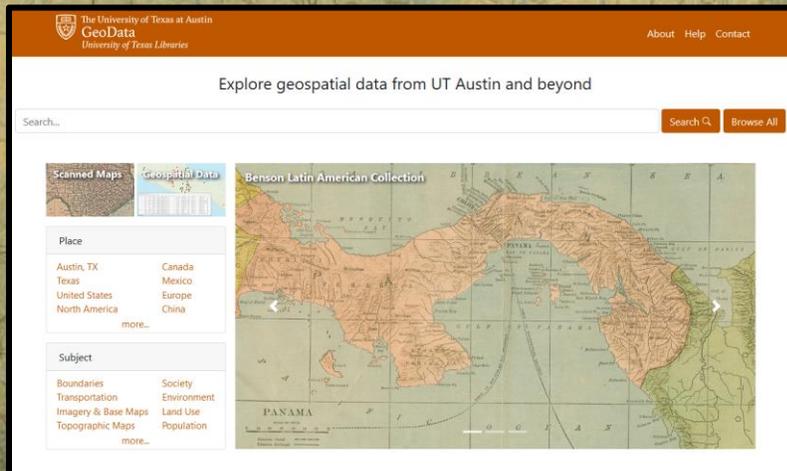




The Texas GeoData Portal

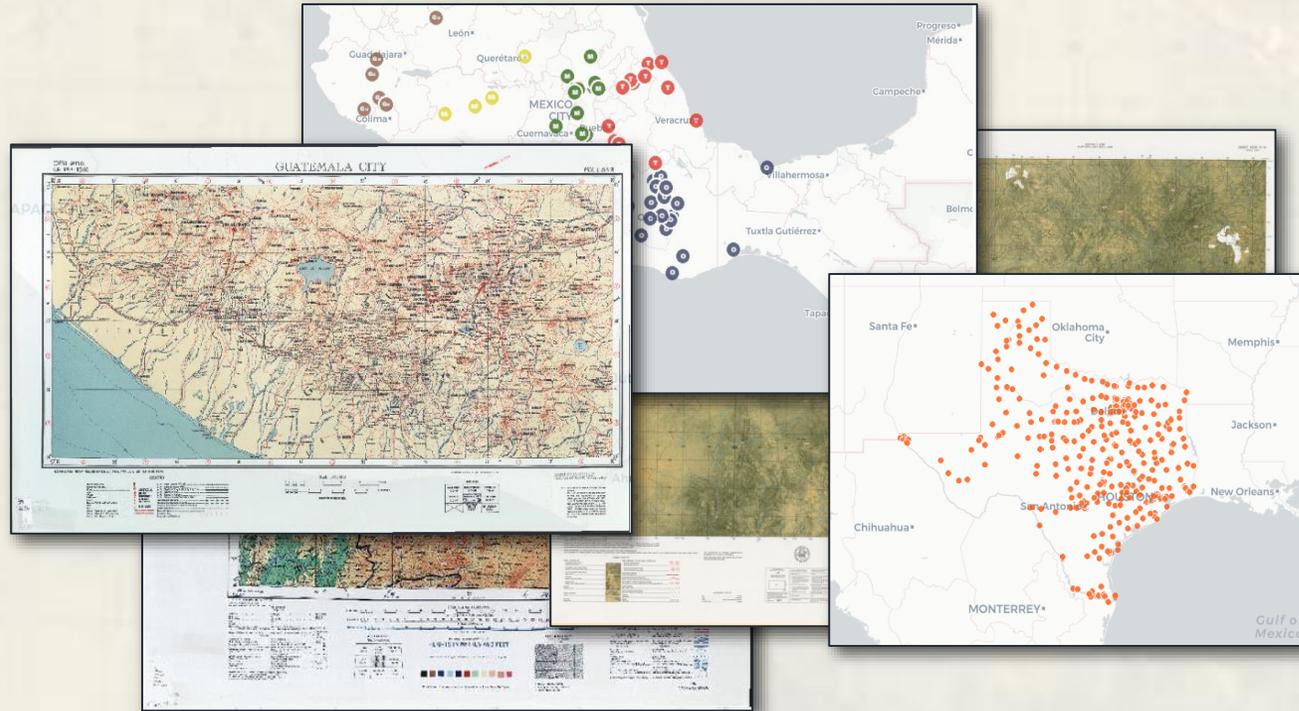
**A New System for Enhancing Access
to Geospatial Data**



Michael Shensky
GIS & Geospatial Data Coordinator
m.shensky@austin.utexas.edu

 **TEXAS Libraries**
The University of Texas at Austin
University of Texas Libraries

Project Context: Data Sharing

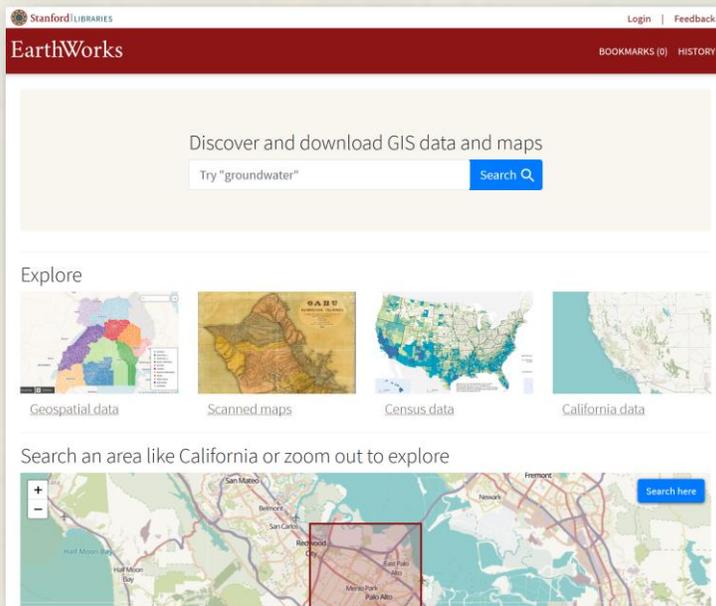


A screenshot of the University of Texas Libraries website. The page title is "Perry-Castañeda Library Map Collection". The header includes the University of Texas logo and navigation links like "Find, Borrow, Request" and "Research Help & Support". A search bar is visible. The main content area features a "SUPPORT US" button and a paragraph about the "Texas GeoData Portal" which provides access to thousands of geospatial datasets. Below this, there are sections for "Online Maps of Current Interest" and "Online Maps of General Interest", each with a list of map titles and dates. A sidebar on the left contains a "Maps" menu with categories like "World", "Africa", "Asia", etc.

The University of Texas Libraries has for many years maintained thousands of unique geospatial datasets, but lacked a way to share them effectively with the research community for use in geospatial research

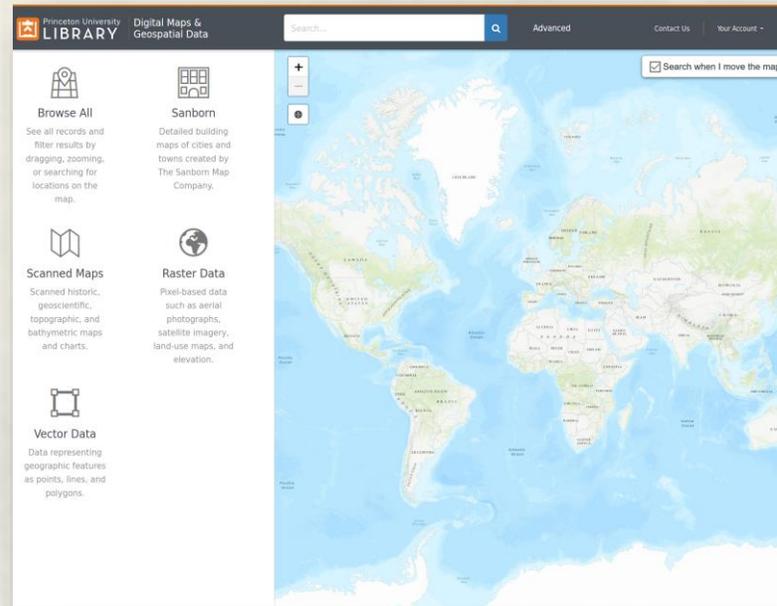
Project Context: Peer Institutions

A study of the strategies employed by peer institutions led to the conclusion that a geospatial data portal was the ideal solution for sharing GIS compatible data with the UT campus community



