**Compendium of Open Source Data and Tools for Geospatial Problem Solving**

**U.S. Government Data:**

**DIU xView**: xView is one of the largest publicly available datasets of overhead imagery. It contains images from complex scenes around the world, annotated using bounding boxes.

<http://xviewdataset.org/#dataset>

**NASA Earth Data**: Data Toolkits are designed as entry points to access NASA Earth science data resources organized by topic. They contain links to datasets, tutorials and how-tos, feature articles and Data User Profiles, as well as other useful information. Toolkits include Biological Diversity, Disasters, Freshwater Availability and Wildfires.

<https://earthdata.nasa.gov/learn/toolkits>

**NASA Worldview**: The [Worldview](https://worldview.earthdata.nasa.gov/) tool from NASA's Earth Observing System Data and Information System ([EOSDIS](https://earthdata.nasa.gov/eosdis)) provides the capability to interactively browse over 900 global, full-resolution satellite imagery layers and then download the underlying data. Many of the imagery layers are updated daily and are available within three hours of observation - essentially showing the entire Earth as it looks "right now". This supports time-critical application areas such as wildfire management, air quality measurements, and flood monitoring. View current natural hazards and events using the Events tab which reveals a list of natural events, including wildfires, tropical storms, and volcanic eruptions. Animate the imagery over time. Geostationary imagery layers are also now available. These are provided in ten minute increments for the last 30 days. These full disk hemispheric views allow for almost real-time viewing of changes occurring around most of the world. Arctic and Antarctic views of many products are also available for a "full globe" perspective. Browsing on tablet and smartphone devices is generally supported for mobile access to the imagery.

<https://earthdata.nasa.gov/worldview>

**NGA Office of Geomatics:** Includes lots of data, services, and apps related to WGS 84, Precise Imagery, Coordinate Systems, Elevation, Geodetic Surveys Data & Apps, Geosciences and GNSS

<https://earth-info.nga.mil>

**NGA Public Use unclassified GEOINT products** related to Humanitarian Assistance and Disaster Relief, the Arctic Digital Elevation Model, the Reference Elevation Model Antactica (REMA), and Wildlife Trafficking.

<https://nga.maps.arcgis.com/home/index.html>

K-12

* <https://www.nsa.gov/resources/students-educators/k12-partnership/>

**US Geologic Survey**

<https://www.usgs.gov/products/data-and-tools/overview>

**Commercial Open Data:**

**SpaceNet Challenge Datasets**

The SpaceNet Dataset is hosted as an Amazon Web Services (AWS) [Public Dataset](https://registry.opendata.aws/spacenet/). It contains ~67,000 square km of very high-resolution imagery, >11M building footprints, and ~20,000 km of road labels to ensure that there is adequate open source data available for geospatial machine learning research.

SpaceNet Challenge Datasets have a combination of very high resolution satellite imagery and high quality corresponding labels for foundational mapping features such as building footprints or road networks.

<https://spacenet.ai/datasets/>

**Capella**

Capella Space SAR Open Data Program: SAR data has a vast potential for positive economic, societal and environmental outcomes. Capella’s Open Data Program seeks to democratize SAR data and realize the benefits and opportunities of SAR. With the launch and start of operations of our SAR satellites, Capella collects exquisite, very high-resolution SAR data. Capella makes a portion of its historical archived imagery available through the Open Data Program.

<https://www.capellaspace.com/community/capella-open-data/>

**Google**

Google Earth Engine Data Catalog: Earth Engine's public data archive includes more than forty years of historical imagery and scientific datasets, updated and expanded daily.

<https://developers.google.com/earth-engine/datasets/catalog>

**ICEye**

ICEye Example SAR Data:

<https://www.iceye.com/downloads/datasets>

**Maxar**

<https://www.maxar.com/resources>

Maxar Open Data Program: Maxar releases open data for select sudden onset major crisis events

<https://www.digitalglobe.com/ecosystem/open-data?utm_source=open-data-page&utm_medium=maxar-corp#open-data__featured>

**Planet**

Planet Disaster Datasets:

<https://www.planet.com/disasterdata/>

**Ubuntu**

After adding the UbuntuGIS repository corresponding to their distribution, you can install a number of GIS applications

<https://wiki.ubuntu.com/UbuntuGIS>

**Data from Non-Profit Organizations:**

ImageNet Database: Large repository of images with associated bounding boxes

<http://www.image-net.org/>

Common Objects in Context (COCO) Dataset: Image recognition, segmentation, and captioning dataset

<http://www.cocodataset.org/>

Open Source Geospatial Foundation: OSGeo4W is a binary distribution of a broad set of open source geospatial software for Windows environments (Windows 10 down to XP). OSGeo4W includes QGIS, GDAL/OGR, GRASS as well as many other packages (over 150).

<https://trac.osgeo.org/osgeo4w/>

Debian GIS: The goal of the Debian GIS project is about improving Debian to make it the best distribution for Geographical Information Systems applications and users.

<https://wiki.debian.org/DebianGis>

**International Data:**

**European Space Agency (ESA)** Sentinel Data:

<https://sentinel.esa.int/web/sentinel/sentinel-data-access>

**European Plate Observing System (EPOS)** Research

[**https://www.epos-eu.org/data-services/data-products**](https://www.epos-eu.org/data-services/data-products)

**PASCAL VOC Project:** Standardized image datasets for object class recognition

<http://host.robots.ox.ac.uk/pascal/VOC>

**China:**

SIRI-WHU**:** Google image dataset of mainly urban areas of China

<http://www.lmars.whu.edu.cn/prof_web/zhongyanfei/e-code.html>

AID: A Benchmark Dataset for Performance Evaluation of Aerial Scene Classification

<https://captain-whu.github.io/AID/>

NWPU-RESISC45 Dataset: Publicly available benchmark for Remote Sensing Image Scene Classification (RESISC), created by Northwestern Polytechnical University (NWPU). This dataset contains 31,500 images, covering 45 scene classes with 700 images in each class.

https://www.tensorflow.org/datasets/catalog/resisc45

**Data from Academic Organizations:**

Land Use Dataset: UC Merced image dataset with 21 classes with 100 images per class. The images were manually extracted from large images from the USGS National Map Urban Area Imagery collection for various urban areas around the country. The pixel resolution of this public domain imagery is 0.3 m.

<http://vision.ucmerced.edu/datasets/landuse.html>