

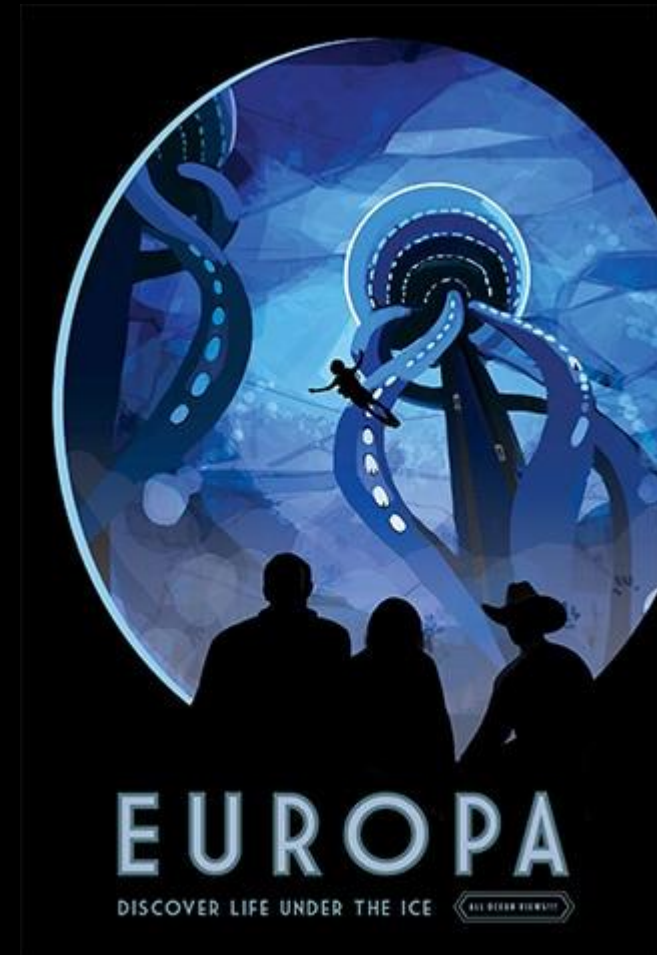
The image features the word "NASA" in a large, white, serif typeface. The letters are centered horizontally and partially overlaid by a glowing blue arc that curves from the bottom left towards the top right, resembling the horizon of Earth from space. The background is a deep, dark blue.

NASA

Beyond NASA.gov

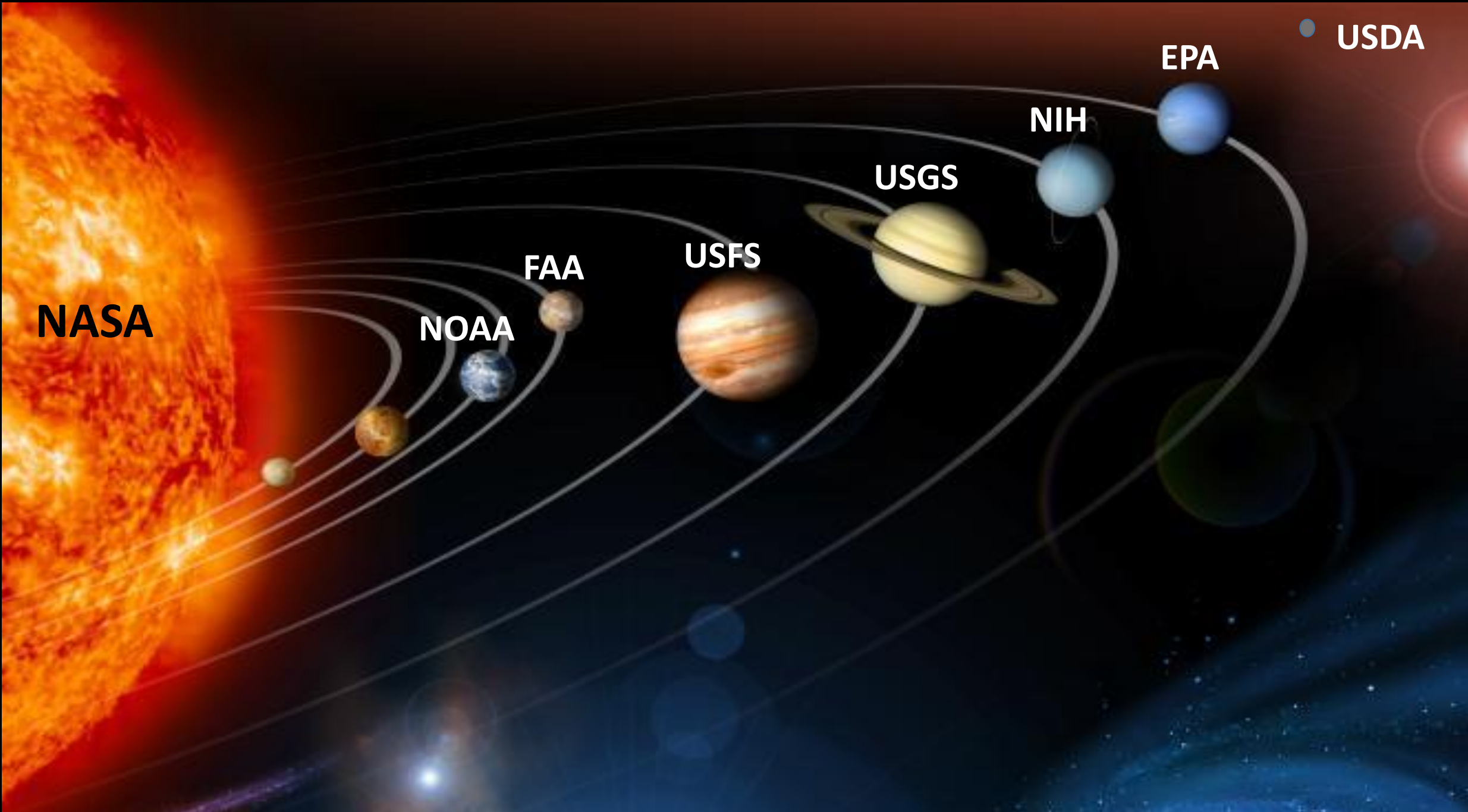
# Science!- life the universe and everything

