Information on the International Soil Carbon Network Templates

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This document gives detailed information and examples for the variables contained in the data submission template.

There are eight worksheets in the template: site, profile, layer, fraction, gas, other, disturbance, and metadata. Sites will typically be comprised of multiple soil profiles, each of which is comprised of individually collected and reported horizons or depth increments (called samples or layers). The layer and fraction sheets contain many of the same variables; data for non- fractionated whole soils go in the layer sheet and data for their constituent fractions (e.g., density or size) go in the fraction worksheet. Only the layer sheet contains the layer top, bottom and horizon information; giving names to fractions that are similar to the layers from which they were derived will assist with data organization. The worksheets "gas" and "other" are for other sample matrices such as soil respired gases, plant tissues, microbial residues, etc., that fit within the site/profile/layer relational framework.

Some text variables have controlled (standardized) vocabularies and are denoted by a parenthetical name in the third header row of the data template (e.g., "state_province", "fract_scheme"). Controlled vocabularies are also identified in the Description field of the table below. Use of standardized terminology for these variables ensures the data input to this template will be directly comparable to the data already in the database; nomenclature is in the "controlled vocabulary" document linked in the header above and also available on <http://iscn.fluxdata.org/Data/Pages/ContributeData.aspx>.

In the table below, the "Variable" column provides the database name used for each variable; those variables indicated in blue are necessary for template processing. User-facing names are in the "Name" column. Any other unused columns may be removed from the template for convenience. Similarly, unused rows may be removed from the metadata sheet, and if entire worksheets are not to be complete (e.g., disturbance, fraction), these worksheets can be deleted.

Completed templates (or templates requiring review) should be uploaded at the ISCN Upload Data page <http://iscn.fluxdata.org/Data/Pages/UploadData.aspx>.

Feedback about the templates and data upload system, or requests for assistance with their use, should be emailed to <NSCN-support@george.lbl.gov>

site			
Variable	Name	Units	Description
site_name	Site Name	free text	A unique name for a site that corresponds to a georeferenced point. Examples include: “101”,“DFTC”, “Site 1”, “99AK180003”
site_note	Site Notes	free text	Various notes on and descriptions of the site other than C flux, climate, photo or vegetation. May include local names for physiographic features, which may or may not appear on USGS Topographic Quadrangles. Examples include: "Biliau Hill", "Warner Valley", "Mudsock"
country	Country		Nation of origin of the data. Controlled vocabulary: country

province	Province	free text	A politically defined sub-region of a country, for any country that does not describe these sub-divisions as "states".
state	State		State or territory. At output, may also include province for any contry that does not describe political subdivision as "states". Controlled vocabulary: state_province
county	County	free text	For data collected in the U.S., the county of origin within a U.S. State.
lat	Latitude	dec. deg	The latitudinal coordinate, in decimal degrees, to the appropriate level of spatial accuracy (up to five decimal degrees; WGS84 Latitude/Longitude datum preferred). Examples include: “64.67083”
long	Longitude	dec. deg	The longitudinal coordinate, in decimal degrees, to the appropriate level of spatial accuracy (up to five decimal degrees; WGS84 Latitude/Longitude datum preferred). Examples include: “-148.32683”
datum	Latitude/Longitude Datum		Latitude/Longitude datum against which Latitude and Longitude are reported. If left blank, WGS84 will be assumed. Controlled vocabulary: datum
location_acc	Location Accuracy	m	Estimated accuracy of the location of the site. Site origin has a 95% or greater probability of being within this many meters of the reported location. Examples include: “100”, “2”
elevation	Elevation	m	The elevation at the site as determined by topo map, GPS, altimeter, etc. Contributed value is assumed accurate within several meters regardless of method used.
vegclass_nat	US National Vegetation Classification Standard	free text	The type of vegetation at the site, described according to the Federal Geographic Data Committee’s classification scheme (http://www.fgdc.gov/standards/projects/FGDC-standards-projects/vegetation/NVCS_V2_FINAL_2008-02.pdf). Classify the site according to the four uppermost descriptive levels (Class, Subclass, Formation, Division). Examples include: “1.C.2”, “3.A.1”, “4.C.1”,
vegclass	Vegetation Classification Code	free text	The type of vegetation at the site, described according to a TBD international classification scheme.
vegclass_local	Local Vegetation Classification Code	free text	The type of vegetation at the site, described according to the classification scheme commonly used at the site. Indicate the scheme in the Local Vegetation Classification Type. Leave blank if unknown or no local classification applies. Examples include: For Alaska, level IV or V is preferred, but when this is not possible, use Level II or III. Examples include “1.C.2”, “3.A.1”, “4.C.1”.
vegclass_local_type	Local Vegetation Classification Type	free text	Indicate the local classification scheme used at this site. Examples include: For Alaska, The Alaska vegetation classification http://www.treesearch.fs.fed.us/pubs/6941
veg_note	Additional Vegetation Data Notes	free text	Provide references or links here if additional site-level vegetation data are available (e.g. species composition, basal area, aboveground biomass). Examples include: “DBH and tree heights available for this site. See Bonanza Creek LTER online database (http://www.lter.uaf.edu/site_search.cfm).”

