

General Description

The following sections briefly describe the contents of five downloadable data-table workbook files (in several file formats) containing the soil data collected from sites near Thompson, Manitoba. Unavailable or inapplicable data are indicated by a dash (“-“). Additional information on these sites as well as sampling and analyses procedures can be found in the main text of USGS Open File Report 2006-1291 that this file accompanies.

Ttown_Field

This file contains the field descriptions of the sampled soils and includes the following columns:

Sample ID	Sample identification: The first letter in the sample label represents the region of study: Thompson, Manitoba. The second two letters represent the year the study site burn. All years are in the 1900’s with the exception of a 2003 burn. The final letter indicates if the site is moderately well drained (aka dry, ‘D’) or somewhat poorly drained (aka wet, ‘W’). The number that follows the four site characters indicates plot within the site. A decimal point separates the profile number from the basal depth of the sample (in cm). This labeling scheme varies slightly in two instances. First, one site, Old Black Spruce (OBS), was initially named and measured during the BOREAS project. Therefore, the letters OBS are used in place of the convention described above. Second, samples obtained from colleagues located at Agriculture Canada have additional notation between the site and plot name indicating the source of these samples.
Depth	Indicates the basal depth, in cm, of sampling increment.
Field Horizon Code	Horizon type of the sample, as defined in the field. L = live moss, D = dead moss, F = fibric organic matter (OM), M = mesic OM, H = humic OM, A = A mineral soil horizon, C = C mineral soil horizon, LN = lichen, LT = litter, ASH = ash, WD = wood. A lower case ‘f’ before horizon code indicates it was frozen at the time of sampling. A lower case ‘b’ before a horizon code indicates the sample showed evidence of burning (e.g. scorched, charred). A lower case ‘g’ indicates gravel was found in this horizon.
Sample Description	A brief description of the sample.
Roots	Root abundance and size using conventions of USDA-ARS (Staff, 1998).
Field pH	The pH of the sample, either determined in the field or in the lab using a LaMotte pH kit.
Moist Munsell Color	Color of moist soil based on the Munsell soil color chart.

Von Post or Texture Class	If organic soil, the classification using the von Post scale of humification (Damman and French, 1987). If mineral soil, the soil texture class as described in the field following conventions of USDA-ARS (Staff, 1998). Note that some samples were submitted for particle size (see of2006-1291_Physical) and may have more accurate texture descriptions based on these data.
Plasticity Category	Plasticity following conventions of USDA-ARS (Staff, 1998).
Stickiness Category	Stickiness following conventions of USDA-ARS (Staff, 1998).
Firmness Category	Moist consistence following conventions of USDA-ARS (Staff, 1998).
Structure	Grade, size, strength and type of soil structure following conventions of USDA-ARS (Staff, 1998).
Height above mineral	Height of each basal depth above the mineral soil boundary. Therefore, the bottom organic layer is at zero and all mineral horizons are negative numbers.

Ttown_Physical

This file contains physical data such as bulk density, volumetric moisture content, and particle size analysis. Column definitions are as follows:

Sample ID	Sample identification: The first letter in the sample label represents the region of study: Thompson, Manitoba. The second two letters represent the year the study site burn. All years are in the 1900's with the exception of a 2003 burn. The final letter indicates if the site is moderately well drained (aka dry, 'D') or somewhat poorly drained (aka wet, 'W'). The number that follows the four site characters indicates plot within the site. A decimal point separates the profile number from the basal depth of the sample (in cm). This labeling scheme varies slightly in two instances. First, one site, Old Black Spruce (OBS), was initially named and measured during the BOREAS project. Therefore, the letters OBS are used in place of the convention described above. Second, samples obtained from colleagues located at Agriculture Canada have additional notation between the site and plot name indicating the source of these samples.
Depth	Indicates the basal depth, in cm, of sampling increment.
Field Horizon Code	Horizon type of the sample, as defined in the field. L = live moss, D = dead moss, F = fibric organic matter (OM), M = mesic OM, H = humic OM, A = A mineral soil horizon, C = C mineral soil horizon, LN = lichen, LT = litter, ASH = ash, WD = wood. A lower case 'f' before horizon code indicates it was frozen at the time of sampling. A lower case 'b' before a horizon code indicates the sample showed evidence of burning (e.g. scorched, charred). A lower case 'g' indicates gravel was found in this horizon.
Sample Description	A brief description of the sample.
Date Sampled	Date during which the sample was taken (usually month/day/year).

