

USGS_Harvey_High_Water_Marks

Type File Geodatabase Feature Class



Tags USGS, High Water Marks, HWM, flooding, Hurricane Harvey

Summary

This point dataset represents high water mark observations made by USGS field staff after Hurricane Harvey in Sept 2017 (Sept 9 - Oct 10).

Description

High water mark types include debris lines, seed lines, mud lines, direct observation, and other types. Key attribute fields include the HWM type, site numbers, location descriptions, survey dates, quality scores, elevation in feet, and geographic coordinates.

Modified Content: 125 of the 2359 records were reclassified at CSR based on comparisons to the location description field and saved to the Type_Reclass field. Fields were reordered to emphasize the most significant fields towards the top.

For a more detailed description, see the publication called "Identifying and Preserving High Water Mark Data" <https://pubs.usgs.gov/tm/03/a24/tm3a24.pdf>

Credits

USGS

Use limitations

There are no access and use limitations for this item.

Extent

West -97.698700 East -93.071980
North 31.014910 South 27.602750

Scale Range

Maximum (zoomed in) 1:5,000
Minimum (zoomed out) 1:150,000,000

Topics and Keywords ▶

Content type ⇔ Downloadable Data
Export to FGDC CSDGM XML format as Resource Description No

Theme keywords flooding, water, inundation

Citation ▶

Title ⇔ USGS_Harvey_High_Water_Marks
Creation date 2018-09-17 00:00:00
Publication date 2018-09-17 00:00:00

Presentation formats ⇔ digital map
FGDC geospatial presentation format vector digital data

Citation Contacts ▶

Responsible party - point of contact
Individual's name Kristine Blickinstaff
Organization's name USGS

Contact information

Phone
Voice 682-316-5033
Address
Type physical
Delivery point 501 W. Felix St. BLDG 24
City Ft Worth
Administrative area TX
Postal code 76115
Country US
e-mail address kblickenstaff@usgs.gov
Online resource
Location <https://stn.wim.usgs.gov/fev/#HarveyAug2017>

Resource Details ▶

Dataset languages ⇔ English (UNITED STATES)
Dataset character set utf8 - 8 bit UCS Transfer Format

Status completed
Spatial representation type ⇔ vector

Processing environment ⇔ Microsoft Windows 10 Version 10.0 (Build 17134) ; Esri ArcGIS 12.3.0.15769

Credits
USGS

ArcGIS item properties
Name ⇔ USGS_Harvey_High_Water_Marks
Location ⇔ file://\\\CSR-892646\E\$\Data\GeoData\Harvey\HighWaterMarks\Data\HWM\Final\gdb\USGS_Harvey_High_Water_Marks.gdb
Access protocol ⇔ Local Area Network

Extents ►

Extent
Description
Southeast Texas

Geographic extent
Bounding rectangle
Extent type

Extent used for searching

West longitude ⇔ -97.698700
East longitude ⇔ -93.071980
North latitude ⇔ 31.014910
South latitude ⇔ 27.602750
Extent contains the resource ⇔ Yes

Temporal extent

Beginning date 2017-09-09 00:00:00
Ending date 2017-10-10 00:00:00

Vertical extent

Minimum value ⇔ 0.000000
Maximum value ⇔ 0.000000

Extent in the item's coordinate system

West longitude ⇔ -97.698700
East longitude ⇔ -93.071980
South latitude ⇔ 27.602750
North latitude ⇔ 31.014910
Extent contains the resource ⇔ Yes

Resource Points of Contact ►

Point of contact - point of contact
Individual's name Kristine Blickinstaff
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Phone
Voice 682-316-5033
Address
Type physical
Delivery point 501 W. Felix St. BLDG 24
City Ft Worth
Administrative area TX
Postal code 76115
Country US

Resource Maintenance ►

Resource maintenance
Update frequency as needed

Spatial Reference ►

ArcGIS coordinate system
Type ⇔ Geographic
Geographic coordinate reference ⇔ GCS_North_American_1983
Coordinate reference details ⇔
Geographic coordinate system
Well-known identifier 4269
X origin -400

Y origin -400
XY scale 999999999.99999988
Z origin -100000
Z scale 10000
M origin -100000
M scale 10000
XY tolerance 8.98315284119521e-09
Z tolerance 0.001
M tolerance 0.001
High precision true
Left longitude -180
Latest well-known identifier 4269
Well-known text
GEOGCS["GCS_North_American_1983",DATUM["D_North_American_1983",SPHEROID["GRS_1980",6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT["Degree",0.01745329251994

