

Interim Geologic Map of the North Ogden Quadrangle, Weber and Box Elder Counties, Utah

Type File Geodatabase

Tags geologic map, GIS, geology, geologic units, geologic formations, fold axes, contacts, faults, synclines, anticlines, geoscience information, Utah, Weber County, Box Elder County, Utah

Summary

This geographic information system (GIS) release of Interim geologic map of the North Ogden quadrangle,

Weber and Box Elder counties, Utah, provides basic geologic data in digital format for government, academic, private industry, and public users.

Description

The North Ogden 7.5' quadrangle is located in the eastern Basin and Range Province in the northern Wasatch Range, Utah. The Wasatch Range forms a high ridge between Ogden Valley to the east and the Great Salt Lake-Ogden Valley to the west. Ben Lomond and Willard Peak (just north of the quadrangle) form the prominent ridge north of the North Ogden Canyon and North Ogden Divide, which is an east-west pass through the range. South of North Ogden Divide, Lewis Peak is the highest point on the ridge that continues south to Ogden Canyon. Ogden Canyon is in the southeast part of the quadrangle and continues south of the quadrangle boundary. The North Fork of the Ogden River is the primary tributary in northwestern Ogden Valley that feeds Pineview Reservoir. The reservoir controls the flow to the Ogden River which flows down Ogden Canyon and eventually to Great Salt Lake. Several smaller annual and perennial streams are located in the Wasatch Range and in both valleys within the quadrangle. The Wasatch Range is mostly within the Uinta-Wasatch-Cache National Forest. The western part of the quadrangle includes urban areas of North Ogden with parts of Ogden, Harrisville, and Pleasant View, and the Business Depot Ogden. The eastern part of the quadrangle in Ogden Valley includes part of Liberty.

The surficial geology of the North Ogden quadrangle consists primarily of alluvial, colluvial, glacial, lacustrine, mass-movement, and marsh deposits. The Wasatch Range is separated from the valley floor in the western part of the quadrangle by the northern part of the Weber segment and southern part of the Brigham City segment of the Wasatch fault zone.

The bedrock of the North Ogden quadrangle includes Tertiary tuffaceous deposits, Paleozoic and Neoproterozoic bedrock, and Paleoproterozoic to Mesoproterozoic

basement that are deformed by the Willard and Ogden thrust faults of the Cretaceous-Paleogene Sevier orogeny.

Credits

Program Manager: Stefan Kirby

Project Manager: Zachary Anderson

GIS and Cartography: Adam McKean, Rosemary Fasselin, and Austin Jensen

GeMS Conversion: Austin Jensen

Geology review: Zachary Anderson, Stefan Kirby, Stephanie Carney, and Darlene Batatian

GIS and Cartographic reviews: Josh Dustin and Subigya Shah

GeMS Review: Josh Dustin and Subigya Shah

Funding: U.S. Geological Survey, STATEMAP award number G21AC10880 (2021–2022).

Use limitations

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This geologic map was funded by the Utah Geological Survey and the U.S. Geological Survey, National Cooperative Geologic Mapping Program, through USGS STATEMAP award number G21AC10880 (2021–2022). The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

Extent

West -114.270117 East -108.902666

North 42.035640 South 36.954016

Scale Range

Maximum (zoomed in) 1:5,000

Minimum (zoomed out) 1:150,000,000

[Topics and Keywords](#) ►

Themes or categories of the resource Geoscientific

Content type Downloadable Data

Export to FGDC CSDGM XML format as Resource Description No

Theme keywords geology, geologic units, geologic formations, fold axes, contacts, faults, thrust, synclines, anticlines

[Thesaurus](#) ►

Title ISO 19115 Topic Categories

Place keywords Uinta-Wasatch-Cache National Forest, Ogden Valley, North Ogden, Ogden, Harrisville, Pleasant View, Liberty, Weber County, Box Elder County, Utah

[Citation](#) ►

Title Interim Geologic Map of the North Ogden Quadrangle, Weber and Box Elder Counties, Utah

Publication date 2025-12-01 00:00:00

Edition 1.0

Presentation formats digital map

FGDC geospatial presentation format vector digital data

Series

Name Interim Geologic Map of the North Ogden Quadrangle, Weber and Box Elder Counties, Utah

Issue Open File Report 774DM

Other citation details

McKean, A.P., Kleber, E.J., McDonald, G.N., Balgord, E.A., and Yonkee, W.A., 2026, Interim geologic map of the North Ogden quadrangle, Weber and Box Elder Counties, Utah: Utah Geological Survey OFR 774DM, 2 plates, scale 1:24,000, <https://doi.org/10.34191/OFR-774DM>.