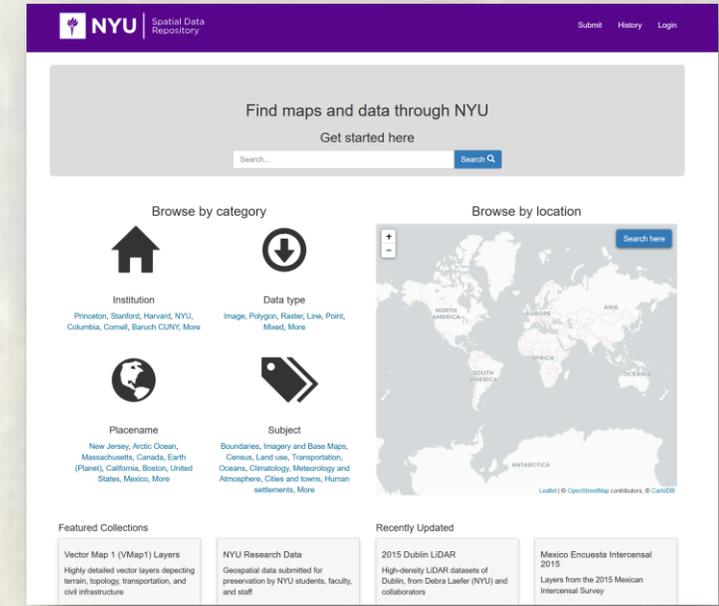
Stanford

<https://earthworks.stanford.edu/>



Princeton

<https://maps.princeton.edu/>

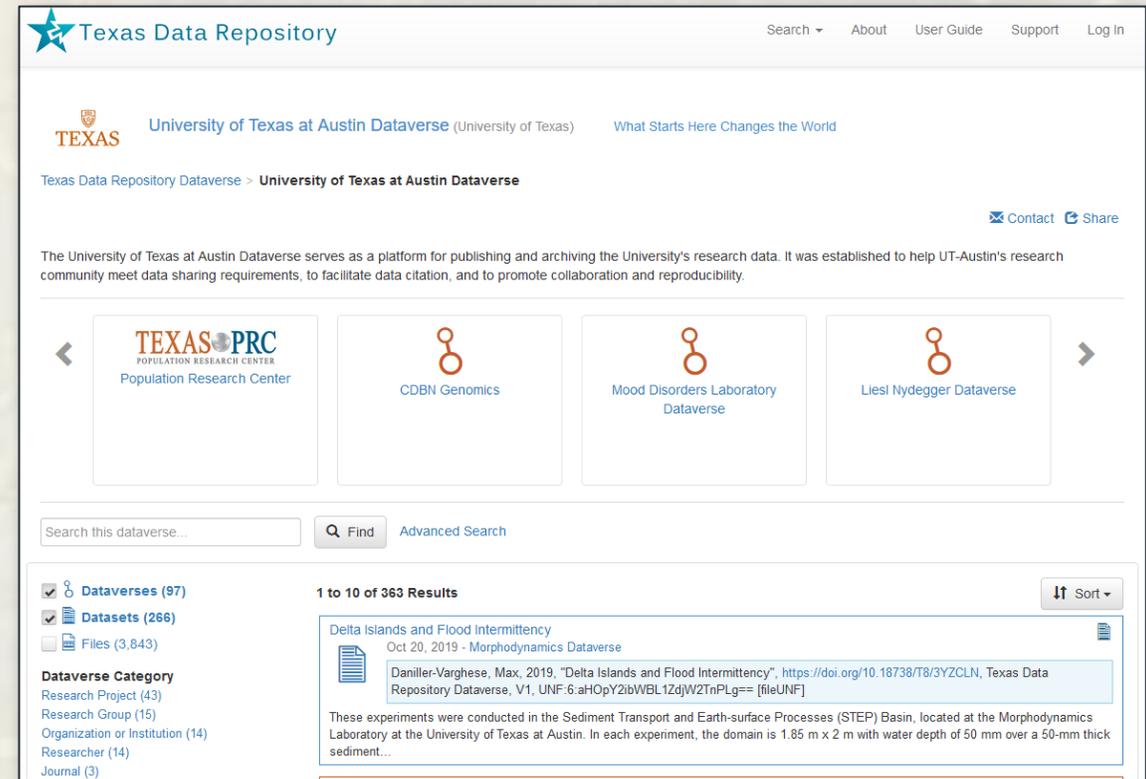
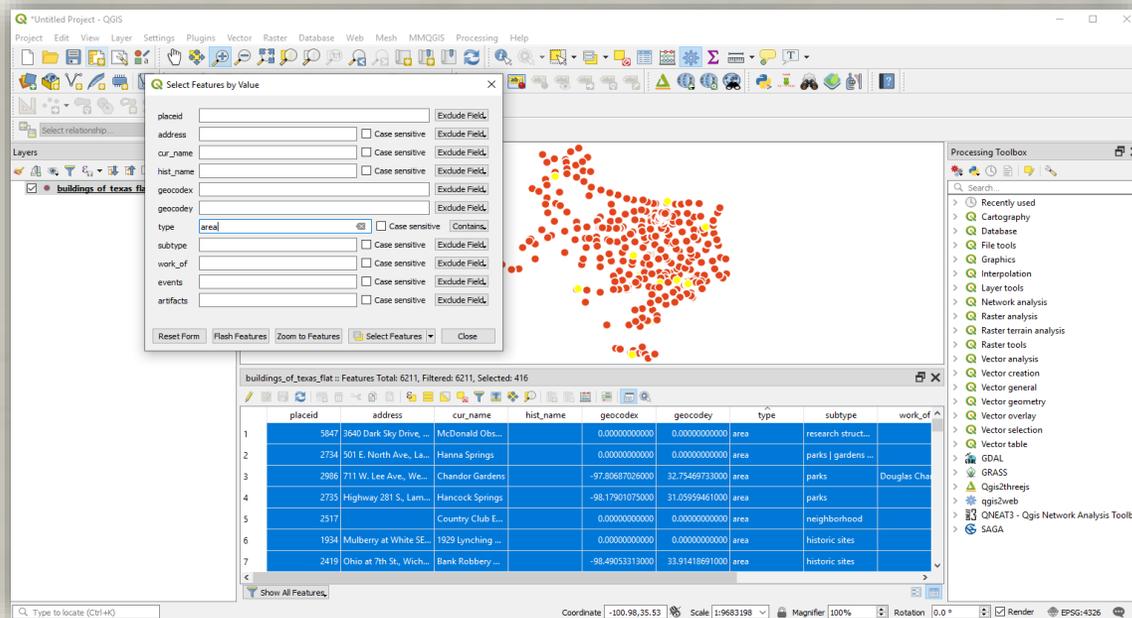


