How to Use this Guide

The purpose of this document is to provide guidance in populating ODM 1.1.1 templat

How to use this guide:

1. Populate metadata and data values
2. Delete first column and 2nd, 3rd, 4th, and 5th rows so that only column headers and
3. Export each sheet as a separate CSV file
4. Upload each CSV file using CUAHSI's Cloud HydroServer

Color Key

Mandatory

Mandatory fields must contain a value. If information is unavailable, populate with "Unk

Optional

Optional fields may be left blank.

Mandatory if

These fields are mandotory if a condition of the value of the field is met

Controlled Vocabulary

Controlled vocabulary terms for ODM 1.1.1 can be found be found here: http://his.cuah

Note: All controlled vocabulary fields are mandatory although "Unknown" is a valid valu

For more information about the ODM: http://dx.doi.org/10.1029/200

s for uploading data using CUAHSI's ODM Uploader for Azure.

your metadata and data values remain

nown" as applicable.

si.org/mastercvreg/cv11.aspx
e for some.

7WR006392

Table Name	Table
Variables	The Variables table lists the full descriptive information about what variables l
Methods	The Methods table lists the methods used to collect the data and any additior
Sites	The Sites table provides information giving the spatial location at which data v
Sources	The Sources table lists the original sources of the data, providing information necessary. This table is **mandatory**.
Samples	The Samples table gives information about physical samples analyzed in a la
LabMethods	The LabMethods table contains descriptions of the laboratory methods used f
Quality Control	The QualityControlLevels table contains the quality control levels that are use
DataValues	The DataValues table contains the actual data values and keys to metadata t
Categories	The Categories table defines the categories for categorical variables. This tab **"Categorical."** Multiple entries for each VariableCode, with different DataVal
DerivedFrom	The DerivedFrom table contains the linkage between derived data values and
GroupDescriptions	The GroupDescriptions table lists the descriptions for each of the groups of d **Groups table is used.**
Groups	The Groups table lists the groups of data values that have been created and
Qualifiers	The Qualifiers table contains data qualifying comments that accompany the d

Description
have been measured. This table is **mandatory**.
nal information about the method. This table is **mandatory**.
values have been collected. This table is **mandatory**.
sufficient to retrieve and reconstruct the data value from the original data files if
boratory. This table is **optional**.
to analyze physical samples for specific constituents. This table is **optional**.
ed for versioning data within the database. This table is **mandatory**.
ables. This table is **mandatory**.
ole is **mandatory when variables exist that have DataType specified as** ues provide the mapping from DataValue to category description.
d the data values that they were derived from. This table is **optional**.
ata values that have been formed. This table is **optional and only required if the**
the data values that are within each group. This table is **optional**.
lata. This table is **optional**.

Field
Data Type
Constraint

Description

Default Value

VariableCode

Text (50)

Mandatory; Unique; Allows only characters in the range of A-Z (case sensitive), 0-9, ".", "-", and "_"

Code used by the organization that collects the data to identify the variable.

There is no default value
Bulk Density.xlsx
Loss on Ignition.xlsx
Mini Disk Infiltration.xlsx
Mini Disk Water Repellency.xlsx
Rainfall Simulations_VWC.xlsx
Rainfall Simulations_Cumulative Precipitation.xlsx

VariableName	Speciation	VariableUnitsName
Text (255)	Text (255)	Text (255)
Mandatory; Foreign Key	Mandatory; Foreign Key	Mandatory; Foreign Key
Full text name of the variable that was measured, observed, modeled, etc. This should be from the Variable Name controlled vocabulary.	Text code used to identify how the data value is expressed (i.e., total phophorus concentration expressed as P). This should be from the Speciation controlled vocabulary.	Full text of name of units of the data values associated with a variable. This should be from the Units controlled vocabulary.
There is no default value	Not Applicable	There is no default value
Sap Flow	Not Applicable	(g/cm^3)
Temperature, sensor	Not Applicable	percent
Cumulative Infiltration	Not Applicable	centimeter
Cumulative Infiltration	Not Applicable	centimeter
Water Content	Not Applicable	(cm^3/cm^3)
Precipitation	Not Applicable	centimeter

SampleMedium	ValueType	IsRegular
Text (255)	Text (255)	Boolean
Mandatory; Foreign Key	Mandatory; Foreign Key	Mandatory
The medium in which the sample or observation was taken or made. This should be from the SampleMedium controlled vocabulary.	Text value indicating what type of data value is being recorded. This should be from the ValueType controlled vocabulary.	Value indicates whether the data values are from a regularly sampled time series.
Unknown	Unknown	0
Soil	Sample	1
Soil	Sample	1
Soil	Sample	0
Soil	Sample	0
Soil	Field Observation	1
Soil	Field Observation	1

TimeSupport

Real

Mandatory

Numerical value that indicates the time support (or temporal footprint) of the data values. 0 is used to indicate data values that are instantaneous. Other values indicate the time over which the data values are implicitly or explicitly averaged or aggregated.

