

Implementations of the OGC's Web Map Service

There are a number of OpenGIS Web Map Service Implementation Specification (WMS) implementations in use in NASA, including the list below. Each gives NASA the immediate capability to provide data to the U.S. Geological Survey's "The National Map" and the Geospatial One Stop portal. Also, each moves NASA closer to conformance with the Department of Home Land Security Geospatial Architecture. Some of the existing NASA instances are:

1 NASA Earth-Sun Gateway

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The NASA Earth-Sun Gateway portal (ESG) is in place to provide open registration of, and discovery and access to NASA data as NASA data servers go online with interfaces that implement OGC's open, consensus-derived interface specifications, which NASA has played a major role in creating. The Content within the NASA Earth-Sun Gateway portal is organized into Topics to facilitate browsing and discovery. In the case of WMS and WFS, the user interface allows users to visualize the map results. ESG can be used as an OGC Catalog Services-Web (CSW) catalog. The prototype's CSW interface is at

<http://esg.gsfc.nasa.gov/wes/serviceManagerCSW/csw> . It should conform to the eBRIM profile of CSW as devised in the OWS-3 testbed, for those who want to access the catalog within their own clients. Although ESG is still in the prototype development phase, it can bring a lot of value to the GEOSS workshop scenarios in terms of interoperability.

2 NASA/GMU AVIRIS Data Server

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<http://viewer.digitalearth.gov>

Data from the AVIRIS Airborne Visible/Infrared Imaging Spectrometer is available at http://viewer.digitalearth.gov/viewer.cgi?addserver=25&service=View+Layer+Menu&context=world_topo_0_1_2.xml&fullcontrol=0&config=&expand=100

3 Tropical Rain Forest Information Center

(<http://trfic.jpl.nasa.gov/>)

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<http://trfic.jpl.nasa.gov/GRFM/worldmap.html>

The Tropical Rain Forest Information Center data port makes world rain forest regions Synthetic Aperture Radar (SAR) data available via WMS.

GetCapabilities URL prefix: <http://trfic.jpl.nasa.gov/wmt/de.pl>

4 GSFC Distributed Active Archive Center Map Server

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<http://daac.gsfc.nasa.gov/data/dataset/>

NASA Goddard Earth Sciences (GES) Data and Information Services Center (DISC) is home of the GES Distributed Active Archive Center (DAAC). GES DISC is one of eight NASA Science Mission Directorate (SMD) DAACs that offer Earth science data, information, and services to research scientists, applications scientists, applications users, and students. The GES DISC is the home (archive) of Precipitation, Atmospheric Chemistry and Dynamics, and information, as well as data and information from other related disciplines. The GES DISC is located at Goddard Space Flight Center.

GetCapabilities URL prefix: <http://eosdata.gsfc.nasa.gov/daac-bin/wmtdods>

5 PO-DAAC-ESIP Map Server

User Services Office:

E-Mail: podaac@podaac.jpl.nasa.gov

Phone: (626) 744-5508_

FAX: (626) 744-5506

Version: 1.1.1 (10101)

The Physical Oceanography Distributed Active Archive Center (PO.DAAC) is responsible for archiving and distributing data relevant to the physical state of the ocean.

GetCapabilities URL prefix: <http://podaac-esip.jpl.nasa.gov/cgi-bin/esip/de.pl>

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Updates/Obsoletes :None

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6 Ocean ESIP

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Ocean ESIP provides Sea Surface Height, Wave Height, Temperature, and Wind, Sea Surface Height, Wave Height, Temperature, and Wind data through WMS interfaces.

7 JPL World Map Service

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<http://onearth.jpl.nasa.gov/>

[LandSAT US Map Server](#)

<http://mapus.jpl.nasa.gov/faq.html>

Via WMS interfaces, the Global Mosaic serves full resolution (15m), pan-sharpened Landsat for any land spot on the globe - higher geo-coverage than Google Earth. It does false-color rendering of any band combination using SLD. It was funded by the Geographic Interoperability Office.

Version: 1.1.1 (10101)

GetCapabilities URL prefix: <http://wms.jpl.nasa.gov/wms.cgi>

8 The GLOBE Program Visualization Server

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<http://globe.digitalearth.gov/viz-bin/wmt.cgi>

GLOBE (Global Learning and Observations to Benefit the Environment) is a worldwide hands-on, primary and secondary school-based education and science program. GetCapabilities URL prefix: <http://globe.digitalearth.gov/viz-bin/wmt.cgi>

SVS Image Server <http://aes.gsfc.nasa.gov/>

Version: 1.1.1 (10101)

9 World Wind

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World Wind is an [open source](#) 3D interactive world viewer, was created by NASA's [Learning Technologies](#) (<http://learn.arc.nasa.gov>) project, and released in mid-2004. It is now [developed](#) by NASA staff and open source community developers. World Wind's WMS Browser presents the user with a list of images to view that are available from servers that implement the WMS interface. Web Mapping Server allows you to connect to any WMS server such as GSFC's **SVS (Scientific Visualization Studio)**. The OneEarth add-on to World Wind provides high detail orthophotos from public WMS servers for use in World Wind.