landscape	Landscape		The type of Landscape on which the site occurs, according to USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; p. 3-11) This information can be arranged in hierarchy above Landform and 2D Position to describe the geographic setting of the site. Examples include: “alluvial plain”, “river valley”, “mountain range”, “shore complex” Controlled vocabulary: landscape
landform	Landform		The type of Landform on which the site is located. See USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; pp. 3-12 through 3-16). This information can be nested between Landscape and 2D Position to describe the setting of the site. Examples include: “alluvial fan”, “beach”, “escarpment”, “flood plain”, “hill”, “mountain”, “plain”, “sea cliff”, “terrace”, “tidal flat” Controlled vocabulary: landform
2d_position	2D Position		2-dimensional position of the site on the Landform on which it is located. See USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; pp. 3-38 through 3-41). This information supplements Landscape and Landform to describe the geographic setting of the site. Examples include: “summit”, “shoulder”, “backslope”, “toeslope”, “base slope”, “riser”, “mountainflank”, “dip” Controlled vocabulary: 2d_position
landform_note	Landform Notes	free text	Additional notes about the Landform (e.g. microtopography) in this site.
parent	Parent Material	free text	The geologic or organic precursors to the soil at the site. Examples include: “loess”, “glacial till”, “dolomite residuum”
aspect_deg	Site Aspect	degree	The numerical observation of aspect at the site. The compass bearing (corrected for declination) that a slope faces, looking downslope. If the site has no slope leave blank. Examples include: A numerical value between 0 and 360, or "no slope"
aspect_cl	Site Aspect Class		The cardinal direction that the slope faces at a site. Use this field if only if you do not provide the azimuth of the Site Aspect in compass degrees. Controlled vocabulary: direction
slope	Slope	percent	The angle of the ground surface through the site and in the direction that overland water would flow. Make observations facing downslope to avoid errors associated with some brands of clinometers. If the site has no slope leave blank.
stand_age	Maximum Stand Age	years	The maximum stand age at the site in years.
stand_maturity	Stand Maturity		If the site is forested, how mature was the stand at the time of sampling? The class may be determined by tree cores if available. If stand age is known, then 0-4 years: “young, regenerative”, 4-79 years: “even-aged, aggrading, and 80+ years: “mature even-age” or “mature, uneven-age”. Choose “not applicable” for grassland or agricultural areas. If unknown, leave blank. Controlled vocabulary: stand_age
successional_status	Successional	free	Description of the assumed successional status at the site. This description is of necessity

	Status	text	highly subjective.
drainagecl	Drainage Class		The drainage class of the soil sampled at the site according to the specific terminology employed in the USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; p. 1-10). Controlled vocabulary: drainage
depth_water	Depth to Water Table	cm	Measure or estimate the depth from the ground surface to the stabilized contact with free-standing water in an open bore-hole or well at the time of sampling.
thaw_depth_site	Thaw Depth of the Site	cm	The depth at which permafrost will usually thaw each summer for the site. Usually an average of many measurements over the site. This may or may not be from the thaw depth measured from individual profiles and hence may be different from Thaw Depth of the profile.
bedrock_depth	Depth to Bedrock	cm	The observed depth to the top of the bedrock layer.
climate_station	Meterological Station	free text	Name of nearest climate station. Examples include: "Van Riper State Park", "Bald Mtn. SNOTEL", "Grayson 3SW", "DTW"
ffdays	Frost Free Days	days	The expected number of days between the last freezing temperature (0 degrees Celsius) in spring and the first freezing in fall.
flood_freq	Flooding Frequency		The annual probability of a flood event expressed as a class according to the terminology employed in the USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002, pg. 1-11). Controlled vocabulary: flood_freq
geo_form	Geologic Formation	free text	The basic lithostratigraphic unit used to describe, delimit, and interpret sedimentary, extrusive igneous, metavolvanic, and metasedimentary or sediment bodies (excludes metamorphic and intrusive igneous rocks), based on lithic characteristics and stratigraphic position. A formation is commonly, but not necessarily, tabular and stratified and is of sufficient extent to be mappable at the earth's surface or traceable in the subsurface at convenient map scales. Examples include: "Mount Spokane Gneiss", "Martinsburg Shale", "Jacobsville Sandstone"
map	Mean Annual Precipitation	mm	The arithmetic average of the total annual (liquid) precipitation , preferably taken over the standard "normal" period, 1961-1990.
mat	Mean Annual Temperature	°C	The arithmetic average of the daily maximum and minimum temperatures for a calendar year, preferably taken over the standard "normal" period, 1961.
mast	Mean Annual Soil Temperature	°C	The mean annual soil temperature, preferably measured at a depth of 50 cm below the soil surface, or at the upper boundary of a root-limiting layer.
pond_freq	Ponding Frequency		The number of times ponding occurs over a period of time. Controlled vocabulary: pond_freq
runoff	Local Runoff Class		Runoff potential class for the soil, assigned based on local/state/MLRA criteria. Controlled vocabulary: runoff
site_perm	Site Permeability		A class rating of the overall ability of air and water to move through the soil profile. The class limits are as defined in the National Soil Survey Handbook. Controlled vocabulary: site_perm
water_table_duration	Wet Soil Moisture	days	The cumulative annual duration that a water table can be expected to exist in the soil.

