

GENTLE.NEWS

In Today's Edition

Nature & Environment

Annual NLCD Collection 1.2 Now Available

Technology & Innovation

Brookhaven Lab, Amazon Web Services Partner to Connect AI Data Centers

Science & Discovery

NASA's Chandra Reveals 'Red, White, Blue' Universe for US 250th

Animals & Wildlife

Reintroductions and habitat restoration improve the odds for Houston toad

The World Today

Action! NSF-DOE Vera C. Rubin Observatory begins capturing the greatest cosmic movie ever made

Activity Time

Word Search Puzzle

"There are three rules for writing a novel. Unfortunately, no one knows what they are."

— W. Somerset Maugham

Annual NLCD Collection 1.2 Now Available

Annual NLCD Collection 1.2 Now Available Widely used land cover resource adds 2025 mapping By Earth Resources Observation and Science (EROS) Center June 30, 2026 The U.S. Geological Survey (USGS) is excited to announce the release of the Annual National Land Cover Database (NLCD) Conterminous U.S. (CU), Collection 1.2. This release builds on the popular Annual NLCD CU Collection 1.0 by extending the dataset through 2025. More About Annual NLCD Produced at the USGS Earth Resources Observation and Science (EROS) Center, Annual NLCD now provides land cover and land cover change information for the conterminous United States for each year from 1985 through 2025. While Annual NLCD focuses on monitoring the surface of the Earth, it relies on imagery captured from 438 miles up. Satellites in the Landsat Program provide the extensive time series of data required to characterize distinct features and change on the ground. Land Cover Characteristics in a Suite of Six Products Annual NLCD CU Collection 1.2 adds 2025 to the established suite of six raster-based land use and land cover science products for the conterminous United States: Land Cover – This dataset provides 16 land cover classes such as deciduous and evergreen forest, grassland, cultivated crops and developed. Land Cover Change – These data represent annual land cover changes from one year to the next. Land Cover Confidence – This layer provides confidence levels for the land cover

classifications. Fractional Impervious Surface – This component provides the proportion of land covered by developed surfaces, such as roads and rooftops. Impervious Descriptor – This feature offers additional information about impervious surfaces by distinguishing between roads and other built surfaces. Spectral Change Day of Year – This attribute captures the specific day of the year when significant changes in surface reflectance occurred. The Annual NLCD intra-collection annual update strategy was designed to ensure consistency with previous product releases (i.e., 1.0, 1.1), maintain reliability in time-series analyses, and develop products in a resource-efficient manner. Users of the data can expect the core algorithms of Annual NLCD to remain stable throughout the duration of all Collection 1 dot product releases. Items below detail what's new in Collection 1.2: New 2025 data for all 6 products listed above. Updated Spectral Change Day of Year products for 2021 – 2024 to maintain consistency between spectral change characteristics and the downstream land cover products. Data Access The Annual NLCD products are available for download on EarthExplorer , the MRLC Web Viewer , the MRLC Mosaic Download website , ScienceBase , as Annual NLCD web services , and through USGS AWS S3 (Oregon us-west-2 region). For quick and easy change analyses, try out the NLCD Enhanced Visualization and Analysis (EVA) tool . See more information on the Annual NLCD data access page. More About the Database NLCD supports thousands of applications in the private, public, and academic sectors. It has been used to assess ecosystem status and health, examine

spatial patterns of biodiversity, and develop land management policies. It also serves as a critical data layer in national assessments of surface and ground water quality, wildfire monitoring and modeling, biodiversity conservation efforts and more. More About Annual NLCD Related Science Data Multimedia Publications News Learn more about Annual NLCD. September 26, 2024 Annual National Land Cover Database Land cover is foundational information for land managers, scientists, and the general public. Many types of scientific studies have applied annual land cover information including projecting future land use, documenting forest fragmentation or conservation practices, modeling wildfire hazards, tracking water quality and quantity, and understanding change in wildlife habitat and ecosystem... By Earth Resources Observation and Science (EROS) Center Annual National Land Cover Database September 26, 2024 Annual National Land Cover Database Land cover is foundational information for land managers, scientists, and the general public. Many types of scientific studies have applied annual land cover information including projecting future land use, documenting forest fragmentation or conservation practices, modeling wildfire hazards, tracking water quality and quantity, and understanding change in wildlife habitat and ecosystem... Learn More Items per page 6 12 Label July 16, 2025 Annual National Land Cover Database Frequently Asked Questions This page lists commonly asked questions (FAQs) pertaining to Annual National Land Cover Database (NLCD). By Earth Resources Observation and Science (EROS) Center Annual National Land Cover Database Frequently Asked

Questions July 16, 2025 Annual National Land Cover Database Frequently Asked Questions This page lists commonly asked questions (FAQs) pertaining to Annual National Land Cover Database (NLCD). Learn More March 3, 2025 Eyes on Earth Episode 131 – Using AI in Geospatial Work Artificial intelligence (AI) is helping to make EROS data products better and more efficient. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center , Landsat Missions Eyes on Earth Episode 131 – Using AI in Geospatial Work March 3, 2025 Eyes on Earth Episode 131 – Using AI in Geospatial Work Artificial intelligence (AI) is helping to make EROS data products better and more efficient. Learn More January 6, 2025 Eyes on Earth Episode 130 – NLCD Accuracy Providing accuracy metrics for a land cover map takes some work. But there’s poetry and story involved, too. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center , Landsat Missions Eyes on Earth Episode 130 – NLCD Accuracy January 6, 2025 Eyes on Earth Episode 130 – NLCD Accuracy Providing accuracy metrics for a land cover map takes some work. But there’s poetry and story involved, too. Learn More October 28, 2024 Eyes on Earth Episode 126 – Annual NLCD The next generation of USGS land cover mapping is here. Annual NLCD provides land cover data of the U.S. every year back to 1985. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center , Landsat Missions , Land Change Monitoring,

Assessment, and Projection , Land Use Land Cover Modeling Eyes on Earth Episode 126 – Annual NLCD October 28, 2024 Eyes on Earth Episode 126 – Annual NLCD The next generation of USGS land cover mapping is here. Annual NLCD provides land cover data of the U.S. every year back to 1985. Learn More Browse Annual NLCD data. October 24, 2024 Annual National Land Cover Database (NLCD) Collection 1 Products (ver. 1.2, June 2026) Annual National Land Cover Database (NLCD) Collection 1 Products (ver. 1.2, June 2026) The U.S. Geological Survey (USGS)'s Land Cover program has leveraged methodologies from legacy land cover projects - National Land Cover Database (NLCD) and Land Change Monitoring, Assessment, and Projection (LCMAP) - together with modern innovations in geospatial deep learning technologies to create the next generation of land cover and land change information. The product suite is... By Earth Resources Observation and Science (EROS) Center Items per page 6 12 Label July 25, 2025 Annual National Land Cover Database (NLCD) Collection 1.0 Validation Tables Annual National Land Cover Database (NLCD) Collection 1.0 Validation Tables A validation assessment of Annual National Land Cover Dataset (NLCD) CONUS Collection 1.0 annual land cover products (1985–2023) for the Conterminous United States (CONUS) was conducted with an independently collected reference dataset. Reference data land cover attributes were assigned by trained interpreters for each year of the time series (1984–2023) to a reference sample of 8,360... By Earth Resources Observation and Science (EROS) Center July 25, 2025 Annual National Land Cover Database

(NLCD) Collection 1.0 Reference Data Product Annual National Land Cover Database (NLCD) Collection 1.0 Reference Data Product This Annual NLCD Reference Data Product includes the collection of an independent dataset of 8,360 30-meter by 30-meter samples across the Conterminous United States (CONUS). The Annual NLCD Collection 1 sample design was developed as a two-phase collection by a team of image interpreters as follows: an initial base sample containing 5,000 sample plots chosen purely by simple random... By Earth Resources Observation and Science (EROS) Center March 4, 2025 Preliminary Land Cover Data Collected for Protocol and Process Development related to Annual NLCD Preliminary Land Cover Data Collected for Protocol and Process Development related to Annual NLCD Data collected to facilitate research and development activities pertaining to Annual NLCD algorithm development used as a benchmark for algorithm improvement iterations. The primary goal of these preliminary data was to offer preliminary insight into algorithm performance and guidance for algorithm improvement through error analysis. By Earth Resources Observation and Science (EROS) Center View or listen to additional Annual NLCD resources. October 24, 2024 The New Annual (1985-2023) National Land Cover Database: Improving on a 30-Year Legacy This video is a recording of a previous webinar entitled: “The New Annual (1985-2023) National Land Cover Database: Improving on a 30-year Legacy.” This webinar was recorded on October 24, 2024 at the USGS EROS. The United States Geological Survey (USGS) Earth Resources Observation and Science

