



A Global Change Master Directory Portal for Web Services

GCMD Web Services

Tyler Stevens

NASA's Global Change Master Directory (GCMD)

ESIP Federation Meeting

July 7, 2009



Data Services

The screenshot shows the NASA Goddard Space Flight Center website. At the top left is the NASA logo and the text "GODDARD SPACE FLIGHT CENTER". To the right is a link "+ Visit NASA.gov". Below this is a banner for the "Global Change Master Directory" with the tagline "Discover Earth science data and services". A navigation bar contains links: Home, Data Sets, Data Services (highlighted), Portals, Add to GCMD, What's New, Participate, Conferences, and About GCMD. On the left is a vertical menu with categories like "Data Analysis And Visualization", "Data Management/Data Handling", "Education/Outreach", "Environmental Advisories", "Hazards Management", "Metadata Handling", "Models", "Reference And Information Services", "Display Feature Guide", "Earth Science Links", "Portal Collaborations", "Help Center", and "Questions?". The main content area is titled "Find Data Services by Topic:" and lists several categories with icons and descriptions: "Data Analysis and Visualization" (GIS, Visualization/Image Processing, more...), "Hazards Management" (Mitigation, Recovery/Relief, Response, more...), "Data Management / Data Handling" (Archiving, Reformatting, Sub/Supersetting, more...), "Metadata Handling" (Authoring Tools, Data Discovery, Transformation / Conversion, more...), "Education / Outreach" (Curriculum, Interactive Programs, more...), "Models" (Digital Elevation/Digital Terrain Models, Component Process Models, more...), "Environmental Advisories" (Fire, Health, Hydrological, Weather / Climate, more...), "Reference and Information Services" (Bibliographic, Virtual Reference Desks, Subscription Services, more...), and "Service Providers - Science" (Keywords - Instruments/Sensors - Platforms/Sources - Projects). On the right side of the main content area, there is a "Data Service Text Search" box with a search input field, a "Go" button, and a "Search tips" link. Below the search box are links for "Add Data Services" and "View Writer's Guide". At the bottom of the page, there is a footer with the USA.gov logo, a link to "+ Privacy Policy and Important Notices", the NASA logo, and contact information: "Webmaster: Monica Holland", "Responsible NASA Official: Lola Olsen", and "Last Updated: July 2009".

Service Keywords Describing Web Services

EARTH SCIENCE SERVICES > Data Analysis And Visualization > Geographic Information Systems
EARTH SCIENCE SERVICES > Data Management/data Handling > Archiving
EARTH SCIENCE SERVICES > Data Management/data Handling > Cataloging
EARTH SCIENCE SERVICES > Data Management/data Handling > Data Compression
EARTH SCIENCE SERVICES > Data Management/data Handling > Data Delivery
EARTH SCIENCE SERVICES > Data Management/data Handling > Data Interoperability > Data Reformatting
EARTH SCIENCE SERVICES > Data Management/data Handling > Data Interoperability
EARTH SCIENCE SERVICES > Data Management/data Handling > Data Mining
EARTH SCIENCE SERVICES > Data Management/data Handling > Data Networking/Data Transfer Tools
EARTH SCIENCE SERVICES > Data Management/data Handling > Data Search And Retrieval
EARTH SCIENCE SERVICES > Data Management/data Handling > Media Transfer/Data Rescue
EARTH SCIENCE SERVICES > Data Management/data Handling > Subsetting/Supersetting
EARTH SCIENCE SERVICES > Data Management/data Handling > Transformation/Conversion
EARTH SCIENCE SERVICES > Metadata Handling > Authoring Tools
EARTH SCIENCE SERVICES > Metadata Handling > Data Discovery
EARTH SCIENCE SERVICES > Metadata Handling > Metadata Transformation/Conversion
EARTH SCIENCE SERVICES > Metadata Handling > Service Discovery
EARTH SCIENCE SERVICES > Reference And Information Services > Gazetteer
EARTH SCIENCE SERVICES > Reference And Information Services > Subscription Services

Direct Access To Web Services

Metadata Describing Web Service

The National Map Elevation Query Web Services

Entry ID: UGSG-Nat-Map_Elev

[Get Service](#) [Update this Record](#)

Summary

The National Map Elevation Query Web Services Overview

The The National Map Elevation Query Web Service returns the elevation in feet or meters for a specific latitude/longitude point from the USGS Seamless Elevation data sets hosted at the EROS Data Center. The elevation values returned default to the best-available (highest resolution) data ... [Click to View Full Summary](#)

Related URL

Link: [GET RELATED SERVICE METADATA \(SERF\)](#)

Description: The Geographic Names Information System (GNIS), developed by the USGS in cooperation with the U.S. Board on Geographic Names (BGN), contains information about almost 2 million physical and cultural geographic features in the United States. The Federally recognized name of each feature described in the data base is identified, and references are made to a feature's location by State, county, and geographic coordinates. The GNIS is our Nation's official repository of domestic geographic names information.