NYU

<https://geo.nyu.edu/>

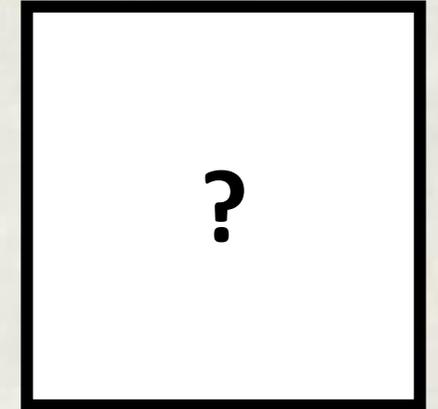
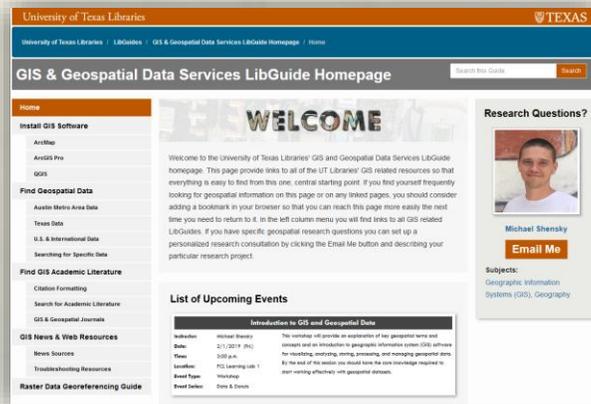
Project Context: Building Momentum

Building demand on campus for geographic information system (GIS) services led to the creation of 2 GIS oriented positions within the UT Libraries in 2017



The year 2017 also saw the successful launch of the Texas Data Repository (TDR) which served as an example for data portal development

Project Context: Pilot Project



In late 2017 and early 2018, a GIS needs assessment and GIS portal pilot project were initiated to determine how to best build out a suite of GIS services and facilitate sharing of the UT Libraries' geospatial data

Development Considerations & Challenges

No existing metadata in standard GIS formats and portal search functionality completely dependent on metadata

Over 60,000 diverse datasets to process so data management had to be: scalable, sustainable, and adaptable

Digital collection managers and IT staff were new to working with GIS software

And more!



Project Starting Point

Test Collections

Relaciones Geograficas

Buildings of Texas

PCL Map Collection



Stakeholders

Test collection content owners

Librarian liaisons to academic depts.

Digitization personnel

Cartographic cataloger

Research Support & Digital Initiatives

Research data services



Libraries IT Developers

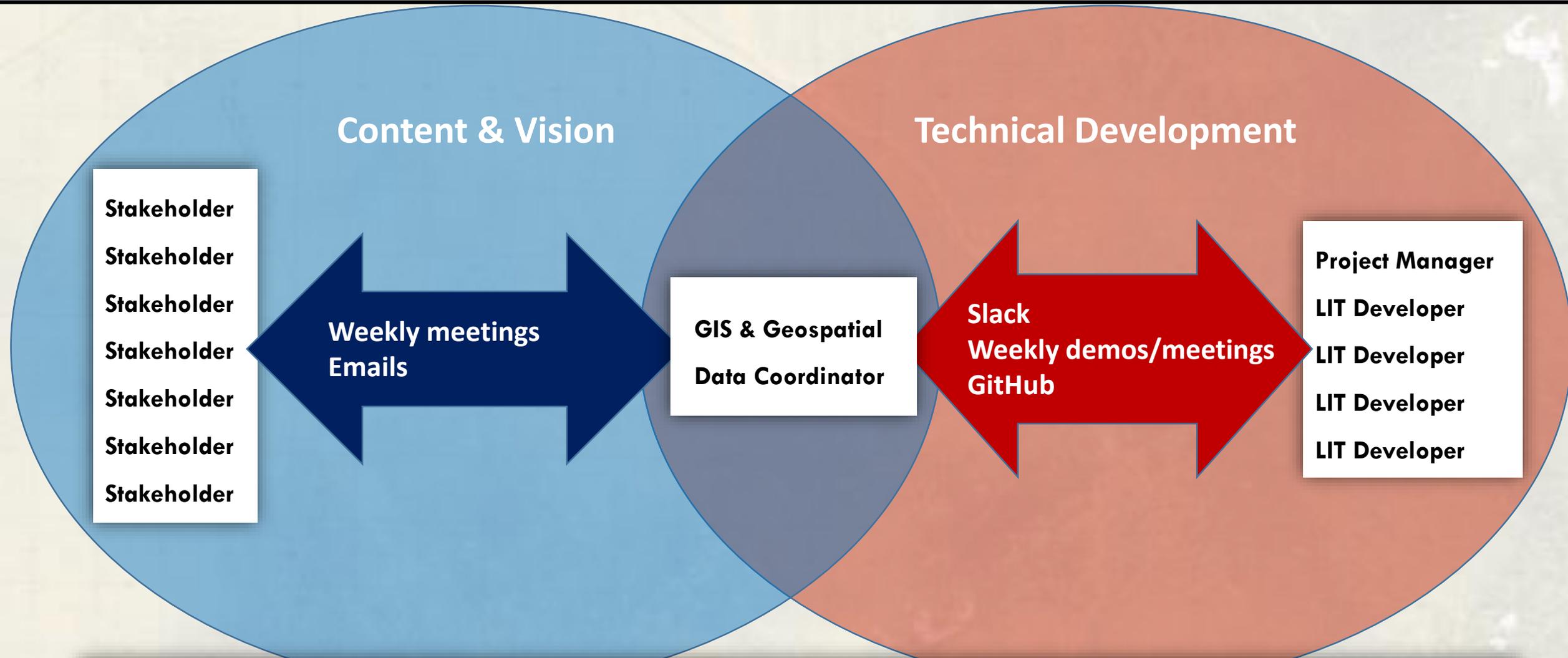
Project management

Systems administration

Software development

UI design

Development Coordination



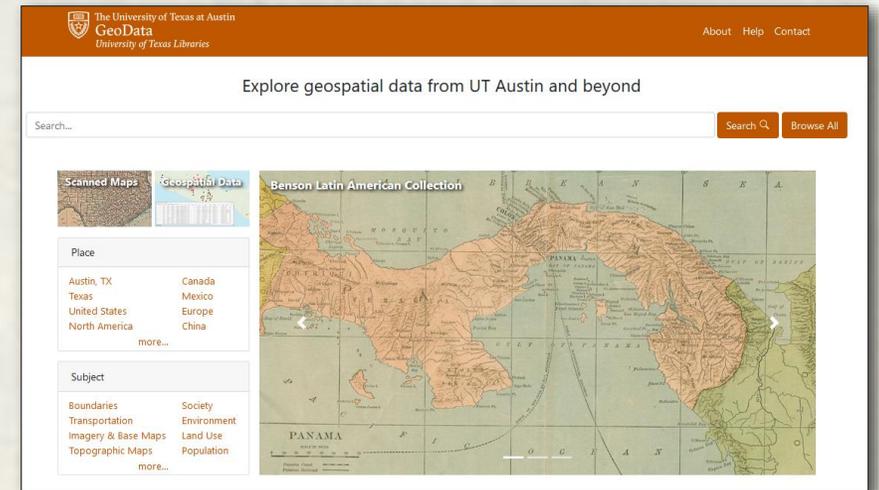
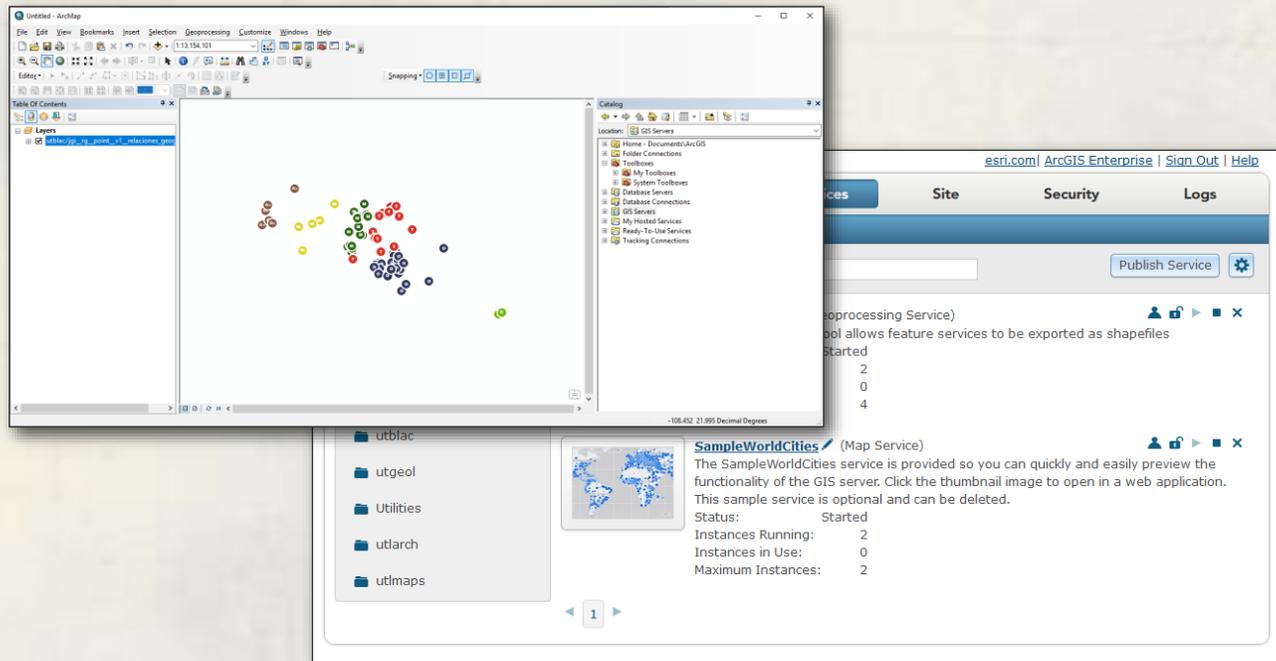
Agile Development Principles