0 (Assumes instantaneous samples where no other information is available)

0
0
0
0
0
0

TimeUnitsName	DataType	GeneralCategory	NoDataValue
Text (255)	Text (255)	Text (255)	Real
Mandatory; Foreign Key	Mandatory; Foreign Key	Mandatory; Foreign Key	Mandatory
Full text of name of units of the time support. If TimeSupport is 0, indicating an instantaneous observation, a unit needs to still be given for completeness, although it is somewhat arbitrary. This should be from the Units controlled vocabulary.	Text value that identifies the data values as one of several types from the DataType controlled vocabulary.	General category of the data values from the GeneralCategory controlled vocabulary.	Numeric value used to encode no data values for this variable.
"hours"	Unknown	Unknown	-9999
hour	Continuous	Hydrology	-9999
hour	Continuous	Hydrology	-9999
second	Continuous	Hydrology	-9999
second	Continuous	Hydrology	-9999
second	Continuous	Hydrology	NAN
second	Continuous	Hydrology	0

Field	**MethodCode**
DataType	Text (50)
Constraint	Mandatory; Unique; Allows only characters in the range of A-Z (case sensit
Description	Code used by the organization that collects the data to identify the method used for measurement.
Default Value	There is no default value

Bulk Density

Total Organic Carbon from Loss on Ignition

Cumulative Water Infiltration

Cumulative Ethanol Infiltration

Volumetric Water Content from Rainfall Simulations

Cumulative Precipitation from Rainfall Simulations

MethodDescription	MethodLink
Text (Unlimited)	Text (500)
Mandatory	Optional
Text description of each method.	Link to additional reference material on the method.
There is no default value	NULL
Measured by heating samples in oven	
Measured by heating samples in muffle furnace	Heiri et al., 20
Measured using Decagon Mini Disk Infiltrometer	Mini Disk Man
Measured using Decagon Mini Disk Infiltrometer	Mini Disk Man
Measured with a Decagon EC-5	
Measured with Onset HOBO Data Logging Rain Gauge	

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ual, Decagon Devices, 2014

ual, Decagon Devices, 2014

Field
Data Type
Constraint

Description
Default Value

SiteCode

Text (255)

Mandatory; Unique; Allows only characters in the range of A-Z (case sensitive), 0-9, and ".", "-", and " "

Code used by organization that collects the data to identify the site.

There is no default value
Gordon Gulch

SiteName

Text (255)

Mandatory; Cannot contain tab, line feed, or carriage return characters

Full name of the sampling site.

There is no default value

Flat area near Gordon Creek on north-facing slope.

Latitude	Longitude	LatLongDatumSRSName
Real	Real	Text
Mandatory; >=-90 AND <=90	Mandatory; >=-180 and <=180	Mandatory; Foreign Key
Latitude in decimal degrees.	Longitude in decimal degrees. East positive, West negative.	Full text name of the spatial reference system of the latitude and longitude coordinates in the SpatialReferences table. This should be from the SpatialReferences controlled vocabulary.
N/A	N/A	Unknown
40.011976	-105.462776	Unknown

Elevation_m	VerticalDatum	LocalX	LocalY	LocalProjectionSRSNa
Real	Text (255)	Real	Real	Text
Optional	Optional; Foreign Key	Optional	Optional	Optional; Foreign Key
Elevation of the sampling location in meters.	Vertical datum of the elevation. This should be from the VerticalDatum controlled vocabulary.	Local projection X coordinate.	Local projection Y coordinate.	Full text name of the spatial reference system of the local coordinates in the SpatialReferences table. This field is optional and is only necessary if local coordinates are given. This should be from the SpatialReferences controlled vocabulary.
NULL	NULL	NULL	NULL	NULL
~2500	Unknown	NULL	NULL	NULL

PosAccuracy_m	State
Real	Text (255)
Optional	Optional; Cannot contain tab, line feed, or carriage return characters
Value giving the accuracy with which the positional information is specified in meters.	Name of state in which the monitoring site is located.
NULL	NULL
NULL	Colorado

County	Comments
Text (255)	Text (Unlimited)
Optional; Cannot contain tab, line feed, or carriage return characters	Optional
Name of county in which monitoring site is located.	Comments related to the site.
NULL	NULL
Boulder	NULL

SiteType

Text

The type of site. This should be from the SiteType controlled vocabulary.

