Geochemical and mineralogical data for soils of the conterminous United States

Metadata also available as - [Questions & Answers]

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Abstract:

In 2007, the U.S. Geological Survey initiated a low-density (1 site per 1,600 square kilometers, 4,857 sites) geochemical and mineralogical survey of soils of the conterminous United States as part of the North American Soil Geochemical Landscapes Project. Sampling and analytical protocols were developed at a workshop in 2003, and

pilot studies were conducted from 2004 to 2007 to test and refine these recommended protocols. The final sampling protocol for the national-scale survey included, at each site, a sample from a depth of 0 to 5 centimeters, a composite of the soil A horizon, and a deeper sample from the soil C horizon or, if the top of the C horizon was at a depth greater than 1 meter, from a depth of approximately 80–100 centimeters. The <2-millimeter fraction of each sample was analyzed for a suite of 45 major and trace elements by methods that yield the total or near-total elemental content. The major mineralogical components in the samples from the soil A and C horizons were determined by a quantitative X-ray diffraction method using Rietveld refinement. Sampling in the conterminous United States was completed in 2010, with chemical and mineralogical analyses completed in May 2013. The resulting dataset provides an estimate of the abundance and spatial distribution of chemical elements and minerals in soils of the conterminous United States and represents a baseline for soil geochemistry and mineralogy against which future changes may be recognized and quantified. This report (1) describes the sampling, sample preparation, and analytical methods used; (2) gives details of the quality control protocols used to monitor the quality of chemical and mineralogical analyses over approximately six years; and (3) makes available the soil geochemical and mineralogical data in downloadable tables.
Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 2007
Ending_Date: 2013
Currentness_Reference: Sample collection and analysis period
Status:
Progress: Complete
Maintenance_and_Update_Frequency: None is planned for the project
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -124.4019
East_Bounding_Coordinate: -67.5201
North_Bounding_Coordinate: 48.9835
South_Bounding_Coordinate: 25.1376
Keywords:
Theme:
Theme_Keyword_Thesaurus: none
Theme_Keyword:
Soil Geochemical Landscapes of the Conterminous United States Project
Theme_Keyword: North American Soils Geochemical Landscapes Project
Theme_Keyword: NASGL Project
Theme_Keyword: soil
Theme_Keyword: 0-5 cm
Theme_Keyword: A horizon
Theme_Keyword: C horizon
Theme_Keyword: exploration geochemistry
Theme_Keyword: environmental geochemistry

Theme_Keyword: soil chemistry
Theme_Keyword: soil mineralogy
Theme_Keyword: x-ray diffraction
Theme_Keyword: geochemical data
Theme_Keyword: mineralogical data
Theme_Keyword: soil samples
Theme_Keyword: arsenic
Theme_Keyword: barium
Theme_Keyword: beryllium
Theme_Keyword: bismuth
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Theme_Keyword: tungsten
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Theme_Keyword: zinc
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Theme_Keyword: plagioclase
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Theme_Keyword: analcime
Theme_Keyword: heulandite
Theme_Keyword: zeolite
Theme_Keyword: gypsum
Theme_Keyword: talc
Theme_Keyword: hornblende
Theme_Keyword: serpentine
Theme_Keyword: hematite
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Theme_Keyword: pyroxene
Theme_Keyword: pyrite
Theme_Keyword: amorphous
Place:
Place_Keyword_Thesaurus: none
Place_Keyword: United States of America
Place_Keyword: U.S.
Place_Keyword: Alabama
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Place_Keyword: Arizona
Place_Keyword: California
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Place_Keyword: Kentucky
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Place_Keyword: North Carolina
Place_Keyword: North Dakota
Place_Keyword: Ohio
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Place_Keyword: Oregon
Place_Keyword: Pennsylvania
Place_Keyword: Rhode Island
Place_Keyword: South Carolina
Place_Keyword: South Dakota
Place_Keyword: Tennessee
Place_Keyword: Texas
Place_Keyword: Utah
Place_Keyword: Virginia
Place_Keyword: Vermont
Place_Keyword: Washington
Place_Keyword: West Virginia
Place_Keyword: Wisconsin
Place_Keyword: Wyoming
Access_Constraints: none
Use_Constraints:
Users are required to determine the suitability of use for any particular purpose.
Except for the site identification and the geographic coordinates, which are numeric fields, the mineralogic and chemical data fields are given as text to account for the inclusion of the non-numerical values N.S. (no sample available), N.D. (no detect or under the detection limit), INS (insufficient amount of sample to perform an analysis) and those values with the less than (<) or less than/equal to (<=) qualifiers.
Point_of_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: David B. Smith

Contact_Organization: USGS Rocky Mountain Area
Contact_Position: Research Geologist
Contact_Address:
Address_Type: mailing address
Address: Box 25046$Denver Federal Center$Mail Stop 973
City: Denver
State_or_Province: CO
Postal_Code: 80225-0046
Country: USA
Contact_Voice_Telephone: 303-236-1849
Contact_Facsimile_Telephone: 303-236-3200
Contact_Electronic_Mail_Address: `dsmith@usgs.gov`

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

The data of this dataset represent geochemical and mineralogical analyses of soil samples collected in support of the USGS Soil Geochemical Landscapes Project. A written protocol was established prior to the initiation of the field work as several crews from the U.S. Geological Survey, State geological surveys, and the Natural Resources Conservation Service (NRCS) were expected to be involved with the collection of samples. The protocol described the collection procedures and the design of the field sheet used to record the support data related to each sample site. The following attributes were considered and are included in the database:

(1) Location coordinates: All crews were equipped with global positioning system (GPS) receivers set to determine geographic positions using the WGS-84 datum. Coordinates were recorded as decimal degrees of latitude and longitude both into the GPS units and written in the field sheets. Data included in the database are reported in this manner.

(2) Geocoding: The protocol called for the submission of descriptive information (geocoding) related to the sampling site. Some fields were mandatory and others were optional; the completeness varies.

(3) Soil horizons: The identification of soil horizons is a process involving the experience and expertise of the person(s) collecting the sample(s). The identification of precise boundaries between horizons is not always obvious.

(4) Chemical analytical data: The samples in this dataset were chemically analyzed by a uniform and standardized set of techniques between 2008 and 2013. The use of standard reference materials, blanks, and duplicates analyzed along with the regular sample batches documented the quality (bias and precision) of the data.

The precision of the values reported for chemical analytical data varies depending on the element, between 0, 1, or 2 decimal places. The number of decimal places is indicated as part of the description of the tables.

(5) Qualifiers: Data in the chemical tables include the following qualifiers:

"<": The concentration of the element is reported as lower than the lower limit of determination for the particular method. "<=": This qualifier is used in a few instances of organic carbon values. The organic carbon is reported as the difference between measured total carbon and the inorganic carbon content determined from the carbonate