	Duration		
cflux_note	C Flux Notes	free text	Provide references or links to carbon flux measurements that have been conducted at the site. Examples include: “http://www.fluxdata.org/Data%20Browsing/Documents%20Free/FluxMetSummary.aspx”, “Gough et al. 2007 Legacy of harvest…”
climate_note	Climate Notes	free text	Provide references or links to climate data for the site. Examples include: “http://www.lternet.edu/sites/hbr/”, “Nave et al. 2009 Contribution of atmospheric deposition…”
eco_note	Ecoregion Note	free text	Special information about the site that makes it anomalous from the USDA Omernik ecoregion in which it is located.
photo_note	Photo Notes	free text	References or links to photos from the site. Examples include: “Available at http://lter.kbs.msu.edu/photos/index.php”
soiltemp_note	Soil Temperature Notes	free text	Indicate information about additional soil temperature data available about this site. Please include references and links if possible.
add_note	Additional Data Note	free text	Add links or publication references for any additional belowground data available for the site (soil chemistry, microbial measurements).
soc	Calculated Soil Organic Carbon Stock	g cm-2	The data contributor's calculated soil organic carbon stock value for the site, cluster, profile or layer.
soc_type	Calculated Soil Organic Carbon Stock Type		An indication of which portion of the profile (organic, mineral, organic + mineral) is described by the contributor's calculated soil organic carbon stock at the site, cluster, profile or layer level. Controlled vocabulary: ccon_type
soc_pcount	Calculated Soil Organic Carbon Stock Profile Count	free text	The number of profiles used in the calculation of the mean site or cluster-level soil organic carbon stocks.
soc_depth	Calculated Soil Organic Carbon Stock Depth	cm	The depth to which profiles were sampled to quantify the mean site, cluster, or profile calculated soil organic carbon stocks.
soc_sigma	Calculated Soil Organic Carbon Stock Standard Deviation	g cm-2	The standard deviation of the site, cluster, profile, or layer-level calculated soil organic carbon stock. (For layer soil organic carbon stocks, this may be based on analytical or sampling replicates of %C or bulk density measurements).
soc_method	Calculated Soil Organic Carbon Stock Method	free text	A description of the methods used to calculate (including any gap-filling) site, cluster, profile or layer soil organic carbon stocks.

profile			
Variable	Name	Units	Description
site_name	Site Name	free text	A unique name for a site that corresponds to a georeferenced point. Examples include: “101”,“DFTC”, “Site 1”, “99AK180003”