[Citation Contacts](#) ►

Responsible party - originator

Individual's name Adam McKean

Organization's name Utah Geological Survey

Contact's position Hazards Program Manager

[Resource Details](#) ►

Dataset languages English

Dataset character set utf8 - 8 bit UCS Transfer Format

Status completed

Spatial representation type vector

Processing environment Esri ArcMap and/or ArcGIS Pro

Credits

Program Manager: Stefan Kirby

Project Manager: Zachary Anderson

GIS and Cartography: Adam McKean, Rosemary Fasselin, and Austin Jensen

GeMS Conversion: Austin Jensen

Geology review: Zachary Anderson, Stefan Kirby, Stephanie Carney, and Darlene Batatian

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Funding: U.S. Geological Survey, STATEMAP award number G21AC10880 (2021–2022).

ArcGIS item properties

[Extents](#) ►

Extent

Description

Unknown

Temporal extent

Date and time 2026-01-14 00:00:00

Extent

Geographic extent

Bounding rectangle

Extent type

Extent used for searching

West longitude -114.270117

East longitude -108.902666

North latitude 42.035640

South latitude 36.954016

Extent contains the resource Yes

[Resource Points of Contact ►](#)

Point of contact - distributor

Organization's name Utah Geological Survey

Individual's name Interactive Geologic Map Portal

[Contact information ►](#)

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Hours of service

Online web service

Contact instructions

Browse UGS map publications and download PDFs and GIS data in the UGS Interactive Geologic Map Portal.

<https://geology.utah.gov/apps/intgeomap/>

[Resource Maintenance](#) ►

Resource maintenance

Update frequency not planned

[Resource Constraints](#) ►

Constraints

Limitations of use

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Legal constraints

Limitations of use

See access and use constraints information.

[Data Quality](#) ►

[Scope of quality information](#) ►

Resource level dataset

[Data quality report - Conceptual consistency](#) ►

Data quality measure reference

Measure description

This geodatabase is a composite geodataset that encapsulates the spatial and non-spatial data needed to depict and describe the geology of the map area, and to create the accompanying cartographic map product. The geodatabase conforms to the GeMS standard, except for deviations noted in the Lineage section of the metadata record.

[Data quality report - Completeness omission](#) ►

Data quality measure reference

Measure description

The geodatabase contains all the schema and attribute elements required by the GeMS standard, unless otherwise noted in the Lineage section of the metadata record.

[Lineage](#) ►

Lineage statement

GIS data was newly prepared specifically for this quadrangle.

[Process step](#) ►

When the process occurred 2025-11-17 00:00:00

Description

Mapping for the project was done using stereographic pairs of aerial photographs, including black-and-white aerial photographs at an approximate scale of 1:20,000 from the U.S. Department of Agriculture (USDA) Agricultural Adjustment Administration (1937),

1:20,000 scale USDA Production and Marketing Administration (1953) photographs, and USDA Agricultural Commodity Stabilization Service (1958) photographs at a scale of 1:10,000. Black-and-white oblique aerial photography at various scales from 1:12,000 to 1:5000 from the Woodward-Lundgren & Associates Wasatch fault investigation (Cluff and others, 1970, compiled in Bowman and others, 2015). Natural color aerial photographs at a scale of 1:12,000 from the USDA U.S. Forest Service (1980). Natural color, digital, and aerial photographs from the USDA National Agriculture Imagery Program (NAIP) (2009) were used in digital stereo software. Contacts were revised using 2018 NAIP imagery, Hexagon, and Google orthophotographs (Utah Geospatial Resource Center [UGRC], 2018b, 2018c, 2021a,b), and lidar from various collection years (Ogden City, 2009; UGRC, 2006, 2009, 2011, 2013–2014, 2018a). The geologic map was made by transferring the geology from the aerial photographs to a geographic information system (GIS) database in ArcGIS and ArcPro for a target scale of 1:24,000, using 1990s digital orthophoto quadrangles (DOQ) (UGRC, 1990s) and 2018 NAIP orthophotographs (UGRC, 2018b). Field data were collected using an iPad and ArcGIS Collector and Field Maps Application during field mapping in 2021 and 2022. Field mapping of Ogden Valley by McDonald occurred between 2001–2004 and 2021–2022.

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Process contact - originator

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Organization's name Utah Geological Survey

Contact's position Hazards Program Manager

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[Process step](#) ►

When the process occurred 2026-01-14 00:00:00

Description

This GeMS submission has been validated as Level 2-compliant using the GeMS Validate Database tool called GeMS_ValidateDatabase.py, version of 14 April 2025, version 2.13.5 for ArcGIS Pro with some deviations from GeMS standards. These deviations are described below. The decision to deviate was made, in most instances, because there was limited return on the time invested to comply precisely and/or it was unclear how to follow the standards more precisely. More details about the deviations or the reasons for them can be given at any time. Please note that because the data has not been reviewed, this list of deviations may change in the final version.