Reference system identifier

Value ↔ 4269
Codespace ↔ EPSG
Version ↔ 6.12(3.0.1)

Spatial Data Properties ▶

Vector

Level of topology for this dataset ↔ geometry only

Geometric objects

Feature class name USGS_Harvey_High_Water_Marks
Object type ↔ point
Object count ↔ 2359

ArcGIS Feature Class Properties

Feature class name USGS_Harvey_High_Water_Marks
Feature type ↔ Simple
Geometry type ↔ Point
Has topology ↔ FALSE
Feature count ↔ 2359
Spatial index ↔ TRUE
Linear referencing ↔ FALSE

Data Quality ▶

Scope of quality information

Resource level dataset

Lineage ▶

Lineage statement

This dataset contains point locations representing High Water Marks collected by USGS staff following Hurricane Harvey.

Process step

When the process occurred 2018-11-15 00:00:00

Description

The data, based on field observations from multiple field staff, was originally compiled by the USGS. The csv file was downloaded from the USGS Flood Event Viewer (<https://stn.wim.usgs.gov/fev/#HarveyAug2017>). The data was converted to ESRI file geodatabase format using ArcGIS Desktop. 125 of the 2359 records were reclassified based on comparisons to the HWM_Type field and the location description field. The new reclassified types were saved to the Type_Reclass field. The original USGS hwmTypeName field is still available in the table. Also, the fields were reordered to emphasize the more important fields closer to the top.

Source data

Description

CSV file containing the USGS High Water Mark Observations (USGS Flood Event Viewer for Hurricane Harvey).

Source medium name online link

Source citation

Title USGS Flood Event Viewer

Resource location online

Location <https://stn.wim.usgs.gov/fev/#HarveyAug2017>

Distribution ▶

Distribution format

Name ⇔ File Geodatabase Feature Class

Fields ▶

Details for object USGS_Harvey_High_Water_Marks

Type ⇔ Feature Class

Row count ⇔ 2359

Field OBJECTID

Alias ⇔ OBJECTID

Data type ⇔ OID

Width ⇔ 4

Precision ⇔ 0

Scale ⇔ 0

Field description ⇔

Internal feature number.

Description source ⇔

Esri

Description of values ⇔

Sequential unique whole numbers that are automatically generated.

Field latitude

Alias ⇔ latitude

Data type ⇔ Double

Width ⇔ 8

Precision ⇔ 0

Scale ⇔ 0

Field description

Latitude of the actual position where the HWM was observed.

Description source

USGS

Range of values

Minimum value 27.60275

Maximum value 31.01491

Field longitude

Alias ⇔ longitude

Data type ⇔ Double

Width ⇔ 8

Precision ⇔ 0

Scale ⇔ 0

Field description

Longitude of the actual position where the HWM was observed.

Description source

USGS

Range of values

Minimum value -97.6987

Maximum value -93.07198

Field eventName

Alias ⇔ eventName

Data type ⇔ String

Width ⇔ 8000

Precision ⇔ 0

Scale ⇔ 0

Field description

Name of the event that caused the flooding. In this case, all records are Hurricane Harvey.

Description source

USGS

Field hwmTypeName

Alias ↔ hwmTypeName
Data type ↔ String
Width ↔ 8000
Precision ↔ 0
Scale ↔ 0

Field description

The Type of evidence as assessed by the collector. Related to hwm_type_id.

Description source

USGS

List of values

Value debris

Description Debris lines are trails of twigs, grasses, and other small debris left on sloping ground at the edge of a river where calmer water, as it receded, deposited the material (fig. 10). Generally, debris lines are not as reliable as seed lines because debris lines have a coarser texture and have a tendency to sag as the water recedes. However, debris lines sometimes form the only available high-water marks for a given reach, especially in reaches with less woody vegetation or other obstructions. Debris lines form primarily in tranquil overbank areas and flood plains; however, flooded streams with swift-moving main channels may still collect debris lines at the edges where velocities may be lower or eddies concentrate the floating debris. The best debris lines form in slack water areas where an obstruction, a backwater tributary, or a change in channel geometry created a tranquil pool.
Enumerated domain value definition source USGS

Value direct

Description Collector was on scene during peak flooding to witness the height of the water directly Also called "present at peak"

