

NASA and Data.gov*Discover. Participate. Engage.*

www.Data.gov

☒ Transparency ☒ Participation ☒ Collaboration

NASA provides billions of gigabytes (exabytes) of data from its rich history of planetary, lunar, terrestrial, and Earth-orbiting missions. From rocket testing to the geologic maps of Mars, our data has been available to the public via a variety of sites. Now, all that data will be accessible from Data.gov, either through raw data feeds, tools, or geospatial catalogues. As Data.gov continues to take shape and evolve from its initial release, we will continue to look for ways to use it to align, extend, complement, and provide amplifier effects for our data products. The platform provides an opportunity to release information not previously publicly available, such as administrative and procedural information within NASA. The public can find raw datasets to perform their own analysis, experiments, and learning. Developers can create applications that bring new insights and understandings of our Earth the universe, and the space program.

Overview

Data.gov was created in 2009 as a step toward implementing a more open and accountable government. Each Agency participates by providing support and recommendations to the architecture of the site as well as populating Data.gov with its data. For NASA, as a mission-driven Agency, data is at the heart of what we do. We have 100 years of government data on aeronautics, earth science, and space exploration and we have a process to archive data, manage existing data, and learn from real-time data.

Since NASA's inception, we have publicly archived data received from spacecraft projects, with thousands of gigabytes (terabytes) of new science data collected each day. We have tools and geodata catalogs available to allow scientists to access our data. When accessed through these Distributed Active Archive Centers (DAACs), tools, and catalogs, the user gets more value out of the aggregated data than he or she would with a single dataset. Our existing community of scientists and researchers rely on these resources to conduct their research.

An internal NASA Data.gov Working Group was formed to liaise between Data.gov and our data curators at NASA. We have participated in the evolution of data.gov to include tools and web services. By January 2010, NASA had submitted 519 datasets (including geodata) and 21 tools to

On Earth

onearth.jpl.nasa.gov/

*250m resolution AQUA/MODIS composite*

On Earth is the most current, near-global image of the earth available, **updated each day** in a KML format. Taken from the MODIS instrument on the Terra and Aqua spacecraft, this data will improve our understanding of global dynamics and processes occurring on the land, in the oceans, and in the lower atmosphere. This dataset is already available on Data.gov: <http://www.data.gov/raw/1620>

Data.gov. We identified three high value datasets and five high-value tools as part of the Open Government Directive. Below is a list of three high-value data products accessible via Data.gov:

- **Global Change Master Directory** (gcmd.nasa.gov/) is an integrated platform with continuously updated information about the planet's vital signs, including the rising global temperature, size of the ozone hole, the rising sea level, and the amount of carbon dioxide in the atmosphere. The database holds more than 30,000 descriptions of Earth science data sets, services and ancillary descriptions covering all aspects of Earth and environmental sciences for fields from fisheries to remote sensing. The mission of the Global Change Master Directory is to offer a high quality resource for the discovery, access, and use of Earth science data and data-related services worldwide, while specifically promoting the discovery and use of NASA data. The directory resource is targeted to serve as a valued location for sharing data from multinational sources and, in turn, will contribute to scientific research by providing stewardship of metadata and direct access to Earth science data and services.
- The **Planetary Data System** is an archive of data products from NASA planetary missions, and it has become a basic resource for scientists around the world. 55 missions have their data archived on PDS and through the search functionality, users can find the data of interest to download, rather than downloading the entire mission's data. Data hosted here is what has provided the baseline imagery for Google Moon and Google Mars.
- **NASA World Wind** (worldwind.arc.nasa.gov – see call-out in *Open Source at NASA* fact sheet) is a web service and open source project with nightly builds which allows people to zoom from satellite altitude into any place on Earth, leveraging satellite imagery and mission data, and thus experience Earth terrain in visually rich 3D. It is the world's best open source 3D geospatial viewer. NASA World Wind Java is also a plug in to allow third party users to use their own information and view it through the World Wind Java widget. Third party developers have developed a range of applications from visualizing Australia's continental data sets, a Search and Rescue application to assist in planning after an airplane goes mission to a 3D visualization of airspaces. 15 user applications and

Workforce Information Cubes for NASA wicn.nssc.nasa.gov/generic.html



WICN Webservice of NASA's Workforce Data

The Workforce Strategy Division in the Office of Human Capital Management provides updated information about each NASA civil servant every two weeks. This information comes from the combination of multiple personnel and payroll systems, which includes the locations, occupations, grades, salaries, and demographics of NASA employees. This information goes back to 1993 and allows for analysts to forecast future activities, such as retirements by job and Center based on past experience or key personnel transition. This Web service will soon be available via Data.gov.

22 other applications and applets are available for download here:
worldwind.arc.nasa.gov/java/demos/.