[Click to view more](#)

Service Citation

Originators: EROS Data Center, USGS

Title: The National Map Elevation Query Web Services

Provider: EROS Data Center, USGS

URL: http://gisdata.usgs.net/XMLWebServices/TNM_Elevation_Service.asp

Parent DIF

This service description is a member of a collection. The collection is described in

[USGS-GISDATA](#)

Service Keywords

[DATA ANALYSIS AND VISUALIZATION >GEOGRAPHIC INFORMATION SYSTEMS >WEB-BASED GEOGRAPHIC INFORMATION SYSTEMS](#)

[DATA MANAGEMENT,DATA HANDLING >DATA SEARCH AND RETRIEVAL](#)

Science Keywords

[LAND SURFACE >TOPOGRAPHY >CONTOURS](#)

[LAND SURFACE >TOPOGRAPHY >LANDFORMS](#)

[Click to view more](#)

Related URL: Get Service

Subtype: ACCESS WEB SERVICE

Link: http://gisdata.usgs.net/XMLWebServices/TNM_Elevation_Service.asmx

Description: Elevation Query Direct Link.

Subtype: ACCESS WEB SERVICE

Link: http://gisdata.usgs.net/XMLWebServices/TNM_Elevation_Service.asmx?WSDL

Description: Elevation Query WSDL.

Web Service

getAllElevations
Returns values from all elevation sources for a given latitude/longitude point

Test

To test the operation using the HTTP POST protocol, click the 'Invoke' button.

Parameter	Value
X_Value:	<input type="text"/>
Y_Value:	<input type="text"/>
Elevation_Units:	<input type="text"/>

Invoke

SOAP

The following is a sample SOAP request and response. The placeholders shown need to be replaced with actual values.

```
POST /XMLWebServices/TNM_Elevation_Service.asmx HTTP/1.1
Host: gisdata.usgs.net
Content-Type: text/xml; charset=utf-8
Content-Length: length
SOAPAction: "http://gisdata.usgs.gov/XMLWebServices/getAllElevations"

<?xml version='1.0' encoding='utf-8'?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:tns="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <getAllElevations xmlns="http://gisdata.usgs.gov/XMLWebServices/">
      <X_Value type="string"/>
      <Y_Value type="string"/>
      <Elevation_Units type="string"/>
    </getAllElevations>
  </soap:Body>
</soap:Envelope>

HTTP/1.1 200 OK
Content-Type: text/xml; charset=utf-8
Content-Length: length

<?xml version='1.0' encoding='utf-8'?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:tns="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <getAllElevationsResponse xmlns="http://gisdata.usgs.gov/XMLWebServices/">
      <getAllElevationResult type="string"/>
    </getAllElevationResult>
  </soap:Body>
</soap:Envelope>
```

WSDL File

```
<?xml:definitions targetNamespace="http://gisdata.usgs.gov/XMLWebServices/">
  <wsdl:types>
    <xs:schema elementFormDefault="qualified" targetNamespace="http://gisdata.usgs.gov/XMLWebServices/">
      <xs:element name="getAllElevation">
        <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="1" name="X_Value" type="string"/>
            <xs:element minOccurs="0" maxOccurs="1" name="Y_Value" type="string"/>
            <xs:element minOccurs="0" maxOccurs="1" name="Elevation_Units" type="string"/>
            <xs:element minOccurs="0" maxOccurs="1" name="Source_Layer" type="string"/>
            <xs:element minOccurs="0" maxOccurs="1" name="Elevation_Only" type="string"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="getAllElevationResponse">
        <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="1" name="getAllElevationResult" type="string"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="getAllElevations">
        <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="1" name="X_Value" type="string"/>
            <xs:element minOccurs="0" maxOccurs="1" name="Y_Value" type="string"/>
            <xs:element minOccurs="0" maxOccurs="1" name="Elevation_Units" type="string"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
    </xs:schema>
  </wsdl:types>
```

Web Services Portal Prototype

The screenshot displays a web portal interface with a blue header and a dark teal sidebar. The header features a globe icon and the text "A Global Change Master Directory Portal for Web Services". The sidebar contains a list of navigation links. The main content area is titled "Find Data Services by Topic" and includes a search box, a "Go" button, and a "Search tips" link. Below the search box are three service categories, each with a small icon and a help icon.