minerals. When there is no sample available for mineralogical analysis, the organic carbon is assumed to be less than or equal to the total measured carbon.
In addition, in a very few instances, there was insufficient sample available for an analytical method to be performed. The data tables show the following for this case: "INS": The concentration of the element was not determined because the sample amount submitted was insufficient to process.
(6) Mineralogical data: The samples were prepared and analyzed using the X-ray diffraction (XRD) method. Mineral species were determined for the major components of the sample fraction having crystalline structure and having been documented with a set of measured dimensions for the crystalline lattice. The addition of an internal standard consisting of 10% zincite (ZnO) with a purity of at least 99.5% allows for the quantification of the crystalline fraction. The remaining fraction is reported as amorphous. All values for mineral phases are reported with a precision of one decimal place.
Undetected mineral phases are reported as "N.D."
Logical_Consistency_Report:
The dataset was constructed by processing data collected in the field and recorded in the field sheets and from laboratory-based chemical and mineralogical analyses. The following criteria were chosen for the reporting of the data:
- Each sample site has a unique identifier (SiteID).
- Each sample site has a set of geographic coordinates (latitude and longitude).
- Each sample collected in the field and analyzed for chemistry in the lab has a unique lab number.
- Each analytical determination is linked to a valid, unique lab number.
Completeness_Report:
"N.S." indicates that a sample is not available because it was either lost in shipping or not collected.
This dataset provides chemical data for Ag, Al, As, Ba, Be, Bi, Total C, Inorganic C, Organic C, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Hg, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, S, Sb, Sc, Se, Sn, Sr, Te, Th, Ti, Tl, U, V, W, Y, and Zn.
The dataset provides location and descriptive information for each sample. Not all the descriptive fields contain information for a particular sample either because it was not recorded by the field crew or because it was lost in shipping after collection.
The analytical methods used were selected based on the goals of the project; the methods used were available through the USGS contract laboratory and remained the same throughout the dataset.
This dataset provides mineralogical data for quartz, total potassium feldspar, total plagioclase, total feldspars, total 14Å clays, total 10Å clays, kaolinite, total clays, gibbsite, calcite, dolomite, aragonite, total carbonates, analcime, heulandite, total zeolites, gypsum, talc, hornblende, hematite, goethite, pyroxene, pyrite, other minerals, and the amorphous content.
The analytical methods, sample preparation protocols, and quality control protocols used for the analyses of these samples are described in this publication. The primary reference that documents the chemical analytical procedures used by the USGS is: Taggart, J.E., Jr. ed., 2002. Analytical methods for geochemical analysis of geologic and other materials,

U.S. Geological Survey: U.S. Geological Survey Open-File Report 02-223, http://pubs.usgs.gov/of/2002/ofr-02-0223/OFR-02-0223.pdf
Lineage:
Process_Step:
Process_Description:
This dataset was created from chemical and mineralogical analyses of samples collected as part of the Soil Geochemical Landscapes of the Conterminous United States Project. At each site, three samples were collected from (1) the top 5 centimeters of soil, (2) the A horizon, and (3) the C horizon. Each sample at a given site was documented in the field using a standardized field sheet with annotations of measurements and observations carried out by the sampling crews. The samples were prepared at the U.S. Geological Survey's lab in Denver, Colo., where splits were taken to send for chemical and mineralogical analyses. All the results of the chemical and mineralogical analyses were stored in spreadsheets and then organized in three final tables, which are presented along with this report.
Process_Date: 2007 through 2013
Process_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Federico Solano
Contact_Organization: USGS Midwest Area
Contact_Position: Physical Science Technician
Contact_Address:
Address_Type: mailing address
Address: 12201 Sunrise Valley Drive$Mail Stop 954
City: Reston
State_or_Province: VA
Postal_Code: 20192-0002
Country: USA
Contact_Voice_Telephone: 703-648-6335
Contact_Facsimile_Telephone: 703-648-6252
Contact_Electronic_Mail_Address: `fsolanoc@usgs.gov`

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: point
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: point
Point_and_Vector_Object_Count: 4857

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Geographic:
Latitude_Resolution: 0.0001
Longitude_Resolution: 0.0001
Geographic_Coordinate_Units: decimal degrees

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: Top5
Entity_Type_Definition:
Data related to the samples collected from the top 5 centimeters of the soils.
Entity_Type_Definition_Source: USGS
Attribute:
Attribute_Label: Top5_LabID
Attribute_Definition:
Unique identifier assigned to each individual sample by the analyzing laboratory.
Attribute:
Attribute_Label: SiteID
Attribute_Definition: Unique identifier assigned to each individual sampling site.
Attribute:
Attribute_Label: StateID
Attribute_Definition: Code for the state as established by NIST.
Attribute:
Attribute_Label: Latitude
Attribute_Definition:
Latitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 25.1376
Range_Domain_Maximum: 48.9835
Attribute_Units_of_Measure: Decimal degrees
Attribute:
Attribute_Label: Longitude
Attribute_Definition:
Longitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum. Negative values indicate locations west of the Greenwich Meridian.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: -124.4019
Range_Domain_Maximum: -67.5201
Attribute_Units_of_Measure: Decimal degrees
Attribute:
Attribute_Label: CollDate
Attribute_Definition:
Date of collection of the sample, as reported in the field sheet, given as mm/dd/yyyy.
Beginning_Date_of_Attribute_Values: 06/01/2007
Ending_Date_of_Attribute_Values: 10/27/2011
Attribute:
Attribute_Label: LandCover1
Attribute_Definition:

Primary land cover classification from the National Land Cover Database 1992 Classification System.
Attribute:
Attribute_Label: LandCover2
Attribute_Definition:
Secondary land cover classification from the National Land Cover Database 1992 Classification System.
Attribute:
Attribute_Label: Top5_Depth
Attribute_Definition:
Depth or depth interval from which the sample was collected in the top 5 level
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0
Range_Domain_Maximum: 5
Attribute_Units_of_Measure: centimeter
Attribute:
Attribute_Label: Top5_Quartz
Attribute_Definition:
Quartz in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Tot_K_fs
Attribute_Definition:
Total potassium feldspar in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Tot_Plg
Attribute_Definition:
Total plagioclase in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Tot_Flds
Attribute_Definition:
Total feldspar in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:

Attribute_Label: Top5_Tot_14Å
Attribute_Definition:
Total 14Å clays in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Tot_10Å
Attribute_Definition:
Total 10Å clays in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Kaolinit
Attribute_Definition:
Kaolinite in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Tot_Clay
Attribute_Definition:
Total clays in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Gibbsite
Attribute_Definition:
Gibbsite in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Calcite
Attribute_Definition:
Calcite in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Dolomite
Attribute_Definition:
Dolomite in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:

Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Aragon
Attribute_Definition:
Aragonite in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Tot_Carb
Attribute_Definition:
Total carbonates in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Analcime
Attribute_Definition:
Analcime in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Heuland
Attribute_Definition:
Heulandite in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Tot_Zeol
Attribute_Definition:
Total zeolites in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Gypsum
Attribute_Definition:
Gypsum in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Talc

Attribute_Definition:
Talc in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Hornbl
Attribute_Definition:
Hornblende and related amphiboles in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Serpent
Attribute_Definition:
Serpentine in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Hematite
Attribute_Definition:
Hematite in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Goethite
Attribute_Definition:
Goethite in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Pyroxene
Attribute_Definition:
Pyroxene in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Pyrite
Attribute_Definition:
Pyrite in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:

Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Other
Attribute_Definition:
Other mineral phase(s) in the top 5 level, which were detected occasionally, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Amorph
Attribute_Definition:
Amorphous in the top 5 level, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Ag
Attribute_Definition:
Silver (Ag) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 7.7
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Al
Attribute_Definition:
Aluminum (Al) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.02
Range_Domain_Maximum: 15.3
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_As
Attribute_Definition:
Arsenic (As) concentration in the top 5 level, measured by hydride-generation atomic absorption spectrometry (HG-AAS) after fusion of the sample in sodium peroxide and sodium hydroxide. Precision of one decimal place.
Attribute_Domain_Values:

Range_Domain:
Range_Domain_Minimum: <0.6
Range_Domain_Maximum: 830
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Ba
Attribute_Definition:
Barium (Ba) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 5
Range_Domain_Maximum: 4770
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Be
Attribute_Definition:
Beryllium (Be) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 17.3
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Bi
Attribute_Definition:
Bismuth (Bi) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.04
Range_Domain_Maximum: 694
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_C_Tot
Attribute_Definition:
Empty field, because total carbon (C) concentration in the top 5 level was not measured. Field included to facilitate vertical pasting of horizons.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:

Attribute_Label: Top5_C_Inorg
Attribute_Definition:
Empty field, because inorganic carbon (C) concentration in the top 5 level was not determined. Field included to facilitate vertical pasting of horizons.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_C_Org
Attribute_Definition:
Empty field, because organic carbon (C) concentration in the top 5 level was not determined. Field included to facilitate vertical pasting of horizons.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Ca
Attribute_Definition:
Calcium (Ca) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 32.8
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Cd
Attribute_Definition:
Cadmium (Cd) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 76.8
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Ce
Attribute_Definition:
Cerium (Ce) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.65

Range_Domain_Maximum: 415
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Co
Attribute_Definition:
Cobalt (Co) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 216
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Cr
Attribute_Definition:
Chromium (Cr) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 4120
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Cs
Attribute_Definition:
Cesium (Cs) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <5
Range_Domain_Maximum: 97
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Cu
Attribute_Definition:
Copper (Cu) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 996
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)

Attribute:
Attribute_Label: Top5_Fe
Attribute_Definition:
Iron (Fe) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 13.3
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Ga
Attribute_Definition:
Gallium (Ga) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.1
Range_Domain_Maximum: 45.1
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Hg
Attribute_Definition:
Mercury (Hg) concentration in the top 5 level, measured by cold-vapor atomic absorption spectrometry (CVAAS) after digestion in HNO3 and HCl. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 56.4
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_In
Attribute_Definition:
Indium (In) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.02
Range_Domain_Maximum: 4.54
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_K

Attribute_Definition:
Potassium (K) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 5.44
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_La
Attribute_Definition:
Lanthanum (La) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 239
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Li
Attribute_Definition:
Lithium (Li) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 300
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Mg
Attribute_Definition:
Magnesium (Mg) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 13.6
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Mn
Attribute_Definition:

Manganese (Mn) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <5
Range_Domain_Maximum: 7780
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Mo
Attribute_Definition:
Molybdenum (Mo) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.05
Range_Domain_Maximum: 75.7
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Na
Attribute_Definition:
Sodium (Na) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 6.41
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Nb
Attribute_Definition:
Niobium (Nb) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 80.1
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Ni
Attribute_Definition:

Nickel (Ni) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 1890
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_P
Attribute_Definition:
Phosphorus (P) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <50
Range_Domain_Maximum: 9120
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Pb
Attribute_Definition:
Lead (Pb) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 12400
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Rb
Attribute_Definition:
Rubidium (Rb) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 299
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_S
Attribute_Definition:

Sulfur (S) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 16.1
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Sb
Attribute_Definition:
Antimony (Sb) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.05
Range_Domain_Maximum: 482
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Sc
Attribute_Definition:
Scandium (Sc) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 42.3
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Se
Attribute_Definition:
Selenium (Se) concentration in the top 5 level, measured by hydride-generation atomic absorption spectrometry (HG-AAS) after digestion of the sample in HNO3, HF, and HClO4. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 6.9
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Sn
Attribute_Definition:

Tin (Sn) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 88.9
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Sr
Attribute_Definition:
Strontium (Sr) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.5
Range_Domain_Maximum: 2620
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Te
Attribute_Definition:
Tellurium (Te) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 50.5
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Th
Attribute_Definition:
Thorium (Th) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 78.3
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Ti
Attribute_Definition:

Titanium (Ti) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 2.47
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: Top5_Tl
Attribute_Definition:
Thallium (Tl) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 8.8
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_U
Attribute_Definition:
Uranium (U) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 102
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_V
Attribute_Definition:
Vanadium (V) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 530
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_W
Attribute_Definition:

Tungsten (W) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 1150
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Y
Attribute_Definition:
Yttrium (Y) concentration in the top 5 level, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.2
Range_Domain_Maximum: 191
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: Top5_Zn
Attribute_Definition:
Zinc (Zn) concentration in the top 5 level, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 11700
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Detailed_Description:
Entity_Type:
Entity_Type_Label: A_horizon
Entity_Type_Definition:
Data related to the samples collected from the A horizon of the soil.
Entity_Type_Definition_Source: USGS
Attribute:
Attribute_Label: A_LabID
Attribute_Definition:
Unique identifier assigned to each individual sample by the analyzing laboratory.
Attribute:
Attribute_Label: SiteID
Attribute_Definition: Unique identifier assigned to each individual sampling site.
Attribute:
Attribute_Label: StateID
Attribute_Definition: Code for the state as established by NIST.

Attribute:
Attribute_Label: Latitude
Attribute_Definition:
Latitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 25.1376
Range_Domain_Maximum: 48.9835
Attribute_Units_of_Measure: Decimal degrees
Attribute:
Attribute_Label: Longitude
Attribute_Definition:
Longitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum. Negative values indicate locations west of the Greenwich Meridian.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: -124.4019
Range_Domain_Maximum: -67.5201
Attribute_Units_of_Measure: Decimal degrees
Attribute:
Attribute_Label: CollDate
Attribute_Definition:
Date of collection of the sample, as reported in the field sheet, given as mm/dd/yy.
Beginning_Date_of_Attribute_Values: 06/01/2007
Ending_Date_of_Attribute_Values: 10/27/2011
Attribute:
Attribute_Label: LandCover1
Attribute_Definition:
Primary land cover classification from the National Land Cover Database 1992 Classification System.
Attribute:
Attribute_Label: LandCover2
Attribute_Definition:
Secondary land cover classification from the National Land Cover Database 1992 Classification System.
Attribute:
Attribute_Label: A_Depth
Attribute_Definition:
Depth or depth interval from which the sample was collected from the A horizon.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: centimeter
Attribute:
Attribute_Label: A_Quartz
Attribute_Definition:
Quartz in the A horizon, determined from the interpretation of the XRD scan.

Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 100
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Tot_K_fs
Attribute_Definition:
Total potassium feldspar in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 41.9
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Tot_Plag
Attribute_Definition:
Total plagioclase in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 70.5
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Tot_Flds
Attribute_Definition:
Total feldspar in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 79.6
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Tot_14Å
Attribute_Definition:
Total 14Å clays in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 28
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Tot_10Å
Attribute_Definition:
Total 10Å clays in the A horizon, determined from the interpretation of the XRD scan.

Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 45.8
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Kaolinit
Attribute_Definition:
Kaolinite in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 43.7
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Tot_Clay
Attribute_Definition:
Total clays in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 68.9
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Gibbsite
Attribute_Definition:
Gibbsite in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 12.9
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Calcite
Attribute_Definition:
Calcite in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 69.8
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Dolomite
Attribute_Definition:
Dolomite in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:

Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 57.2
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Aragon
Attribute_Definition:
Aragonite in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 41.9
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Tot_Carb
Attribute_Definition:
Total carbonates in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 71.5
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Analcime
Attribute_Definition:
Analcime in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 9.6
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Heuland
Attribute_Definition:
Heulandite in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 29.3
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Tot_Zeol
Attribute_Definition:
Total zeolites in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:

Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 29.3
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Gypsum
Attribute_Definition:
Gypsum in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 84.7
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Talc
Attribute_Definition:
Talc in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 20
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Hornbl
Attribute_Definition:
Hornblende and related amphiboles in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 33.8
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Serpent
Attribute_Definition:
Serpentine in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 17.9
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Hematite
Attribute_Definition:
Hematite in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:

Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 12.8
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Goethite
Attribute_Definition:
Goethite in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 15
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Pyroxene
Attribute_Definition:
Pyroxene in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 34.4
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Pyrite
Attribute_Definition:
Pyrite in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 0.6
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Other
Attribute_Definition:
Other mineral phase(s) in the A horizon, which were detected occasionally, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 24.9
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Amorph
Attribute_Definition:
Amorphous in the A horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:

Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 90.4
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Ag
Attribute_Definition:
Silver (Ag) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 14
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Al
Attribute_Definition:
Aluminum (Al) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.01
Range_Domain_Maximum: 15.6
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_As
Attribute_Definition:
Arsenic (As) concentration in the A horizon, measured by hydride-generation atomic absorption spectrometry (HG-AAS) after fusion of the sample in sodium peroxide and sodium hydroxide. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.6
Range_Domain_Maximum: 1110
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Ba
Attribute_Definition:
Barium (Ba) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 6
Range_Domain_Maximum: 4850

Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Be
Attribute_Definition:
Beryllium (Be) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 22.1
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Bi
Attribute_Definition:
Bismuth (Bi) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.04
Range_Domain_Maximum: 129
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_C_Tot
Attribute_Definition:
Total carbon (C) concentration in the A horizon, measured by combustion. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.04
Range_Domain_Maximum: 60.2
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_C_Inorg
Attribute_Definition:
Inorganic carbon (C) concentration in the A horizon, reported as the result of stoichiometric calculation of carbon present in calcite, dolomite, and/or aragonite as determined by X-ray diffraction (XRD). The formula used was ((A_Calcite * 0.12)+(A_Dolomite * 0.1304)+(A_Aragon * 0.12)). Calculated values for a very small percentage of samples (less than 0.005%) were lower than 0 and are reported as N.D. (non-detect). Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 8.6

Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_C_Org
Attribute_Definition:
Organic carbon (C) concentration in the A horizon, reported as the difference between measured total carbon (A_C_Tot) and inorganic carbon (A_C_Inorg). Precision of one decimal place if inorganic carbon is reported, two decimal places otherwise.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0
Range_Domain_Maximum: 60.1
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Ca
Attribute_Definition:
Calcium (Ca) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 29.7
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Cd
Attribute_Definition:
Cadmium (Cd) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 46.6
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Ce
Attribute_Definition:
Cerium (Ce) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.05
Range_Domain_Maximum: 487
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:

Attribute_Label: A_Co
Attribute_Definition:
Cobalt (Co) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 184
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Cr
Attribute_Definition:
Chromium (Cr) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 3850
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Cs
Attribute_Definition:
Cesium (Cs) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <5
Range_Domain_Maximum: 97
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Cu
Attribute_Definition:
Copper (Cu) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 5090
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Fe
Attribute_Definition:

Iron (Fe) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 13.9
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Ga
Attribute_Definition:
Gallium (Ga) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.08
Range_Domain_Maximum: 40.8
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Hg
Attribute_Definition:
Mercury (Hg) concentration in the A horizon, measured by cold-vapor atomic absorption spectrometry (CVAAS) after digestion in HNO3 and HCl. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 8.24
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_In
Attribute_Definition:
Indium (In) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.02
Range_Domain_Maximum: 4.61
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_K
Attribute_Definition:

Potassium (K) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 5.10
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_La
Attribute_Definition:
Lanthanum (La) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 205
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Li
Attribute_Definition:
Lithium (Li) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 315
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Mg
Attribute_Definition:
Magnesium (Mg) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 13.3
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Mn
Attribute_Definition:

Manganese (Mn) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <5
Range_Domain_Maximum: 6850
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Mo
Attribute_Definition:
Molybdenum (Mo) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.05
Range_Domain_Maximum: 70.3
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Na
Attribute_Definition:
Sodium (Na) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 6.60
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Nb
Attribute_Definition:
Niobium (Nb) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 96.8
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Ni
Attribute_Definition:

Nickel (Ni) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 2310
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_P
Attribute_Definition:
Phosphorus (P) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <50
Range_Domain_Maximum: 7650
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Pb
Attribute_Definition:
Lead (Pb) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 2200
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Rb
Attribute_Definition:
Rubidium (Rb) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 461
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_S
Attribute_Definition:

Sulfur (S) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 16.6
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Sb
Attribute_Definition:
Antimony (Sb) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.05
Range_Domain_Maximum: 630
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Sc
Attribute_Definition:
Scandium (Sc) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 48.9
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Se
Attribute_Definition:
Selenium (Se) concentration in the A horizon, measured by hydride-generation atomic absorption spectrometry (HG-AAS) after digestion of the sample in HNO3, HF, and HClO4. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 8.3
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Sn
Attribute_Definition:

Tin (Sn) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 375
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Sr
Attribute_Definition:
Strontium (Sr) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 7080
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Te
Attribute_Definition:
Tellurium (Te) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 9.6
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Th
Attribute_Definition:
Thorium (Th) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 84.1
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Ti
Attribute_Definition:

Titanium (Ti) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.01
Range_Domain_Maximum: 2.76
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: A_Tl
Attribute_Definition:
Thallium (Tl) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 11.5
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_U
Attribute_Definition:
Uranium (U) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 105
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_V
Attribute_Definition:
Vanadium (V) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 524
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_W
Attribute_Definition:

Tungsten (W) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 299
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Y
Attribute_Definition:
Yttrium (Y) concentration in the A horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.2
Range_Domain_Maximum: 254
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: A_Zn
Attribute_Definition:
Zinc (Zn) concentration in the A horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 2130
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Detailed_Description:
Entity_Type:
Entity_Type_Label: C_horizon
Entity_Type_Definition:
Data related to the samples collected from the C horizon of the soil.
Entity_Type_Definition_Source: USGS
Attribute:
Attribute_Label: C_LabID
Attribute_Definition:
Unique identifier assigned to each individual sample by the analyzing laboratory.
Attribute:
Attribute_Label: SiteID
Attribute_Definition: Unique identifier assigned to each individual sampling site.
Attribute:
Attribute_Label: StateID
Attribute_Definition: Code for the state as established by NIST.

Attribute:
Attribute_Label: Latitude
Attribute_Definition:
Latitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: Decimal degrees
Attribute:
Attribute_Label: Longitude
Attribute_Definition:
Longitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum. Negative values indicate locations west of the Greenwich Meridian.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: Decimal degrees
Attribute:
Attribute_Label: CollDate
Attribute_Definition:
Date of collection of the sample, as reported in the field sheet, given as mm/dd/yy.
Beginning_Date_of_Attribute_Values: 06/01/2007
Ending_Date_of_Attribute_Values: 10/27/2011
Attribute:
Attribute_Label: LandCover1
Attribute_Definition:
Primary land cover classification from the National Land Cover Database 1992 Classification System.
Attribute:
Attribute_Label: LandCover2
Attribute_Definition:
Secondary land cover classification from the National Land Cover Database 1992 Classification System.
Attribute:
Attribute_Label: C_Depth
Attribute_Definition:
Depth or depth interval from which the sample was collected in the C horizon.
Attribute_Domain_Values:
Range_Domain:
Attribute_Units_of_Measure: centimeter
Attribute:
Attribute_Label: C_Quartz
Attribute_Definition:
Quartz in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 99.4

Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Tot_K_fs
Attribute_Definition:
Total potassium feldspar in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 45.2
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Tot_Plag
Attribute_Definition:
Total plagioclase in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 67
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Tot_Flds
Attribute_Definition:
Total feldspar in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 80.1
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Tot_14Å
Attribute_Definition:
Total 14Å clays in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 44.1
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Tot_10Å
Attribute_Definition:
Total 10Å clays in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 65.1

Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Kaolinit
Attribute_Definition:
Kaolinite in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 79.9
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Tot_Clay
Attribute_Definition:
Total clays in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 86.3
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Gibbsite
Attribute_Definition:
Gibbsite in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 30.4
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Calcite
Attribute_Definition:
Calcite in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 84.1
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Dolomite
Attribute_Definition:
Dolomite in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 81.4
Attribute_Units_of_Measure: percent by weight (wt.%)

Attribute:
Attribute_Label: C_Aragon
Attribute_Definition:
Aragonite in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 65.3
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Tot_Carb
Attribute_Definition:
Total carbonates in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 84.1
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Analcime
Attribute_Definition:
Analcime in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 9.2
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Heuland
Attribute_Definition:
Heulandite in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 38
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Tot_Zeol
Attribute_Definition:
Total zeolites in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 38
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:

Attribute_Label: C_Gypsum
Attribute_Definition:
Gypsum in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 96.5
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Talc
Attribute_Definition:
Talc in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 16.4
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Hornbl
Attribute_Definition:
Hornblende and related amphiboles in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 62.6
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Serpent
Attribute_Definition:
Serpentine in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 26.7
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Hematite
Attribute_Definition:
Hematite in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 13.5
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:

Attribute_Label: C_Goethite
Attribute_Definition:
Goethite in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 14.1
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Pyroxene
Attribute_Definition:
Pyroxene in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 33.6
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Pyrite
Attribute_Definition:
Pyrite in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 0.4
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Other
Attribute_Definition:
Other mineral phase(s) in the C horizon, which were detected occasionally, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 35.9
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Amorph
Attribute_Definition:
Amorphous in the C horizon, determined from the interpretation of the XRD scan.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 95.2
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:

Attribute_Label: C_Ag
Attribute_Definition:
Silver (Ag) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 3
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Al
Attribute_Definition:
Aluminum (Al) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.02
Range_Domain_Maximum: 18.6
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_As
Attribute_Definition:
Arsenic (As) concentration in the C horizon, measured by hydride-generation atomic absorption spectrometry (HG-AAS) after fusion of the sample in sodium peroxide and sodium hydroxide. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.6
Range_Domain_Maximum: 397
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Ba
Attribute_Definition:
Barium (Ba) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 5
Range_Domain_Maximum: 9360
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Be
Attribute_Definition:

Beryllium (Be) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 31.6
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Bi
Attribute_Definition:
Bismuth (Bi) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.04
Range_Domain_Maximum: 8.41
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_C_Tot
Attribute_Definition:
Total carbon (C) concentration in the C horizon, measured by combustion. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 43
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_C_Inorg
Attribute_Definition:
Inorganic carbon (C) concentration in the C horizon, reported as the result of stoichiometric calculation of carbon present in calcite, dolomite, and/or aragonite as determined by X-ray diffraction (XRD). The formula used was ((C_Calcite * 0.12)+(C_Dolomite * 0.1304)+(C_Aragon * 0.12)). Calculated values for a very small percentage of samples (less than 0.025%) were lower than 0 and are reported as N.D. (non-detect). Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 10.6
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_C_Org
Attribute_Definition:

Organic carbon (C) concentration in the C horizon, reported as the difference between measured total carbon (C_C_Tot) and inorganic carbon (C_C_Inorg). Precision of one decimal place if inorganic carbon is reported, two decimal places otherwise.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0
Range_Domain_Maximum: 43
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Ca
Attribute_Definition:
Calcium (Ca) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 32.3
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Cd
Attribute_Definition:
Cadmium (Cd) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 36.4
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Ce
Attribute_Definition:
Cerium (Ce) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.5
Range_Domain_Maximum: 914
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Co
Attribute_Definition:

Cobalt (Co) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 316
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Cr
Attribute_Definition:
Chromium (Cr) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 4620
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Cs
Attribute_Definition:
Cesium (Cs) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <5
Range_Domain_Maximum: 144
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Cu
Attribute_Definition:
Copper (Cu) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 2540
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Fe
Attribute_Definition:

Iron (Fe) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 15.3
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Ga
Attribute_Definition:
Gallium (Ga) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.13
Range_Domain_Maximum: 50.4
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Hg
Attribute_Definition:
Mercury (Hg) concentration in the C horizon, measured by cold-vapor atomic absorption spectrometry (CVAAS) after digestion in HNO3 and HCl. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 1.75
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_In
Attribute_Definition:
Indium (In) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.02
Range_Domain_Maximum: 4.39
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_K
Attribute_Definition:

Potassium (K) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 5.67
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_La
Attribute_Definition:
Lanthanum (La) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 283
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Li
Attribute_Definition:
Lithium (Li) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 280
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Mg
Attribute_Definition:
Magnesium (Mg) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 16.8
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Mn
Attribute_Definition:

Manganese (Mn) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <5
Range_Domain_Maximum: 12000
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Mo
Attribute_Definition:
Molybdenum (Mo) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.05
Range_Domain_Maximum: 94.7
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Na
Attribute_Definition:
Sodium (Na) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 5.54
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Nb
Attribute_Definition:
Niobium (Nb) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 289
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Ni
Attribute_Definition:

Nickel (Ni) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 2870
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_P
Attribute_Definition:
Phosphorus (P) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <50
Range_Domain_Maximum: 27400
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Pb
Attribute_Definition:
Lead (Pb) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 681
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Rb
Attribute_Definition:
Rubidium (Rb) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 267
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_S
Attribute_Definition:

Sulfur (S) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 16.2
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Sb
Attribute_Definition:
Antimony (Sb) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.05
Range_Domain_Maximum: 40.6
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Sc
Attribute_Definition:
Scandium (Sc) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 70.8
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Se
Attribute_Definition:
Selenium (Se) concentration in the C horizon, measured by hydride-generation atomic absorption spectrometry (HG-AAS) after digestion of the sample in HNO3, HF, and HClO4. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 7.5
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Sn
Attribute_Definition:

Tin (Sn) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 30.9
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Sr
Attribute_Definition:
Strontium (Sr) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.5
Range_Domain_Maximum: 10900
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Te
Attribute_Definition:
Tellurium (Te) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 6.1
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Th
Attribute_Definition:
Thorium (Th) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.2
Range_Domain_Maximum: 55.9
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Ti
Attribute_Definition:

Titanium (Ti) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.01
Range_Domain_Maximum: 3.42
Attribute_Units_of_Measure: percent by weight (wt.%)
Attribute:
Attribute_Label: C_Tl
Attribute_Definition:
Thallium (Tl) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 4.3
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_U
Attribute_Definition:
Uranium (U) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 63
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_V
Attribute_Definition:
Vanadium (V) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 1080
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_W
Attribute_Definition:

Tungsten (W) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <0.1
Range_Domain_Maximum: 199
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Y
Attribute_Definition:
Yttrium (Y) concentration in the C horizon, measured by inductively coupled plasma–mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 0.2
Range_Domain_Maximum: 288
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Attribute:
Attribute_Label: C_Zn
Attribute_Definition:
Zinc (Zn) concentration in the C horizon, measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: <1
Range_Domain_Maximum: 653
Attribute_Units_of_Measure: milligrams per kilogram (mg/kg)
Overview_Description:
Entity_and_Attribute_Overview:
The Top5 table contains the chemical analyses for soil samples collected from a depth of 0–5 centimeters at the sampling sites. The mineralogy columns are empty because no mineralogy analyses were performed for this sample medium, but because the columns coincide with columns of mineralogical data in the tables for the A and C horizons, they were included here to allow users to seamlessly paste the three tables together. Samples lost or not collected for this particular sample type are reported as N.S. Precision for geochemical analyses varies; it is indicated for each element.

FIELD_NAME	FIELD_TYPE	UNITS	METHOD	FIELD_DESCRIPTION
Top5_LabID	Text	n/a	n/a	Unique identifier assigned to each individual sample by the analyzing laboratory.
SiteID	Integer	n/a	n/a	Unique identifier assigned to each individual sampling site.
StateID	Text	n/a	n/a	Code for the state as established by NIST.