(EROS) Center maintains one of the largest civilian collection of images of the Earth's land surface. At... By Core Science Systems Mission Area , Earth Resources Observation and Science (EROS) Center Label List Grid A slide with a title, a small amount of text and a bar chart next to it MRLC Enhanced Visualization and Analysis (EVA) Tool Demo January 20, 2026 MRLC Enhanced Visualization and Analysis (EVA) Tool Demo MRLC Enhanced Visualization and Analysis (EVA) Tool Demo MRLC Enhanced Visualization and Analysis (EVA) Tool Demo This video is a demonstration of the EVA Tool. It was conducted during the January 20, 2026 webinar. To watch the full webinar please visit: <https://www.usgs.gov/media/videos/visualizing-land-cover-mrlc-tools> . By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center January 20, 2026 MRLC Enhanced Visualization and Analysis (EVA) Tool Demo MRLC Enhanced Visualization and Analysis (EVA) Tool Demo MRLC Enhanced Visualization and Analysis (EVA) Tool Demo MRLC Enhanced Visualization and Analysis (EVA) Tool Demo This video is a demonstration of the EVA Tool. It was conducted during the January 20, 2026 webinar. To watch the full webinar please visit: <https://www.usgs.gov/media/videos/visualizing-land-cover-mrlc-tools> . By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center A slide with a title, a small amount of text and a map of the United States next to it MRLC National Land Cover Database (NLCD) Viewer Tool Demo January 20, 2026 MRLC National Land Cover Data-

base (NLCD) Viewer Tool Demo MRLC National Land Cover Database (NLCD) Viewer Tool Demo MRLC National Land Cover Database (NLCD) Viewer Tool Demo This video is a demonstration of the MRLC National Land Cover Database (NLCD) Viewer tool. It was conducted during the January 20, 2026 webinar. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center January 20, 2026 MRLC National Land Cover Database (NLCD) Viewer Tool Demo MRLC National Land Cover Database (NLCD) Viewer Tool Demo MRLC National Land Cover Database (NLCD) Viewer Tool Demo MRLC National Land Cover Database (NLCD) Viewer Tool Demo MRLC National Land Cover Database (NLCD) Viewer Tool Demo This video is a demonstration of the MRLC National Land Cover Database (NLCD) Viewer tool. It was conducted during the January 20, 2026 webinar. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center Thumbnail image for a video titled "Visualizing Land Cover with MRLC Tools" Visualizing Land Cover with MRLC Tools January 20, 2026 Visualizing Land Cover with MRLC Tools Visualizing Land Cover with MRLC Tools Visualizing Land Cover with MRLC Tools This video is a recording of a previous webinar entitled: “Visualizing Land Cover with MRLC Tools”. This webinar was recorded on January 20, 2026. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center January 20, 2026 Visualizing Land Cover with MRLC Tools Visualizing Land Cover with MRLC Tools Visualizing Land Cover with

MRLC Tools Visualizing Land Cover with MRLC Tools This video is a recording of a previous webinar entitled: “Visualizing Land Cover with MRLC Tools”. This webinar was recorded on January 20, 2026. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States November 25, 2025 Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States This map, produced with Annual National Land Cover Database (NLCD) Collection 1.1 data from 1985 to 2024, shows the growth in urban areas (development) across the United States. Various colors represent the year that new growth occurred in a particular spot. By Earth Resources Observation and Science (EROS) Center November 25, 2025 Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States This map, produced with Annual National Land Cover Database (NLCD) Collection 1.1 data from 1985 to 2024, shows the growth in urban areas (development) across the United States. Various colors represent the year that new growth occurred in a particular spot. By Earth Resources Observation and Science (EROS) Center Thumbnail image for EoE Episode 131 – Using AI in Geospatial

National Land Imaging Program , Earth Resources Observation and Science (EROS) Center , Landsat Missions Debut of the Annual National Land Cover Database (NLCD) Debut of the Annual National Land Cover Database (NLCD) January 15, 2025 Debut of the Annual National Land Cover Database (NLCD) Debut of the Annual National Land Cover Database (NLCD) Debut of the Annual National Land Cover Database (NLCD) Debut of the Annual National Land Cover Database (NLCD) Poster introducing the 2023 Annual National Land Cover Database (NLCD). "Development and Cloud Implementation of the New Annual NLCD for the United States." Created by USGS Earth Resources Observation and Science (EROS) Center. Find full PDF here. By Earth Resources Observation and Science (EROS) Center January 15, 2025 Debut of the Annual National Land Cover Database (NLCD) Debut of the Annual National Land Cover Database (NLCD) Debut of the Annual National Land Cover Database (NLCD) Debut of the Annual National Land Cover Database (NLCD) Debut of the Annual National Land Cover Database (NLCD) Poster introducing the 2023 Annual National Land Cover Database (NLCD). "Development and Cloud Implementation of the New Annual NLCD for the United States." Created by USGS Earth Resources Observation and Science (EROS) Center. Find full PDF here. By Earth Resources Observation and Science (EROS) Center Thumbnail image for EoE Episode 130 – NLCD Accuracy Thumbnail image for EoE Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Thumbnail image for EoE Episode 130 – NLCD Accuracy Thumbnail image for EoE Episode 130 – NLCD Accuracy January 6, 2025 Eyes on Earth Episode 130 –

NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Every pixel has a story. At least that’s how land remote sensing scientist Jo Horton sees it. The new Annual National Land Cover Database (NLCD) was just released in October 2024. NLCD is widely used for land cover and change research in the U.S. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center , Landsat Missions Thumbnail image for EoE Episode 130 – NLCD Accuracy Thumbnail image for EoE Episode 130 – NLCD Accuracy January 6, 2025 Eyes on Earth Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Every pixel has a story. At least that’s how land remote sensing scientist Jo Horton sees it. The new Annual National Land Cover Database (NLCD) was just released in October 2024. NLCD is widely used for land cover and change research in the U.S. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center , Landsat Missions Thumbnail image for EoE Episode 126 – Annual NLCD Thumbnail image for EoE Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD Thumbnail image for EoE Episode 126 – Annual NLCD Thumbnail image for EoE Episode 126 – Annual NLCD October 28, 2024 Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD In this episode of Eyes on

Earth, we talk about the latest release of the National Land Cover Database (NLCD). More than just a map, NLCD is a stack of maps—a database. It has long been the foundational land cover source for scientists, resource managers, and decision-makers across the United States, and now the next generation of USGS land cover mapping is here. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center Thumbnail image for EoE Episode 126 – Annual NLCD Thumbnail image for EoE Episode 126 – Annual NLCD October 28, 2024 Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD In this episode of Eyes on Earth, we talk about the latest release of the National Land Cover Database (NLCD). More than just a map, NLCD is a stack of maps—a database. It has long been the foundational land cover source for scientists, resource managers, and decision-makers across the United States, and now the next generation of USGS land cover mapping is here. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center Look at Annual NLCD-related publications. January 17, 2025 Annual NLCD (National Land Cover Database)—The next generation of land cover mapping Annual NLCD (National Land Cover Database)—The next generation of land cover mapping Introduction The widely used National Land Cover Database (NLCD) has long been the foundational land cover source for scientists, resource managers, and decision makers across the United

States. In 2024, a reinvention as Annual NLCD added the key improvement of annual time steps to show decades of change at a higher frequency than the intervals of 2–3 years used in the legacy NLCD... By Earth Resources Observation and Science (EROS) Center Items per page 6 12 Label March 5, 2026 A framework for integrating spatiotemporal deep learning methods with landsat for annual land cover and impervious surface mapping A framework for integrating spatiotemporal deep learning methods with landsat for annual land cover and impervious surface mapping Land cover information is essential for understanding Earth's surface dynamics and how vegetation, water, soil, climate, and terrain interact. The National Land Cover Database (NLCD) has been the authoritative source for consistent U.S. land cover mapping. To extend NLCD's temporal resolution and reduce production latency, we developed the Land Cover Artificial Mapping System (LCAMS)—a... Authors Rylie Fleckenstein, Danika Fay Wellington, Suming Jin, Heather J. Tollerud, Jesslyn F. Brown, Jon Dewitz, Neal J. Pastick, Christopher P. Barber, Austin O'Brien, Mark Spanier By Earth Resources Observation and Science (EROS) Center October 1, 2025 Thirty years of the U.S. National Land Cover Database: Impacts and future direction Thirty years of the U.S. National Land Cover Database: Impacts and future direction The National Land Cover Database (NLCD), developed through the Multi-Resolution Land Characteristics Consortium, was initiated 30 years ago and has continually provided critical, Landsat-based landcover and land-change information for the United States. Originally launched to address the lack of national-

scale, moderate-resolution land-cover data, NLCD has evolved from the pioneering... Authors Terry L. Sohl, Suming Jin, Jon Dewitz, James Wickham, Jesslyn F. Brown, Stephen Stehman, Nathaniel Herold, Karen Schleeweis, Heather J. Tollerud, Carol Deering By Earth Resources Observation and Science (EROS) Center January 14, 2025 An interagency perspective on improving consistency and transparency of land use and land cover mapping An interagency perspective on improving consistency and transparency of land use and land cover mapping Executive Summary Geospatial products of land use and land cover are broadly used in many applications. For example, the annual national greenhouse gas inventory uses the National Land Cover Database, the Coastal Change Analysis Program, Landscape Fire and Resource Management Planning Tools, the Forest Inventory and Analysis, and the National Resources Inventory to represent the land use... Authors Terry Sohl, Karen Schleeweis, Nate Herold, Megan Lang, Inga P. La Puma, James Wickham, Rick Mueller, Matthew Rigge, Jon Dewitz, Jesslyn F. Brown, Jeffrey Ingebritsen, James Ellenwood, Ellen Wengert, Jordan Rowe, Patrick Flanagan, Emily Kacher-gis, Iris Garthwaite, Zhuoting Wu By National Land Imaging Program , Earth Resources Observation and Science (EROS) Center News items related to Annual NLCD. Filter Total Items: 15 Content type Type News Newsletter Release Date (field_release_date) Year 2026 2025 2024 2023 2022 2021 2020 2019 2018 2017 2016 2015 2014 2013 2012 2011 2010 2009 2008 2007 2006 2005 2004 2003 2002 2001 2000 1999 1998 1997 1996 1995 1994 1993 1992 1991 1990 1989 1988 1987 1986 1985 1984