Thickness	Thickness of the horizon, in cm.
>2 mm in sample	Dry weight percent of soil particles not passing through a 2 mm sieve after gentle crushing.
>1 cm in sample	Dry weight percent of roots larger than 1 cm in diameter in the sample.
Total Bulk Density (<2 mm)	Grams of oven-dried soil per cubic centimeter, with soil particles greater than 2 mm and roots greater than 1 cm diameter removed. Calculated by multiplying the air-dry bulk density by (1 – fraction moisture in air-dry sample). No volume adjustment has been made for the fractions removed.
Total Bulk Density	Grams of oven-dried soil per cubic centimeter for the entire soil sample (particles greater than 2 mm and roots greater than 1 cm diameter included).
Vol. Field. Moisture	Volumetric Field Moisture: The percent water in the sample, by volume.
Moisture in AD Sample	Percent, by weight, of moisture remaining in a sample after air-drying to constant weight as determined by subsequently oven-drying the sample. Can be used to convert between air-dry and oven-dry bulk density using the following equation: $\text{Air dry bulk density} = \text{Oven dry bulk density} / (1 - (\text{Moisture in AD sample} - 1))$.
Sand	Percent by weight of soil particles greater than 0.05 mm in the sample remaining after removal of particles greater than 2 mm and roots greater than 1 cm diameter.
Coarse Silt	Percent by weight of soil particles in the size range from 0.02 to 0.05 mm in the sample remaining after removal of particles greater than 2 mm and roots greater than 1 cm diameter.
Fine Silt	Percent by weight of soil particles in the size range from 0.002 to 0.020 mm in the sample remaining after removal of particles greater than 2 mm and roots greater than 1 cm diameter.
Clay	Percent by weight of soil particles less than 0.002 mm in the sample remaining after removal of particles greater than 2 mm and roots greater than 1 cm diameter.
Notes	Important notes regarding the sample. OM++ indicates residual organic matter in sample may have skewed particle size results toward increased sand and/or coarse silt; OM indicates residual organic matter in sample, but likely not enough to skew particle size results.

Ttown_Chemistry

This file contains chemical data obtained from an elemental analyzer and/or mass spectrometer (EA/IRMS). Column definitions are as follows:

Sample ID	Sample identification: The first letter in the sample label represents the region of study: Thompson, Manitoba. The second two letters represent the year the study site burn. All years are in the 1900's with the exception of a 2003 burn. The final letter indicates if the site is moderately well drained (aka dry, 'D') or somewhat poorly drained (aka wet, 'W'). The number that follows the four site characters indicates plot within the site. A decimal point separates the profile number from the basal depth of the sample (in cm). This labeling scheme varies slightly in two instances. First, one site, Old Black Spruce (OBS), was initially named and measured during the BOREAS project. Therefore, the letters OBS are used in place of the convention described above. Second, samples obtained from colleagues located at Agriculture Canada have additional notation between the site and plot name indicating the source of these samples.
Basal Depth	Indicates the basal depth, in cm, of sampling increment.
Field Horizon Code	Horizon type of the sample, as defined in the field. L = live moss, D = dead moss, F = fibric organic matter (OM), M = mesic OM, H = humic OM, A = A mineral soil horizon, C = C mineral soil horizon, LN = lichen, LT = litter, ASH = ash, WD = wood. A lower case 'f' before horizon code indicates it was frozen at the time of sampling. A lower case 'b' before a horizon code indicates the sample showed evidence of burning (e.g. scorched, charred). A lower case 'g' indicates gravel was found in this horizon.
Sample Description	A brief description of the sample.
%C (air dried)	Percent by weight of carbon in an air dried soil sample with material >2 mm and/or 1 cm diameter removed. Can be converted to an oven dry basis by multiplying air-dry percent carbon by the reciprocal of $(1 - (\text{Moisture in air-dry sample}/100))$.
%N (air dried)	Percent by weight of nitrogen in an oven dried soil sample with material >2 mm and/or 1 cm diameter removed. Can be converted to an oven dry basis by multiplying air-dry percent nitrogen by the reciprocal of $(1 - (\text{Moisture in air-dry sample}/100))$.
%C (oven dry)	Percent by weight of carbon in an oven-dried soil sample with material >2 mm and/or 1 cm diameter removed.
%N (oven dry)	Percent by weight of nitrogen in an oven-dried soil sample with material >2 mm and/or 1 cm diameter removed.
$\delta^{13}\text{C}$	Per mil (‰) value of $\delta^{13}\text{C}$ relative to Pee Dee Belemnite.