Latitude	Number	n/a	n/a	Latitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum.
Longitude	Number	n/a	n/a	Longitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum. Negative values indicate locations west of the Greenwich Meridian.
CollDate	Date/Time	n/a	n/a	Date of collection of the sample, as reported in the field sheet, given as mm/dd/yyyy.
LandCover1	Text	n/a	n/a	Primary land cover classification from the National Land Cover Database 1992 Classification System.
LandCover2	Text	n/a	n/a	Secondary land cover classification from the National Land Cover Database 1992 Classification System.
Top5_Depth	Text	cm	n/a	Depth or depth interval from which the sample was collected, in centimeters.
Top5_Quartz	Text	wt. %	XRD	Quartz, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Tot_K_fs	Text	wt. %	XRD	Total potassium feldspar, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Tot_Plg	Text	wt. %	XRD	Total plagioclase, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Tot_Flds	Text	wt. %	XRD	Total feldspar, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Tot_14A	Text	wt. %	XRD	Total 14Å clays, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Tot_10A	Text	wt. %	XRD	Total 10Å clays, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Kaolinit	Text	wt. %	XRD	Kaolinite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Tot_Clay	Text	wt. %	XRD	Total clays, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Gibbsite	Text	wt. %	XRD	Gibbsite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Calcite	Text	wt. %	XRD	Calcite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Dolomite	Text	wt. %	XRD	Dolomite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Aragon	Text	wt. %	XRD	Aragonite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Tot_Carb	Text	wt. %	XRD	Total carbonates, in percent by weight (wt.%), determined from the interpretation of the XRD scan.

Top5_Analcime Text wt. % XRD Analcime, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Heuland Text wt. % XRD Heulandite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Tot_Zeol Text wt. % XRD Total zeolites, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Gypsum Text wt. % XRD Gypsum, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Talc Text wt. % XRD Talc, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Hornbl Text wt. % XRD Hornblende and related amphiboles, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Serpent Text wt. % XRD Serpentine, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Hematite Text wt. % XRD Hematite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Goethite Text wt. % XRD Goethite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
Top5_Pyroxene Text wt. % XRD Pyroxene, in percent by weight (wt.%), determined from the interpretation of the >RD scan.
Top5_Pyrite Text wt. % XRD Pyrite, in percent by weight (wt.%), determined from the interpretation of the >RD scan.
Top5_Other Text wt. % XRD Other mineral phase(s), in percent by weight (wt.%), that were detected occasionally, determined from the interpretation of the >RD scan.
Top5_Amorph Text wt. % XRD Amorphous, in percent by weight (wt.%), determined from the interpretation of the >RD scan.
Top5_Ag Text mg/kg ICP-MS Silver (Ag), concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Top5_Al Text wt. % ICP-AES Aluminum (Al) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Top5_As Text mg/kg HG-AAS Arsenic (As) concentration, in milligrams per kilogram (mg/kg), measured by hydride generation atomic absorption spectrometry after fusion of the sample in sodium peroxide and sodium hydroxide. Precision of one decimal place.
Top5_Ba Text mg/kg ICP-AES Barium (Ba) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry after a near-

total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

Top5_Be Text mg/kg ICP-MS Beryllium (Be) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

Top5_Bi Text mg/kg ICP-MS Bismuth (Bi) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

Top5_C_Tot Text wt. % COMBUSTION Empty field, since Total carbon (C) concentration, in percent by weight (wt.%), was not measured. Field included to facilitate vertical pasting of horizons.

Top5_C_Inorg Text wt. % XRD Empty field, since Inorganic carbon (C) concentration, in percent by weight (wt.%), was not determined. Field included to facilitate vertical pasting of horizons.

Top5_C_Org Text wt. % DIFF Empty field, since Organic carbon (C) concentration, in percent by weight (wt.%), was not determined. Field included to facilitate vertical pasting of horizons.

Top5_Ca Text wt. % ICP-AES Calcium (Ca) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

Top5_Cd Text mg/kg ICP-MS Cadmium (Cd) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

Top5_Ce Text mg/kg ICP-MS Cerium (Ce) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

Top5_Co Text mg/kg ICP-MS Cobalt (Co) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

Top5_Cr Text mg/kg ICP-AES Chromium (Cr) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

Top5_Cs Text mg/kg ICP-MS Cesium (Cs) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

Top5_Cu Text mg/kg ICP-AES Copper (Cu) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after

a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

Top5_Fe Text wt. % ICP-AES Iron (Fe) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

Top5_Ga Text mg/kg ICP-MS Gallium (Ga) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

Top5_Hg Text mg/kg CVAAS Mercury (Hg) concentration, in milligrams per kilogram (mg/kg), measured by cold-vapor atomic absorption spectrometry (CVAA) after digestion in HNO3 and HCl. Precision of two decimal places.

Top5_In Text mg/kg ICP-MS Indium (In) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

Top5_K Text wt. % ICP-AES Potassium (K) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

Top5_La Text mg/kg ICP-MS Lanthanum (La) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

Top5_Li Text mg/kg ICP-AES Lithium (Li) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

Top5_Mg Text wt. % ICP-AES Magnesium (Mg) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

Top5_Mn Text mg/kg ICP-AES Manganese (Mn) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

Top5_Mo Text mg/kg ICP-MS Molybdenum (Mo) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

Top5_Na Text wt. % ICP-AES Sodium (Na) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

Top5_Nb Text mg/kg ICP-MS Niobium (Nb) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_Ni Text mg/kg ICP-AES Nickel (Ni) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_P Text mg/kg ICP-AES Phosphorus (P) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Top5_Pb Text mg/kg ICP-MS Lead (Pb) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_Rb Text mg/kg ICP-MS Rubidium (Rb) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_S Text wt. % ICP-AES Sulfur (S) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Top5_Sb Text mg/kg ICP-MS Antimony (Sb) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Top5_Sc Text mg/kg ICP-MS Scandium (Sc) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_Se Text mg/kg HG-AAS Selenium (Se) concentration, in milligrams per kilogram (mg/kg), measured by hydride generation atomic absorption spectrometry after digestion of the sample in HNO3, HF, and HClO4. Precision of one decimal place.
Top5_Sn Text mg/kg ICP-MS Tin (Sn) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_Sr Text mg/kg ICP-AES Strontium (Sr) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_Te Text mg/kg ICP-MS Tellurium (Te) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-

total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_Th Text mg/kg ICP-MS Thorium (Th) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_Ti Text wt. % ICP-AES Titanium (Ti) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
Top5_Tl Text mg/kg ICP-MS Thallium (Tl) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_U Text mg/kg ICP-MS Uranium (U) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_V Text mg/kg ICP-AES Vanadium (V) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
Top5_W Text mg/kg ICP-MS Tungsten (W) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_Y Text mg/kg ICP-MS Yttrium (Y) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
Top5_Zn Text mg/kg ICP-AES Zinc (Zn) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

Entity_and_Attribute_Detail_Citation:

database designer/metadata author Federico Solano; see Data_Quality_Information/Lineage/Process_Step/Process_Contact/Contact_Information.

Overview_Description:

Entity_and_Attribute_Overview:

The A_Horizon table contains the results of the mineralogical determinations of major minerals and the results of the chemical analyses for the soil samples collected from the A horizon. N.D. indicates an undetected mineral phase. Samples lost or not collected for this particular level are reported as N.S. Precision is one decimal place for all mineral phases. For chemical analyses, precision varies and is indicated for each element.

FIELD_NAME FIELD_TYPE UNITS METHOD FIELD_DESCRIPTION

A_LabID	Text	n/a	n/a	Unique identifier assigned to each individual sample by the analyzing laboratory.
SiteID	Integer	n/a	n/a	Unique identifier assigned to each individual sampling site.
StateID	Text	n/a	n/a	Code for the state as established by NIST.
Latitude	Number	n/a	n/a	Latitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum.
Longitude	Number	n/a	n/a	Longitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum. Negative values indicate locations west of the Greenwich Meridian.
CollDate	Date/Time	n/a	n/a	Date of collection of the sample, as reported in the field sheet, given as mm/dd/yy.
LandCover1	Text	n/a	n/a	Primary land cover classification from the National Land Cover Database 1992 Classification System.
LandCover2	Text	n/a	n/a	Secondary land cover classification from the National Land Cover Database 1992 Classification System.
A_Depth	Text	cm	n/a	Depth or depth interval from which the sample was collected, in centimeters.
A_Quartz	Text	wt. %	XRD	Quartz, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Tot_K_fs	Text	wt. %	XRD	Total potassium feldspar, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Tot_Plag	Text	wt. %	XRD	Total plagioclase, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Tot_Flds	Text	wt. %	XRD	Total feldspar, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Tot_14A	Text	wt. %	XRD	Total 14Å clays, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Tot_10A	Text	wt. %	XRD	Total 10Å clays, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Kaolinit	Text	wt. %	XRD	Kaolinite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Tot_Clay	Text	wt. %	XRD	Total clays, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Gibbsite	Text	wt. %	XRD	Gibbsite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Calcite	Text	wt. %	XRD	Calcite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.