Minimum Viable Product

2 week sprints

Active Development

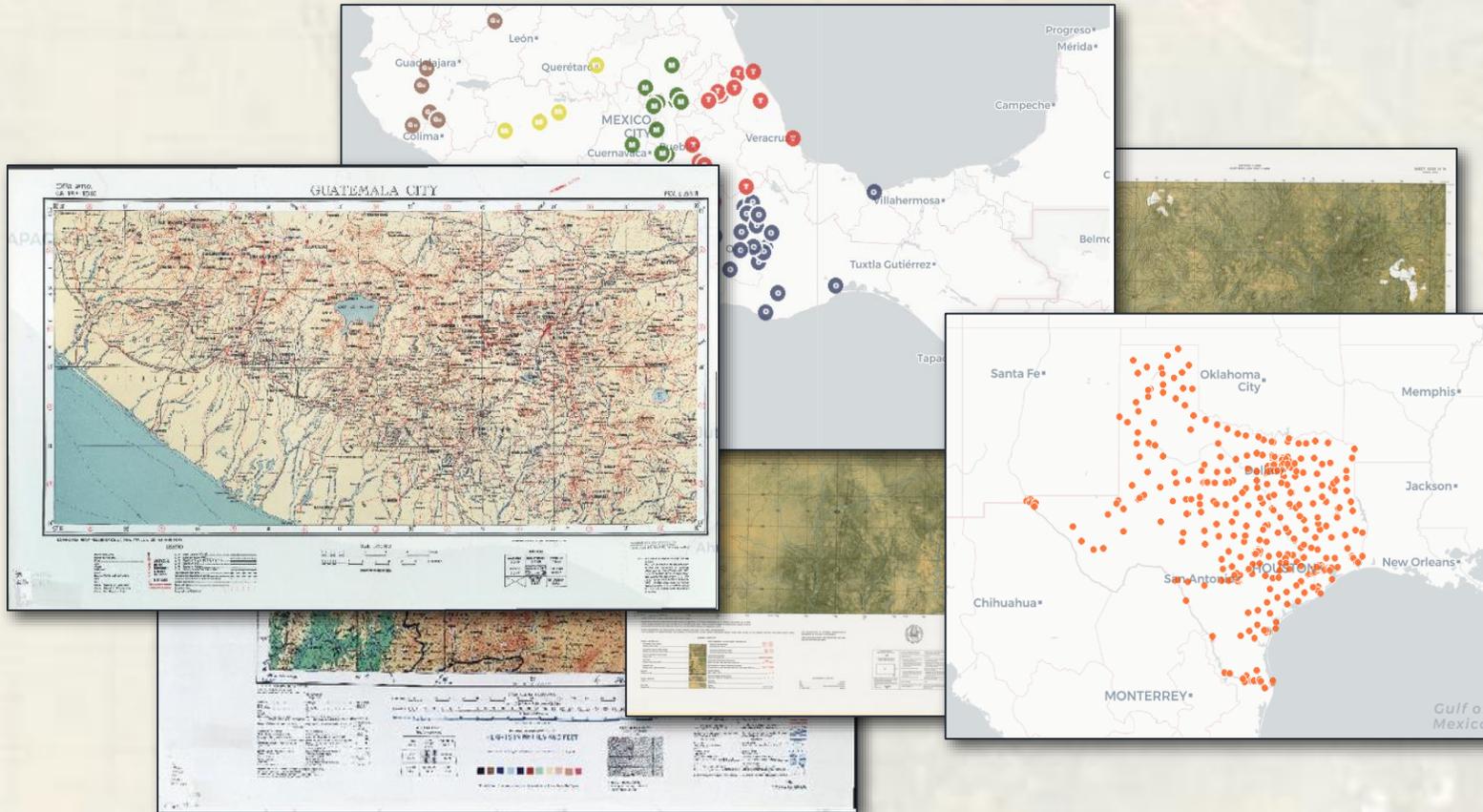
The project was carried out in two phases. Phase one focused on development of the Texas GeoData portal backend system and was completed in fall 2018.



<https://geodata.lib.utexas.edu/>

The front end of the portal was successfully completed during the summer of 2019, and the portal officially launched on 11/13/2019.

GeoData Portal Content



UT Libraries Content

- Benson Latin America Collection
- PCL Map Collection
- Alexander Architectural Archives

Content from Other Universities

Over 30,000 open datasets from 23 additional institutions that participate in OpenGeoMetadata

GeoData Portal Functionality

- Federated Searching
- Browsing
- Faceting
- Featured Collections
- Data Downloads
- Metadata Downloads
- Detailed Help Page

The image displays four overlapping screenshots of the GeoData Portal interface, demonstrating various functionalities:

- Top-left:** The main portal page titled "Explore geospatial data from UT Austin and beyond". It features a search bar, a "Browse All" button, and a featured collection titled "Benson Latin American Collection" with a map of Central America. A sidebar on the left offers faceted search options for "Place" (Austin TX, Texas, United States, North America, Canada, Mexico, Europe, China) and "Subject" (Boundaries, Transportation, Imagery & Base Maps, Topographic Maps, Society, Environment, Land Use, Population).
- Top-right:** A detailed view of a map titled "Central America (AMS E501), 1:250000". It includes a scale bar, projection information, and a "Value" field for inspection.
- Bottom-left:** A faceted search results page showing a list of publishers (Princeton, Stanford, University of Pennsylvania Libraries, NYU, Penn State, Columbia, Minnesota, MIT) and subjects (Казань, 新疆维吾尔自治区, 京城市内各重要全图, etc.).
- Bottom-right:** A map titled "Buildings of Texas (Points)" showing orange dots representing building locations. A detailed metadata panel is visible, including fields for Author(s), Description, Publisher, Collection, Place(s), and Subject(s).

A large red "DEMO" stamp is overlaid on the center of the collage.