- Earth science
- Space
- Citizen science



# NASA.gov- A quick look

- Public page
- Great for educational
- Not great for technical
- Good list of apps, programs, images
- Good first stop



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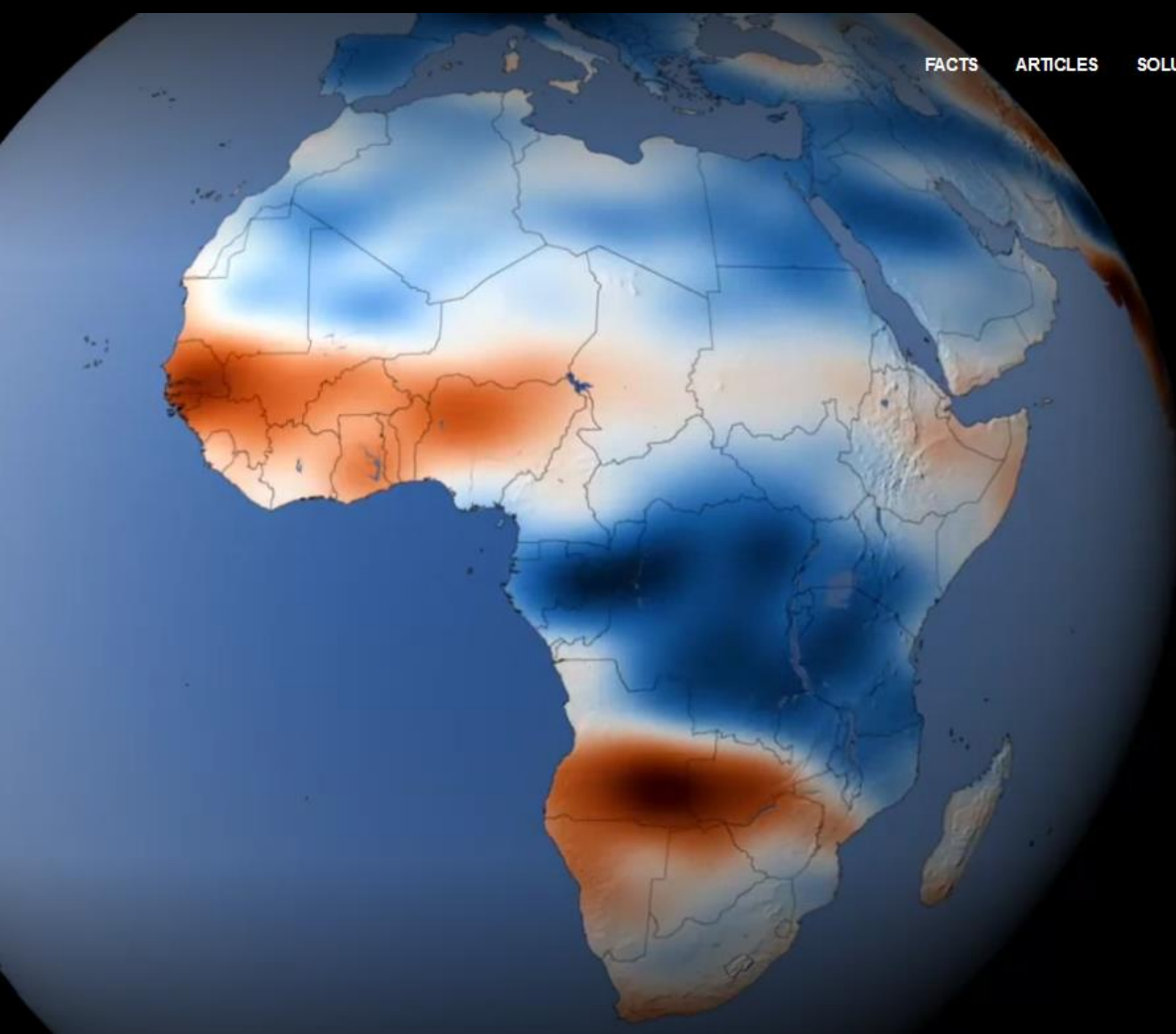
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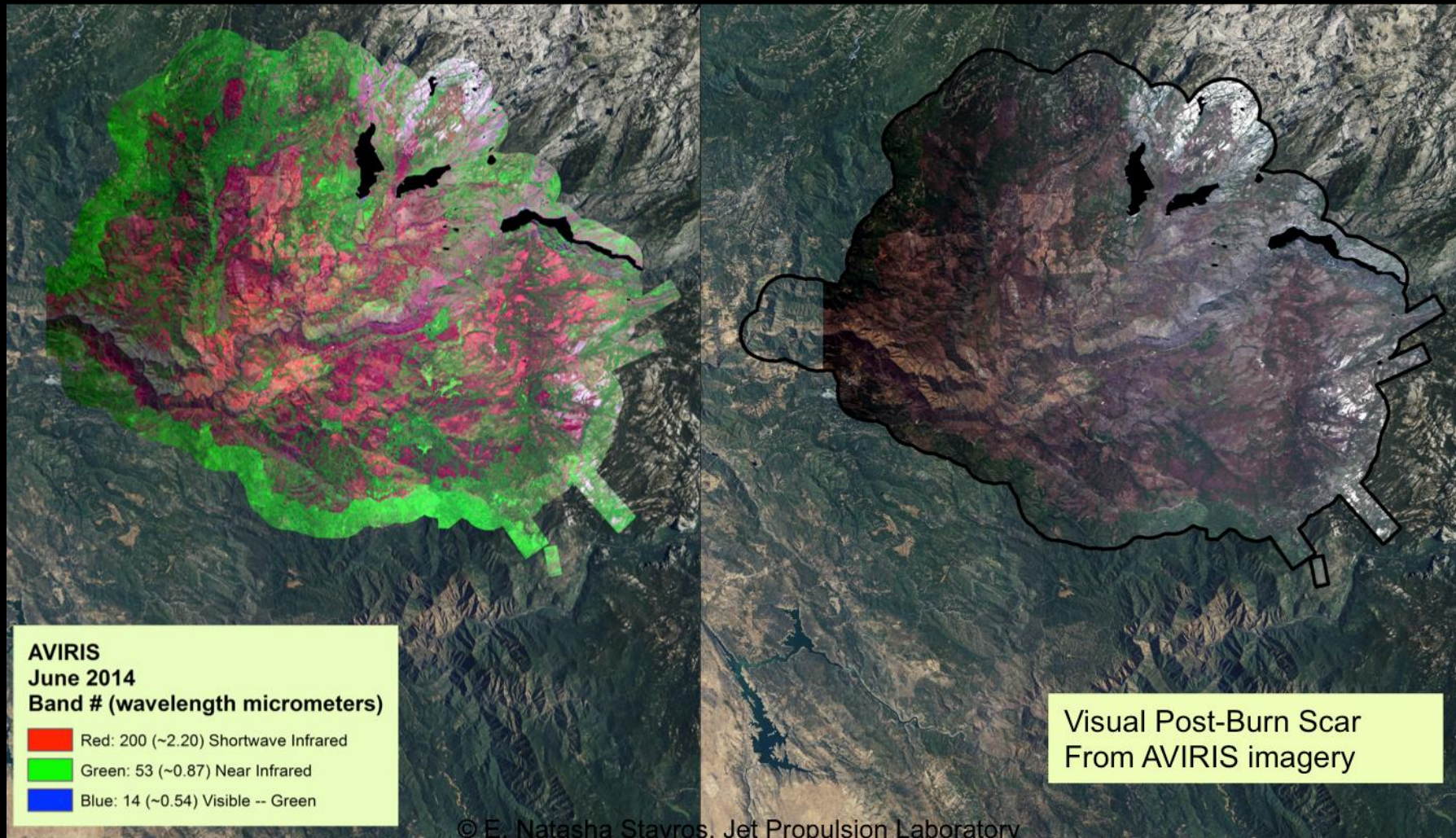
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Filter By Type

Scientific Journal (JRNL) (20)

General Technical Report (GTR) (11)

Miscellaneous Publication (10)

Proceedings (P) (3)

Abstract (2)

## NASA Cold Land Processes Experiment (CLPX 2002/03): Airborne remote sensing

This paper describes the airborne data collected during the 2002 and 2003 Cold Land Processes Experiment (CLPX). These data include gamma radiation observations, multi- and hyperspectral optical imaging, optical altimetry, and passive and active microwave observations of the test areas. The gamma observations were collected with the NOAA/National Weather Service Gamma...

**Author(s):** Don Cline; Simon Yueh; Bruce Chapman; Boba Stankov; Al Gasiewski; Dallas Masters; Kelly Elder; Richard Kelly; Thomas H. Painter; Steve Miller; Steve Katzberg; Larry Mahrt

**Year:** 2009

**Keywords:** Cold Land Processes Experiment (CLPX), gamma observations, airborne hyperspectral optical data

**Source:** Journal of Hydrometeorology. 10(1): 338-346.

## High spatial resolution satellite observations for validation of MODIS land products: IKONOS observations acquired under the NASA scientific data purchase.