10 NASA Cities collection

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Web Team:

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Leslie Upchurch, A.A., Cities Collection

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<http://eol.jsc.nasa.gov/cities/>

The NASA Cities Collection of images hosts the best views of cities around the globe as photographed by astronauts while in orbit. This collection is based on the complete collection of astronaut photography hosted at the [Gateway to Astronaut Photography of Earth](#). Using a standard Flash client script provided by Demis, the Johnson Space Center is using DemisWMS to host a map based search of the Cities collection, a collection of astronaut photography taken from the International Space Station (ISS) and several Space Shuttle flights.

11 Socioeconomic Data and Applications Center (SEDAC)

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The Socioeconomic Data and Applications Center (SEDAC) is one of the Distributed Active

Archive Centers (DAACs) in the Earth Observing System Data and Information System (EOSDIS) of the U.S. National Aeronautics and Space Administration. SEDAC focuses on human interactions in the environment. Its mission is to develop and operate applications that support the integration of socioeconomic and Earth science data and to serve as an "Information Gateway" between the Earth and social sciences. SEDAC provides Web mapping servers that implement the WMS specification to provide data such as Global gridded population data, National and subnational administrative boundary coverages (U.S., Mexico, China, others), Land use/land cover data (U.S., Central America, China, New York metropolitan area, etc.), and Global environmental sustainability data.

12 TerraSIP

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The TerraSIP project was started at the University of Minnesota, [Department of Forest Resources](#) in 1997 to address the need for timely and accurate data on land cover and land use for land managers and the public. The effort is a NASA funded ESIP (Earth Science Information Partners) project that utilizes [Earth Observing System \(EOS\)](#) data, principally [Landsat 7](#) and [MODIS](#). TerraSIP also promotes the use of remote sensing data for land management applications by providing easy-to-use web tools and educational resources. NDVI (AVHRR), and Watershed Data are provided by TerraSip using servers with interfaces that implement WMS.

13 SIESIP

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The Seasonal to Interannual Earth Science Information Partnership (SIESIP) is a distributed data access and analysis project funded by NASA's Earth Science Enterprise. SIESIP is designed to provide data, products, and services to the seasonal to interannual climate and related science research communities. The [Center for Ocean-Land-Atmosphere Studies - COLA](#), CEOSR, the Goddard DAAC, the ESIP Federation and the University of Delaware are partners in SIESIP. SIESIP provides Rainfall/Precipitation (TRMM) and other data on servers with interfaces that

implement WMS.

14 PM-ESIP Air Temperature Profiles, PM-ESIP

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The Passive Microwave Earth Science Information Partner enables science researchers to interactively customize and receive hydrologic data sets derived from the newest space-based passive microwave instruments. PM-ESIP provides Water Vapor (TMI) and other data on servers with interfaces that implement WMS.

15 F-EOS Web GIS Software Suite (NWGISS)

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A paper by Liping Di et al describes a suite of web GIS software that makes HDF-EOS data available to GIS users based on OGC standards. NWGISS consists of a map server, a coverage server, a catalog server, a coverage client, and a toolbox. ("The Prototypical NASA HDF-EOS Web GIS Software Suite (NWGISS)," by Liping Di, Wenli Yang, Meixia Deng, and Donna Y. Deng_Center for Earth Observing and Space Research, School of Computational Sciences,_ George Mason Univ. and Ken McDonald_NASA Goddard Space Flight Center.)

16 University of New Mexico Earth Data Analysis Center (EDAC)

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The University of New Mexico Earth Data Analysis Center (EDAC), has been providing

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OpenGIS® WMS 1.3

geospatial data and services for a wide range of uses since 1964. As a longtime partner in the New Mexico Resource Geographic System Program (RGIS) [<http://rgis.unm.edu>], EDAC has constructed and maintains the state's online spatial data clearinghouse. RGIS is dedicated to advancing applications of geographic information system technology within New Mexico's State agencies and for local government and private industry.

EDAC has developed services implementing the OpenGIS® Web Map Server Specification (WMS) that enable easy viewing of the statewide collection of over 8000 USGS Digital Ortho Photo Quads (DOQQ). These services are being integrated into several client applications and are also being prepared for wider deployment within the clearinghouse. EDAC uses Minnesota MapServer, an Open Source internet mapping application, as the platform for the Web mapping services. MapServer also allows delivery of not just map views but also the actual data -- through planned delivery of mosaiced DOQQs to Clearinghouse users via an interface that implements the OpenGIS® Web Coverage Server Specification (WCS). The OGC standards facilitate the efficient use and management of large datasets (more than 750 gigabytes in the case of the statewide DOQQs) across multiple applications and projects.