Explore geospatial data from UT Austin and beyond



Scanned Maps



Geospatial Data

Place

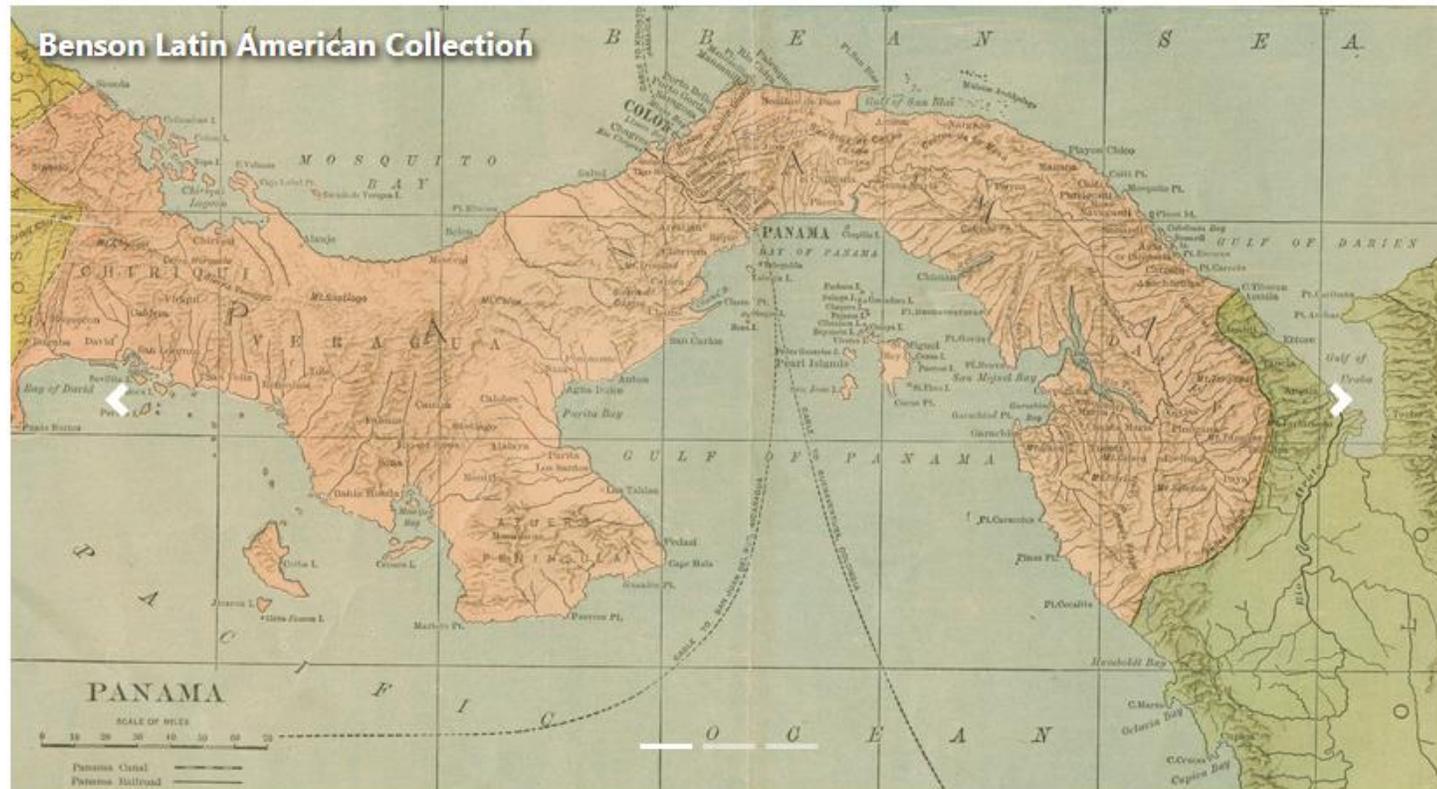
- Austin, TX
- Texas
- United States
- North America
- Canada
- Mexico
- Europe
- China

[more...](#)

Subject

- Boundaries
- Transportation
- Imagery & Base Maps
- Topographic Maps
- Society
- Environment
- Land Use
- Population

[more...](#)





Limit your search

« Previous | **1 - 10** of **55,496** | Next »

Institution

	Princeton	17,893
	Stanford	13,220
	University of Pennsylvania Libraries	3,980
	NYU	3,844
	Penn State	3,682
	Columbia	3,213
	Minnesota	1,720
	MIT	1,685
more »		

Publisher

Subject

Place

Collection

Access

Data type

Format

- ▶ 1. 青ヶ島火山および伊豆諸島南方海底火山...
- ▶ 2. Казань
- ▶ 3. 新選増補京大繪圖.
- ▶ 4. 京城内外首善全圖.
- ▶ 5. 中华人民共和国人口分布, 密度图
- ▶ 6. Αθηνά, σχέδιο πολης, 1:7.500 = Athens, c...
- ▶ 7. Физическая Карта Африки [Physical Map o...
- ▶ 8. Политическая Карта Африки [Political Map...
- ▶ 9. 上海市市区图 = Map of Shanghai proper
- ▶ 10. 1 Degree Graticule, Northeast United Stat...



« Previous | Next » | **1** | 2 | 3 | 4 | 5 | ... | 5,550

Search...

Search

Browse All

Access: Public

Limit your search

Institution

Publisher

Subject

Place

Collection

Access

Public 38,298

Data type

Image 14,459

Polygon 8,938

Point 6,124

Raster 3,918

Line 2,271

Vector 976

MultiPolygon 524

MultiPoint 493

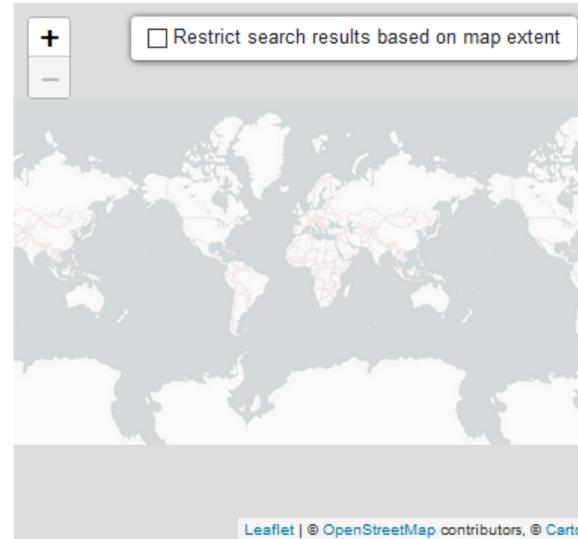
[more »](#)

[« Previous](#) | **231 - 240** of **38,298** | [Next »](#)

Sort by year ▾

10 per page ▾

- ▶ 231. Map showing free public libraries : [in Co...
- ▶ 232. Map showing locations of free public hig...
- ▶ 233. Map showing the distribution of the nati...
- ▶ 234. Map showing the military defences of Ci...
- ▶ 235. Matha Strait to Argentine Islands: Antarc...
- ▶ 236. Maxwell's directory map of the city of Lo...
- ▶ 237. McMurdo Station and Vicinity: Antarctica
- ▶ 238. Mercator map of the world united : a pict...
- ▶ 239. Meriden, New Haven Co. Ct. : drawn expr...
- ▶ 240. Micardbu: Greenland

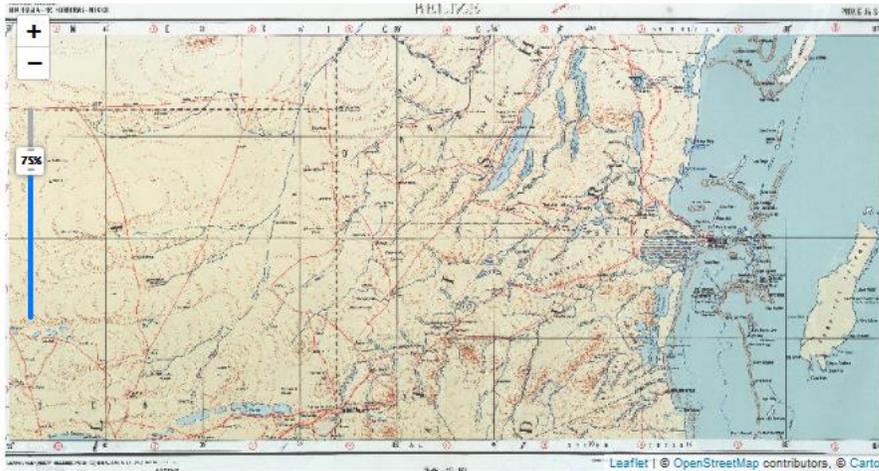


[« Previous](#) [Next »](#) 1 ... 20 21 22 23 **24** 25 26 27 28 ... 3,830

Search...