Soil Hole

Field
Data Type
Constraint

Description
Default Value

SourceCode

Text (50)

Mandatory; Unique; Allows only characters in the range of A-Z (case sensitive), 0-9, ".", "-", and "_"

Code used to identify the organization that created the data.

There is no default value
Singha Lab at CSM

Organization

Text (255)

Mandatory; Cannot contain tab, line feed, or carriage return characters

Name of the organization that collected the data. This should be the agency or organization that collected the data, even if it came out of a database consolidated from many sources such as STORET.

There is no default value

Colorado School of Mines

SourceDescription	SourceLink
Text (Unlimited)	Text (500)
Mandatory	Optional
Full text description of the source of the data.	Link that can be pointed at the original data file and/or associated metadata stored in the digital library or URL of data source.
There is no default value	NULL

ContactName

Text (255)

Mandatory; Cannot contain tab, line feed, or carriage return characters

Name of the contact person for the data source.

Unknown
Kamini Singha

Phone

Text (255)

Mandatory; Cannot contain tab, line feed, or carriage return characters

Phone number for the contact person.

Unknown
303-273-3822

Email

Text (255)

Mandatory; Cannot contain tab, line feed, or carriage return characters

Email addresss for the contact person.

Unknown
ksingha@mines.edu

Address

Text (255)

Mandatory; Cannot contain tab, line feed, or carriage return characters

Street address for the contact person.

Unknown
1516 Illinois Street

City

Text (255)

Mandatory; Cannot contain tab, line feed, or carriage return characters

City in which the contact person is located.

Unknown
Golden

State

Text (255)

Mandatory; Cannot contain tab, line feed, or carriage return characters

State in which the contact person is located. Use two letter abbreviations for US. For other countries give the full country name.

Unknown
CO

ZipCode	Citation
Text (255)	Text (Unlimited)
Mandatory; Cannot contain tab, line feed, or carriage return characters	Mandatory
US Zip Code or country postal code.	Text string that give the citation to be used when the data from each source are referenced.
Unknown	Unknown
80401	

TopicCategory

Text (255)

Mandatory; Foreign Key

Topic category keyword that gives the broad ISO19115

environment

Title	Abstract
Text (255)	Text (unlimited)
Mandatory; Cannot contain, tab, line feed, or carriage return characters	Mandatory
Title of data from a specific data source.	Abstract of data from a specific data source.
Data from Celeste Wieting's thesis	Unknown

ProfileVersion	MetadataLink
Text (255)	Text (500)
Mandatory; Cannot contain tab, line feed, or carriage return characters	Optional
Name of metadata profile used by data source.	Link to additional metadata reference material.
Unknown	

Field	**QualityControlLevelCode**
Data Type	Text (50)
Constraint	Mandatory; Cannot contain tab, line feed, or carriage return characters
Description	Code used to identify the level of quality control to which data values have been
Default Value	There is no default value.

0
0
0
0
0
0

These are the default values included in the ODM 1.1.1

QualityControlLev	Definition
-9999	Unknown
0	Raw data
1	Quality controlled data
2	Derived products
3	Interpreted products
4	Knowledge products

Definition	Explanation
Text (50)	Text (Unlimited)
Mandatory; Cannot contain tab, line feed, or carriage return characters	Mandatory
Definition of Quality Control Level.	Explanation of Qual
There is no default value.	There is no default
Raw Data	Bulk Density
Raw Data	Total Organic Carb
Raw Data	Cumulative Water I
Raw Data	Cumulative Ethanol
Raw Data	Volumetric Water C
Raw Data	Cumulative Precipit

Explanation

The quality control level is unknown

Raw and unprocessed data and data products that have not undergone quality control. Depending on the variable, data type, and data transmission system, raw data may be available within seconds or minutes after the measurements have been made. Examples include real time precipitation, streamflow and water quality measurements.

Quality controlled data that have passed quality assurance procedures such as routine estimation of timing and sensor calibration or visual inspection and removal of obvious errors. An example is USGS published streamflow records following parsing through USGS quality control procedures.

Derived products that require scientific and technical interpretation and may include multiple-sensor data. An example is basin average precipitation derived from rain gages using an interpolation procedure.

Interpreted products that require researcher driven analysis and interpretation, model-based interpretation using other data and/or strong prior assumptions. An example is basin average precipitation derived from the combination of rain gages and radar return data.

Knowledge products that require researcher driven scientific interpretation and multidisciplinary data integration and include model-based interpretation using other data and/or strong prior assumptions. An example is percentages of old or new water in a hydrograph inferred from an isotope analysis.

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value.

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ation from Rainfall Simulations