Ttown_Suppl_Chemistry

This file contains supplemental chemical data, such as ^{14}C and elemental content, for samples on which these values were measured. Analyses were run using ground, oven-dried soil. The ^{14}C data, expressed in Delta notation ($\Delta^{14}\text{C}$), were measured at University of Irvine, W. M. Keck Carbon Cycle Accelerator Mass Spectrometry Laboratory. Elemental values were measured using the Inductively Coupled Plasma technique for forty elements simultaneously (ICP-40). Column definitions are as follows:

Sample ID	Sample identification: The first letter in the sample label represents the region of study: Thompson, Manitoba. The second two letters represent the year the study site burn. All years are in the 1900's with the exception of a 2003 burn. The final letter indicates if the site is moderately well drained (aka dry, 'D') or somewhat poorly drained (aka wet, 'W'). The number that follows the four site characters indicates plot within the site. A decimal point separates the profile number from the basal depth of the sample (in cm). This labeling scheme varies slightly in two instances. First, one site, Old Black Spruce (OBS), was initially named and measured during the BOREAS project. Therefore, the letters OBS are used in place of the convention described above. Second, samples obtained from colleagues located at Agriculture Canada have additional notation between the site and plot name indicating the source of these samples.
Depth	Indicates the basal depth, in cm, of sampling increment.
Field Horizon Code	Horizon type of the sample, as defined in the field. L = live moss, D = dead moss, F = fibric organic matter (OM), M = mesic OM, H = humic OM, A = A mineral soil horizon, C = C mineral soil horizon, LN = lichen, LT = litter, ASH = ash, WD = wood. A lower case 'f' before horizon code indicates it was frozen at the time of sampling. A lower case 'b' before a horizon code indicates the sample showed evidence of burning (e.g. scorched, charred). A lower case 'g' indicates gravel was found in this horizon.
Sample Description	A brief description of the sample.
Fraction Modern	Fraction Modern is a measurement of the deviation of the $^{14}\text{C}/^{12}\text{C}$ ratio of a sample from "Modern" with Modern is defined as 95% of the radiocarbon concentration (in AD 1950) of NBS Oxalic Acid I normalized to $\delta^{13}\text{C}_{\text{VPDB}} = -19$ per mil (Olsson, 1970).
$\Delta^{14}\text{C}$	Per mil (‰) value of $\Delta^{14}\text{C}$.
+/- $\Delta^{14}\text{C}$	Error associated with $\Delta^{14}\text{C}$ value.
Al	Percent by weight of aluminum in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Ca	Percent by weight of calcium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Fe	Percent by weight of iron in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
K	Percent by weight of potassium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.