« Previous | **61 of 676** | Next »

Belize E, Central America (AMS E501), 1:250000



Attribute	Value
<i>Click on map to inspect values</i>	

Description: Scale: 1:250000; Projection: transverse mercator; Map Type: Topographic maps; Other Descriptive Notes about Map Series: E501. Transverse Mercator projection. Compiled from various sources by Military Intelligence Division, General Staff, U.S. Army. Cities are symbolized for size and importance. Index map on separate sheet 24 x 36 cm.

Collection: [Perry-Castaneda Library Map Collection](#) and [Army Map Service collection](#)

Place(s): [, Petén, Mexico, Hondo, Belmopan, Corozal, Cayo, Campeche, Maya Mountains, Quintana Roo, El Cayo, Guatemala, Stann Creek, San Pedro, Central America, Orange Walk, Belize City, Belize, and Yucatán Peninsula](#)

Subject(s): [Scanned maps](#)

Tools

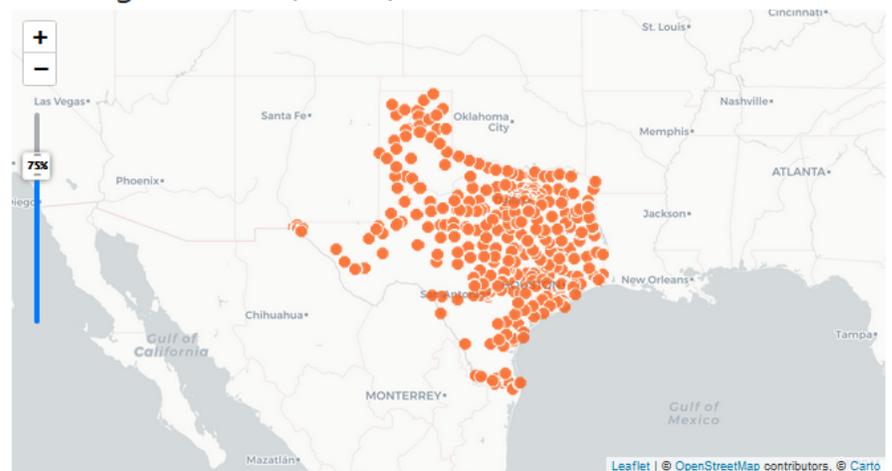
- [Web services](#)
- [Metadata](#)
- [Cite](#)

Downloads

Search...

« Previous | **1 of 3** | Next »

Buildings of Texas (Points)



Attribute	Value
<i>Click on map to inspect values</i>	

Author(s): [Josh Conrad, Grace Hansen, Katie Pierce Meyer, Michael Shensky, Jessica Trelogan](#)

Description: Dataset produced from the spreadsheet donated by [Gerald R. Moorhead](#) and created by researchers collecting data for the two-volume publication, [Buildings of Texas](#). Architects and other contributor names have been normalized and building types have been added to portions of the dataset.

Publisher: [University of Texas Libraries](#)

Collection: [Alexander Architectural Archives](#) and [Buildings of Texas collection](#)

Place(s): [Texas](#)

Subject(s): [architecture, architectural history, buildings, built works, and history](#)

Tools

- [Web services](#)
- [Metadata](#)
- [Cite](#)

Downloads

Export Formats

- [KMZ](#)
- [GeoJSON](#)

Utility for Campus Researchers

- ★ Analyzing and mapping vector data
- ★ Using georeferenced map scans as historical basemaps
- ★ Creating new vector data from georeferenced map scans

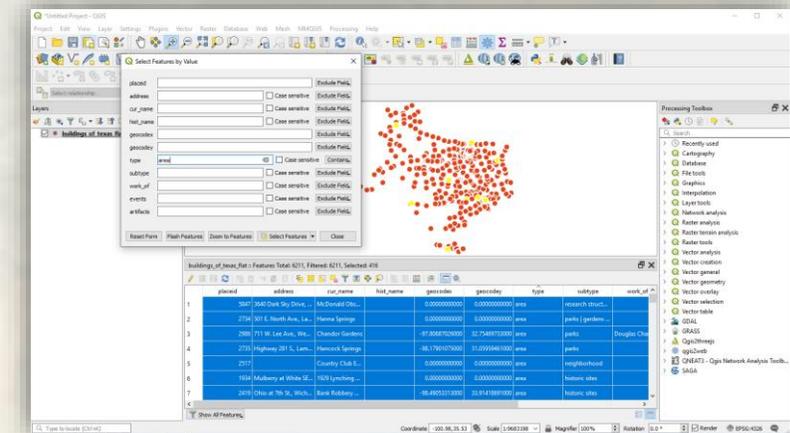
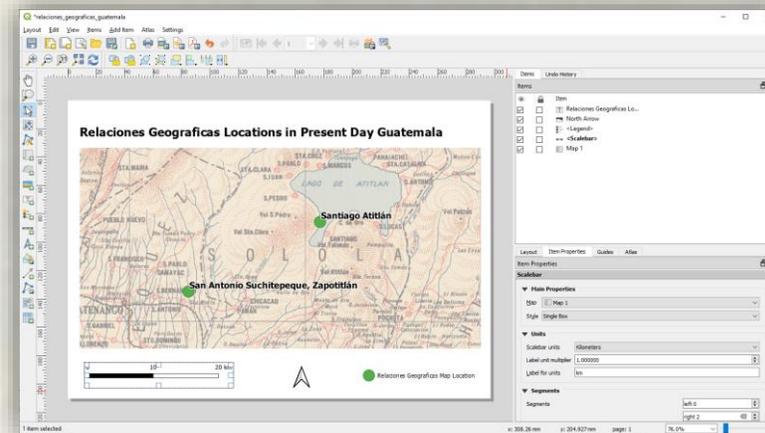
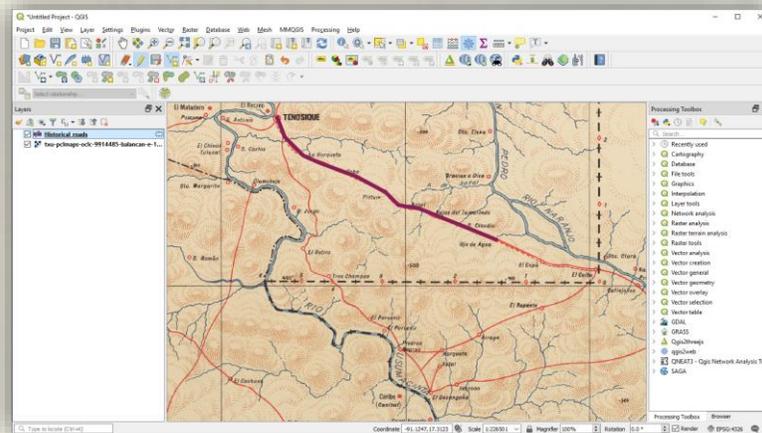
Data is compatible with all major GIS software including:

ArcGIS Pro

ArcMap

QGIS

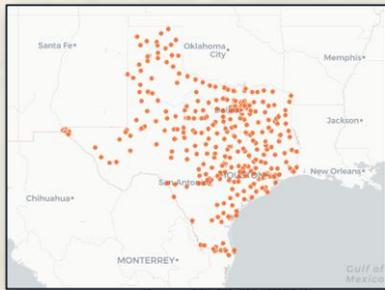
and more...