Enumerated domain value definition source USGS

Value mud

Description When turbid water comes into contact with natural and man-made objects, the water can leave a film on the outside of nonporous surfaces called a "mud line" (or sometimes "foam line" or "stain line" as discussed in the next paragraph). Mud lines on natural surfaces such as grasses, shrubs, and trees can form usable high-water marks, and the lines are typically easier to see when viewed from a distance, such as on shrubs

Enumerated domain value definition source USGS

Value seed line

Description Seed lines form when fine materials float on top of tranquil water and remain on objects after the water recedes. Seed lines can be left on tree trunks, bridge piers, buildings, and other objects in the flooded reach of a stream. Exposure to sun, wind, and rain can quickly remove seeds and small materials within hours or days; therefore, seed lines should be identified and marked with more permanent methods soon after the flood event.

Enumerated domain value definition source USGS

Value stain line

Description Porous materials such as wood and concrete can absorb floodwater, leaving a stain line that could indicate a flood peak; however, hydrographers should be wary of capillary action that may wick the water higher than the peak water surface. Wicking will overestimate the high-water elevation; therefore, care should be taken to search for corroborating marks, especially marks on nearby nonporous surfaces.

Enumerated domain value definition source USGS

Value vegetation

Description Not an official term in the USGS literature. This term is used by some collectors to describe debris lines, that is, debris composed of vegetal matter. Some refer to "snags" in description which is different less reliable kind of water mark.

Enumerated domain value definition source USGS

Value clear water

Description There is no description "clear water" in any USGS literature. Most of the records in the Description field indicate "wash line". One is called a Debris Line. There are only 10 records tagged as "clear water"

Enumerated domain value definition source USGS

Value other

Description Means more detailed description is in Description field.

Enumerated domain value definition source USGS

Field hwmQualityName

Alias ↔ hwmQualityName
Data type ↔ String
Width ↔ 8000
Precision ↔ 0
Scale ↔ 0

Field description

Flagging uncertainty of HWM. HWM's can be excellent (.05 ft) good (.1 ft), fair (.2 ft), poor (.4 ft), and VP - very poor (> .4 ft)

This relates directly to the hwm_uncertainty field.

Description source

USGS

Field verticalDatumName

Alias ↔ verticalDatumName
Data type ↔ String

Width ⇔ 8000
Precision ⇔ 0
Scale ⇔ 0

Field description
Reference datum used to survey elevation of HWM (NAVD88, NGVD29, or local control point)

Description source
USGS

Field verticalMethodName

Alias ⇔ verticalMethodName
Data type ⇔ String
Width ⇔ 8000
Precision ⇔ 0
Scale ⇔ 0

Field description
Survey method for establishing elevation of HWM (level gun, tape measure, etc..)

Description source
USGS

Field approvalMember

Alias ⇔ approvalMember
Data type ⇔ String
Width ⇔ 8000
Precision ⇔ 0
Scale ⇔ 0

Field description
USGS employee responsible for approving this HWM record

Description source
USGS

Field markerName

Alias ⇔ markerName
Data type ⇔ String
Width ⇔ 8000
Precision ⇔ 0
Scale ⇔ 0

Field description
Type of mark placed at HWM location by the collector prior to survey (for example, nail, tape, paint, stake)

Description source
USGS

Field horizontalMethodName

Alias ⇔ horizontalMethodName
Data type ⇔ String
Width ⇔ 8000
Precision ⇔ 0
Scale ⇔ 0

Field description
Method used to establish the horizontal location of the HWM (often at time of flagging). (i.e - GPS, Map)

Description source
USGS

Field horizontalDatumName

Alias ⇔ horizontalDatumName
Data type ⇔ String
Width ⇔ 8000
Precision ⇔ 0
Scale ⇔ 0

Field description

Reference datum used to establish the horizontal location of the HWM (often at time of flagging) (NAD83, WGS84)

Description source

USGS

Field flagMemberName



Alias ↔ flagMemberName

Data type ↔ String

Width ↔ 8000

Precision ↔ 0

Scale ↔ 0

Field description

USGS employee who flagged the HWM

Description source

USGS

Field surveyMemberName



Alias ↔ surveyMemberName

Data type ↔ String

Width ↔ 8000

Precision ↔ 0

Scale ↔ 0

Field description

USGS employee who surveyed the HWM elevation

Description source

USGS

Field site_no



Alias ↔ site_no

Data type ↔ String

Width ↔ 8000

Precision ↔ 0

Scale ↔ 0

Field description

Full site number (including State/County abbreviation and site ID). There can be multiple measurements taken at a site.