Phase 11 of the Scientific Data Purchase (SDP) has provided NASA investigators access to data from four different satellite and airborne data sources. The Moderate Resolution Imaging Spectrometer (MODIS) land discipline team (MODLAND) sought to utilize these data in support of land product validation activities with a focus on tile EOS Land Validation Core Sites. These...

**Author(s):** Jeffrey T. Morisette; Jaime E. Nickeson; Paul Davis; Yujie Wang; Yuhong Tian; Curtis E. Woodcock; Nikolay Shabanov; Matthew Hansen; Warren B. Cohen; Doug R. Oetter; Robert E. Kennedy

**Year:** 2003

**Keywords:** MODIS, IKONOS, NASA

**Source:** Remote Sensing of Environment. 88: 100-110

## Nationwide disturbance attribution on NASA's earth exchange: experiences in a high-end computing environment

The North American Forest Dynamics (NAFD) project's Attribution Team is completing nationwide processing of historic Landsat data to provide a comprehensive annual, wall-to-wall analysis of US disturbance history, with attribution, over the last 25+ years. Per-pixel time series analysis based on a new nonparametric curve fitting algorithm yields several metrics useful...

**Author(s):** J. Chris Toney; Karen G. Schleeweis; Jennifer Dungan; Andrew Michaelis; Todd Schroeder; Gretchen G. Moisen

**Year:** 2015

**Keywords:**

**Source:** In: Stanton, Sharon M.; Christensen, Glenn A., comps. 2015. Pushing boundaries: new directions in inventory techniques and applications: Forest Inventory and Analysis (FIA) symposium 2015. 2015 December 8-10; Portland, Oregon. Gen. Tech. Rep. PNW-GTR-931. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. p. 240.

## NASA Cold Land Processes Experiment (CLPX 2002/03): Field measurements of snowpack properties and soil moisture

USGS/ NASA





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#### [2017 Landsat Science Team Summer Meeting Summary](#)

Christopher J. Crawford, Thomas R. Loveland, Michael A. Wulder, James R. Irons  
2018, *The Earth Observer* (30) 21-25

The summer meeting of the U.S. Geological Survey (USGS)-NASA Landsat Science Team (LST) was held June 11-13, 2017, at the USGS's Earth Resources Observation and Science (EROS) Center near Sioux Falls, SD. This was the final meeting of the Second (2012-2017) LST.1 Frank Kelly [EROS—Center Director] welcomed the attendees and...

#### [Shaler: in situ analysis of a fluvial sedimentary deposit on Mars](#)

Lauren Edgar, Sanjeev Gupta, David M. Rubin, Kevin W. Lewis, Gary A. Kocurek, Ryan Anderson, James F. Bell III, Gilles Dromart, Kenneth S. Edgett, John P. Grotzinger, Craig Hardgrove, Linda C. Kah, Richard A. LeVeille, Michael C. Malin, Nicholas Mangold, Ralph E. Milliken, Michelle Minitti, Marisa C. Palucis, Melissa Rice, Scott K. Rowland, Juergen Schieber, Kathryn M. Stack, Dawn Y. Sumner, Roger C. Wiens, Rebecca M.E. Williams, Amy J. Williams  
2018, *Sedimentology* (65) 96-122

This paper characterizes the detailed sedimentology of a fluvial sandbody on Mars for the first time, and interprets its depositional processes and palaeoenvironmental setting. Despite numerous orbital observations of fluvial landforms on the surface of Mars, ground-based characterization of the sedimentology of such fluvial deposits has not previously been possible....

#### [Community tools for cartographic and photogrammetric processing of Mars Express HRSC images](#)

Randolph L. Kirk, Elpitha Howington-Kraus, Kenneth L. Edmundson, Bonnie L. Redding, Donna M. Galuszka, Trent M. Hare, K. Gwinner B. Wu, K. Di, J. Oberst, I. Karachevtseva, editor(s)  
2017, *Conference Paper, Proceedings: 2017 international symposium on planetary remote sensing and mapping (Volume XLII-3/W1)*

# Getting Technical



[Earth Sciences Division \(Code 610\)](#)

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1. [Intercomparison of Soil Moisture, Evaporative Stress, and Vegetation Indices for Estimating \*\*Corn\*\* and Soybean Yields Over the U.S.](#)

Document ID: 20170005898

External Online Source: [doi:10.1109/JSTARS.2016.2639338](https://doi.org/10.1109/JSTARS.2016.2639338)

Author: Mladenova, Iliana E.; Bolten, John D.; Crow, Wade T.; Anderson, Martha C.; Hain, C. R.; Johnson, David M.; Mueller, Rick

Abstract: This paper presents an intercomparative study of 12 operationally produced large-scale datasets [▶](#)

Publication Year: 2017

Document Type: Journal Article

Report/Patent Number: GSFC-E-DAA-TN43592

Date Acquired: Jul 11, 2017

2. [L-Band H Polarized Microwave Emission During the \*\*Corn\*\* Growth Cycle](#)

Document ID: 20120009076

NTRS Full-Text: [Click to View](#)  [PDF Size: 38 KB]

Author: Joseph, A. T.; va der Velde, R.; O'Neill, P. E.; Kim, E.; Lang, R. H.; Gish, T.