Technical Overview

Metadata Processing for Vector Datasets



Guidelines for Individual Datasets
Sep 18, 2019

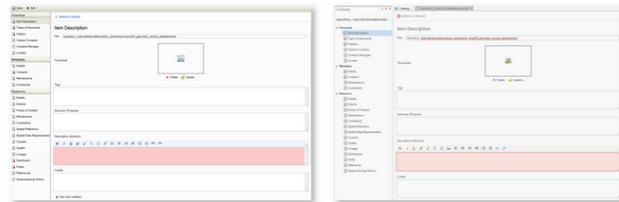
ArcGIS Pro software has the metadata style option set to **ISO 19139 Metadata Implementation**

Options > Metadata

Metadata

Location of your vector dataset. Make sure the vector dataset is saved as a feature class in a file as a shapefile, load the shapefile into your map document and export it out to a feature class in a new file geodatabase.

4. Next, right click on it and select **Item Description > Edit (ArcMap)** or **Edit Metadata (ArcGIS Pro)** to start editing your dataset's metadata. The rest of the instructions in this guide will use GIS screenshots from ArcGIS Pro but the process should look practically identical in ArcMap due to the standardized formatting of the ISO 19139 template in both applications (see screenshots below for reference). This portion of the guide is broken up into 24 segments to match the layout of the ISO 19139 metadata editor in ArcGIS software.



Overview

Item Description

Title

This title will be what appears in the downloadable ISO 19139 metadata file made available through the GeoData portal but the title that appears in the GeoData portal and which is used in the GeoData ID and filename is actually controlled by the name of the feature class in the enterprise geodatabase.

Guide for Metadata Authors

A screenshot of the ArcGIS Catalog Item Description window. The title is 'gis_prod.utlgis.utblac_jgi_rg_point_v1_relaciones_geograficas'. The thumbnail shows a map with orange dots. The tags are 'colonial, Mexico, indigenous, Spanish America, Guatemala, relaciones geograficas'. The summary (purpose) is 'Mapping of politically-significant towns identified and described in the Relaciones Geográficas Collection at the Benson Latin American Collection.' The description (abstract) is 'This is a dataset of points marking politically-significant towns (e.g. towns that were extensively described) in the Relaciones Geográficas manuscript accounts at the Benson Latin American Collection. Towns referenced within the texts that did not contain a standalone description were not included in this dataset.'

Manual Metadata Entry

```
arcgisinstallindir = arcpy.getInstallInfo("desktop")["InstallDir"]
metadatranslator = arcpy.installationindir + "MetadataTranslator/ARCGIS215019139.xml"

if os.path.isfile(sharedmetadatasid + "/" + fname + ".xml"):
    os.remove(sharedmetadatasid + "/" + fname + ".xml")

arcpy.ExportMetadata_conversion(fc, metadatranslator, sharedmetadatasid + "/" + fname + ".xml")

w.write(logfilepath, fname + " ISO 19139 metadata successfully exported and saved to " + sharedmetadatasid + "/" + fname + ".xml\n")

with codecs.open(sharedmetadatasid + "/" + fname + ".xml", "r+", encoding='utf-8') as openmetadatable:
    mdediting = openmetadatable.read()
    mdediting = mdediting.replace("SDE Feature Class", "Shapefile")

    if "utlarch" in fname and "cLI_Lineage" in mdediting:
        rponame = "Alexander Architectural Archives"

    if "utblac" in fname and "cLI_Lineage" in mdediting:
        rponame = "Benson Latin American Collection"

    if "utlmaps" in fname and "cLI_Lineage" in mdediting:
        rponame = "Perry-Castaneda Library Map Collection"

    if "utgeol" in fname and "cLI_Lineage" in mdediting:
        rponame = "Walter Geology Library"

    fnamewithoutcollection = geodataid.replace(geodataidcomponents['collectionarchive'] + "_", "")
    serviceurlshoulder = "https://" + arcgisservname + ":6443/arcgis/rest/services/" + geodataidcomponents['collectionarchive'] + "/"

    #replace feature class name in metadata with cleaned up version to use as a title that does not have underscores, all lower case letters, etc.
    mdediting = mdediting.replace(fc, geodataidcomponents['datasetname'].replace("_", " ").title())

    downloadurl = curiowdownloadserver + "geodata/shapefiles/" + fname + ".zip"
    isourl = curiowdownloadserver + "geodata/iso/" + fname + ".xml"

    externalreferences = ""
    externalreferences += "http://schemas.org/download/" + downloadurl + ""
    externalreferences += "http://www.iso211.org/schemas/2005/gmd/" + isourl + ""
    #DIRECT_DOWNLOAD_LINK
    #ISO19139_METADATA
    externalreferences += "urn:x-esri:serviceType:ArcGISDynamicMapLayer:" + serviceurlshoulder + fnamewithoutcollection + "/MapServer/" + ARCGIS_MAP_SERVICE
    externalreferences += "http://www.openis.net/dot/serviceType:ogc/wms:" + serviceurlshoulder + fnamewithoutcollection + "/MapServer/MSService/" + WMS
    externalreferences += "http://www.openis.net/dot/serviceType:ogc/wfs:" + serviceurlshoulder + fnamewithoutcollection + "/MapServer/MSService/" + WFS
    externalreferences = externalreferences[:-1] + "}"

    metadatalfullfilepath = sharedmetadatasid + "/" + fname + ".xml"

    with open(metadatalfullfilepath, "w") as f:
        f.write(json.dumps(externalreferences, externalreferencesjsonfile:
            json.dump(externalreferences, externalreferencesjsonfile)

    openmetadatable.seek(0,0)
    openmetadatable.truncate(0)
    openmetadatable.write(mdediting.lstrip())
```

Scripted Metadata Export

Metadata Based Publishing

utblac_gg_garzal_point_v1_villa_correspondence	9/24/2019 9:10 AM	JSON File
utblac_jgi_rg_point_v1_relaciones_geograficas	9/24/2019 9:15 AM	JSON File
utlarch_bot_gm_point_v1_buildings_of_texas	9/24/2019 9:15 AM	JSON File
utlmaps_ams_asia_1000k_6622985_aden_nd_38	9/26/2019 2:31 PM	JSON File
utlmaps_ams_asia_1000k_6622985_al_jauf_nh_37	9/26/2019 2:32 PM	JSON File
utlmaps_ams_asia_1000k_6622985_allahabad_ng_44	9/26/2019 2:33 PM	JSON File
utlmaps_ams_asia_1000k_6622985_andaman_islands_nd_46	9/26/2019 2:36 PM	JSON File
utlmaps_ams_asia_1000k_6622985_ankara_nj_36	9/26/2019 2:32 PM	JSON File
utlmaps_ams_asia_1000k_6622985_arakan_nf_46	9/26/2019 2:36 PM	JSON File
utlmaps_ams_asia_1000k_6622985_assam_ng_46	9/26/2019 2:33 PM	JSON File
utlmaps_ams_asia_1000k_6622985_baghdad_ni_38	9/26/2019 2:37 PM	JSON File
utlmaps_ams_asia_1000k_6622985_bahr_as_safi_ne_39	9/26/2019 2:37 PM	JSON File
utlmaps_ams_asia_1000k_6622985_baku_nk_39	9/26/2019 2:37 PM	JSON File
utlmaps_ams_asia_1000k_6622985_bandar_abbas_ng_40	9/26/2019 2:37 PM	JSON File
utlmaps_ams_asia_1000k_6622985_bangkok_nd_47	9/26/2019 2:32 PM	JSON File
utlmaps_ams_asia_1000k_6622985_basra_nh_38	9/26/2019 2:33 PM	JSON File
utlmaps_ams_asia_1000k_6622985_batumi_nk_37	9/26/2019 2:37 PM	JSON File
utlmaps_ams_asia_1000k_6622985_beyrouth_ni_36	9/26/2019 2:37 PM	JSON File
utlmaps_ams_asia_1000k_6622985_bihar_ng_45	9/26/2019 2:37 PM	JSON File
utlmaps_ams_asia_1000k_6622985_birjand_ni_40	9/26/2019 2:38 PM	JSON File
utlmaps_ams_asia_1000k_6622985_bombay_ne_43	9/26/2019 2:38 PM	JSON File
utlmaps_ams_asia_1000k_6622985_bukhara_nj_41	9/26/2019 2:38 PM	JSON File
utlmaps_ams_asia_1000k_6622985_bushire_nh_39	9/26/2019 2:34 PM	JSON File
utlmaps_ams_asia_1000k_6622985_cairo_nh_36	9/26/2019 2:38 PM	JSON File
utlmaps_ams_asia_1000k_6622985_calcutta_nf_45	9/26/2019 2:33 PM	JSON File
utlmaps_ams_asia_1000k_6622985_ceylon_nb_44	9/26/2019 2:38 PM	JSON File
utlmaps_ams_asia_1000k_6622985_chimbay_nk_40	9/26/2019 2:33 PM	JSON File
utlmaps_ams_asia_1000k_6622985_dalat_nc_49	9/26/2019 2:33 PM	JSON File
utlmaps_ams_asia_1000k_6622985_damas_ni_37	9/26/2019 2:33 PM	JSON File
utlmaps_ams_asia_1000k_6622985_delhi_nh_43	9/26/2019 2:38 PM	JSON File