profile_name	Profile/Plot Name	free text	A unique name for a single profile. This can be the same as the site name if there is only one profile at the site. For NRCS data it is the same as “Pedon ID”. Examples include: “BZBS4”, “99P0544”, “Profile 1”
profile_note	Profile Notes	free text	Additional notes about the profile
layer_method	Layer Sampling Method	free text	Description of how the individual layers of the soil profile were sampled as genetic horizons, fixed depth intervals, some combination or other.
profile_method	Profile Sampling Method	free text	Description of the methods used to sample the soil profile, e.g., quantitative pit, core, bucket auger, etc.
observation_date	Observation Date	YYYY-MM-DD or MM/DD/YYYY	The date at which the profile was taken at the site. Examples include: “2001-08-20”
observation_date_acc	Observation Date Accuracy	free text	Estimated accuracy of the observation date.
transect_flag	Part of a Transect Flag		Indicate whether this profile was part of a transect by entering "yes" or leaving the field blank. Controlled vocabulary: yes_blank
surface_veg	Surface Vegetation	free text	Describe the dominant vegetation at the exact location of the profile. Examples include: “Forest with canopy dominanted by Pinus spp., Quercus dominant in understory, and ground layer of Pteridium aquilinum and Vaccinium spp.”, “Andropogon-Sorghastrum prairie with invading Juniperus virginiana”
soil_taxon	Soil Taxonomy	free text	The taxonomic classification of the soil profile following NRCS convention (http://soils.usda.gov/technical/classification/taxonomy/). Examples include: “Coarse-silty, mixed, active, subgelic Typic Dystrocryepts”, “Sandy, mixed, frigid Entic Haplorthods”
soil_series	Soil Series	free text	The NRCS soil series of the profile (http://soils.usda.gov/technical/classification/taxonomy/). Examples include: "Cowboy", "Rubicon", "Tawas"
add_taxon_flag	Complete Taxonomy Flag		Indicate whether there is more taxonomic information for this profile by entering “yes”, otherwise leave the field blank. Controlled vocabulary: yes_blank
thaw_depth_profile	Thaw Depth of the Profile	cm	The depth to the frozen surface of the profile. For Alaska sites, this applies only if sampled after August 15 and should be left blank if sampled before.
profile_properties_note	Profile Properties Notes	free text	Additional notes about the soil and surface vegetation profile properties

sampler_names	Sampler Names	free text	The names of the persons who described and sampled the profile. Examples include: “Johnson, Kris”, “Nave, Luke”
soc	Calculated Soil Organic Carbon Stock	g cm-2	The data contributor's calculated soil organic carbon stock value for the site, cluster, profile or layer.
soc_type	Calculated Soil Organic Carbon Stock Type		An indication of which portion of the profile (organic, mineral, organic + mineral) is described by the contributor's calculated soil organic carbon stock at the site, cluster, profile or layer level. Controlled vocabulary: ccon_type
soc_lcount	Calculated Soil Organic Carbon Stock Layer Count	free text	The number of layer soil organic carbon stock values summed to produce the profile total soil organic carbon stock.
soc_depth	Calculated Soil Organic Carbon Stock Depth	cm	The depth to which profiles were sampled to quantify the mean site, cluster, or profile calculated soil organic carbon stocks.
soc_sigma	Calculated Soil Organic Carbon Stock Standard Deviation	g cm-2	The standard deviation of the site, cluster, profile, or layer-level calculated soil organic carbon stock. (For layer soil organic carbon stocks, this may be based on analytical or sampling replicates of %C or bulk density measurements).
soc_method	Calculated Soil Organic Carbon Stock Method	free text	A description of the methods used to calculate (including any gap-filling) site, cluster, profile or layer soil organic carbon stocks.

layer			
Variable	Name	Units	Description
site_name	Site Name	free text	A unique name for a site that corresponds to a georeferenced point. Examples include: “101”,“DFTC”, “Site 1”, “99AK180003”
profile_name	Profile/Plot Name	free text	A unique name for a single profile. This can be the same as the site name if there is only one profile at the site. For NRCS data it is the same as “Pedon ID”. Examples include: “BZBS4”, “99P0544”, “Profile 1”
layer_name	Layer Name	free text	A unique name for a single sampled layer. This can be a name that denotes depth, sequence, etc. Examples include: “0-10”, “10-20”, “40A04456”, “BZBS 4.1”
layer_number	Laboratory Layer Number	free text	Laboratory layer sample identifier if different than the Layer Name (data contributor’s own identifier).