The Working Group understands the opportunity to reach out to new stakeholders via Data.gov, including application developers, social scientists, researchers, citizen scientists, and data enthusiasts. We believe that the Data.gov platform will facilitate even greater usage of our existing Web services which will provide incentive for us to find additional information to make available for download. We have identified numerous applications and web services to add to Data.gov and have targeted the following three for a May 2010 submission to Data.gov:

- Workforce Information Cubes at NASA – locations, occupations, grades, salaries, and demographics every NASA civil servant since 1993 (see above)
- Education Weekly Activity Report – weekly summaries from each Education office throughout NASA (see *Education and Open Government* section)
- NASA Enterprise Directory – name, address, and phone number of every NASA civil servant or contractor (see below)

Some of the lessons we learned from the Citizen Engagement Tool used during the development of this plan (opennasa.ideascale.com) is that it helps to understand what people are interested in as well as assist with internal collaboration between our employees. We are committed to receiving public and employee ideas for additional high-value datasets, particularly datasets from the institutional and procedural realms of our activities. We would like to have an open dialogue regarding proposed Data.gov submissions to ensure we are making available datasets that are of interest to our communities. Since some datasets take a considerable amount of time to ensure data quality (abiding by security and respective personally identifiable information) and translate their data structure into something of utility for Data.gov, we want to ensure stakeholders will use it. We believe this public dialogue will assist people to learn more about what currently exists, what can exist, identify the correct offices and data curators internally, and best of all give greater insight into the inner workings of the U.S. space program.

In summary, our strategy for moving forward includes the development of a useful public dialog to source, comment, and vote on proposed datasets to release to the public. The Working Group will work with our data curators and Office of the Chief Engineer to better understand the programmatic utility of having all data we collect available online in an open format and incorporating this into our systems for program management.

Search for NASA employees

people.nasa.gov

First Name:

Middle Initial:

Last Name:

Email:

Phone:

NASA Enterprise Directory search is publicly available

This web application allows anybody to find contact information for NASA contractor and civil servant workforce.

There are additional sections in this NASA Open Government Plan, such as “*Office of Procurement and Open Government*,” “*Financial Data Transparency*,” “*NASA Education Activities*,” “*NASA’s Technology Transfer Activities*” and “*Access and Utilization of NASA Science Data*,” that list a number of datasets of high value as well as discusses ways they will release additional information. Finally, a selective list of high-value data publicly available can be found at www.nasa.gov/open/data.html.

How This Fits into Open Government

NASA’s participation in Data.gov expands the audience for the vast body of knowledge captured in nearly 100 years of U.S. aeronautics and space data. Computer software developers, using these data sources, can help many more people participate in the exploration of space and our Earth by helping to create new ways of looking at these datasets. Additionally, by releasing information about administrative and procedural information within NASA, researchers and analysts can understand more about the inner-workings of NASA as well as allow our own employees to better understand other functions of our Agency.

Open Government Goals

- Three months
 - Release a Citizen Engagement Tool focused on soliciting ideas for NASA submissions for Data.gov.
 - Clarify strategy and process for submission of new datasets to Data.gov for NASA employees.
- Six months
 - Automate internal submission and review process for new datasets to Data.gov.
 - Assist in the creation of the *Access and Utilization of NASA Science Data* portal to access NASA’s science data available for download
 - Convene a workshop

10 Technology Partnership Web services

www.nasa.gov/offices/ipp/resources/databases.html



NASA Vehicle Assembly Building (VAB) at Kennedy Space Center is in the NASA Major Facility Inventory database

The Innovative Partnership Program has inventoried 10 useful web services for those interested to partner with NASA. The web services include NASA technologies available for free-use or licensing, a compilation of “spin-off” application of NASA technologies since 1976, NASA technology briefings, Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) abstracts, success stories, and finding innovations, and a Major Facility Inventory is a database of aerospace-related facilities and major associated equipment located at NASA field centers as well as installations from several other agencies.

with data stakeholders internal and external to NASA to discuss our data structure and processes for releasing data

- One year
 - Release five new high-value datasets or information holdings to Data.gov that have never been released to the public before based on public consultation with a Citizen Engagement Tool. Upon release of each dataset or information holding, we will issue a rationale for why it is high-value.
 - Participate in *Access and Utilization of NASA Science Data* workshops
- Two years
 - Release an additional five new high-value datasets or information holdings to Data.gov that have never been released to the public before based on public consultation with a Citizen Engagement Tool. Upon release of each dataset or information holding, we will issue a rationale for why it is high-value.
 - Partner with Office of Chief Technologist and Participatory Exploration Office to provide content for partnerships and challenges.

Useful Links

1. NASA Geodata on Data.gov:
www.Data.gov/catalog/geodata/category/0/agency/183/filter//sort//page/1/count/1
2. NASA Catalogs and Tools on Data.gov:
www.Data.gov/catalog/tools/category/0/agency/49/filter//sort//page/1/count/25
3. NASA Raw Datasets on Data.gov:
www.Data.gov/catalog/raw/category/0/agency/49/filter//type//sort//page/1/count/25
4. Selected list of publicly available NASA data for download:
www.nasa.gov/open/data.html