A_Dolomite Text wt. % XRD Dolomite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Aragon Text wt. % XRD Aragonite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Tot_Carb Text wt. % XRD Total carbonates, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Analcime Text wt. % XRD Analcime, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Heuland Text wt. % XRD Heulandite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Tot_Zeol Text wt. % XRD Total zeolites, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Gypsum Text wt. % XRD Gypsum, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Talc Text wt. % XRD Talc, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Hornbl Text wt. % XRD Hornblende and related amphiboles, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Serpent Text wt. % XRD Serpentine, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Hematite Text wt. % XRD Hematite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Goethite Text wt. % XRD Goethite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Pyroxene Text wt. % XRD Pyroxene, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Pyrite Text wt. % XRD Pyrite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Other Text wt. % XRD Other mineral phase(s), in percent by weight (wt.%), that were detected occasionally, determined from the interpretation of the XRD scan.
A_Amorph Text wt. % XRD Amorphous, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
A_Ag Text mg/kg ICP-MS Silver (Ag) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
A_Al Text wt. % ICP-AES Aluminum (Al) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-

total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

A_As Text mg/kg HG-AAS Arsenic (As) concentration, in milligrams per kilogram (mg/kg), measured by hydride generation atomic absorption spectrometry (HYD-AA) after fusion of the sample in sodium peroxide and sodium hydroxide. Precision of one decimal place.

A_Ba Text mg/kg ICP-AES Barium (Ba) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

A_Be Text mg/kg ICP-MS Beryllium (Be) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_Bi Text mg/kg ICP-MS Bismuth (Bi) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

A_C_Tot Text wt. % COMBUSTION Total carbon (C) concentration, in percent by weight (wt.%), measured by combustion. Precision of two decimal places.

A_C_Inorg Text wt. % XRD Inorganic carbon (C) concentration, in percent by weight (wt.%), reported as the result of stoichiometric calculation of carbon present in calcite, dolomite, and/or aragonite as determined by >-ray diffraction (>RD). The formula used was ((A_Calcite * 0.12)+(A_Dolomite * 0.1304)+(A_Aragon * 0.12)). Calculated values for a very small percentage of samples (less than 0.005%) were lower than 0 and are reported as N.D. (non-detect). Precision of one decimal place.

A_C_Org Text wt. % DIFF Organic carbon (C) concentration, in percent by weight (wt.%), reported as the difference between measured total carbon (A_C_Tot) and inorganic carbon (A_C_Inorg). Precision of one decimal place if inorganic carbon is reported, two decimal places otherwise.

A_Ca Text wt. % ICP-AES Calcium (Ca) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

A_Cd Text mg/kg ICP-MS Cadmium (Cd) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_Ce Text mg/kg ICP-MS Cerium (Ce) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

A_Co Text mg/kg ICP-MS Cobalt (Co) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-

total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_Cr Text mg/kg ICP-AES Chromium (Cr) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

A_Cs Text mg/kg ICP-MS Cesium (Cs) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

A_Cu Text mg/kg ICP-AES Copper (Cu) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_Fe Text wt. % ICP-AES Iron (Fe) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

A_Ga Text mg/kg ICP-MS Gallium (Ga) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

A_Hg Text mg/kg CVAAS Mercury (Hg) concentration, in milligrams per kilogram (mg/kg), measured by cold-vapor atomic absorption spectrometry (CVAA) after digestion in HNO3 and HCl. Precision of two decimal places.

A_In Text mg/kg ICP-MS Indium (In) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

A_K Text wt. % ICP-AES Potassium (K) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

A_La Text mg/kg ICP-MS Lanthanum (La) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_Li Text mg/kg ICP-AES Lithium (Li) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

A_Mg Text wt. % ICP-AES Magnesium (Mg) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

A_Mn Text mg/kg ICP-AES Manganese (Mn) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
A_Mo Text mg/kg ICP-MS Molybdenum (Mo) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
A_Na Text wt. % ICP-AES Sodium (Na) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
A_Nb Text mg/kg ICP-MS Niobium (Nb) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
A_Ni Text mg/kg ICP-AES Nickel (Ni) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
A_P Text mg/kg ICP-AES Phosphorus (P) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
A_Pb Text mg/kg ICP-MS Lead (Pb) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
A_Rb Text mg/kg ICP-MS Rubidium (Rb) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
A_S Text wt. % ICP-AES Sulfur (S) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
A_Sb Text mg/kg ICP-MS Antimony (Sb) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
A_Sc Text mg/kg ICP-MS Scandium (Sc) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
A_Se Text mg/kg HG-AAS Selenium (Se) concentration, in milligrams per kilogram (mg/kg), measured by hydride

generation atomic absorption spectrometry (HYD-AA) after digestion of the sample in HNO3, HF, and HClO4. Precision of one decimal place.

A_Sn Text mg/kg ICP-MS Tin (Sn) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_Sr Text mg/kg ICP-AES Strontium (Sr) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_Te Text mg/kg ICP-MS Tellurium (Te) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_Th Text mg/kg ICP-MS Thorium (Th) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_Ti Text wt. % ICP-AES Titanium (Ti) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

A_Tl Text mg/kg ICP-MS Thallium (Tl) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_U Text mg/kg ICP-MS Uranium (U) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_V Text mg/kg ICP-AES Vanadium (V) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

A_W Text mg/kg ICP-MS Tungsten (W) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_Y Text mg/kg ICP-MS Yttrium (Y) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

A_Zn Text mg/kg ICP-AES Zinc (Zn) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

Entity_and_Attribute_Detail_Citation:
database designer/metadata author Federico Solano; see Data_Quality_Information/Lineage/Process_Step/Process_Contact/Contact_Information.
Overview_Description:
Entity_and_Attribute_Overview:
The C_Horizon table contains the results of the mineralogical determinations of major minerals and the results of the chemical analyses for the soil samples collected from the C horizon. N.D. indicates an undetected mineral phase. Samples lost or not collected for this particular level are reported as N.S. Precision is one decimal place for all mineral phases. For chemical analyses, precision varies and is indicated for each element.

FIELD_NAME	FIELD_TYPE	UNITS	METHOD	FIELD_DESCRIPTION
C_LabID	Text	n/a	n/a	Unique identifier assigned to each individual sample by the analyzing laboratory.
SiteID	Integer	n/a	n/a	Unique identifier assigned to each individual sampling site.
StateID	Text	n/a	n/a	Code for the state as established by NIST.
Latitude	Number	n/a	n/a	Latitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum.
Longitude	Number	n/a	n/a	Longitude coordinate of a sample site, reported in decimal degrees, with WGS-84 datum. Negative values indicate locations west of the Greenwich Meridian.
CollDate	Date/Time	n/a	n/a	Date of collection of the sample, as reported in the field sheet, given as mm/dd/yy.
LandCover1	Text	n/a	n/a	Primary land cover classification from the National Land Cover Database 1992 Classification System.
LandCover2	Text	n/a	n/a	Secondary land cover classification from the National Land Cover Database 1992 Classification System.
C_Depth	Text	cm	n/a	Depth or depth interval from which the sample was collected, in centimeters.
C_Quartz	Text	wt. %	XRD	Quartz, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Tot_K_fs	Text	wt. %	XRD	Total potassium feldspar, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Tot_Plag	Text	wt. %	XRD	Total plagioclase, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Tot_Flds	Text	wt. %	XRD	Total feldspar, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Tot_14A	Text	wt. %	XRD	Total 14Å clays, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Tot_10A	Text	wt. %	XRD	Total 10Å clays, in percent by weight (wt.%), determined from the interpretation of the XRD scan.