labeled_addition	Labeled Addition		Was this layer/gas/fraction/sample isotopically labeled? Answer yes or leave blank. Controlled vocabulary: yes_blank
layer_top	Layer Top	cm	The top (upper) depth of the layer. The surface of the non-green (i.e. non-living) surface layer is “0”. The top of the O-horizon should be 0.
layer_bot	Layer Bottom	cm	The bottom (lower) depth of the layer. If it is uncertain that the bottom of the designated horizon was reached, enter the depth to the bottom of the sampled layer. Note that this is the same as "hzn_bot" in the NRCS database.
hzn_desgn	Horizon Designation	free text	Follow conventions of the USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; pp. 2-2 through 2-4). Note that datasets originally using another convention will be modified for this column. If a different convention was used it can be entered in Horizon Designation Other. Examples include: “Oi”, “A”, “AE”, “A/E”, “Bwf”, “Bhs”
hzn_desgn_other	Horizon Designation Other	free text	Horizon designation following a convention other than NRCS. Please document the convention in the associated Horizon Designation Other Note. Examples include: “L”, “F”, “M”, “H”, “OF”, “OM”, “OH”
hzn_desgn_other_note	Horizon Designation Other Note	free text	Provide a reference for the horizon designations employed if they differ from NRCS standards in the USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002).
layer_note	Soil Layer Notes	free text	A description of the sampled layer. For example, a full NRCS horizon description. Examples include: “2-5 cm; brown (10YR 4/3) silt loam; moderate very fine platy structure; very friable; many roots; many fine vesicular pores; brown (10YR 5/3) on plate faces; many very thin bands of finer material similar to B't (below) throughout the horizon; abrupt wavy boundary”, “Denser, darker fabrics with white fungus and larger roots”
c_method	Carbon Analysis Method	free text	Provide reference or describe the sample preparation and analysis methods used to determine carbon concentrations, whether Total Carbon, organic C, or Loss on Ignition. Examples include: “Determined total %C from CHN analysis of air dried <2mm fraction”
color	Moist Munsell Color	free text	Color of moist soil based on the Munsell soil color chart. Examples include: “10YR 3/3”
burn_ev	Evidence of Burning	CV	Descriptive information indicating evidence of burning within the layer. Examples include: “charcoal”, “burned organic matter”, “ash”

bd_method	Bulk Density Method	free text	Please reference or describe the methods used to determine bulk density. Examples include: “Determined BD_sample from core volume and dry weight of <2mm fraction”, “Strahm et al. 2005 Soil Solution…”
bd_samp	Bulk Density, Coarse Fragments Removed	g cm-3	Grams of oven-dried soil per cubic centimeter, with soil particles greater than 2 mm and roots greater that 1 cm diameter removed.
bd_tot	Bulk Density With Coarse Fragments	g cm-3	Grams of oven-dried soil per cubic centimeter, with soil particles greater than 2 mm and roots greater that 1 cm diameter included.
bd_whole	Bulk Density Minus Estimated Coarse Fragments	g cm-3	Grams of oven-dried soil per cubic centimeter, with the content of soil particles >2mm and roots >1cm diameter estimated and subtracted.
bd_other	Bulk Density Other	g cm-3	Grams of oven-dried soil per cubic centimeter. Please document the method used in the associated Bulk Density Method including the soil particle fraction used.
ph_method	pH Method	free text	Provide reference or describe the sample preparation and analysis methods used for determinations of pH if not 1:1 soil and distilled water paste or in CaCl2.
ph_cacl	Soil pH CaCl2	free text	1:2 soil-CaCl2 is the pH of a sample measured in 0.01M CaCl2 at a 1:2 soil:solution ratio.
ph_h2o	Soil pH 1:1	free text	1:1 distilled water and soil paste. If pH was done by a different method, then enter it into one of the other soil pH fields.
ph_other	Soil pH Other	free text	pH measurements other than 1:1 soil and distilled water paste or in CaCl2. Please document the method in the associated pH Method.
caco3	CaCO3	percent	Inorganic carbon concentration as measured or estimated by the contributor. Please document the method in the associated Processed Site Organic Carbon Content Method.
sand_tot_psa	Percent Sand	percent	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. See Gee, G.W. & Bauder, J.W. 1986.
silt_tot_psa	Percent Silt	percent	Percent by weight of soil particles in the size range from 0.002 to 0.050 mm in the sample remaining after removal of particles greater than 2 mm and roots greater than 1 cm diameter. See Gee, G.W. & Bauder, J.W. 1986.
clay_tot_psa	Percent Clay	percent	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. See Gee, G.W. & Bauder, J.W. 1986.
wpg2_method	Coarse Fragments Method	free text	Provide a reference for or describe the methods used to determine coarse fragment content.