Abstract: Hourly L-band (1.4 GHz) horizontally (H) polarized brightness temperatures (T(sub B))'s measured [▶](#)

Publication Year: 2012

Document Type: Conference Paper

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## Intercomparison of Soil Moisture, Evaporative Stress, and Vegetation Indices for Estimating **Corn** and Soybean Yields Over the U.S.

External Online Source: [doi:10.1109/JSTARS.2016.2639338](https://doi.org/10.1109/JSTARS.2016.2639338)

Author and Affiliation:

Mladenova, Iliana E.	<i>(Maryland Univ., College Park, MD, United States)</i>
Bolten, John D.	<i>(NASA Goddard Space Flight Center, Greenbelt, MD United States)</i>
Crow, Wade T.	<i>(Department of Agriculture, Beltsville, MD, United States)</i>
Anderson, Martha C.	<i>(Department of Agriculture, Beltsville, MD, United States)</i>
Hain, C. R.	<i>(Maryland Univ., College Park, MD, United States)</i>
Johnson, David M.	<i>(Department of Agriculture, Washington, DC, United States)</i>
Mueller, Rick	<i>(Department of Agriculture, Washington, DC, United States)</i>

**Abstract:** This paper presents an intercomparative study of 12 operationally produced large-scale datasets describing soil moisture, evapotranspiration (ET), and or vegetation characteristics within agricultural regions of the contiguous United States (CONUS). These datasets have been developed using a variety of techniques, including, hydrologic modeling, satellite-based retrievals, data assimilation, and survey in-field data collection. The objectives are to assess the relative utility of each dataset for monitoring crop yield variability, to quantitatively assess their capacity for predicting end-of-season **corn** and soybean yields, and to examine the evolution of the yield-index correlations during the growing season. This analysis is unique both with regards to the number and variety of examined yield predictor datasets and the detailed assessment of the water availability timing on the end-of-season crop production during the growing season. Correlation results indicate that over CONUS, at state-level soil moisture and ET indices can provide better information for forecasting **corn** and soybean yields than vegetation-based indices such as normalized difference vegetation index. The strength of correlation with **corn** and soybean yields strongly depends on the interannual variability in yield measured at a given location. In this case study, some of the remotely derived datasets examined provide skill comparable to that of in situ field survey-based data further demonstrating the utility of these remote sensing-based approaches for estimating crop yield.