1983 1982 1981 1980 1979 1978 1977 1976 1975 1974 1973 1972 1971
1970 1969 1968 1967 1966 1965 1964 1963 1962 1961 1960 1959 1958
1957 1956 1955 1954 1953 1952 1951 1950 1949 1948 1947 1946 1945
1944 1943 1942 1941 1940 1939 1938 1937 1936 1935 1934 1933 1932
1931 1930 1929 1928 1927 1926 1925 1924 1923 1922 1921 1920 1919
1918 1917 1916 1915 1914 1913 1912 1911 1910 1909 1908 1907 1906
1905 1904 1903 1902 1901 1900 1899 1898 1897 1896 1895 1894 1893
1892 1891 1890 1889 1888 1887 1886 1885 1884 1883 1882 1881 1880
1879 1878 1877 1876 1875 1874 1873 1872 1871 1870 1869 1868 1867
1866 1865 1864 1863 1862 1861 1860 1859 1858 1857 1856 1855 1854
1853 1852 1851 1850 1849 1848 1847 1846 1845 1844 1843 1842 1841
1840 1839 1838 1837 1836 1835 1834 1833 1832 1831 1830 1829 1828
1827 1826 1825 1824 1823 1822 1821 1820 1819 1818 1817 1816 1815
1814 1813 1812 1811 Items per page 6 12 Label A View of Vigorous
Growth: Williston, North Dakota December 17, 2025 A View of Vigorous
Growth: Williston, North Dakota When we think of growth across the
United States, we tend to think of medium or large cities with suburbs that
expand into the surrounding area, such... Read Article Landsat at Work:
Preparing Residents Where Hurricanes Threaten August 26, 2025 Landsat
at Work: Preparing Residents Where Hurricanes Threaten Landsat satel-
lites can capture the image of a hurricane if they happen to be passing over
at the right time, but they also help property owners and... Read Article
Watching the 'Wood Basket' of the U.S. August 13, 2025 Watching the
'Wood Basket' of the U.S. The southeastern United States is an important

wood-producing region of the world, sometimes referred to as the wood basket. The state of Georgia is a... Read Article Annual NLCD's Insights Rely on Long Landsat Record August 11, 2025 Annual NLCD's Insights Rely on Long Landsat Record Sometimes it takes distance to really see something. Take the Earth observing Landsat satellites. They're orbiting 438 miles above us, but they... Read Article New Reference and Validation Data Available for Annual NLCD July 28, 2025 New Reference and Validation Data Available for Annual NLCD The U.S. Geological Survey (USGS) has released the reference and validation data for Annual National Land Cover Database (NLCD) Conterminous U.S. (CU)... Read Article Plenty of Water in Prairie Potholes July 10, 2025 Plenty of Water in Prairie Potholes The landscape of the Prairie Pothole Region of North and South Dakota formed when glaciers from the last ice age receded. The potholes are shallow... Read Article Annual NLCD Lengthens Land Cover Record to 40 Years June 25, 2025 Annual NLCD Lengthens Land Cover Record to 40 Years The U.S. Geological Survey (USGS) Earth Resources Observation and Science (EROS) Center and the National Land Cover Database (NLCD) project are... Read Article Landsat at Work: Energy Nurturing Nature June 16, 2025 Landsat at Work: Energy Nurturing Nature The more land managers know about the land they manage, the better decisions they can make. This applies to everyone from farmers and ranchers to... Read Article When Crops Take a Break June 4, 2025 When Crops Take a Break Agricultural crops are grown on nearly 16% of the land across the lower 48 states. Thanks to the Landsat Satellite Program and the

U.S. Geological... Read Article Landsat at Work: A Path to Better Wireless Communication April 29, 2025 Landsat at Work: A Path to Better Wireless Communication Landsat's mission isn't communications, but its data is helping shape the networks we rely on every day. Imagine the task of designing clear paths for... Read Article NLCD: Landscape Info Supporting our Safety and Economic Well-being March 6, 2025 NLCD: Landscape Info Supporting our Safety and Economic Well-being Hurricane flooding. City planning. A new natural gas pipeline. Preparing for future events—whether sudden or expected—requires high-quality data to... Read Article Annual NLCD Assessment: Phosphate Mining and Land Cover Change December 12, 2024 Annual NLCD Assessment: Phosphate Mining and Land Cover Change Populations around the world are increasing (US Census Bureau, 2023). As agriculture tries to keep up with feeding this growing population, the use of... Read Article Related Science Learn more about Annual NLCD. September 26, 2024 Annual National Land Cover Database Land cover is foundational information for land managers, scientists, and the general public. Many types of scientific studies have applied annual land cover information including projecting future land use, documenting forest fragmentation or conservation practices, modeling wildfire hazards, tracking water quality and quantity, and understanding change in wildlife habitat and ecosystem... By Earth Resources Observation and Science (EROS) Center Annual National Land Cover Database September 26, 2024 Annual National Land Cover Database Land cover is foundational information for land managers, scientists,

and the general public. Many types of scientific studies have applied annual land cover information including projecting future land use, documenting forest fragmentation or conservation practices, modeling wildfire hazards, tracking water quality and quantity, and understanding change in wildlife habitat and ecosystem... Learn More

Items per page 6

12 Label July 16, 2025 Annual National Land Cover Database Frequently Asked Questions This page lists commonly asked questions (FAQs) pertaining to Annual National Land Cover Database (NLCD). By Earth Resources Observation and Science (EROS) Center Annual National Land Cover Database Frequently Asked Questions July 16, 2025 Annual National Land Cover Database Frequently Asked Questions This page lists commonly asked questions (FAQs) pertaining to Annual National Land Cover Database (NLCD). Learn More March 3, 2025 Eyes on Earth Episode 131 – Using AI in Geospatial Work Artificial intelligence (AI) is helping to make EROS data products better and more efficient. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center , Landsat Missions Eyes on Earth Episode 131 – Using AI in Geospatial Work March 3, 2025 Eyes on Earth Episode 131 – Using AI in Geospatial Work Artificial intelligence (AI) is helping to make EROS data products better and more efficient. Learn More January 6, 2025 Eyes on Earth Episode 130 – NLCD Accuracy Providing accuracy metrics for a land cover map takes some work. But there’s poetry and story involved, too. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources

Observation and Science (EROS) Center , Landsat Missions Eyes on Earth Episode 130 – NLCD Accuracy January 6, 2025 Eyes on Earth Episode 130 – NLCD Accuracy Providing accuracy metrics for a land cover map takes some work. But there’s poetry and story involved, too. Learn More October 28, 2024 Eyes on Earth Episode 126 – Annual NLCD The next generation of USGS land cover mapping is here. Annual NLCD provides land cover data of the U.S. every year back to 1985. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center , Landsat Missions , Land Change Monitoring, Assessment, and Projection , Land Use Land Cover Modeling Eyes on Earth Episode 126 – Annual NLCD October 28, 2024 Eyes on Earth Episode 126 – Annual NLCD The next generation of USGS land cover mapping is here. Annual NLCD provides land cover data of the U.S. every year back to 1985. Learn More Data Browse Annual NLCD data. October 24, 2024 Annual National Land Cover Database (NLCD) Collection 1 Products (ver. 1.2, June 2026) Annual National Land Cover Database (NLCD) Collection 1 Products (ver. 1.2, June 2026) The U.S. Geological Survey (USGS)’s Land Cover program has leveraged methodologies from legacy land cover projects - National Land Cover Database (NLCD) and Land Change Monitoring, Assessment, and Projection (LCMAP) - together with modern innovations in geospatial deep learning technologies to create the next generation of land cover and land change information. The product suite is... By Earth Resources Observation and Science (EROS) Center Items per page 6 12 Label July 25, 2025 Annual

National Land Cover Database (NLCD) Collection 1.0 Validation Tables
Annual National Land Cover Database (NLCD) Collection 1.0 Validation
Tables A validation assessment of Annual National Land Cover Dataset
(NLCD) CONUS Collection 1.0 annual land cover products (1985–2023)
for the Conterminous United States (CONUS) was conducted with an in-
dependently collected reference dataset. Reference data land cover
attributes were assigned by trained interpreters for each year of the time
series (1984–2023) to a reference sample of 8,360... By Earth Resources
Observation and Science (EROS) Center July 25, 2025 Annual National
Land Cover Database (NLCD) Collection 1.0 Reference Data Product
Annual National Land Cover Database (NLCD) Collection 1.0 Reference
Data Product This Annual NLCD Reference Data Product includes the
collection of an independent dataset of 8,360 30-meter by 30-meter
samples across the Conterminous United States (CONUS). The Annual
NLCD Collection 1 sample design was developed as a two-phase collec-
tion by a team of image interpreters as follows: an initial base sample
containing 5,000 sample plots chosen purely by simple random... By Earth
Resources Observation and Science (EROS) Center March 4, 2025 Pre-
liminary Land Cover Data Collected for Protocol and Process Develop-
ment related to Annual NLCD Preliminary Land Cover Data Collected for
Protocol and Process Development related to Annual NLCD Data collec-
ted to facilitate research and development activities pertaining to Annual
NLCD algorithm development used as a benchmark for algorithm im-
provement iterations. The primary goal of these preliminary data was to

offer preliminary insight into algorithm performance and guidance for algorithm improvement through error analysis. By Earth Resources Observation and Science (EROS) Center Multimedia View or listen to additional Annual NLCD resources. October 24, 2024 The New Annual (1985-2023) National Land Cover Database: Improving on a 30-Year Legacy This video is a recording of a previous webinar entitled: “The New Annual (1985-2023) National Land Cover Database: Improving on a 30-year Legacy.” This webinar was recorded on October 24, 2024 at the USGS EROS. The United States Geological Survey (USGS) Earth Resources Observation and Science (EROS) Center maintains one of the largest civilian collection of images of the Earth’s land surface. At... By Core Science Systems Mission Area , Earth Resources Observation and Science (EROS) Center Label List Grid A slide with a title, a small amount of text and a bar chart next to it MRLC Enhanced Visualization and Analysis (EVA) Tool Demo January 20, 2026 MRLC Enhanced Visualization and Analysis (EVA) Tool Demo MRLC Enhanced Visualization and Analysis (EVA) Tool Demo MRLC Enhanced Visualization and Analysis (EVA) Tool Demo This video is a demonstration of the EVA Tool. It was conducted during the January 20, 2026 webinar. To watch the full webinar please visit: <https://www.usgs.gov/media/videos/visualizing-land-cover-mrlc-tools> . By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center January 20, 2026 MRLC Enhanced Visualization and Analysis (EVA) Tool Demo MRLC Enhanced Visualization and Analysis (EVA)