The deviations from full GeMS compliance or standards are as follows:

- “GeologicPoints”: Non-standard feature class of geology-related symbols such mines, quarries, gravel pits, springs, etc.
- Annotation feature classes: The UGS has a set of standards for geologic map publications that includes three annotation feature classes called “GeologicFeatures_labels”, and “MapUnitPolys_labels”. These feature classes have been included with this geodatabase.

- “ParagraphStyle” field: The UGS has a unique Style Guide for all publications, the basis of which is a Microsoft Word template that contains Styles. Unfortunately, these Styles are different from those used by the USGS. Therefore, determining the correct value to put in the field called “ParagraphStyle” would require a complete re-formatting of the UGS Style Guide and, more specifically, of the templates used for our publications. For this reason, we have populated all units with “DMUUnit1” to meet Level 3 compliance.

- “HierarchyKey” field: The UGS has a set of GIS standards that follows a particular schema and within this schema, there is a value representing the hierarchy of each unit called “UnitRank”. This value puts the geologic units on any given map in semi-stratigraphic order (following the accompanying “booklet” or “pamphlet”) similar to the intention of the “HierarchyKey” field values. Because it would take a significant amount of time to build “HierarchyKey” values by hand (please see the discussion about the “ParagraphStyle” above) the use of “UnitRank” as is our standard has been employed in this submission.

- “Symbol” field: The UGS has a set of symbology standards that are not the same as FGDC standard symbols. Because these are the symbols used in the original publication, for the GeMS conversion, the same symbology – that is, the UGS symbology – was used here. The value in the field called “Symbol” matches the name of the feature in the LYRX that accompanies this submission.

- Left-hand rule: The UGS follows the left-hand rule when drawing lines. The LYRX files will allow the user to symbolize the lines correctly, but if the FGDC symbology is used, the lines or the symbols themselves will need to be flipped such that the line decorations face the correct direction.

- “AreaFillRGB” field: Please see the discussion about the “Symbol” field above. Because we are not using FGDC symbology, filling out this field will take a significant amount of time. Additionally, this field seems unnecessary for the user because we have supplied LYRX with this submission.

- “AreaFillPatternDescription” field: Please see the discussions about the “Symbol” and “AreaFillRGB” fields above. Similar to the “AreaFillRGB” field, to populate the

“AreaFillPatternDescription” field would take even longer. It also seems unnecessary for the user because we have supplied LYRX with this submission.

- “DataSourceID” field for GeologicPoints, “OrientationSourceID” field for OrientationPoints, and “DataSourcesID” field for DescriptionOfMapUnits table: The length of these fields may have been increased to accommodate more characters.
- “Rotation” field: Added to relevant feature class(es) for use in accurate cartographic representation of a variety of point features.
- “PlotAtScale” field: Added to relevant feature class(es) to indicate the map scale at which the features should be plotted on a map.
- “Strike” field: Added to OrientationPoints feature class to record the right-hand-rule azimuth of the strike of planar geologic features. This azimuth is perpendicular, in an anti-clockwise direction, to the azimuth of dip direction of planar features, which is recorded in the “Azimuth” field.
- “Unnecessary map units in DescriptionOfMapUnits”: The inclusion of these map units in the DescriptionOfMapUnits table is intentional because these units, while not present on the map (Plate 1), are present in other parts of the publication (e.g., cross sections, booklet, List of Map Units, and so on).

Process contact - point of contact

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Organization's name Utah Geological Survey

Contact's position GIS Analyst

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[Distribution ►](#)

Distribution format

Name File Geodatabase

Transfer options

Online source

Online location (URL) <https://doi.org/10.34191/OFR-774DM>

[References ►](#)

Aggregate Information

Association type larger work citation

[Aggregate resource name ►](#)

Title Interim geologic map of the North Ogden quadrangle, Weber and Box Elder Counties, Utah

Publication date 2025-11-17 00:00:00

Edition 1.0

Series

Name Open-File Report

Issue 774DM

Responsible party - originator

Organization's name Utah Geological Survey

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Country US

Hours of service

8AM-5PM

Resource location online

Online location (URL) <https://doi.org/10.34191/OFR-774DM>

Function performed download

[Metadata Details](#) ►

Metadata language English

Metadata character set utf8 - 8 bit UCS Transfer Format

Scope of the data described by the metadata dataset

Scope name dataset

Last update ⇔ 2026-03-23

ArcGIS metadata properties

Metadata format ArcGIS 1.0

Metadata style FGDC CSDGM Metadata

Standard or profile used to edit metadata FGDC

Created in ArcGIS for the item 2022-02-21 12:44:58

Automatic updates

Have been performed No

[Metadata Contacts](#) ►

Metadata contact - point of contact

Individual's name Austin Jensen

Organization's name Utah Geological Survey

Contact's position GIS Analyst

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[Metadata Maintenance ►](#)

Maintenance

Update frequency not planned

[Metadata Constraints ►](#)

Constraints

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