Description source

USGS

Field siteDescription



Alias ↔ siteDescription

Data type ↔ String

Width ↔ 8000

Precision ↔ 0

Scale ↔ 0

Field description

General description of the site where the measurements were taken.

Description source

USGS

Field stateName



Alias ↔ stateName

Data type ↔ String

Width ↔ 8000

Precision ↔ 0

Scale ↔ 0

Field description

State abbreviation of the state where the measurement was taken (TX, LA)

Description source
USGS

Field countyName

▶ Alias ↔ countyName
Data type ↔ String
Width ↔ 8000
Precision ↔ 0
Scale ↔ 0

Field description
Name of county or parish where measurement was taken.

Description source
USGS

Field sitePermHousing

▶ Alias ↔ sitePermHousing
Data type ↔ String
Width ↔ 8000
Precision ↔ 0
Scale ↔ 0

Field description
Indicates established equipment location (Yes, No)

Description source
USGS

Field site_latitude

▶ Alias ↔ site_latitude
Data type ↔ Double
Width ↔ 8
Precision ↔ 0
Scale ↔ 0

Field description
Latitude of the general site where the observations were made. Not necessarily the location of a HWM, but the first observation point is often the same coordinate used for the site.

Description source
USGS

Range of values
Minimum value 27.60275
Maximum value 31.01465

Field site_longitude

▶ Alias ↔ site_longitude
Data type ↔ Double
Width ↔ 8
Precision ↔ 0
Scale ↔ 0

Field description
Longitude of the general site where the observations were made. Not necessarily the location of a HWM, but the first observation point is often the same coordinate used for the site.

Description source
USGS

Field hwm_id

▶ Alias ↔ hwm_id
Data type ↔ Integer
Width ↔ 4
Precision ↔ 0
Scale ↔ 0

Description source

USGS

Field description

Unique ID for each measurement.

Field waterbody



Alias ↔ waterbody

Data type ↔ String

Width ↔ 8000

Precision ↔ 0

Scale ↔ 0

Field description

Body of water most likely associated with the HWM

Description source

USGS

Field site_id



Alias ↔ site_id

Data type ↔ Integer

Width ↔ 4

Precision ↔ 0

Scale ↔ 0

Field description

Unique integer ID assigned to each Site in the system. This is the suffix of the number in the site_no field.

Description source

USGS

Field stillwaterName



Alias ↔ stillwaterName

Data type ↔ String

Width ↔ 12

Precision ↔ 0

Scale ↔ 0

Field event_id



Alias ↔ event_id

Data type ↔ Integer

Width ↔ 4

Precision ↔ 0

Scale ↔ 0

Field description

Unique integer ID assigned to each Event in the system. In this case, they are all 180 (Hurricane Harvey)

Description source

USGS

Field hwm_type_id



Alias ↔ hwm_type_id

Data type ↔ Integer

Width ↔ 4

Precision ↔ 0

Scale ↔ 0

Field description

Number representing the type of high water mark.

Description source

USGS

List of values

Value 1

Description mud

Enumerated domain value definition source USGS

Value 2

Description debris

Enumerated domain value definition source USGS

Value 3

Description clear water

Enumerated domain value definition source USGS

Value 4

Description vegetation

Enumerated domain value definition source USGS

Value 5

Description seed line

Enumerated domain value definition source USGS

Value 6

Description stain line

Enumerated domain value definition source USGS

Value 8

Description direct

Enumerated domain value definition source USGS

Value 9

Description other

Enumerated domain value definition source USGS

Field hwm_quality_id

Alias ↔ hwm_quality_id

Data type ↔ Integer

Width ↔ 4

Precision ↔ 0

Scale ↔ 0

Field description

Numeric code representing the HWM quality. These numbers correspond to the hwmQualityName

Description source

USGS

List of values

Value 1

Description Excellent (+/- .05 ft)

Enumerated domain value definition source USGS

Value 2

Description Good (+/- .1 ft)

Enumerated domain value definition source USGS

Value 3

Description Fair (+/- .2 ft)

Enumerated domain value definition source USGS

Value 4

Description Poor (+/- .4 ft)

Enumerated domain value definition source USGS

Value 5

Description VP - Very Poor (> .4 ft)

Enumerated domain value definition source USGS

Value 6

Description Unknown / Historical

Enumerated domain value definition source USGS

Field survey_date

Alias ↔ survey_date

Data type ↔ String

Width ↔ 8000

Precision ↔ 0

Scale ↔ 0

Field description

Date HWM was surveyed (not date of peak)