Tool Demo MRLC Enhanced Visualization and Analysis (EVA) Tool Demo MRLC Enhanced Visualization and Analysis (EVA) Tool Demo This video is a demonstration of the EVA Tool. It was conducted during the January 20, 2026 webinar. To watch the full webinar please visit: <https://www.usgs.gov/media/videos/visualizing-land-cover-mrlc-tools> . By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center A slide with a title, a small amount of text and a map of the United States next to it MRLC National Land Cover Database (NLCD) Viewer Tool Demo January 20, 2026 MRLC National Land Cover Database (NLCD) Viewer Tool Demo MRLC National Land Cover Database (NLCD) Viewer Tool Demo MRLC National Land Cover Database (NLCD) Viewer Tool Demo This video is a demonstration of the MRLC National Land Cover Database (NLCD) Viewer tool. It was conducted during the January 20, 2026 webinar. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center January 20, 2026 MRLC National Land Cover Database (NLCD) Viewer Tool Demo MRLC National Land Cover Database (NLCD) Viewer Tool Demo MRLC National Land Cover Database (NLCD) Viewer Tool Demo MRLC National Land Cover Database (NLCD) Viewer Tool Demo This video is a demonstration of the MRLC National Land Cover Database (NLCD) Viewer tool. It was conducted during the January 20, 2026 webinar. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center

Thumbnail image for a video titled "Visualizing Land Cover with MRLC Tools" Visualizing Land Cover with MRLC Tools January 20, 2026 Visualizing Land Cover with MRLC Tools Visualizing Land Cover with MRLC Tools Visualizing Land Cover with MRLC Tools This video is a recording of a previous webinar entitled: "Visualizing Land Cover with MRLC Tools". This webinar was recorded on January 20, 2026. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center January 20, 2026 Visualizing Land Cover with MRLC Tools Visualizing Land Cover with MRLC Tools Visualizing Land Cover with MRLC Tools Visualizing Land Cover with MRLC Tools Visualizing Land Cover with MRLC Tools This video is a recording of a previous webinar entitled: "Visualizing Land Cover with MRLC Tools". This webinar was recorded on January 20, 2026. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States November 25, 2025 Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States This map, produced with Annual National Land Cover Database (NLCD) Collection 1.1 data from 1985 to 2024, shows the growth in urban areas (development) across the United States. Various colors represent the year that new growth occurred in a particular spot. By Earth Resources Observation and Science (EROS)

Center November 25, 2025 Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States Annual NLCD showing growth in urban areas across the United States This map, produced with Annual National Land Cover Database (NLCD) Collection 1.1 data from 1985 to 2024, shows the growth in urban areas (development) across the United States. Various colors represent the year that new growth occurred in a particular spot. By Earth Resources Observation and Science (EROS) Center Thumbnail image for EoE Episode 131 – Using AI in Geospatial Work Thumbnail image for EoE Episode 131 – Using AI in Geospatial Work Eyes on Earth Episode 131 – Using AI in Geospatial Work Eyes on Earth Episode 131 – Using AI in Geospatial Work Thumbnail image for EoE Episode 131 – Using AI in Geospatial Work Thumbnail image for EoE Episode 131 – Using AI in Geospatial Work March 3, 2025 Eyes on Earth Episode 131 – Using AI in Geospatial Work Eyes on Earth Episode 131 – Using AI in Geospatial Work Eyes on Earth Episode 131 – Using AI in Geospatial Work Eyes on Earth tackles artificial intelligence (AI) in a 2-part episode. AI is quickly becoming a necessary part of geospatial work at EROS, helping us efficiently do science to better manage our world. In Part 1, EROS Director Pete Doucette discusses AI and its current and upcoming impact on our work at EROS. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center , Landsat Missions Thumbnail image for EoE

Episode 131 – Using AI in Geospatial Work Thumbnail image for EoE
Episode 131 – Using AI in Geospatial Work March 3, 2025 Eyes on Earth
Episode 131 – Using AI in Geospatial Work Eyes on Earth Episode 131 –
Using AI in Geospatial Work Eyes on Earth Episode 131 – Using AI in
Geospatial Work Eyes on Earth Episode 131 – Using AI in Geospatial
Work Eyes on Earth tackles artificial intelligence (AI) in a 2-part episode.
AI is quickly becoming a necessary part of geospatial work at EROS,
helping us efficiently do science to better manage our world. In Part 1,
EROS Director Pete Doucette discusses AI and its current and upcoming
impact on our work at EROS. By Core Science Systems Mission Area ,
National Land Imaging Program , Earth Resources Observation and
Science (EROS) Center , Landsat Missions Debut of the Annual National
Land Cover Database (NLCD) Debut of the Annual National Land Cover
Database (NLCD) January 15, 2025 Debut of the Annual National Land
Cover Database (NLCD) Debut of the Annual National Land Cover Data-
base (NLCD) Debut of the Annual National Land Cover Database
(NLCD) Poster introducing the 2023 Annual National Land Cover Data-
base (NLCD). "Development and Cloud Implementation of the New
Annual NLCD for the United States." Created by USGS Earth Resources
Observation and Science (EROS) Center. Find full PDF here. By Earth
Resources Observation and Science (EROS) Center January 15, 2025
Debut of the Annual National Land Cover Database (NLCD) Debut of the
Annual National Land Cover Database (NLCD) Debut of the Annual Na-
tional Land Cover Database (NLCD) Debut of the Annual National Land

Cover Database (NLCD) Poster introducing the 2023 Annual National Land Cover Database (NLCD). "Development and Cloud Implementation of the New Annual NLCD for the United States." Created by USGS Earth Resources Observation and Science (EROS) Center. Find full PDF here. By Earth Resources Observation and Science (EROS) Center Thumbnail image for EoE Episode 130 – NLCD Accuracy Thumbnail image for EoE Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Thumbnail image for EoE Episode 130 – NLCD Accuracy January 6, 2025 Eyes on Earth Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Every pixel has a story. At least that's how land remote sensing scientist Jo Horton sees it. The new Annual National Land Cover Database (NLCD) was just released in October 2024. NLCD is widely used for land cover and change research in the U.S. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center , Landsat Missions Thumbnail image for EoE Episode 130 – NLCD Accuracy Thumbnail image for EoE Episode 130 – NLCD Accuracy January 6, 2025 Eyes on Earth Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Eyes on Earth Episode 130 – NLCD Accuracy Every pixel has a story. At least that's how land remote sensing scientist Jo Horton sees it. The new Annual National Land Cover Database (NLCD) was just released in

October 2024. NLCD is widely used for land cover and change research in the U.S. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center , Landsat Missions Thumbnail image for EoE Episode 126 – Annual NLCD Thumbnail image for EoE Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD Thumbnail image for EoE Episode 126 – Annual NLCD Thumbnail image for EoE Episode 126 – Annual NLCD October 28, 2024 Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD In this episode of Eyes on Earth, we talk about the latest release of the National Land Cover Database (NLCD). More than just a map, NLCD is a stack of maps—a database. It has long been the foundational land cover source for scientists, resource managers, and decision-makers across the United States, and now the next generation of USGS land cover mapping is here. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center Thumbnail image for EoE Episode 126 – Annual NLCD Thumbnail image for EoE Episode 126 – Annual NLCD October 28, 2024 Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD Eyes on Earth Episode 126 – Annual NLCD In this episode of Eyes on Earth, we talk about the latest release of the National Land Cover Database (NLCD). More than just a map, NLCD is a stack of maps—a database. It has long been the foundational land cover source for

scientists, resource managers, and decision-makers across the United States, and now the next generation of USGS land cover mapping is here. By Core Science Systems Mission Area , National Land Imaging Program , Earth Resources Observation and Science (EROS) Center Publications Look at Annual NLCD-related publications. January 17, 2025 Annual NLCD (National Land Cover Database)—The next generation of land cover mapping Annual NLCD (National Land Cover Database)—The next generation of land cover mapping Introduction The widely used National Land Cover Database (NLCD) has long been the foundational land cover source for scientists, resource managers, and decision makers across the United States. In 2024, a reinvention as Annual NLCD added the key improvement of annual time steps to show decades of change at a higher frequency than the intervals of 2–3 years used in the legacy NLCD... By Earth Resources Observation and Science (EROS) Center Items per page 6 12 Label March 5, 2026 A framework for integrating spatiotemporal deep learning methods with landsat for annual land cover and impervious surface mapping A framework for integrating spatiotemporal deep learning methods with landsat for annual land cover and impervious surface mapping Land cover information is essential for understanding Earth’s surface dynamics and how vegetation, water, soil, climate, and terrain interact. The National Land Cover Database (NLCD) has been the authoritative source for consistent U.S. land cover mapping. To extend NLCD’s temporal resolution and reduce production latency, we developed the Land Cover Artificial Mapping System (LCAMS)—a...