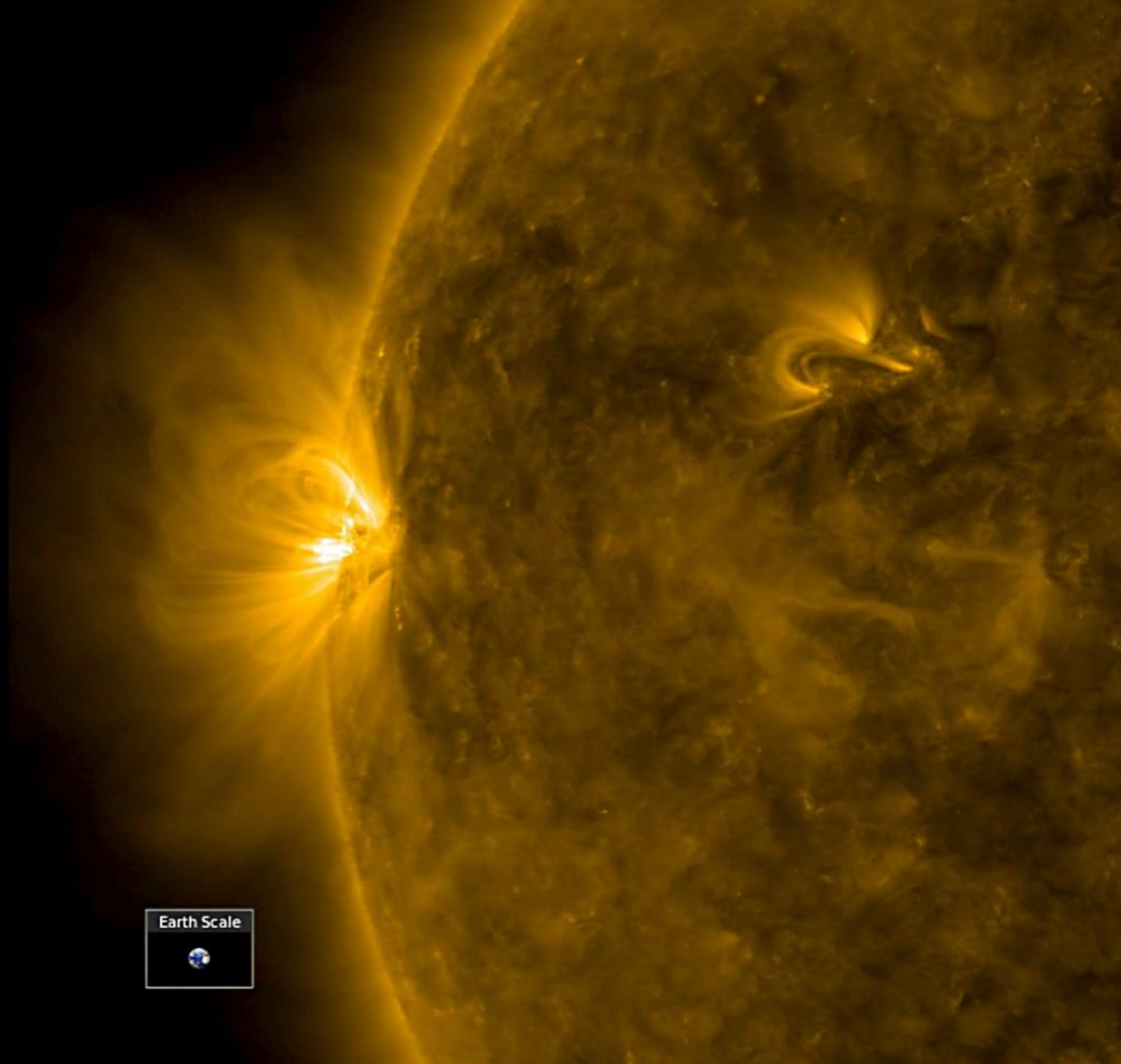
Publication Date: Apr 01, 2017



# General Sources

- Data.gov  
33,956 datasets found for "nasa"
- Science.gov (pulls from PubMed, NTRS, NTIS, EPA, OSTI...)  
2593 top results from 1355683 found in all sources

# Space

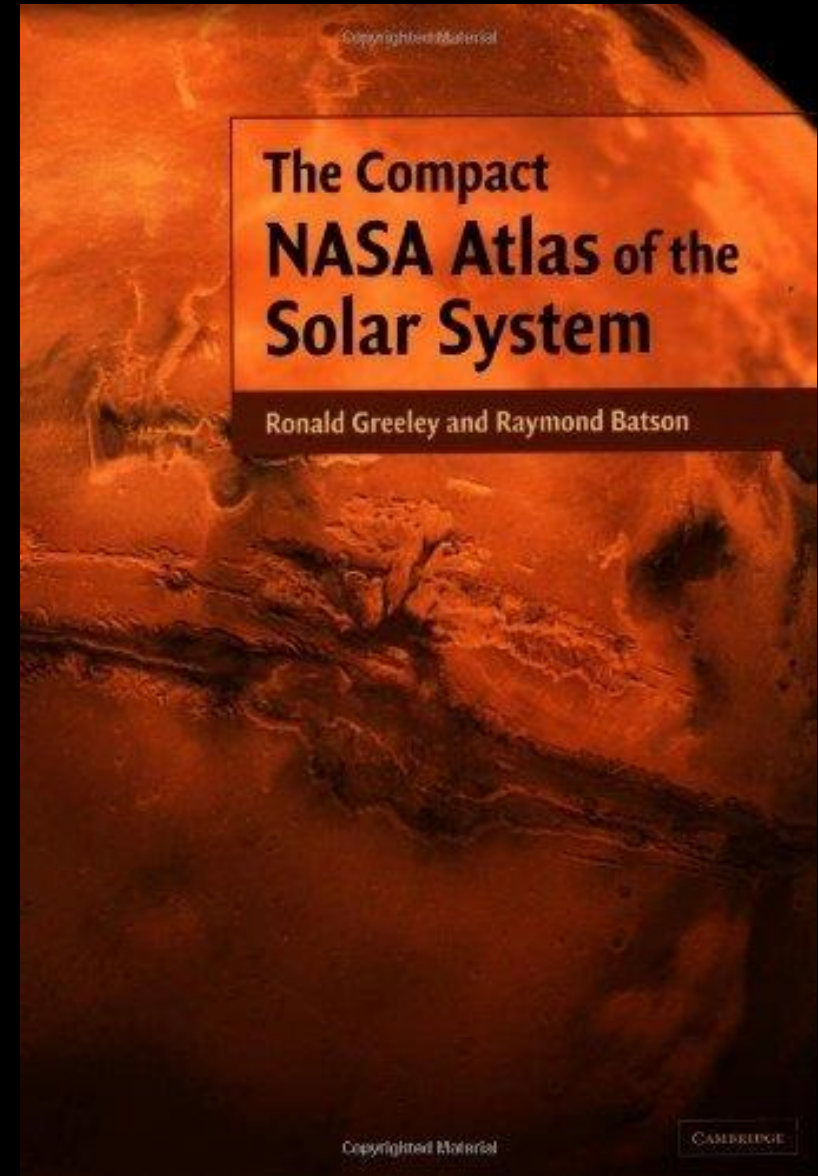


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Gazetteer of Planetary Nomenclature



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## Mars Exploration Rover Opportunity Still Roving!

New findings from the Opportunity Rover in Marathon Valley (image credit: NASA/JPL-Caltech/Cornell Univ./ASU)



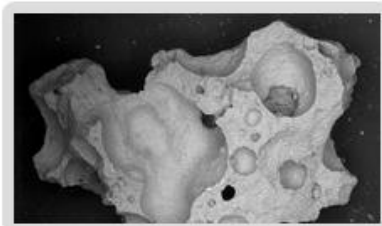
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The USGS Astrogeology Science Center assists in current and future space missions.