wpg2	Coarse Fragments	percent	The weight fraction of particles with >2 mm diameter is reported as a gravimetric percent on a whole soil base. Please include metadata in the Coarse Fragments Method column (e.g. estimate or quantitative).
cat_exch	Cation Exchange Capacity	cmol H+ kg-1	Cation Exchange Capacity. Document the extractant solution in the metadata worksheet, Lab Analysis Method.
gwc	Gravimentric % Moisture	percent	Gravimetric water content of the sampled layer.
vwc	Volumetric % Moisture	percent	Water content of the soil sample expressed as a percent of total sample volume.
al_dith	Dithionate extractable [Al]	specified by al_fe_units	
al_ox	Oxalate extractable [Al]	specified by al_fe_units	
al_other	Other extractable [Al]	specified by al_fe_units	
fe_dith	Dithionate extractable [Fe]	specified by al_fe_units	
fe_ox	Oxalate extractable [Fe]	specified by al_fe_units	
fe_other	Other extractable [Fe]	specified by al_fe_units	
mn_dith	Dithionate extractable [Mn]	specified by al_fe_units	
mn_ox	Oxalate extractable [Mn]	specified by al_fe_units	
mn_other	Other extractable [Mn]	specified by al_fe_units	
al_fe_units	Extractable Al, Fe, Mn units		Controlled vocabulary: extract_units
al_fe_method	Al, Fe, Mn extraction methods	free text	
ca_al	Ca:Al (molar)	specified by bc_units	
ca_ext	Extractable [Ca]	specified by bc_units	

k_ext	Extractable [K]	specified by bc_units	
mg_ext	Extractable [Mg]	specified by bc_units	
na_ext	Extractable [Na]	specified by bc_units	
bc_units	Base cation extraction units		Controlled vocabulary: extract_units
bc_method	Base cation extraction methods	free text	
base_sum	CEC, sum of bases	specified by cec_h_units	
cec_sum	CEC, sum of cations	specified by cec_h_units	
ecec	Effective CEC	specified by cec_h_units	
cec_h_units	CEC and acidity units		Controlled vocabulary: extract_units
bs	Base saturation	percent	
bs_sum	Base saturation, sum of cations	percent	
h_ext	Extractable acidity	specified by metal_ext_units	
zn_ext	Extractable [Zn]	specified by metal_ext_units	
metal_ext_units	Extractable metals units		Controlled vocabulary: extract_units
metal_ext_method	Extractable metals methods	free text	
p_bray	Extractable [P] (Bray)	specified by p_units	
p_ox	Extractable [P] (Oxalate)	specified by p_units	
p_meh	Extractable [P] (NZ)	specified by p_units	
p_other	Extractable [P] (Other)	specified by p_units	
p_units	Extractable P units		Controlled vocabulary: extract_units
p_method	Extractable P methods	free text	

soc	Calculated Soil Organic Carbon Stock	g cm-2	The data contributor's calculated soil organic carbon stock value for the site, cluster, profile or layer.
soc_type	Calculated Soil Organic Carbon Stock Type		An indication of which portion of the profile (organic, mineral, organic + mineral) is described by the contributor's calculated soil organic carbon stock at the site, cluster, profile or layer level. Controlled vocabulary: ccon_type
soc_sigma	Calculated Soil Organic Carbon Stock Standard Deviation	g cm-2	The standard deviation of the site, cluster, profile, or layer-level calculated soil organic carbon stock. (For layer soil organic carbon stocks, this may be based on analytical or sampling replicates of %C or bulk density measurements).
soc_method	Calculated Soil Organic Carbon Stock Method	free text	A description of the methods used to calculate (including any gap-filling) site, cluster, profile or layer soil organic carbon stocks.
c_tot	Total Carbon	percent	Percent by weight of carbon in the dried, milled soil sample. This measurement will typically correspond to analytical results from an elemental analyzer.
oc	Organic Carbon	percent	Percent by weight of carbon in a dried soil sample after acidification with HCl, OR organic carbon as estimated by Walkley-Black Modified Acid-Dichromate (e.g. 'Organic Carbon' in the NRCS database). Please document the method in the associated Carbon Analysis Methods.
n_tot	Total Nitrogen	percent	Percent by weight of nitrogen (organic and inorganic) in an oven-dried sample (the laboratory analytical concentration).
c_to_n	C:N	mass ratio	Mass ratio of total carbon to total nitrogen, as calculated from the total carbon and total nitrogen concentrations of the bulk layer, fraction, or other sample type.
loi	Loss on Ignition	percent	Percent by weight of the organic content of the <2mm fraction is the organic material lost after ignition. It is reported on a <2 mm base. Please document the method in the associated Carbon Analysis Method.
root_quant_size	Root Quantity and Size	free text	Use USDA NRCS conventions from the USDA-NRCS-NSSC Field Book for Describing and Sampling Soils (Staff 2002; p.2-56): Record the average quantity from 3 to 5 representative unit areas. Size classes of roots being considered: very fine, < 1mm; fine, 1 – 2mm diameter. Examples include: "few very fine", "Common very fine", "fine"
root_weight	<2mm Root Mass	g	Dry weight of roots ≤2 mm in diameter in the sample.
15n	δ15N	‰	Per mille signature of δ15N relative to air (international standard).
13c	δ13C	‰	Per mille signature of δ13C relative to Pee Dee Belemnite.
rc_lab	Radiocarbon Laboratory ID	free text	Laboratory code for radiocarbon laboratory. Complete list of past and present laboratory codes can found published in

			Radiocarbon in November 2011 (http://www.radiocarbon.org/Info/labcodes.html).
rc_lab_number	Radiocarbon Laboratory Sample Number	free text	Layer sample identifier as designated by the radiocarbon laboratory.
rc_year	Radiocarbon Analysis Year	YYYY	Year in which radiocarbon analysis was performed on the sample.
14c	Δ14C	‰	Per mille signature of Δ14C relative to NBS Oxalic Acid standard.
14c_sigma	Δ14C Standard Deviation	‰	Error estimate for the fraction (eg. standard deviation of analytical reps).
14c_age	Uncalibrated Radiocarbon Age	BP	Uncalibrated radiocarbon age of bulk soil in layer, as calculated from corrected fraction modern, using the Libby half-life value of 5568 years.
14c_age_sigma	Uncalibrated Radiocarbon Age Standard Deviation	BP	Error estimate for the fraction (eg. standard deviation of analytical reps).
fraction_modern	Fraction Modern	free text	Deviation of the bulk sample or fraction from modern. Modern is defined as 95% of the radiocarbon concentration (in AD 1950) of NBS Oxalic Acid standard, 13C-corrected.
fraction_modern_sigma	Fraction Modern Standard Deviation	free text	Error estimate for an individual layer (eg. standard deviation of analytical reps).
textureClass	Texture Class	free text	Soil texture classification. If no information is provided, this will be automatically generated from %sand, %silt, %clay data (coarse = ≥50% sand; fine = <50% sand).

fraction			
Variable	Name	Units	Description
site_name	Site Name	free text	A unique name for a site that corresponds to a georeferenced point. Examples include: “101”,“DFTC”, “Site 1”, “99AK180003”
profile_name	Profile/Plot Name	free text	A unique name for a single profile. This can be the same as the site name if there is only one profile at the site. For NRCS data it is the same as “Pedon ID”. Examples include: “BZBS4”, “99P0544”, “Profile 1”
layer_name	Layer Name	free text	A unique name for a single sampled layer. This can be a name that denotes depth, sequence, etc. Examples include: “0-10”, “10-20”, “40A04456”, “BZBS 4.1”
fraction_name	Fraction Sample Name	free text	A unique name for a single fraction.
fraction_number	Laboratory	free	Laboratory fraction identifier if different than the Fraction Name

	Fraction Number	text	(data contributor’s own identifier).
labeled_addition	Labeled Addition		Was this layer/gas/fraction/sample isotopically labeled? Answer yes or leave blank. Controlled vocabulary: yes_blank
fraction_scheme	Fractionation Scheme	free text	The scheme used to isolate the fraction, e.g., density, size, aggregate, chemical.
fraction_property	Fraction Property	free text	The value of the chemical or physical property that defines the fraction as unique from the others in its scheme, e.g., for density fractions, "<1.85" to denote a light fraction.
fraction_scheme_units	Fractionation Scheme Units	free text	The units of measurement of the property that defines a fraction as unique, e.g. for density fractions, "g cm-3".
fraction_type	Fraction Type	free text	The contributor's name for the specific fraction, e.g., "light fraction".
fraction_agent	Fractionation Agent	free text	The laboratory or analytical device or chemical compound used to isolate the fraction, e.g., "sodium polytungstate" or "sieve".
fraction_note	Fraction Notes	free text	The contributor's concise description of the fractionation process.
c_method	Carbon Analysis Method	free text	Provide reference or describe the sample preparation and analysis methods used to determine carbon concentrations, whether Total Carbon, organic C, or Loss on Ignition. Examples include: “Determined total %C from CHN analysis of air dried <2mm fraction”
fraction_c_perc	Fraction proportion of sample carbon	percent	The proportion of total sample (i.e., bulk layer) carbon contained in the fraction.
fraction_mass_perc	Fraction proportion of sample mass	percent	The proportion of the total sample (i.e., bulk layer) mass represented by the fraction.
c_tot	Total Carbon	percent	Percent by weight of carbon in the dried, milled soil sample. This measurement will typically correspond to analytical results from an elemental analyzer.
oc	Organic Carbon	percent	Percent by weight of carbon in a dried soil sample after acidification with HCl, OR organic carbon as estimated by Walkley-Black Modified Acid-Dichromate (e.g. ‘Organic Carbon’ in the NRCS database). Please document the method in the associated Carbon Analysis Methods.
n_tot	Total Nitrogen	percent	Percent by weight of nitrogen (organic and inorganic) in an oven-dried sample (the laboratory analytical concentration).
c_to_n	C:N	mass ratio	Mass ratio of total carbon to total nitrogen, as calculated from the total carbon and total nitrogen concentrations of the bulk layer, fraction, or other sample type.
loi	Loss on Ignition	percent	Percent by weight of the organic content of the <2mm fraction is the organic material lost after ignition. It is reported on a <2 mm base. Please document the method in the associated Carbon Analysis Method.
15n	δ15N	‰	Per mille signature of δ15N relative to air (international standard).

13c	δ13C	‰	Per mille signature of δ13C relative to Pee Dee Belemnite.
rc_lab	Radiocarbon Laboratory ID	free text	Laboratory code for radiocarbon laboratory. Complete list of past and present laboratory codes can found published in Radiocarbon in November 2011 (http://www.radiocarbon.org/Info/labcodes.html).
rc_lab_number	Radiocarbon Laboratory Sample Number	free text	Layer sample identifier as designated by the radiocarbon laboratory.
rc_year	Radiocarbon Analysis Year	YYYY	Year in which radiocarbon analysis was performed on the sample.
14c	Δ14C	‰	Per mille signature of Δ14C relative to NBS Oxalic Acid standard.
14c_sigma	Δ14C Standard Deviation	‰	Error estimate for the fraction (eg. standard deviation of analytical reps).
14c_age	Uncalibrated Radiocarbon Age	BP	Uncalibrated radiocarbon age of bulk soil in layer, as calculated from corrected fraction modern, using the Libby half-life value of 5568 years.
14c_age_sigma	Uncalibrated Radiocarbon Age Standard Deviation	BP	Error estimate for the fraction (eg. standard deviation of analytical reps).
fraction_modern	Fraction Modern	free text	Deviation of the bulk sample or fraction from modern. Modern is defined as 95% of the radiocarbon concentration (in AD 1950) of NBS Oxalic Acid standard, 13C-corrected.
fraction_modern_sigma	Fraction Modern Standard Deviation	free text	Error estimate for an individual layer (eg. standard deviation of analytical reps).

disturbance			
Variable	Name	Units	Description
site_name	Site Name	free text	A unique name for a site that corresponds to a georeferenced point. Examples include: “101”,“DFTC”, “Site 1”, “99AK180003”
dm_agriculture	Crop management such as harvest or crop residue management		Controlled vocabulary: dm_agriculture
dm_encroach	Encroachment such as invasive species or woody enroachment		Controlled vocabulary: dm_encroach

dm_ext_weather	Extreme weather such as hurricane, frost, or drought		Controlled vocabulary: dm_ext_weather
dm_fert_m	Mineral fertilization including liming		Controlled vocabulary: dm_fert_m
dm_fert_o	Organic fertilization		Controlled vocabulary: dm_fert_o
dm_fire	Fires including underburn		Controlled vocabulary: dm_fire
dm_forestry	Forestry management such as clearcutting or thinning		Controlled vocabulary: dm_forestry
dm_graze	Grazing		Controlled vocabulary: dm_graze
dm_ins_path	Substantial insect, pathogen attack, or disease event		Controlled vocabulary: dm_ins_path
dm_pesticide	Application of pesticide, insecticide, or fungicide		Controlled vocabulary: dm_pesticide
dm_planting	Planting of live plants or seeds		Controlled vocabulary: dm_planting
dm_till	Tillage or site preparation including scarification and plowing		Controlled vocabulary: dm_till
dm_water	Water management such as irrigation, flooding or drainage		Controlled vocabulary: dm_water
dm_general	General disturbance or management event not covered by other disturbance or management		Controlled vocabulary: dm_general

	type		
dm_surf	Percentage of the footprint area affected by the event	percent	
dm_date	Date of site disturbance	YYYY-MM-DD or MM/DD/YYYY	
dm_date_start	Start date of site disturbance	YYYY-MM-DD or MM/DD/YYYY	
dm_date_end	End date of site disturbance	YYYY-MM-DD or MM/DD/YYYY	
dm_date_unc	Uncertainty in the End date of site disturbance	days	
dm_note	Site disturbance note	free text	

One or more parameters were not specified for the subreport, 'Subreport6', located at: /SheetSub.