A Global Change Master Directory Portal for Web Services




- About Portals
- GCMD Portal Listings
- Add to Web Services Portal


Find Data Services by Topic

Data Service Text Search

Go

[Search tips](#) ⓘ

-  [Data Processing Services](#) ⓘ
-  [Data Application Services](#) ⓘ
-  [Information Management Services](#) ⓘ

 [NASA Privacy Policy and Important Notices](#)
Responsible NASA Official: [Lola Olsen](#)
Webmaster: [Monica Holland](#) · Contact [GCMD User Support](#) for assistance

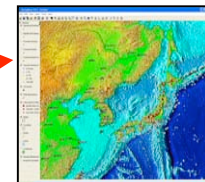
Potential Hierarchy

Topic	Term	Variable
Web Services	Data Application Services	Web portal services
Web Services	Data Application Services	Gazeteer application services
Web Services	Data Application Services	Geographic data discovery services
Web Services	Data Application Services	Geographic data extraction services
Web Services	Data Application Services	Geographic data management services
Web Services	Data Application Services	Feature generalization application services
Web Services	Data Application Services	Coverage generalization services
Web Services	Data Application Services	Web Service Chaining
Web Services	Data Processing Services	Web Terrain Service (WTS)
Web Services	Data Processing Services	Web 3D Service
Web Services	Data Processing Services	Web Coordinate Transformation Service (WCTS)
Web Services	Data Processing Services	Web Image Classification Service (WICS)
Web Services	Data Processing Services	Feature Portrayal Service (FPS)
Web Services	Data Processing Services	Coverage Portrayal Service (CPS)
Web Services	Data Processing Services	Geoparser Service
Web Services	Data Processing Services	Geocoder Service
Web Services	Data Processing Services	Geolinking Service (GLS)
Web Services	Data Processing Services	Geolinked Data Access Service (GDAS)
Web Services	Data Processing Services	Geographic data extraction services
Web Services	Data Processing Services	Dimension measurement services
Web Services	Data Processing Services	Proximity analysis services
Web Services	Data Processing Services	Change detection services
Web Services	Data Processing Services	Data alignment services
Web Services	Data Processing Services	Feature generalization services
Web Services	Data Processing Services	Coverage generalization services
Web Services	Data Processing Services	Format conversion services
Web Services	Data Processing Services	Semantic translation services
Web Services	Information Management Services	Catalog Service for the Web (CSW)
Web Services	Information Management Services	Gazeteer Service
Web Services	Information Management Services	Universal Description, Discovery and Integration (UDDI) Service

Direct Access to OGC Services Through Related URL in Metadata

GET SERVICE > GET WEB COVERAGE SERVICE (WCS)
GET SERVICE > GET WEB FEATURE SERVICE (WFS)
GET SERVICE > GET WEB MAP SERVICE (WMS)

Refers to Open Geospatial Consortium (OGC) services that provide access to geospatial coverages, features, and spatially referenced information.



Other Service Related URL Types:

GET SERVICE > ACCESS WEB SERVICE

GET SERVICE > GET WORKFLOW (SERVICE CHAIN)

GET SERVICE > GET MAP SERVICE

GET SERVICE > ACCESS MAP VIEWER

OGC Portals

OGC A Global Change Master Directory Portal for Open Geospatial Consortium (OGC) Compatible Data Sets

Find Data Sets by Topic:

- Atmosphere**: atmospheric temperature, atmospheric winds...
- Biological Classification**: animals/vertebrates, animals/invertebrates...
- Biosphere**: ecological dynamics, aquatic ecosystems...
- Cryosphere**: snow/ice, glaciers/ice sheets...
- Human Dimensions**: boundaries, land use/land cover...
- Land Surface**: topography, land use/land cover...
- Oceans**: ocean temperature, ocean chemistry...
- Paleoclimate**: ocean/ice records, ...
- Solid Earth**: rocks/minerals, volcanoes...
- Spectral Engineering**: visible wavelengths, infrared wavelengths...
- Terrestrial Hydrosphere**: surface water, water quality/water chemistry...
- Data Centers** - Locations - Instruments/Sensors - Platforms/Sources - Projects

Search: Data Set Text Search [input] Go Map/Date Search Search tips

GCMD Search the entire GCMD database
Clicking the link above will transfer you out of the portal you are viewing.

NASA Privacy Policy and Important Notices
Responsible NASA Official: Lola Olsen
Webmaster: Monica Holland · Contact GCMD User Support for assistance

OGC A Global Change Master Directory Portal for Open Geospatial Consortium (OGC) Compatible Data Services

Find Data Services by Topic:

- Data Analysis And Visualization**: visualization/image processing, geographic information systems...
- Data Management Data Handling**: data search and retrieval, cataloging...
- Education/Outreach**: curriculum support, interactive programs...
- Environmental Advisories**: weather/climate advisories, marine advisories...
- Hazards Management**: hazards planning, hazards mitigation...
- Metadata Handling**: data discovery, service discovery...
- Models**: digital elevation/digital terrain models, atmospheric general circulation models...
- Reference And Information Services**: gazetteer, ...
- Service Providers** - Science Keywords - Instruments/Sensors - Platforms/Sources - Projects

Search: Data Services Text Search [input] Go

OGC Data Portal

NASA Privacy Policy and Important Notices
Responsible NASA Official: Lola Olsen
Webmaster: Monica Holland · Contact GCMD User Support for assistance



Questions?

<http://gcmd.nasa.gov/KeywordSearch/Home.do?Portal=webservices>

Tyler Stevens
GIS/Data Services Coordinator
Tyler.B.Stevens@nasa.gov