Description source

USGS

Field elev_ft

Alias ↔ elev_ft
Data type ↔ Double
Width ↔ 8
Precision ↔ 0
Scale ↔ 0

Field description
Surveyed elevation in feet above sea level

Description source
USGS

Field vdatum_id

Alias ↔ vdatum_id
Data type ↔ Integer
Width ↔ 4
Precision ↔ 0
Scale ↔ 0

Field description
Numeric code for vertical datum

Description source
USGS

Field vcollect_method_id

Alias ↔ vcollect_method_id
Data type ↔ Integer
Width ↔ 4
Precision ↔ 0
Scale ↔ 0

Field description
Numeric code for vertical collection method

Description source
USGS

Field bank

Alias ↔ bank
Data type ↔ String
Width ↔ 8000
Precision ↔ 0
Scale ↔ 0

Field description
Left or right bank of river channel going downstream.

Description source
USGS

Field approval_id

Alias ↔ approval_id
Data type ↔ Integer
Width ↔ 4
Precision ↔ 0
Scale ↔ 0

Field description
approval_id

Description source
USGS

Field marker_id

►
Alias ↔ marker_id
Data type ↔ Integer
Width ↔ 4
Precision ↔ 0
Scale ↔ 0

Field description
Numeric code for the marker name. Corresponds to markerName field.

Description source
USGS

Field height_above_gnd

►
Alias ↔ height_above_gnd
Data type ↔ Double
Width ↔ 8
Precision ↔ 0
Scale ↔ 0

Field description
Distance from HWM down to ground surface in feet. Note: use with care; these values are often estimated or rough measurements that could include tree roots, sloping surfaces, etc. immediately beneath the HWM.

Description source
USGS

Field hcollect_method_id

►
Alias ↔ hcollect_method_id
Data type ↔ Integer
Width ↔ 4
Precision ↔ 0
Scale ↔ 0

Field description
Numeric code for the Horizontal Method

Description source
USGS

Field peak_summary_id

►
Alias ↔ peak_summary_id
Data type ↔ Integer
Width ↔ 4
Precision ↔ 0
Scale ↔ 0

Field description
Unique integer id assigned to each Peak. Peaks can be assigned to a selected location for a selected event. One or more HWM or sensor reading can be associated with a peak as evidence of that peak.

Description source
USGS

Field hwm_notes

►
Alias ↔ hwm_notes
Data type ↔ String
Width ↔ 8000
Precision ↔ 0
Scale ↔ 0

Field description
Further detail describing the high water mark collection. Includes descriptions of conditions, issues, and methods used. Can be either surveying or flagging notes.

Description source
USGS

Field hwm_environment

►
Alias ↔ hwm_environment

Data type ↔ String
Width ↔ 8000
Precision ↔ 0
Scale ↔ 0

Field description
Type of hydrologic environment (Riverine, Coastal)

Description source
USGS

Field flag_date

▶ Alias ↔ flag_date
Data type ↔ String
Width ↔ 8000
Precision ↔ 0
Scale ↔ 0

Field description
Date HWM was flagged for later surveying (not date of peak)

Description source
USGS

Field stillwater

▶ Alias ↔ stillwater
Data type ↔ Integer
Width ↔ 4
Precision ↔ 0
Scale ↔ 0

Field description
1 = HWM was likely caused in tranquil water location

0 = HWM was likely caused by swiftly moving water

Description source
USGS

Field hdatum_id

▶ Alias ↔ hdatum_id
Data type ↔ Integer
Width ↔ 4
Precision ↔ 0
Scale ↔ 0

Field description
Numerid Code for horizontal datum

Description source
USGS

Field flag_member_id

▶ Alias ↔ flag_member_id
Data type ↔ Integer
Width ↔ 4
Precision ↔ 0
Scale ↔ 0

Field description
System id of USGS employee who flagged the HWM

Description source
USGS

Field survey_member_id

▶ Alias ↔ survey_member_id
Data type ↔ Integer
Width ↔ 4

Precision ↔ 0
Scale ↔ 0

Field description
System id of USGS employee who surveyed the HWM

Description source
USGS

Field uncertainty

▶ Alias ↔ uncertainty
Data type ↔ Double
Width ↔ 8
Precision ↔ 0
Scale ↔ 0

Field description
Uncertainty of HWM survey, in feet. Note that total uncertainty is a combination of surveyed uncertainty, flagging uncertainty, and other potential factors (sum of least mean squares method).