Mg	Percent by weight of magnesium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Na	Percent by weight of sodium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
P	Percent by weight of phosphorus in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Ti	Percent by weight of titanium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Ag	Parts per million of silver in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
As	Parts per million of arsenic in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Au	Parts per million of gold in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Ba	Parts per million of barium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Be	Parts per million of beryllium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Bi	Parts per million of bismuth in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Cd	Parts per million of cadmium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Ce	Parts per million of cerium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Co	Parts per million of cobalt in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Cr	Parts per million of chromium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Cu	Parts per million of copper in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Eu	Parts per million of europium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Ga	Parts per million of gallium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Ho	Parts per million of holmium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
La	Parts per million of lanthanum in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Li	Parts per million of lithium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Mn	Parts per million of manganese in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Mo	Parts per million of molybdenum in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Nb	Parts per million of niobium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.

Nd	Parts per million of neodymium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Ni	Parts per million of nickel in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Pb	Parts per million of lead in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Sc	Parts per million of scandium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Sn	Parts per million of tin in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Sr	Parts per million of strontium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Ta	Parts per million of tantalum in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Th	Parts per million of thorium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
U	Parts per million of uranium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
V	Parts per million of vanadium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Y	Parts per million of yttrium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Yb	Parts per million of ytterbium in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
Zn	Parts per million of zinc in an air-dried soil sample with material >2 mm or 1 cm diameter removed.
LOI	Percent of organic material lost on ignition. Process by which oven dried ground samples are heated to 550° C for five hours to determine organic and inorganic portions of the sample.

Ttown_Transects

This file contains the field descriptions of soils at sites that were only described and not sampled. This file includes the following columns:

Sample ID	Sample identification: The first letter in the sample label represents the region of study: Thompson, Manitoba. The second two letters represent the year the study site burn. All years are in the 1900's with the exception of a 2003 burn. The final letter indicates if the site is moderately well drained (aka dry, 'D') or somewhat poorly drained (aka wet, 'W'). The number that follows the four site characters indicates plot within the site. A decimal point separates the profile number from the basal depth of the sample (in cm). This labeling scheme varies slightly in two instances. First, one site, Old Black Spruce (OBS), was initially named and measured during the BOREAS project. Therefore, the letters OBS are used in place of the convention described above. Second, samples obtained from colleagues located at Agriculture Canada have additional notation between the site and plot name indicating the source of these samples.
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Depth	Indicates the basal depth, in cm, of sampling increment.
Field Horizon Code	Horizon type of the sample, as defined in the field. L = live moss, D = dead moss, F = fibric organic matter (OM), M = mesic OM, H = humic OM, A = A mineral soil horizon, C = C mineral soil horizon, LN = lichen, LT = litter, ASH = ash, WD = wood. A lower case 'f' before horizon code indicates it was frozen at the time of sampling. A lower case 'b' before a horizon code indicates the sample showed evidence of burning (e.g. scorched, charred). A lower case 'g' indicates gravel was found in this horizon.
Field Description	A brief description of the sample.
Plot Information	Where, by whom, and when the description occurred as well as the dominant tree and moss species, if noted. Depth to frozen layers, as determined by probing, are also noted if found.
Roots	Root abundance and size using conventions of USDA-NRCS (Staff, 1998).
Von Post or Texture Class	If organic soil, the classification using the von Post scale of humification (Damman and French, 1987). If mineral soil, the soil texture class following conventions of USDA-NRCS (Staff, 1998).
Height above mineral	Height of each basal depth above the mineral soil boundary. Therefore, the bottom organic layer is at zero and all mineral horizons are negative numbers.

Literature Cited

- Damman, A.W.H., and French, T.W., 1987, The ecology of peat bogs of the glaciated Northeastern United States: A community profile: U.S. Fish and Wildlife Service 85(7.16), 100 p.
- Olsson, I.U., 1970, The use of Oxalic acid as a standard, *in* Radiocarbon Variations and Absolute Chronology, Nobel symposium, 12th Proceedings: Uppsala University, John Wiley & Sons, p. 17.
- Staff, S.S., 1998, Keys to soil taxonomy (8th ed.): Blacksburg, Virginia, Pocahontas Press, Inc., 599 p.