Authors Rylie Fleckenstein, Danika Fay Wellington, Suming Jin, Heather J. Tollerud, Jesslyn F. Brown, Jon Dewitz, Neal J. Pastick, Christopher P. Barber, Austin O'Brien, Mark Spanier
By Earth Resources Observation and Science (EROS) Center October 1, 2025
Thirty years of the U.S. National Land Cover Database: Impacts and future direction
Thirty years of the U.S. National Land Cover Database: Impacts and future direction
The National Land Cover Database (NLCD), developed through the Multi-Resolution Land Characteristics Consortium, was initiated 30 years ago and has continually provided critical, Landsat-based landcover and land-change information for the United States. Originally launched to address the lack of national-scale, moderate-resolution land-cover data, NLCD has evolved from the pioneering...
Authors Terry L. Sohl, Suming Jin, Jon Dewitz, James Wickham, Jesslyn F. Brown, Stephen Stehman, Nathaniel Herold, Karen Schleeweis, Heather J. Tollerud, Carol Deering
By Earth Resources Observation and Science (EROS) Center January 14, 2025
An interagency perspective on improving consistency and transparency of land use and land cover mapping
An interagency perspective on improving consistency and transparency of land use and land cover mapping
Executive Summary
Geospatial products of land use and land cover are broadly used in many applications. For example, the annual national greenhouse gas inventory uses the National Land Cover Database, the Coastal Change Analysis Program, Landscape Fire and Resource Management Planning Tools, the Forest Inventory and Analysis, and the National Resources Inventory to represent the land use...
Authors Terry

Sohl, Karen Schleeweis, Nate Herold, Megan Lang, Inga P. La Puma, James Wickham, Rick Mueller, Matthew Rigge, Jon Dewitz, Jesslyn F. Brown, Jeffrey Ingebritsen, James Ellenwood, Ellen Wengert, Jordan Rowe, Patrick Flanagan, Emily Kachergis, Iris Garthwaite, Zhuoting Wu

By National Land Imaging Program , Earth Resources Observation and Science (EROS) Center News News items related to Annual NLCD. Filter

Total Items: 15 Content type Type News Newsletter Release Date (field_release_date) Year 2026 2025 2024 2023 2022 2021 2020 2019 2018 2017 2016 2015 2014 2013 2012 2011 2010 2009 2008 2007 2006 2005 2004 2003 2002 2001 2000 1999 1998 1997 1996 1995 1994 1993 1992 1991 1990 1989 1988 1987 1986 1985 1984 1983 1982 1981 1980 1979 1978 1977 1976 1975 1974 1973 1972 1971 1970 1969 1968 1967 1966 1965 1964 1963 1962 1961 1960 1959 1958 1957 1956 1955 1954 1953 1952 1951 1950 1949 1948 1947 1946 1945 1944 1943 1942 1941 1940 1939 1938 1937 1936 1935 1934 1933 1932 1931 1930 1929 1928 1927 1926 1925 1924 1923 1922 1921 1920 1919 1918 1917 1916 1915 1914 1913 1912 1911 1910 1909 1908 1907 1906 1905 1904 1903 1902 1901 1900 1899 1898 1897 1896 1895 1894 1893 1892 1891 1890 1889 1888 1887 1886 1885 1884 1883 1882 1881 1880 1879 1878 1877 1876 1875 1874 1873 1872 1871 1870 1869 1868 1867 1866 1865 1864 1863 1862 1861 1860 1859 1858 1857 1856 1855 1854 1853 1852 1851 1850 1849 1848 1847 1846 1845 1844 1843 1842 1841 1840 1839 1838 1837 1836 1835 1834 1833 1832 1831 1830 1829 1828 1827 1826 1825 1824 1823 1822 1821 1820 1819 1818 1817 1816 1815 1814 1813 1812 1811

Items per page 6 12 Label A View of Vigorous Growth: Williston, North Dakota December 17, 2025 A View of Vigorous Growth: Williston, North Dakota When we think of growth across the United States, we tend to think of medium or large cities with suburbs that expand into the surrounding area, such... Read Article Landsat at Work: Preparing Residents Where Hurricanes Threaten August 26, 2025 Landsat at Work: Preparing Residents Where Hurricanes Threaten Landsat satellites can capture the image of a hurricane if they happen to be passing over at the right time, but they also help property owners and... Read Article Watching the 'Wood Basket' of the U.S. August 13, 2025 Watching the 'Wood Basket' of the U.S. The southeastern United States is an important wood-producing region of the world, sometimes referred to as the wood basket. The state of Georgia is a... Read Article Annual NLCD's Insights Rely on Long Landsat Record August 11, 2025 Annual NLCD's Insights Rely on Long Landsat Record Sometimes it takes distance to really see something. Take the Earth observing Landsat satellites. They're orbiting 438 miles above us, but they... Read Article New Reference and Validation Data Available for Annual NLCD July 28, 2025 New Reference and Validation Data Available for Annual NLCD The U.S. Geological Survey (USGS) has released the reference and validation data for Annual National Land Cover Database (NLCD) Conterminous U.S. (CU)... Read Article Plenty of Water in Prairie Potholes July 10, 2025 Plenty of Water in Prairie Potholes The landscape of the Prairie Pothole Region of North and South Dakota formed when glaciers from the last ice age receded. The potholes

are shallow... Read Article Annual NLCD Lengthens Land Cover Record to 40 Years June 25, 2025 Annual NLCD Lengthens Land Cover Record to 40 Years The U.S. Geological Survey (USGS) Earth Resources Observation and Science (EROS) Center and the National Land Cover Database (NLCD) project are... Read Article Landsat at Work: Energy Nurturing Nature June 16, 2025 Landsat at Work: Energy Nurturing Nature The more land managers know about the land they manage, the better decisions they can make. This applies to everyone from farmers and ranchers to... Read Article When Crops Take a Break June 4, 2025 When Crops Take a Break Agricultural crops are grown on nearly 16% of the land across the lower 48 states. Thanks to the Landsat Satellite Program and the U.S. Geological... Read Article Landsat at Work: A Path to Better Wireless Communication April 29, 2025 Landsat at Work: A Path to Better Wireless Communication Landsat's mission isn't communications, but its data is helping shape the networks we rely on every day. Imagine the task of designing clear paths for... Read Article NLCD: Landscape Info Supporting our Safety and Economic Well-being March 6, 2025 NLCD: Landscape Info Supporting our Safety and Economic Well-being Hurricane flooding. City planning. A new natural gas pipeline. Preparing for future events—whether sudden or expected—requires high-quality data to... Read Article Annual NLCD Assessment: Phosphate Mining and Land Cover Change December 12, 2024 Annual NLCD Assessment: Phosphate Mining and Land Cover Change Populations around the world are increas-

ing (US Census Bureau, 2023). As agriculture tries to keep up with feeding this growing population, the use of... [Read Article](#)

Technology & Innovation

Brookhaven Lab, Amazon Web Services Partner to Connect AI Data Centers

Brookhaven Lab, Amazon Web Services Partner to Connect AI Data Centers Collaboration aims to accelerate electric grid interconnection of AI data centers in support of the Genesis Mission June 30, 2026 enlarge Chief AI Scientist for Innovation, Science, and Security Hendrik Hamann demos GridSearch at Brookhaven Lab. The software can help accelerate the connection of AI data centers, energy production facilities, and advanced manufacturing plants to the electric grid. (Brookhaven National Laboratory/Tim Kuhn) UPTON, N.Y. and WASHINGTON, D.C. — The U.S. Department of Energy’s (DOE) Brookhaven National Laboratory and Amazon Web Services (AWS) today announced a partnership that will leverage AWS' advanced cloud computing infrastructure and artificial intelligence (AI) capabilities to accelerate the development of Brookhaven Lab’s GridSearch project. GridSearch is an innovative AI-driven solution designed to transform how new generation facilities connect to America's electric grid. The partnership was announced today during the AWS Summit Washington, D.C. “This partnership will demonstrate the power of public-private collaboration in support of DOE’s Genesis Mission , a national initiative to build the world's most powerful scientific platform to accelerate discovery science, strengthen national security, and drive energy innovation,” said Brookhaven Lab Director John Hill. “GridSearch

is a great example of how we can apply Genesis Mission capabilities to real-world applications, helping the nation to achieve AI leadership and energy dominance.” GridSearch uses a Grid Foundation Model (GridFM) developed as an open-source project under the Linux Foundation Energy, with major contributions from organizations including IBM Research, Hydro Quebec, Brookhaven National Laboratory, Stony Brook University, Argonne National Laboratory, and others. GridFM is an AI system that enables significantly faster grid simulations while maintaining accuracy and robustness. “GridSearch is an excellent example for AI enabling AI — what we call ‘AI4AI,’” said Hendrik Hamann, chief AI scientist for Innovation, Science, and Security at Brookhaven National Laboratory and joint appointee at Stony Brook University. “It aims to provide critical decision support to stakeholders and help them accelerate the data center interconnection process with optimal affordability and minimal disruption to the electric grid.” Traditional methods of simulating the electric grid can take months — GridSearch takes minutes. Brookhaven Lab is developing GridSearch as part of the Genesis Mission, a flagship initiative led by the U.S. Department of Energy to dramatically accelerate American scientific discovery, strengthen U.S. economic leadership, and enhance national security through AI. (Brookhaven National Laboratory/Tim Kuhn) This breakthrough technology will help address a critical national challenge: the lengthy and costly process of connecting new infrastructure to the electrical grid. This includes AI data centers, energy production facilities, and advanced manufacturing plants. Traditional interconnection studies

