 Calculated Variables
None given.

9.4 Graphs and Plots
None.

10. Errors

10.1 Sources of Error
None given.

10.2 Quality Assessment

10.2.1 Data Validation by Source
None given.

10.2.2 Confidence Level/Accuracy Judgment
None given.

10.2.3 Measurement Error for Parameters
None given.

10.2.4 Additional Quality Assessments
None given.

10.2.5 Data Verification by Data Center
Data were examined for general consistency and clarity.

11. Notes

11.1 Limitations of the Data
None given.

11.2 Known Problems with the Data
None given.

11.3 Usage Guidance
None given.

11.4 Other Relevant Information
None given.

12. Application of the Data Set

None given.

13. Future Modifications and Plans

This data set is in its final format.

14. Software

14.1 Software Description
None given.

14.2 Software Access
None given.

15. Data Access

The SSA-Fen soil profile nutrient data are available from the Earth Observing System Data and Information System (EOSDIS) Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC).

15.1 Contact Information
For BOREAS data and documentation please contact:

ORNL DAAC User Services
Oak Ridge National Laboratory
P.O. Box 2008 MS-6407
Oak Ridge, TN 37831-6407
Phone: (423) 241-3952
Fax: (423) 574-4665
E-mail: ornldaac@ornl.gov or ornl@eos.nasa.gov

15.2 Data Center Identification

Earth Observing System Data and Information System (EOSDIS) Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC) for Biogeochemical Dynamics http://www-eosdis.ornl.gov/.

15.3 Procedures for Obtaining Data

Users may obtain data directly through the ORNL DAAC online search and order system [http://www-eosdis.ornl.gov/] and the anonymous FTP site [ftp://www-eosdis.ornl.gov/data/] or by contacting User Services by electronic mail, telephone, fax, letter, or personal visit using the contact information in Section 15.1.

15.4 Data Center Status/Plans

The ORNL DAAC is the primary source for BOREAS field measurement, image, GIS, and hardcopy data products. The BOREAS CD-ROM and data referenced or listed in inventories on the CD-ROM are available from the ORNL DAAC.

16. Output Products and Availability

16.1 Tape Products

None.

16.2 Film Products

None.

16.3 Other Products

These data are available on the BOREAS CD-ROM series.

17. References

17.1 Platform/Sensor/Instrument/Data Processing Documentation

None.

17.2 Journal Articles and Study Reports

Newcomer, J., D. Landis, S. Conrad, S. Curd, K. Huemmrich, D. Knapp, A. Morrell, J. Nickeson, A. Papagno, D. Rinker, R. Strub, T. Twine, F. Hall, and P. Sellers, eds. 2000. Collected Data of The Boreal Ecosystem-Atmosphere Study. NASA. CD-ROM.

Sellers, P. and F. Hall. 1994. Boreal Ecosystem-Atmosphere Study: Experiment Plan. Version 1994-3.0, NASA BOREAS Report (EXPLAN 94).

Sellers, P. and F. Hall. 1996. Boreal Ecosystem-Atmosphere Study: Experiment Plan. Version 1996-2.0, NASA BOREAS Report (EXPLAN 96).

Sellers, P., F. Hall, and K.F. Huemmrich. 1996. Boreal Ecosystem-Atmosphere Study: 1994 Operations. NASA BOREAS Report (OPS DOC 94).

Sellers, P., F. Hall, and K.F. Huemmrich. 1997. Boreal Ecosystem-Atmosphere Study: 1996 Operations. NASA BOREAS Report (OPS DOC 96).

Sellers, P., F. Hall, H. Margolis, B. Kelly, D. Baldocchi, G. den Hartog, J. Cihlar, M.G. Ryan, B. Goodison, P. Crill, K.J. Ranson, D. Lettenmaier, and D.E. Wickland. 1995. The boreal ecosystem-atmosphere study (BOREAS): an overview and early results from the 1994 field year. Bulletin of the American Meteorological Society. 76(9):1549-1577.

Sellers, P.J., F.G. Hall, R.D. Kelly, A. Black, D. Baldocchi, J. Berry, M. Ryan, K.J. Ranson, P.M. Crill, D.P. Lettenmaier, H. Margolis, J. Cihlar, J. Newcomer, D. Fitzjarrald, P.G. Jarvis, S.T. Gower, D. Halliwell, D. Williams, B. Goodison, D.E. Wickland, and F.E. Guertin. 1997. BOREAS in 1997: Experiment Overview, Scientific Results and Future Directions. Journal of Geophysical Research 102(D24): 28,731-28,770.

17.3 Archive/DBMS Usage Documentation

None.

18. Glossary of Terms

None.

19. List of Acronyms

AES	- Atmospheric Environment Services
ASCII	- American Standard Code for Information Interchange
BOREAS	- BOReal Ecosystem-Atmosphere Study
BORIS	- BOREAS Information System
BP	- Beaver Pond
CD-ROM	- Compact Disk - Read-Only Memory
CMDL	- Climate Monitoring and Diagnostics Laboratory
DAAC	- Distributed Active Archive Center
ECD	- Electron Capture Detector
EOS	- Earth Observing System
EOSDIS	- EOS Data and Information System
FID	- Flame Ionization Detector
GC	- Gas Chromatograph
GIS	- Geographic Information System
GSFC	- Goddard Space Flight Center
HTML	- HyperText Markup Language
NAD83	- North American Datum of 1983
NASA	- National Aeronautics and Space Administration
NSA	- Northern Study Area
OBS	- Old Black Spruce
ORNL	- Oak Ridge National Laboratory
PANP	- Prince Albert National Park
SSA	- Southern Study Area
TCD	- Thermal Conductivity Detector
TE	- Terrestrial Ecology
TF	- Tower Flux
TGB	- Trace Gas Biogeochemistry
URL	- Uniform Resource Locator
UTM	- Universal Transverse Mercator

20. Document Information

20.1 Document Revision Date

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When using these data, please contact the individuals listed in Section 2.3 as well as citing relevant papers in Section 17.2.

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20.5 Document Curator

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Forrest G. Hall and Jeffrey A. Newcomer, Editors

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13. ABSTRACT *(Maximum 200 words)*

The BOREAS TE-1 team collected various data to characterize the soil-plant systems in the BOREAS SSA. Particular emphasis was placed on nutrient biochemistry, the stores and transfers of organic carbon, and how the characteristics were related to measured methane fluxes. The overall transect in the Prince Albert National Park (Saskatchewan, Canada) included the major plant communities and related soils that occurred in that section of the boreal forest. Soil physical, chemical, and biological measurements along the transect were used to characterize the static environment, which allowed them to be related to methane fluxes. Chamber techniques were used to provide a measure of methane production/uptake. Chamber measurements coupled with flask sampling were used to determine the seasonality of methane fluxes. This particular data set contains soil profile measurements of various nutrients at the SSA-Fen site. The data were collected from 23-May to 21-Oct-1994. The data are stored in tabular ASCII files.

14. SUBJECT TERMS
BOREAS, terrestrial ecology, soil-plant systems.

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