C_Kaolinit Text wt. % XRD Kaolinite, in percent by weight (wt.%), determined from the interpretation of the >RD scan.
C_Tot_Clay Text wt. % XRD Total clays, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Gibbsite Text wt. % XRD Gibbsite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Calcite Text wt. % XRD Calcite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Dolomite Text wt. % XRD Dolomite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Aragon Text wt. % XRD Aragonite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Tot_Carb Text wt. % XRD Total carbonates, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Analcime Text wt. % XRD Analcime, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Heuland Text wt. % XRD Heulandite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Tot_Zeol Text wt. % XRD Total zeolites, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Gypsum Text wt. % XRD Gypsum, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Talc Text wt. % XRD Talc, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Hornbl Text wt. % XRD Hornblende and related amphiboles, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Serpent Text wt. % XRD Serpentine, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Hematite Text wt. % XRD Hematite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Goethite Text wt. % XRD Goethite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Pyroxene Text wt. % XRD Pyroxene, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Pyrite Text wt. % XRD Pyrite, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Other Text wt. % XRD Other mineral phase(s), in percent by weight (wt.%), that were detected occasionally, determined from the interpretation of the XRD scan.

C_Amorph Text wt. % XRD Amorphous, in percent by weight (wt.%), determined from the interpretation of the XRD scan.
C_Ag Text mg/kg ICP-MS Silver (Ag) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
C_Al Text wt. % ICP-AES Aluminum (Al) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
C_As Text mg/kg HG-AAS Arsenic (As) concentration, in milligrams per kilogram (mg/kg), measured by hydride generation atomic absorption spectrometry (HYD-AA) after fusion of the sample in sodium peroxide and sodium hydroxide. Precision of one decimal place.
C_Ba Text mg/kg ICP-AES Barium (Ba) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
C_Be Text mg/kg ICP-MS Beryllium (Be) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
C_Bi Text mg/kg ICP-MS Bismuth (Bi) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
C_C_Tot Text wt. % COMBUSTION Total carbon (C) concentration, in percent by weight (wt.%), measured by combustion. Precision of two decimal places.
C_C_Inorg Text wt. % XRD Inorganic carbon (C) concentration, in percent by weight (wt.%), reported as the result of stoichiometric calculation of carbon present in calcite, dolomite, and/or aragonite as determined by >-ray diffraction (>RD). The formula used was ((C_Calcite * 0.12)+(C_Dolomite * 0.1304)+(C_Aragon * 0.12)). Calculated values for a very small percentage of samples (less than 0.025%) were lower than 0 and are reported as N.D. (non-detect). Precision of one decimal place.
C_C_Org Text wt. % DIFF Organic carbon (C) concentration, in percent by weight (wt.%), reported as the difference between measured total carbon (C_C_Tot) and inorganic carbon (C_C_Inorg). Precision of one decimal place if inorganic carbon is reported, two decimal places otherwise.
C_Ca Text wt. % ICP-AES Calcium (Ca) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
C_Cd Text mg/kg ICP-MS Cadmium (Cd) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-

total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

C_Ce Text mg/kg ICP-MS Cerium (Ce) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

C_Co Text mg/kg ICP-MS Cobalt (Co) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

C_Cr Text mg/kg ICP-AES Chromium (Cr) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

C_Cs Text mg/kg ICP-MS Cesium (Cs) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

C_Cu Text mg/kg ICP-AES Copper (Cu) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

C_Fe Text wt. % ICP-AES Iron (Fe) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

C_Ga Text mg/kg ICP-MS Gallium (Ga) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

C_Hg Text mg/kg CVAAS Mercury (Hg) concentration, in milligrams per kilogram (mg/kg), measured by cold-vapor atomic absorption spectrometry (CVAA) after digestion in HNO3 and HCl. Precision of two decimal places.

C_In Text mg/kg ICP-MS Indium (In) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

C_K Text wt. % ICP-AES Potassium (K) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

C_La Text mg/kg ICP-MS Lanthanum (La) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

C_Li Text mg/kg ICP-AES Lithium (Li) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
C_Mg Text wt. % ICP-AES Magnesium (Mg) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
C_Mn Text mg/kg ICP-AES Manganese (Mn) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
C_Mo Text mg/kg ICP-MS Molybdenum (Mo) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
C_Na Text wt. % ICP-AES Sodium (Na) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
C_Nb Text mg/kg ICP-MS Niobium (Nb) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
C_Ni Text mg/kg ICP-AES Nickel (Ni) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
C_P Text mg/kg ICP-AES Phosphorus (P) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.
C_Pb Text mg/kg ICP-MS Lead (Pb) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
C_Rb Text mg/kg ICP-MS Rubidium (Rb) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
C_S Text wt. % ICP-AES Sulfur (S) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.
C_Sb Text mg/kg ICP-MS Antimony (Sb) concentration, in milligrams per kilogram (mg/kg), measured by

inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

C_Sc Text mg/kg ICP-MS Scandium (Sc) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

C_Se Text mg/kg HG-AAS Selenium (Se) concentration, in milligrams per kilogram (mg/kg), measured by hydride generation atomic absorption spectrometry (HYD-AA) after digestion of the sample in HNO3, HF, and HClO4. Precision of one decimal place.

C_Sn Text mg/kg ICP-MS Tin (Sn) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

C_Sr Text mg/kg ICP-AES Strontium (Sr) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

C_Te Text mg/kg ICP-MS Tellurium (Te) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

C_Th Text mg/kg ICP-MS Thorium (Th) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

C_Ti Text wt. % ICP-AES Titanium (Ti) concentration, in percent by weight (wt.%), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of two decimal places.

C_Tl Text mg/kg ICP-MS Thallium (Tl) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

C_U Text mg/kg ICP-MS Uranium (U) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

C_V Text mg/kg ICP-AES Vanadium (V) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

C_W Text mg/kg ICP-MS Tungsten (W) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.

C_Y Text mg/kg ICP-MS Yttrium (Y) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-mass spectrometry (ICP-MS) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one decimal place.
C_Zn Text mg/kg ICP-AES Zinc (Zn) concentration, in milligrams per kilogram (mg/kg), measured by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after a near-total digestion in a mixture of HCl, HNO3, HClO4, and HF. Precision of one unit.

Entity_and_Attribute_Detail_Citation:

database designer/metadata author Federico Solano; see Data_Quality_Information/Lineage/Process_Step/Process_Contact/Contact_Information.

Distribution_Information:

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Contact_Person: David B. Smith

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Contact_Position: Research Geologist

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The dataset in .xls form may be accessed using Microsoft Excel 2000, 2002, 2003, 2007 or 2010. The datasets were stored into Excel as 3 spreadsheets for use by the non-database user so that all of the data is presented in Excel spreadsheet format. All the fields except the SiteID and the coordinate fields (Latitude and Longitude) are given as text, as discussed under Metadata/Identification_Information/Use_Constraints.
The dataset in ASCII flat file form may be accessed using any text editor.
Fees: none

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Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Federico Solano
Contact_Organization: USGS Midwest Area
Contact_Position: Physical Science Technician
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Address_Type: mailing address
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City: Reston
State_or_Province: VA
Postal_Code: 20192-0002
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Contact_Voice_Telephone: 703-648-6335
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Metadata_Use_Constraints: none

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