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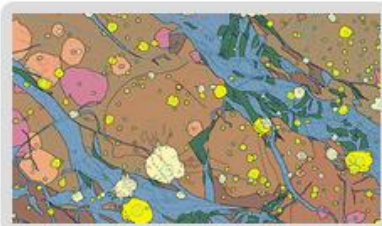
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Social media is gobbling up a photograph of a West Kamokuna lava skylight...

28 June 2018

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### Sols 2095-2096: Over the crest

After a steep drive Sol 2094, Curiosity is back over the crest of Vera...

27 June 2018

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### Sols 2093-2094: Feeling powerful

Today's 2-sol plan kicked off with the good news that our power...

25 June 2018

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### USGS New Director Visits Flagstaff Science Center

USGS employees at the Flagstaff Science Center met their new leader, USGS...

19 June 2018

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### Sun-starved Opportunity in 'coma' waiting out the storm

A massive Martian dust storm has prevented the solar-powered Opportunity...

14 June 2018

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Spacecraft ▼ Select...
Region ▼ Select...
Feature Finder ▼ Select...

Found  
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## Mercury



### Mercury Cartographic Stats:

Equatorial Radius\*: 2,440.53 km  
 Polar Radius\*: 2,438.25 km  
 Max Elevation\*: 4.6 km  
 Max Depression: 2.5 km  
 Right Ascension\* (north pole): 281 deg  
 Declination\* (north pole): 61.4 deg  
 Length of Day (sidereal): 58.63 days

### Mercury Links:

Nomenclature: [IAU\\* Gazetteer](#)  
 Raw Spacecraft Imagery: [PDS\\* PILOT](#)



### [Mercury 5M GIS Conversion v2](#)

application/zip 710 MB

May 16 2016

These polygons are based on the original created 1:5M geologic maps for Mercury as published in the late 80's and early 90's as created by several authors. The original GIS conversion was completed...



### [Mercury MESSENGER MDIS Global Basemap BDR 166m \(256ppd\)](#)

application/isis 4 GB 

May 06 2016

The Map Projected Basemap RDR (BDR) data set consists of a global monochrome map of reflectance at a resolution of 256 pixels per degree (~166 m/p). This edition, version 1, was released May 6, 2016...



### [Mercury MESSENGER Global DEM 665m \(64ppd\) v2 Oct. 2016](#)

application/isis 506 MB

Oct 21 2016

The MESSENGER spacecraft completed its mission to acquire a rich variety of orbital data from the planet Mercury. Using the Integrated...



### [Mercury MESSENGER MDIS Basemap Enhanced Color Global Mosaic 665m \(64ppd\)](#)

application/isis 759 MB

May 13 2016

This mosaic shows Mercury's surface in "enhanced color," a term used to describe a color scheme created to emphasize color differences on Mercury's surface. This is not what Mercury would look like...



### [Mercury MESSENGER MDIS Basemap MD3 Color Global Mosaic 665m \(64ppd\)](#)

application/isis 759 MB

May 13 2016

This mosaic shows Mercury's colors as viewed by placing images from MESSENGER's 1000 nm, 750 nm, and 430 nm narrow-band filters in the red, green, and blue channel respectively. This is not what...



### [Mercury MESSENGER Global Colorized Shade 2km](#)

Map interface showing a grid of Mercury's surface. Navigation controls include zoom in (+), zoom out (-), pan, and a scale bar for 1000 km. The map shows a grid with latitude and longitude coordinates.

Prepared for the  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

North

105°

100°

95°

90°

85°

80°

76°





# Citizen Science- Earth

- GLOBE Observer
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## NASA GLOBE Observer's Weekly Roundup: 24-30 June 2018

It's been a busy time here at NASA GO and we have so many exciting things to share with you all this week. This and more in this week's edition of the roundup.

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What science could you do  
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*Goddard*  
SPACE FLIGHT CENTER

Citizen Science Task Group

## GSFC Citizen Science and Crowdsourcing

We are a community at Goddard Space Flight Center (GSFC) using the power of citizen science and crowdsourcing to advance innovative scientific discovery and science education. Projects at GSFC span the fields of astrophysics, earth science, heliophysics, and planetary science. The group was founded in 2015 and continues to grow.

### Get Involved

1. We meet **every other week on Tuesdays at 12pm ET** (alternating teleconference and in-person meetings) to share news, discuss project updates, collaborate, and listen to guest speakers.
2. Subscribe to our [Goddard-CrowdSci mailing list](#) to send and receive community emails.
3. Send inquiries about this webpage or if you would like your project added/edited to [Caroline Juang](#) (617).