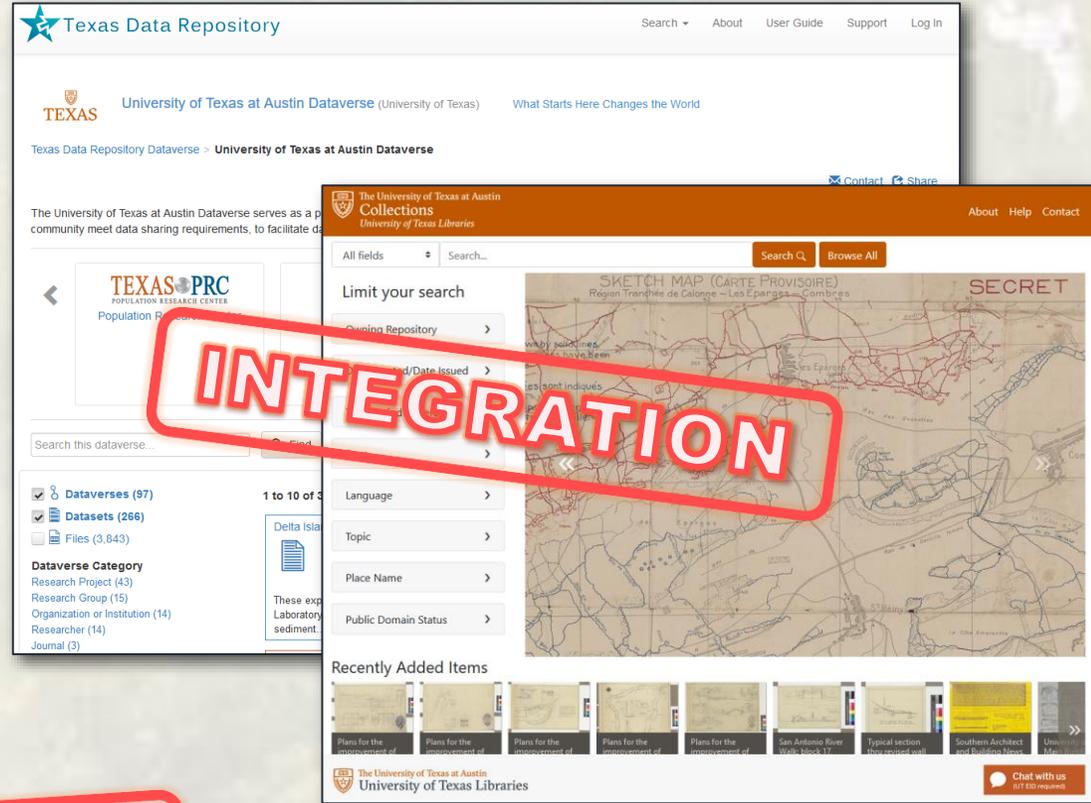
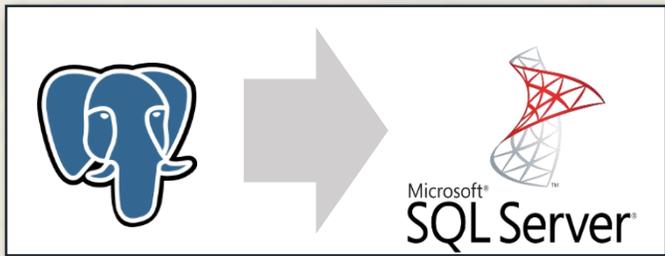
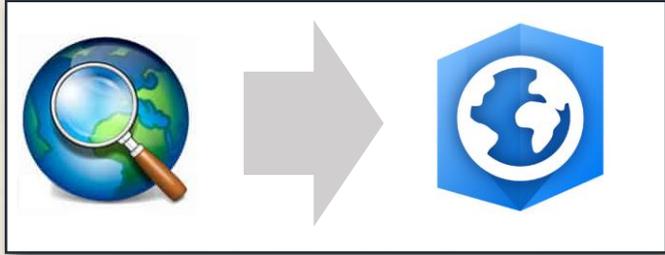
- Thread Dump
- Suggestions
- geoblacklight-t...
- Overview
- Analysis
- Dataimport
- Documents
- Files
- Query
- Stream
- Schema



```
{
  "dc_title_s": "6329 1 N, Vietnam (AMS L8020), 1:25000",
  "dc_description_s": "Scale: 1:25000; Projection: transverse mercator; Relief Symbology: contours, spot heights; Map Type: Remote-sensing maps.; Other Descriptive Not",
  "dc_rights_s": "Public",
  "dct_provenance_s": "Texas",
  "layer_geom_type_s": "Raster",
  "layer_modified_dt": "2019-03-15T00:00:00Z",
  "dc_format_s": "GeoJPEG",
  "dct_references_s": "(\\\"http://schema.org/downloadUrl\\\": \\\"https://curio-test.lib.utexas.edu/geodata/raster/utlmaps_ams_vietnam_18020_25k_1088564490_6329_1_n.zip\\\",",
  "layer_id_s": "utlmaps_ams_vietnam_18020_25k_1088564490_6329_1_n_layer",
  "dc_language_s": "English",
  "dc_type_s": "Dataset",
  "dc_subject_sm": ["Scanned maps"],
  "dct_issued_s": "",
  "dct_temporal_sm": ["1965"],
  "solr_geom": "ENVELOPE(106.75, 107.0, 10.5, 10.375)",
  "solr_bboxtype": "ENVELOPE(106.75, 107.0, 10.5, 10.375)",
  "dct_isPartOf_sm": ["Perry-Castaneda Library Map Collection",
    "Army Map Service collection"],
  "dc_identifier_s": "https://doi.org/10.26308/667",
  "layer_slug_s": "utaustin_1026308667",
  "geoblacklight_version": "1.0",
  "version": "164576459908980416",
  "timestamp": "2019-09-26T18:43:39.527Z",
  "solr_bboxtype_minX": 106.75,
  "solr_bboxtype_minY": 10.375,
  "solr_bboxtype_maxX": 107.0,
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  "dc_rights_s": "Public",
  "dct_provenance_s": "Texas",
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Future Improvements

ADAPTATION



EXPANSION

676 datasets shared...

60,000+ datasets to go

Lessons Learned

- ☑ Data discoverability highly dependent on metadata quality
- ☑ Scripted processes can greatly enhance efficiency
- ☑ Scalability, sustainability, and adaptability are critical
- ☑ Effective team communication strategies are essential
- ☑ Important factors to consider when choosing software: open source, use by peer institutions, consider existing expertise

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Questions or Comments?

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Interested in Learning More?

Explore the Texas GeoData Portal at <https://geodata.lib.utexas.edu>