Description source
USGS

Field hwm_uncertainty

▶ Alias ↔ hwm_uncertainty
Data type ↔ Double
Width ↔ 8
Precision ↔ 0
Scale ↔ 0

Field description
Uncertainty of HWM flagging, in feet. Relates directly with the hwmQualityName field.

For example, if the HWM comes from a debris line in a chain link the uncertainty would be the size of the chain link ~2". If a debris line on the ground varies by about 0.4', then 0.4' is the HWM Uncertainty

Description source
USGS

Field hwm_label

▶ Alias ↔ hwm_label
Data type ↔ String
Width ↔ 8000
Precision ↔ 0
Scale ↔ 0

Field description
Name given to HWM to distinguish between this and other HWMs at the same location.
Numeric concatenation of date, time, and sequential number for measurements taken at the site.

Description source
USGS

Field Shape

▶ Alias ↔ Shape
Data type ↔ Geometry
Width ↔ 0
Precision ↔ 0
Scale ↔ 0

Field description ↔
Feature geometry.

Description source ↔
Esri

Description of values ↔
Coordinates defining the features.

Field loc_desc

Alias ↔ loc_desc
Data type ↔ String
Width ↔ 350
Precision ↔ 0
Scale ↔ 0

Field description

Derived from the original location_description field (removed). In this version, the carriage returns have been removed and case set to lower case. This was necessary to perform queries using sequel statements.

Description source

USGS

Field Type_Reclass

Alias ↔ Type_Reclass
Data type ↔ String
Width ↔ 25
Precision ↔ 0
Scale ↔ 0

Field description

This reclassification field is a result of comparing the hwmTypeName field and Location_description field. Where there was disagreement, the Type_Reclass field was re-classified accordingly. The original hwmTypeName field remains for future reference.

Description source

CSR

List of values

Value debris

Description .

Enumerated domain value definition source USGS

Value direct

Description .

Enumerated domain value definition source USGS

Value mud

Description .

Enumerated domain value definition source USGS

Value seed-line

Description .

Enumerated domain value definition source USGS

Value stain-line

Description .

Enumerated domain value definition source USGS

Value vegetation

Description .

Enumerated domain value definition source USGS

Value wash-line

Description .

Enumerated domain value definition source USGS

Value cut-line

Description .

Enumerated domain value definition source USGS

Value snag

Description Debris snags (sometimes called "trash snags" or "flood trash" in urban settings) are formed when coarse debris collects on an obstruction in the water, such as a structure, pole, fence, guy wire, tree, boulder, or bush . Note that some piles may be taller than others, leading to a large amount of uncertainty regarding the actual peak water surface. Large pileups can result from deposition of new materials at different stages as the water recedes. Conversely, the pileups may also result from swift flow forcing new material on top of older material. When swift flow encounters obstructions, water may run up higher on the upstream side of the object and draw-down lower on the downstream side. This can also cause coarse debris to pile up higher than the flood peak surface, so these piles should be assigned a suitably large uncertainty or remain unused. Debris snags are generally considered unreliable.

Enumerated domain value definition source USGS

Value other

Description .

Enumerated domain value definition source USGS

Metadata Details ▶

Metadata language ↔ English (UNITED STATES)

Metadata character set utf8 - 8 bit UCS Transfer Format

Scope of the data described by the metadata ↔ dataset
Scope name ↔ dataset

Last update ↔ 2019-02-20

ArcGIS metadata properties
Metadata format ArcGIS 1.0

Created in ArcGIS for the item 2019-01-30 16:57:17
Last modified in ArcGIS for the item 2019-02-20 11:17:49

Automatic updates
Have been performed Yes
Last update 2019-02-20 11:17:49

Metadata Contacts ▶

Metadata contact - point of contact
Individual's name Kristine Blickinstaff
Organization's name USGS

Contact information

Phone
Voice 682-316-5033
Address
Type physical
Delivery point 501 W. Felix St. BLDG 24
City Ft Worth
Administrative area TX
Postal code 76115
Country US
e-mail address kblickenstaff@usgs.gov
Online resource
Location <https://stn.wim.usgs.gov/fev/#HarveyAug2017>

Metadata Maintenance ▶

Maintenance
Update frequency not planned

Thumbnail and Enclosures ▶

Thumbnail
Thumbnail type
Image file