can take years and require extensive infrastructure investments. GridSearch changes this paradigm by prescreening thousands of potential interconnection locations to identify optimal connection points with minimal grid impact. "AWS is deeply aligned with DOE's Genesis Mission to build the world's most powerful scientific platform, and GridSearch is exactly the kind of AI-driven innovation that brings that mission to life," said Christian Hoff, Director of Global Civilian Government at AWS. "Our collaboration with Brookhaven National Laboratory reflects AWS's commitment to advancing American AI leadership by putting cutting-edge cloud and AI capabilities in service of the nation's most critical energy and security challenges. Together, we're demonstrating how public-private collaboration can accelerate discovery, strengthen national security, and ensure the United States leads the world in AI." Through this collaboration, AWS will provide the computational infrastructure and AI expertise necessary to scale GridSearch across major transmission grids nationwide. By reducing interconnection timelines from years to months and enabling data-driven infrastructure planning, this initiative directly supports national priorities in energy security, economic development, and technological leadership. It also exemplifies how collaboration can help accelerate America's energy infrastructure modernization while supporting the Genesis Mission's goal of doubling U.S. research productivity through AI-accelerated innovation. "Grid interconnection has long been one of the greatest opportunities for unlocking America's energy potential — from new data centers to

advanced energy projects," said Joseph Santamaria, General Manager, Energy & Utilities at AWS. "AWS is committed to modernizing the grid, and cloud and AI are powerful enablers that help energy companies accelerate that process, raise productivity, and reduce operating costs. This is the kind of work AWS was built to do across the entire energy industry." This announcement builds on the recently executed Memorandum of Understanding between DOE and AWS, which establishes a framework for advancing artificial intelligence and advanced computing initiatives across the DOE complex and its 17 national laboratories. GridFM is supported by DOE's Office of Critical Minerals and Energy Innovation. Brookhaven National Laboratory is supported by the Office of Science of the U.S. Department of Energy. The Office of Science is the single largest supporter of basic research in the physical sciences in the United States and is working to address some of the most pressing challenges of our time. For more information, visit science.energy.gov . Follow @BrookhavenLab on social media. Find us on Instagram , LinkedIn , X , and Facebook . Tags: artificial intelligence computing partnerships

2026-23017 | INT/EXT | Newsroom

NASA's Chandra Reveals 'Red, White, Blue' Universe for US 250th

7 Min Read NASA's Chandra Reveals 'Red, White, Blue' Universe for US 250th In celebration of the 250th birthday of the United States, NASA has unveiled four cosmic images from its Chandra X-ray Observatory rendered in red, white, and blue that represent the wonders of the universe the agency explores. The images are accompanied by a trio of new sonifications – a technique that translates astronomical data into sounds. In celebration of the 250th birthday of the United States, NASA's Chandra X-ray Observatory has unveiled four cosmic images rendered in red, white, and blue that represent the wonders of the universe that NASA explores. NASA/CXC/SAO The image set begins with Cassiopeia A in the top panel, where X-rays from Chandra (represented in blue and purple) have been combined with an infrared image from NASA's James Webb Space Telescope (red and white). Chandra's X-ray vision reveals the blast wave that tore through the star, as well as elements in the debris field like iron, calcium, and oxygen. Webb's infrared data also shows the expanding shell of material from the explosion and cosmic dust throughout the remnant. In the bottom row, the first image on the left is the nebula NGC 3603, which contains a massive cluster of stars and is located in the Milky Way Galaxy. This new composite image contains Chandra's X-ray data (red and white) and shows diffuse emissions near the galaxy's center along with point-like X-ray sources throughout the middle of the image. Optical, infrared, and

ultraviolet light from NASA's Hubble Space Telescope (red-orange, green, blue, and yellow) reveal stars in the center of the image and dust and gas toward the bottom. The combined layering of the colors makes this nebula and the stars forming within it appear primarily red, white, and blue, with X-rays showing the sparkling lights of young stars. The middle panel of the bottom row is a new look at the galaxy NGC 4736, also known as Messier 94. In this image, X-rays of different wavelengths from Chandra (red, orange, and blue) are layered with a visible light image from astro-photographers using their telescopes on the ground (red, green, and blue). Messier 94 is a spiral galaxy with a bright inner ring around it, called a starburst ring, where new stars are forming, perhaps fueled by gas driven in the unique oval-shaped structure seen here. The final image in this red, white, and blue quartet features ZwCl 0024+1652. This is a distant galaxy cluster in which astronomers have found evidence for dark matter by using specially processed data from Hubble (blue). Another image from Hubble reveals the individual galaxies in the cluster (appearing as yellow and white). X-ray data from Chandra shows the enormous reservoir of super-heated gas that pervades this galaxy cluster (red) with much more mass than all the galaxies taken together. New sonifications of the three images along the bottom row of this mosaic are also available, allowing listeners to experience data through sound. The translation of NGC 3603 into sound begins with a left to right scan, where the brightnesses of the sources once again dictate volume. Chandra's observations of compact sources sprinkled throughout the galaxy are heard as piano notes, while the diffuse

X-ray emission is mapped to a range of audio frequencies. The Hubble optical data is played as sustained tones and acoustic guitar harmonics. In the sonification of NGC 4736, the radar-like scan moves clockwise, and the brightness of the sources dictates the volume of the sounds. X-rays from Chandra have been turned into wind-like sounds that follow the shape of the X-ray emission. Neutron stars and stellar-mass black holes (known as “compact sources”) detected by Chandra are mapped to pitched tones on a glass marimba. Optical data from ground-based observations is mapped to musically pitched tones, creating a low drone, while stars and background galaxies are heard as a soft piano. For ZwCl 0024+1652, the sonification begins as a circle on the outside of the image and moves inward. The volume is linked to the brightness of the data, reaching one peak as the circle passes over the dark matter detected by inference from Hubble optical observations and another as it reaches the core. The background stars are heard as a swelling glockenspiel-like sound, and the galaxies are played on a piano. Chandra’s X-rays, which dominate the center of the galaxy cluster and reveal superheated gas, are represented by airy synthesizer notes. The sonification program is led by the Chandra X-ray Center (CXC) and included as part of NASA’s Universe of Learning program. The collaboration was driven by visualization scientist Kimberly Arcand, (CXC), Matt Russo, astrophysicist; and Andrew Santaguida, musician, SYSTEM Sounds project; along with Christine Malec, consultant. Previously released sonifications of data from Cassiopeia A can be found at chandra.si.edu/sound . NASA’s Marshall Space Flight Center in

Huntsville, Alabama, manages the Chandra program. The Smithsonian Astrophysical Observatory's Chandra X-ray Center controls science operations from Cambridge, Massachusetts, and flight operations from Burlington, Massachusetts. To learn more about NASA's Chandra mission, visit: <https://nasa.gov/chandra> Visual Description In celebration of the 250th birthday of the United States, this release includes a series of images featuring four wonders of the universe, rendered in red, white, and blue. The images contain X-ray data from the Chandra X-ray Observatory, optical and infrared data from the Hubble Space Telescope and the James Webb Space Telescope, as well as ground-based telescopes. The main image set features composite images of the four individual objects; Cassiopeia A, NGC 3603, M94/NGC 4736, and ZwCl 0024+1652. Cassiopeia A occupies the top panel of the frame, significantly larger than the other images in the set. The cloudy blast-wave of the supernova remnant is ring-like in shape, streaked with veins of iron, calcium, and oxygen. Here, presented in red, white, and blue, the remnant resembles an electrified donut, crackling with marbled veins of strawberry and blueberry icing. At our lower left of the image set is the nebula NCG 3603, which contains a massive cluster of stars on the other side of the Milky Way galaxy. Here, a tight cluster of neon red and white stars packs the center of the image, dissipating as it reaches the outer edges of the panel. Sweeping in at the lower corners of the image are hazy blue clouds resembling sheets of gauze. Centered at the bottom of the image set is the galaxy NGC 4736, also known as Messier 94 (M94). Here, the spiral galaxy is seen face on,

with concentric pale violet cloud rings flecked with scores of stars in white, pale blue, soft red, and golden yellow. The inner ring of the galaxy is bright, and rosy yellow in color. This is a starburst ring, where new stars are forming. At our bottom right of the image set is the distant galaxy cluster ZwCl 0024+1652. The image is packed with streaks and specks in golden yellow and brilliant white. Upon close inspection, each streak and speck is revealed to be an individual galaxy, some with discernible spiral shapes. At the center of the image is a round pool of bright red light, surrounded by royal blue haze. The red light represents X-ray observations by Chandra, which reveal an enormous reservoir of superheated gas pervading the cluster. The blue haze represents specially-processed data from Hubble, suggesting evidence of dark matter. This release also includes new sonifications of the three images presented in the bottom row of this data set, allowing listeners to experience the data through sound. Read more from NASA's Chandra X-ray Observatory News Media Contact Megan Watzke Chandra X-ray Center Cambridge, Mass. 617-496-7998 mwatzke@cfa.harvard.edu Joel Wallace Marshall Space Flight Center, Huntsville, Alabama 256-544-0034 joel.w.wallace@nasa.gov Share Details Last Updated Jun 30, 2026 Editor Lee Mohon Contact Joel Wallace Location Marshall Space Flight Center Related Terms Chandra X-Ray Observatory Astrophysics Galaxies Galaxies, Stars, & Black Holes Galaxies, Stars, & Black Holes Research Marshall Astrophysics Marshall Space Flight Center Nebulae The Universe Explore More 5 min read NASA's Chandra Discovers Possible

Supernova Remnant in Galactic Center Article 3 weeks ago 1 min read
Pretty in Pink Saturn and its rings are prominently shown in this color
image, along with three of... Article 22 years ago Keep Exploring
Discover More Topics From NASA Chandra X-ray Observatory James
Webb Space Telescope Hubble Space Telescope Since its 1990 launch, the
Hubble Space Telescope has changed our fundamental understanding of
the universe. The Swift Spacecraft