## Resources

### Other Citizen Science Communities:

- [NASA Science Mission Directorate](#)
- [NASA Solve](#)
- [NASA Crowdsourcing Forum \(INTERNAL ONLY\)](#)
- [Federal Community of Practice for Crowdsourcing and Citizen Science](#)
- [Citizen Science Association](#)
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by National Aeronautics and Space Administration (NASA)

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by National Aeronautics and Space Administration (NASA)

### [DISCOVER-AQ](#)

by U.S. Environmental Protection Agency (EPA), National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA)

### [Disk Detective](#)

by National Aeronautics and Space Administration (NASA)

### [EcoCast: Improving Ecological and Economic Sustainability of Marine Fisheries Using Remotely-sensed](#)



# Citizen Science-Space

- Public Kepler Data Archives
- Planet Hunters
- CosmoQuest





# Kepler and K2



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## Citizen Science

Kepler data for all the stars are processed at NASA Ames Research Center. The data can be accessed by anyone, including citizen scientists through the public Kepler data archives as well as the [Planet Hunters](#) citizen science project. For the benefit of more sophisticated researchers, processing of Kepler data includes calibrating, removing bias (dark level) and smear (the photometer has no shutter) and converting values to fluxes. The multiple pixels making up a single star's point spread function (psf) is not combined, permitting users to perform their own photometry or other forms of analysis.

## Planet Hunters

Participants searching for planets using Planet Hunters look at changes in star brightness using data collected by NASA's Kepler spacecraft, which has exquisite and unprecedented precision in detecting changes in brightness (photometry). As participants sort through the brightness data in the form of graphs of brightness vs time (known as light curves), they notice different patterns of variability. Much of the variability (on timescales of hours to days) may be caused by starspots or pulsations of different types of variable stars. Having Planet Hunters sort families of similar light curves is part of the important scientific research.

## Public Kepler Data Archives

Ensemble-normalized light curves are produced and placed in the [Mikulski Archive for](#)



# Ready to discover new worlds?

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Map the Moon



Map Mars



Map Mercury

## Help CosmoQuest make maps of our Solar System

CosmoQuest invites you to help NASA scientists make maps of scientifically interesting features in our Solar System. You can map craters on the Moon, and trace the splatter of asteroid impacts on Vesta. All these worlds are yours to explore!





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<https://nasaviz.gsfc.nasa.gov/>

NASA Technical Reports Server (NTRS)  
<https://ntrs.nasa.gov/>

Webliography on Astronaut Health: Science  
Education Resources

[https://nnlm.gov/sites/default/files/shared/files/Class Materials/Astro Health SciEdu Webliography 4.docx](https://nnlm.gov/sites/default/files/shared/files/Class%20Materials/Astro%20Health%20SciEdu%20Webliography%204.docx)

Data.gov <https://www.data.gov/>

Science.gov <http://www.science.gov>

NASA articles in PubMed Central  
<https://www.ncbi.nlm.nih.gov/pmc/?term=%22nasa+funded%22|Filter>

USGS Publications Warehouse  
<https://pubs.er.usgs.gov/>

Scientific and Technical Information Program  
<https://www.sti.nasa.gov/>

# Earth Science

USGS Publications Warehouse <https://pubs.er.usgs.gov/search?q=nasa>

NOAA Satellite imagery <https://www.nesdis.noaa.gov/content/imagery-and-data>

Treesearch (U.S. Forest Service) <https://www.fs.usda.gov/treesearch/pubs/40027>

Climate Science Primer <https://www.fs.usda.gov/ccrc/>

Earth Sciences Division (STI)

<https://science.gsfc.nasa.gov/sed/index.cfm?fuseAction=publications.main&navOrgCode=610>

AGRICOLA (National Agriculture Library) <https://agricola.nal.usda.gov/cgi-bin/Pwebrecon.cgi?DB=local&PAGE=bbSearch&STARTDB=AGRIDB>

# Space

DSCOVR: Deep Space Climate Observatory <https://www.nesdis.noaa.gov/content/dscovr-deep-space-climate-observatory>

Space Weather Prediction Center <https://www.swpc.noaa.gov/>

Space Weather Enthusiasts Dashboard <https://www.swpc.noaa.gov/communities/space-weather-enthusiasts>

Webliography on Astronaut Health: Science Education Resources

[https://nslm.gov/sites/default/files/shared/files/Class\\_Materials/Astro\\_Health\\_SciEdu\\_Webliography\\_4.docx](https://nslm.gov/sites/default/files/shared/files/Class_Materials/Astro_Health_SciEdu_Webliography_4.docx)

USGS Astrogeology Science Center <https://astrogeology.usgs.gov/solar-system/mars>

# Citizen Science- Earth

- Earth

- GLOBE Observer <https://observer.globe.gov/>
- Federal Crowdsourcing and Citizen Science Catalog <https://ccsinventory.wilsoncenter.org/>

## Space

- Resources for Citizen Scientists: <https://www.nasa.gov/kepler/education/citizen>
- Planet Hunters <https://www.planethunters.org/>
- CosmoQuest [https://cosmoquest.org/x/?application=mars\\_simply\\_craters](https://cosmoquest.org/x/?application=mars_simply_craters)

# Uh Oh!

We're not quite certain what has happened, but we think The Great Galactic Ghoul has eaten what you were looking for.



In 1965, JPL Engineer, John Casani, jokingly came up with the idea of the Ghoul when a reporter asked him why many Soviet spacecraft were failing to reach Mars. The Ghoul came to be known as the Great Galactic Ghoul and lived on in infamy.