Reintroductions and habitat restoration improve the odds for Houston toad

One Giant Leap for Toad-Kind Jun 30, 2026 Written By Image Mark Mahmud Image Jacob Ogdee On a sprinkling morning in April, U.S. Fish and Wildlife Service biologists helped carry 170,000 eggs to the edge of a small pond. The eggs belong to the Houston toad, and the pond is one of three sites where the Service and other conservation partners are working to save the species by reintroducing three million eggs in 2026. The Houston toad, one of the first amphibians federally listed as endangered, is found only in Bastrop County, Texas. Luckily for this small, brown amphibian, the Service is working with local landowners; Texas Parks and Wildlife Department; Houston, Fort Worth, and Dallas Zoos; the Amphibian and Reptile Conservancy; and others to help secure its future. Houston Toad, We've Had a Problem After a Houston toad tadpole metamorphizes into a mature toad, it ventures up to three miles to burrow in deep, sandy, loblolly pine forest soil. Every year, it returns to the ponds to reproduce. Habitat loss disrupted this lifecycle, leading to its endangered listing. To make up for this, conservationists have been working with captive breeding populations to produce eggs for reintroduction. With an abundance of eggs in hand, a new problem emerged. Houston toad dispersal into forests and between ponds requires a clear understory. Dense bush species like yaupon holly and eastern red cedar, and the spread of

non-native, mat-forming grasses have divided large, continuous habitats into smaller, isolated fragments. These barriers can prohibit Houston toad dispersal, thereby reducing breeding opportunities with other populations and limiting genetic exchange. “Reintroducing eggs to suitable habitat that is in close proximity to other populations is very challenging,” said Hannah Gilbreath, a Service biologist with the Austin Ecological Services Field Office. “If we can get more eggs out on the landscape and create connectivity between populations, that would improve the species health and viability into the future.” Have Habitat, Will Travel Because the majority of known and potential toad habitat within Bastrop County exists on private property, partnership with landowners is essential. Landowners within the toad’s range are helping contribute to habitat connectivity, and the Service’s Partners for Fish and Wildlife (PFW) Program sits at the heart of this effort. The PFW Program provides free technical and financial assistance to landowners interested in improving wildlife habitat on their land. Typical Houston toad habitat restoration includes mechanical mulching of thickets to open the understory, followed by targeted herbicide treatment to control resprouting. These projects allow native bunchgrasses and forbs to return, creating an open understory that the toads can safely navigate. “We are deeply grateful to the dedicated private landowners and conservation partners who make Houston toad recovery possible,” said PFW Program Texas State Coordinator Cyndee Watson “Their commitment is helping this rare species reclaim its place on the landscape and ensuring it can be appreciated by future generations.”

Private landowners can also support recovery by enrolling into a cooperative agreement with the Texas Parks and Wildlife Department under their Programmatic Houston Toad Safe Harbor Agreement (SHA) with the Service. Safe Harbor Agreements (now called Conservation Benefit Agreements) help recover threatened and endangered species and protect private property rights. The Houston Toad SHA is a voluntary cooperative agreement that helps landowners meet their own land management goals while participating in conservation efforts through maintenance, restoration, or enhancement of habitats for the benefit of the toads and other species. This program is actively enrolling new cooperators and has enrolled 2,600 acres to date. Failure is Not an Option For two decades, Houston toad partnership efforts have produced over a million eggs a year for reintroduction to conserve this species and connect populations. In 2026 alone, three million eggs were reintroduced, including to a new site that increases the toad's presence in key areas for recovery. One of the objectives outlined in the Houston Toad Recovery Plan is to conserve enough suitable habitat for the Houston Toad to self-sustain its population. This can only happen when there is habitat connectivity between population centers. “Strengthening local relationships and restoring habitat is where we're focusing our efforts,” said Gilbreath. “More egg reintroductions and habitat restoration work are how we’re going to help this species recover.” Recently, a single male Houston toad was detected on private property where the PFW Program provided technical and financial assistance to restore habitat, showing how a small step in recovery efforts can

transform into a giant leap for the Houston toad. Image Details Story Tags
Amphibians Habitat restoration Written By Image Mark Mahmood Image
Jacob Ogdee Published Jun 30, 2026 Habitat Restoration Latest Stories
Get Involved Kootenai National Wildlife Refuge Seeks Public Comment
on Compatibility Determinations Jul 1, 2026 Temporary Closure of Gravel
Road Jun 30, 2026 Snapshot: Staff Come Together to Search for Human
History Before Restoration Groundbreaking Jun 29, 2026

Action! NSF–DOE Vera C. Rubin Observatory begins capturing the greatest cosmic movie ever made

The 10-year Legacy Survey of Space and Time has officially started, marking the beginning of a new era in astronomy and astrophysics. Subscribe to SLAC Breaking News Read this release on the Vera C. Rubin Observatory website . The wait is over: NSF–DOE Rubin Observatory, funded by the U.S. National Science Foundation and the U.S. Department of Energy’s Office of Science, is now capturing the cosmos in unprecedented detail, transforming the way we study the dynamic universe. From a mountaintop in Chile, under clear dark skies, NSF–DOE Vera C. Rubin Observatory has begun the revolutionary Legacy Survey of Space and Time (LSST). The 10-year survey is Rubin’s signature campaign to create the most comprehensive, cinematic record of the universe in history. Rubin Observatory is a U.S. government facility jointly operated by NSF NOIRLab and DOE’s SLAC National Accelerator Laboratory. NOIRLab is managed by the Association of Universities for Research in Astronomy (AURA). Over the next 10 years, Rubin will relentlessly observe the entire southern sky every few nights to create an ultra-wide, ultra-high-definition time-lapse record of our universe. This long-awaited milestone is the culmination of years of effort by thousands of people around the world. It follows the celebratory Rubin First Look event that took place in June 2025, which was followed by final commissioning work, an opera-

tional readiness review, and the beginning of the alert stream . We invite you to zoom in using the embedded SkyViewer and explore objects — from bright stars ranging from blue to red in color, to nearby blue spiral galaxies, to distant red galaxy groups — demonstrating the broad range of science made possible by Rubin data. Or go directly to Rubin’s SkyViewer

How Rubin Observatory Maps the Universe Every Night

This video breaks down how NSF–DOE Vera C. Rubin Observatory will conduct the Legacy Survey of Space and Time and build a 10-year time-lapse of the entire southern sky. “Today, we begin filming the greatest cosmic movie ever made,” said Brian Stone, performing the duties of the NSF director. “This moment reflects decades of vision, innovation, and the power of federal investment in science through the U.S. National Science Foundation and the Department of Energy. Every night, NSF–DOE Rubin Observatory will expand the frontiers of knowledge and strengthen America’s global leadership in science and innovation.” “With the launch of the 10-year Legacy Survey of Space and Time, NSF–DOE Rubin Observatory is opening a new window on the universe. It is embarking on a mission that will redefine modern cosmology and astrophysics,” said Darío Gil, under secretary for science at the U.S. Department of Energy. “With its world-class design and tools, Rubin Observatory will capture the dynamic nature of our cosmos and reveal unimagined insights into our universe’s biggest mysteries, from our own solar system to the very structure of the universe. By seeking to understand the enigmatic phenomena of dark energy and dark matter, we are not just observing the stars; we are striving to grasp

the fundamental laws that govern our existence.” “It is amazing and humbling to be here at this time and place as we start the Legacy Survey of Space and Time, after more than two decades of incredible work by our dedicated team,” said Bob Blum, director of Rubin Observatory at NSF NOIRLab. “Rubin Observatory is for everyone; the LSST will change how we do astronomy and astrophysics, allowing researchers anywhere to participate in cutting-edge science.” It’s taken 20 years of hard science, engineering, and more to get to the point where we can call ‘action’ as we start rolling on this blockbuster movie of the universe. Phil Marshall Deputy Director of Rubin Operations for SLAC “It’s taken 20 years of hard science, engineering, and more to get to the point where we can call ‘action’ as we start rolling on this blockbuster movie of the universe,” said Phil Marshall, deputy director of Rubin Operations for SLAC . “Millions of alerts in just the last couple of months show that Rubin is up and running as a discovery machine. Now we’re putting it all together.” “The decision to officially begin the LSST was made after a period of system optimization and a careful operational review of technical readiness, data system performance, and scientific validation,” said Željko Ivezić, head of LSST. Important factors that played a role in this decision included image quality, effective survey speed, system uptime and reliability, and calibration accuracy. Close A Week in the Life of NSF–DOE Rubin LSST How much sky can Rubin observe in a single week? This visualization shows a representative week of Rubin Observatory observations for the Legacy Survey of Space and Time. Observations are added in the order

taken, and displayed in the filter used for each exposure (u , g , r , i , z , and y). The day counter advances as the survey progresses, revealing how Rubin rapidly builds a multicolor map of the universe. (NSF–DOE Vera C. Rubin Observatory/NOIRLab/SLAC/AURA) NSF–DOE Vera C. Rubin Observatory/NOIRLab/SLAC/AURA Number of Slides Close The depth of NSF–DOE Rubin’s LSST NSF–DOE Rubin Observatory will revisit each area of sky about 800 times during the 10-year Legacy Survey of Space and Time. This animation shows how combining repeated observations builds a deeper, clearer picture, revealing objects too faint to see in a single exposure. NSF–DOE Vera C. Rubin Observatory/NOIRLab/SLAC/AURA Number of Slides Rubin Observatory’s unique design combines enormous light-collecting power, the ability to move rapidly across the sky, and a wide field of view. Its 3,200-megapixel camera — the largest digital camera in the world — is now capturing a new, detailed image approximately every 40 seconds. Operating with this speed and sensitivity, Rubin functions as a unified, well-tuned system capable of catching faint objects and fleeting events with remarkable reliability and consistency every night. Visit rubinobservatory.org to follow the status of the LSST in real time. Rubin is bringing the universe to life, illuminating a treasure trove of discoveries: pulsating stars, supernova explosions, the fossil record of galaxies, clues to the mysteries of dark energy and dark matter, and entirely new phenomena we’ve never seen before. Some cosmic processes unfold slowly, unpredictably, or incredibly rarely, which is why a 10-year survey is essential. By returning to each point in the sky about

800 times over a decade, Rubin data is providing the scientific community with deep, time-rich views needed to uncover subtle events, capture moving objects, and study the accelerating expansion of the universe. LSST Camera Read more about the SLAC-built camera Note One of the newly discovered asteroids is the fastest-spinning asteroid larger than 500 meters (0.3 miles) ever found, and it resides in the main asteroid belt. Not only is Rubin helping to unlock the mysteries of the distant universe, it is also the most powerful solar system discovery machine ever built. By taking about a thousand images every night, Rubin is compiling an astonishingly detailed census of our solar system, including millions of asteroids and comets. In just a month and a half, during early optimization surveys, Rubin discovered over 11,000 never-before-seen asteroids , including 33 near-Earth objects and 380 trans-Neptunian objects. Rubin will also advance opportunities for multi-messenger astronomy , which is the study of cosmic events using multiple signals such as light, gravitational waves, and cosmic rays. The observatory's rapid, color-rich observations of transients such as stellar explosions, actively feeding black holes, and collisions between compact objects will guide telescopes around the world to follow up on these fleeting events. Each night, Rubin is collecting approximately 10 terabytes of data and producing as many as seven million alerts of changes in the night sky. These alerts stream to alert brokers — automated systems that sort and classify these changes so scientists can act quickly. When the LSST is complete, the final dataset will contain billions of objects with trillions of measurements, all

accessible through regular data releases. This is the first time so much astronomical data will be available to so many people, opening the door to new kinds of discovery by both scientists and the public. Rubin invites anyone in the world to engage with its data and explore the dynamic universe in ways never before possible.

[Close Pan on NSF–DOE Rubin’s Ocean of Stars](#) This 1.7-gigapixel image of a field of stars in the constellation Lupus showcases the unprecedented view of the Universe that NSF–DOE Vera C. Rubin Observatory gives us. Equipped with the LSST Camera — the largest digital camera in the world — Rubin combines a wide view of the sky with the ability to detect extremely faint objects. With this capability, Rubin can reveal details of the cosmos across an enormous range of scales, from distant galaxies, to individual stars, to the wispy clouds of dust spread throughout our galaxy. The faint, glowing clouds spread across this image are galactic cirrus: clouds of interstellar gas and dust that can be seen in the foreground of the Milky Way. Rubin’s ability to capture scenes like this in unmatched detail will open new windows into the structure of our galaxy and the universe beyond it.

[NSF–DOE Vera C. Rubin Observatory/NOIRLab/SLAC/AURA Number of Slides](#) [Close NSF–DOE Vera C. Rubin Observatory by the numbers](#) This infographic showcases the numbers behind NSF–DOE Rubin Observatory’s Legacy Survey of Space and Time — a major new exploration of the night sky that will transform our understanding of the universe.

[NSF–DOE Vera C. Rubin Observatory/NOIRLab/SLAC/AURA Download Number of Slides](#) [Close NSF–DOE Rubin’s Legacy Survey of Space and Time](#)

This infographic gives an overview of NSF–DOE Rubin Observatory’s Legacy Survey of Space and Time — a major new exploration of the night sky that will transform our understanding of the universe. NSF–DOE Vera C. Rubin Observatory/NOIRLab/SLAC/AURA Download Number of Slides More information NSF–DOE Vera C. Rubin Observatory, funded by the U.S. National Science Foundation and the U.S. Department of Energy’s Office of Science, is a groundbreaking new astronomy and astrophysics observatory on Cerro Pachón in Chile. It is named after astronomer Vera Rubin, who provided the first convincing evidence for the existence of dark matter. Using the largest camera ever built, Rubin will repeatedly scan the sky for 10 years to create an ultra-wide, ultra-high-definition, time-lapse record of our universe. NSF–DOE Vera C. Rubin Observatory is a joint initiative of the U.S. National Science Foundation (NSF) and the U.S. Department of Energy’s Office of Science (DOE/SC). Its primary mission is to carry out the Legacy Survey of Space and Time, providing an unprecedented data set for scientific research supported by both agencies. Rubin is operated jointly by NSF NOIRLab and SLAC National Accelerator Laboratory. NSF NOIRLab is managed by the Association of Universities for Research in Astronomy (AURA) and SLAC is operated by Stanford University for the DOE. France provides key support to the construction and operations of Rubin Observatory through contributions from CNRS / IN2P3 . The Science and Technology Facilities Council supports the wide range of UK contributions to Rubin operations provided through the LSST:UK Science Centre

programme. Rubin Observatory is privileged to conduct research in Chile and gratefully acknowledges additional contributions from more than 40 international organizations and teams. The U.S. National Science Foundation (NSF) is an independent federal agency created by Congress in 1950 to promote the progress of science. NSF supports basic research and people to create knowledge that transforms the future. The DOE's Office of Science is the single largest supporter of basic research in the physical sciences in the United States and is working to address some of the most pressing challenges of our time. NSF NOIRLab , the U.S. National Science Foundation center for ground-based optical-infrared astronomy, operates the International Gemini Observatory (a facility of NSF , NRC-Canada , ANID-Chile , MCTIC-Brazil , MINCyT-Argentina , and KASI-Republic of Korea), NSF Kitt Peak National Observatory (KPNO), NSF Cerro Tololo Inter-American Observatory (CTIO), the Community Science and Data Center (CSDC), and NSF-DOE Vera C. Rubin Observatory (in cooperation with DOE 's SLAC National Accelerator Laboratory). It is managed by the Association of Universities for Research in Astronomy (AURA) under a cooperative agreement with NSF and is headquartered in Tucson, Arizona. The scientific community is honored to have the opportunity to conduct astronomical research on I'oligam Du'ag (Kitt Peak) in Arizona, on Maunakea in Hawai'i, and on Cerro Tololo and Cerro Pachón in Chile. We recognize and acknowledge the very significant cultural role and reverence of I'oligam Du'ag to the Tohono O'odham Nation, and Maunakea to the Kanaka Maoli (Native

Hawaiians) community. SLAC National Accelerator Laboratory explores how the universe works at the biggest, smallest and fastest scales and invents powerful tools used by researchers around the globe. As world leaders in ultrafast science and bold explorers of the physics of the universe, we forge new ground in understanding our origins and building a healthier and more sustainable future. Our discovery and innovation help develop new materials and chemical processes and open unprecedented views of the cosmos and life's most delicate machinery. Building on more than 60 years of visionary research, we help shape the future by advancing areas such as quantum technology, scientific computing and the development of next-generation accelerators. SLAC is operated by Stanford University for the U.S. Department of Energy's Office of Science . Forty-three international teams outside the U.S. and Chile are contributing to Rubin Observatory and LSST Science through the In-kind Program , in exchange for LSST data rights. These contributions are recognized in the International Data Rights Holder list, which includes all individuals nominated by their respective international programs. Related topics Fundamental physics Kavli Institute for Particle Astrophysics & Cosmology (KIPAC) Rubin Observatory/LSSTCam DOE partnerships SLAC+Stanford Science news Astrophysics and cosmology Dark energy Dark matter The early universe Dig Deeper Related stories Feature SLAC's premier facilities and record-setting datasets fuel DOE Genesis Mission The lab's contributions to the national AI initiative are bolstered by its breakthrough scientific tools, unprecedented data and unique

partnerships that help illuminate nature... June 16, 2026 · 14 min read
Feature Building the quantum toolbox As QuantISED enters its next phase
in its effort to develop quantum technologies capable of exploring some of
the universe's biggest unanswered questions, scientists... May 19, 2026 ·
11 min read News Brief VIA Rubin Observatory NSF–DOE Vera C. Rubin
Observatory Founding Director Tony Tyson included in 2026 TIME100
The long-time collaborator of SLAC joins the list that recognizes the
impact, innovation and achievement of the world's most influential
individuals. April 30, 2026 Feature SLAC's premier facilities and record-
setting datasets fuel DOE Genesis Mission The lab's contributions to the
national AI initiative are bolstered by its breakthrough scientific tools,
unprecedented data and unique partnerships that help illuminate nature...
June 16, 2026 · 14 min read Feature Building the quantum toolbox As
QuantISED enters its next phase in its effort to develop quantum technolo-
gies capable of exploring some of the universe's biggest unanswered
questions, scientists... May 19, 2026 · 11 min read News Brief VIA
Rubin Observatory NSF–DOE Vera C. Rubin Observatory Founding Dir-
ector Tony Tyson included in 2026 TIME100 The long-time collaborator
of SLAC joins the list that recognizes the impact, innovation and
achievement of the world's most influential individuals. April 30, 2026
Multimedia How NSF-DOE Vera C. Rubin Observatory maps the universe
every night This video breaks down how Rubin will run the Legacy
Survey of Space and Time (LSST) and build a 10-year time lapse of the...
April 23, 2026 · 1 min read News Brief VIA Berkeley Lab DESI com-

pletes planned 3D map of the universe and continues exploring SLAC scientists played key roles in leadership, survey design, cosmological applications, studies of dark matter and of links to the cosmic microwave background. April 15, 2026 News Release SuperCDMS SNOLAB cools down to near absolute zero, setting the stage for one of the world's most sensitive dark matter searches The experiment's detectors have reached their operating temperature, almost a thousand times colder than outer space. March 17, 2026 · 6 min read Show less Show more

Activity Time - Word Search

Find the words below in the puzzle. Words go across or down only.

Words to Find:

