



**2023 Lead Covered Agency  
NGDA Theme Annual Performance Report  
and Self-Assessment**  
*for*  
**Imagery Theme**

**Geospatial Data Act of 2018  
Section USC 43 Sec 2805(b)(3) Requirements**

January 19, 2024



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## Introduction

The Geospatial Data Act of 2018 (GDA) was signed into law on October 5, 2018. The GDA was included as a component of the FAA Reauthorization Act (H.R. 302, P.L. 115-254). The GDA is now in [U.S. Code, Title 43 – Public Lands, Chapter 46: GEOSPATIAL DATA](#).<sup>1</sup>

The GDA Section 2805(b)(3)(E)(I) requires annual performance reports to be submitted to the Federal Geographic Data Committee (FGDC) that document “the activities relating to and implementation of the National Geospatial Data Asset [NGDA] data theme, including progress in achieving the requirements under subparagraphs (A), (B), (C), and (D)” of Section 2805(b)(3).

This Lead Covered Agency NGDA Theme Annual Performance Report (LCA NGDA Theme Report) covers the Fiscal Year 2023 (FY2023), October 1, 2022 through September 30, 2023. The report provides an update on progress made at the NGDA Portfolio and FGDC agency level in support of meeting GDA requirements. This is the fourth annual report which is based on a template and survey to facilitate consistency across the FGDC NGDA Themes. As per the GDA, a summary and evaluation of the progress to achieve the requirements will be generated by FGDC and will be provided to the National Geospatial Advisory Committee (NGAC) for comment. The FGDC summary is required to include a rating for each responsibility of "meets expectations," "made progress toward expectations," or "fails to meet expectations." These ratings are included in this report and are used to generate part of the annual FGDC Summary Report. The summary report along with NGAC comments are included in the biennial FGDC Report to Congress. This and other required reports and information are available online via the [FGDC GDA pages](#).<sup>2</sup>

The FY2023 LCA NGDA Theme annual report continues to use the GDA definition for NGDA data theme as the foundation for reporting compliance *for the data within the theme*. From the GDA definitions, NGDA data theme “means the NGDA core geospatial datasets (including electronic records and coordinates) relating to a topic or subject designated under Section 2805.”

## Executive Summary

This fourth annual FGDC NGDA Theme report provides insights into cross-cutting FGDC portfolio-level activities and theme-specific agency-level activities that will document progress in meeting GDA requirements.

At the theme level, this report provides updates to summaries and information for ongoing processes, procedures, and actions within agencies that manage NGDA datasets, that were provided in previous annual reports.

At the portfolio level, this report highlights continued efforts across the FGDC agencies and the NGDA themes to evaluate the requirements of the GDA in the context of the goals and objectives of the [National Spatial Data Infrastructure \(NSDI\) Strategic Plan](#).<sup>3</sup> Based on an emerging cross-agency understanding of these requirements, the FGDC NGDA Theme community is undertaking efforts to establish governance processes that build on accomplishments, provide value, and ensure efficiency. In alignment with GDA requirements, the NGDA Theme Leads developed an NGDA Theme Strategic Plan template which was approved by the FGDC Steering Committee in July 2023. The template can be tailored to each theme with goals and objectives that are cross walked with all GDA requirements and the NSDI Strategic Plan. This template provides flexibility and allows agencies that manage NGDA data to

identify actions and accomplishments that align with the established goals, objectives, and anticipated outcomes, while being sensitive to technological, economic, and organizational constraints and opportunities of the agencies managing NGDA data. NGDA Theme Leads will develop and finalize their individual theme strategic plans by the end of FY2024.

The efforts documented in this report reflect that all FGDC NGDA Themes are making progress towards meeting GDA requirements.

## Official Theme Related Information

As per the OMB Circular A-16 Supplemental Guidance (A-16 Guidance), official theme related information includes designated points of contact for NGDA Portfolio management, including Theme Leads and Executive Champions, and the official list of NGDA datasets. As further described in the sections below, this information is maintained on the [GeoPlatform](#)<sup>4</sup> [NGDA Portfolio Community](#)<sup>5</sup> site.

### NGDA Theme Points of Contact

**Reference:** [USC 43 Sec 2805\(b\)\(3\)\(E\)\(i\)](#)

Section 2805(b)(3)(E)(i) requires lead covered agencies to “designate a point of contact within the lead covered agency who shall be responsible for developing, maintaining, coordination relating to, and disseminating data using the GeoPlatform” as part of administering the NGDA theme.

In accordance with the A-16 Guidance, NGDA theme personnel play an ongoing, vital role in the operation and maintenance of a theme. They are individuals who provide interdepartmental leadership and coordination at the NGDA theme level and work with NGDA dataset managers to facilitate portfolio development including activities associated with standards and guidance, among other things.

Traditionally, these roles have been coordinated through lead covered agencies with the FGDC Office of the Secretariat and the NGDA theme lead assuming a majority of NGDA theme responsibilities. Transitioning to meet specific GDA responsibilities provides opportunities for lead covered agencies to designate specific points of contact to coordinate an expanding portfolio of datasets across the NGDA theme and for greater dissemination of data through the GeoPlatform.

Theme and agency points of contact provided in Table 1 below are maintained to meet requirements from the [A-16 Supplemental Guidance Roles and Responsibilities](#).<sup>6</sup> This information is kept up-to-date in the [NGDA Portfolio Community](#). From the NGDA Portfolio Community page, the NGDA Theme Leads and NGDA Theme Executive Champions lists are found on the [Contacts](#)<sup>7</sup> page.

Imagery Theme Contacts	
<b>Theme Lead(s):</b>	Gregory Snyder, U.S. Department of the Interior, U.S. Geological Survey David Davis, U.S. Department of Agriculture, Farm Production and Conservation
<b>Executive Theme Champion(s):</b>	David Carter, U.S. Department of the Interior Ron Sequeira, U.S. Department of Agriculture

**Table 1. Theme and Lead Covered Agency Points of Contact Involved in Theme Management.**

## NGDA Theme Datasets

The NGDA datasets and the agencies listed in Table 2 are provided as the official list of NGDA that currently populate the Imagery Theme. If the theme includes NGDA datasets managed by non-covered agencies, they are shown in bold. Support for GDA requirements by these non-covered agencies is very important to the success of the themes. The official list of NGDA Portfolio Datasets is maintained on the GeoPlatform in the [NGDA Portfolio Community](#). Each NGDA dataset also has a unique value assigned, called an NGDAID, that allows the dataset to be tracked throughout its lifecycle.

NGDAID	Imagery Theme NGDA Datasets	Agency
98	Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER)	National Aeronautics and Space Administration
99	Moderate Resolution Imaging Spectroradiometer (MODIS) - Aqua	National Aeronautics and Space Administration
100	Moderate Resolution Imaging Spectroradiometer (MODIS) - Terra	National Aeronautics and Space Administration
101	NOAA Coastal Mapping Remote Sensing Data	U.S. Department of Commerce, National Oceanic and Atmospheric Administration
103	Landsat 7 Enhanced Thematic Mapper Plus Collection 2 Level-1	U.S. Department of the Interior, U.S. Geological Survey
104	Landsat 1-5 Multi-Spectral Scanner Collection 2 Level-1	U.S. Department of the Interior, U.S. Geological Survey
105	Landsat 4-5 Thematic Mapper Collection 2 Level-1	U.S. Department of the Interior, U.S. Geological Survey
106	National Agriculture Imagery Program (NAIP) Imagery	U.S. Department of Agriculture, Farm Production and Conservation Business Center
187	High Resolution Orthoimagery Collection - Historical	U.S. Department of the Interior, U.S. Geological Survey
191	Landsat 8-9 Operational Land Imager and Thermal Infrared Sensor Collection 2 Level-1	U.S. Department of the Interior, U.S. Geological Survey

**Table 2. NGDA Theme Datasets.**

## Meeting General Responsibilities – USC 43 Sec 2805(b)(2)

Reference: [USC 43 Sec 2805\(b\)\(2\)](#)

**How is the Lead Covered Agency(ies) participating in ensuring the coordinated management of the Theme? (Select all that apply - see *Appendix A for the complete list of optional responses*)**

- Agency participated in cross-agency activities related to the development of the Theme Strategic Plan Template
- Theme Lead(s) attend NGDA Theme Community Meetings
- Theme Lead(s) participate in GDA Working Group meetings
- Theme Leads(s) review the outcomes from GDA Working Group meetings and provide feedback on approaches for GDA compliance
- Theme Lead(s) coordinate GDA compliance activities with Theme personnel
- Theme Lead(s) coordinate changes to the Portfolio inventory for Steering Committee approval
- Theme Lead(s) coordinate Theme Hub Sites on the GeoPlatform with established points of contact (e.g., Site Maintainers, site editors)
- Theme Lead(s) update Dataset Managers and other points of contact (e.g., metadata POC)
- Theme Lead(s) evaluate standards applicable to the Portfolio inventory
- Theme Lead(s) communicate new and ongoing Portfolio Management activities and priorities with Dataset Managers in the Theme
- Steering Committee members coordinate with the Theme

### Managing Theme-Related Content on GeoPlatform

During FY2023, the NGDA Themes transitioned from legacy GeoPlatform Theme sites to new [Hub-based Theme sites](#).<sup>8</sup> As part of the transition, the themes established by consensus, the minimum required site content. All eighteen themes were transitioned and updated to reflect this minimum content requirement. Individual themes have the flexibility to publicly display and manage additional information from a variety of sources related to their theme. The new Hub sites provide end users, stakeholders, and partners with a place to find consistent theme-related information and access to NGDA datasets and services.

## Imagery Theme Progress Toward Meeting Requirements

### Background

This section provides Theme-related updates to information provided in previous annual reports and designates the Lead Covered Agency self-assessment for each of the four GDA NGDA Data Theme Requirements.

#### A. Geospatial Data Standards

The following table describes the GDA requirements for Section 2805(b)(3)(A) pertaining to geospatial data standards, and the Lead Covered Agency’s self-assessment for meeting those requirements.

GDA Requirement	<a href="#">USC 43 Sec 2805(b)(3)(A)</a> – Provide leadership and facilitate the development and implementation of geospatial data standards for the National Geospatial Data Asset data theme, with a particular emphasis on a data content standard for the National Geospatial Data Asset data theme, including by— <ul style="list-style-type: none"><li>i. assessing existing standards;</li><li>ii. identifying anticipated or needed data standards; and</li><li>iii. developing a plan to originate and implement needed standards with relevant community and international practices—<ul style="list-style-type: none"><li>I. in accordance with Office of Management and Budget Circular A– 119, or any successor thereto; and</li><li>II. consistent with or as a part of the plan described in subparagraph (B);</li></ul></li></ul>
Lead Covered Agency Self-Assessment	<b>Made Progress Toward Expectations</b>

**Note:** The lead covered agency reports that no change was made to the self-assessment for this requirement from the prior year. FGDC efforts to address Sec 2805(b)(3)(A) are summarized under the “FGDC Portfolio-Level Progress Toward Meeting GDA NGDA Data Theme Requirements” section below.

## B. Nationwide Population of the Data Theme

The following table describes the GDA requirements for Section 2805(b)(3)(B) pertaining to a plan for nationwide population of the data theme, and the Lead Covered Agency’s self-assessment for meeting those requirements.

GDA Requirement	<p><a href="#">USC 43 Sec 2805(b)(3)(B)</a>– provide leadership and facilitate the development and implementation of a plan for nationwide population of the National Geospatial Data Asset data theme, which shall—</p> <ul style="list-style-type: none"> <li>(i) include developing partnership programs with States, Indian tribes, institutions of higher education, private sector entities, other Federal agencies, and local governments;</li> <li>(ii) meet the needs of users of geospatial data;</li> <li>(iii) address human and financial resource needs;</li> <li>(iv) identify needs relating to standards, metadata for geospatial data within the National Geospatial Data Asset data theme, and the GeoPlatform; and</li> <li>(v) expedite the development of necessary National Geospatial Data Asset data themes;</li> </ul>
Lead Covered Agency Self-Assessment	<b>Meets Expectations</b>

**Note:** The lead covered agency reports that no change was made to the self-assessment for this requirement from the prior year. FGDC efforts to address Sec 2805(b)(3)(B) are summarized under the “FGDC Portfolio-Level Progress Toward Meeting GDA NGDA Data Theme Requirements” section below.



### C. Establish Goals That Support the NSDI Strategic Plan

The following table describes the GDA requirements for Section 2805(b)(3)(C) pertaining to establishing goals that support the NSDI Strategic Plan, and the Lead Covered Agency’s self-assessment for meeting those requirements.

GDA Requirement	<a href="#">USC 43 Sec 2805(b)(3)(C)</a> – establish goals that support the strategic plan for the National Spatial Data Infrastructure prepared under section 2804(c);
Lead Covered Agency Self-Assessment	<b>Made Progress Toward Expectations</b>

**References:** [NSDI Strategic Plan 2021-2024](#)

**Note:** The lead covered agency reports that no change was made to the self-assessment for this requirement from the prior year. FGDC efforts to address Sec 2805(b)(3)(C) are summarized under the “FGDC Portfolio-Level Progress Toward Meeting GDA NGDA Data Theme Requirements” section below.

## D. Addressing User Needs

The following table describes the GDA requirements for Section 2805(b)(3)(D) pertaining to addressing user needs, and the Lead Covered Agency’s self-assessment for meeting those requirements.

GDA Requirement	<a href="#">USC 43 Sec 2805(b)(3)(D)</a> – as necessary, collect and analyze information from users of geospatial data within the National Geospatial Data Asset data theme regarding the needs of the users for geospatial data and incorporate the needs of users in strategies relating to the National Geospatial Data Asset data theme;
Lead Covered Agency Self-Assessment	<b>Meets Expectations</b>

**Note:** The lead covered agency reports that no change was made to the self-assessment for this requirement from the prior year. FGDC efforts to address Sec 2805(b)(3)(D) are summarized under the “FGDC Portfolio-Level Progress Toward Meeting GDA NGDA Data Theme Requirements” section below.

# FGDC Portfolio-Level Progress Toward Meeting GDA NGDA Data Theme Requirements

## Background

This section highlights the actions that reflect FGDC Portfolio-level progress towards meeting GDA requirements.

Since the passage of the GDA, FGDC agencies and the Theme Leads have continued to evaluate options to consistently document progress and streamline reporting. In alignment with GDA requirements, the NGDA themes completed development of an NGDA Theme Strategic Plan template in June 2023, based on an existing strategic plan developed for the Transportation Theme. The template was approved by the FGDC Steering Committee for use by all themes on June 30, 2023, and a timeline for completion by the end of FY2024 was established. The template provides a consistent framework for agencies to develop goals, objectives, and actions that directly align with GDA requirements. Theme annual reports will highlight agency actions and accomplishments associated with the strategic plan in support of standards, nationwide population of NGDA datasets, strategic planning that aligns with the NSDI Strategic Plan and other guidance, and meeting user needs. Additional details for each of the four GDA NGDA Data Theme Requirements are included below.

### A. Geospatial Data Standards

The FGDC is the lead entity in the executive branch of government for the development, implementation, and review of policies, practices, and standards relating to geospatial data. The GDA describes responsibilities related to geospatial standards for the FGDC and the agencies covered by the law (covered agencies). These responsibilities are reinforced by Office of Management and Budget Circular A-16 and OMB Circular A-119 (development and use of voluntary consensus standards).

The FGDC Executive Committee has established a Standards Task Team to evaluate the requirements, options, processes, resources, and decision structure required to establish an operational and sustainable FGDC standards process. This will include evaluating the FGDC's roles and responsibilities in geospatial standards with those of other standards making bodies, non-Federal participation, and considerations for standards supporting the National Spatial Data Infrastructure (NSDI).

The Executive Committee Standards Task Team is currently developing recommendations to update the FGDC's standards management process and will recommend a path forward for the FGDC. Refer to the FGDC Standards webpage (<https://www.fgdc.gov/standards>) for additional information.

### B. Nationwide Population of NGDA Datasets

This section of the GDA calls on the FGDC agencies to “provide leadership and facilitate the development and implementation of a plan for nationwide population of the National Geospatial Data Asset data theme.” FGDC agencies evaluate and manage NGDA core datasets and other geospatial data to meet mission requirements and to address priority needs of the agency and the nation. The approved strategic plan template incorporates ongoing agency efforts to establish partnerships, conduct requirements and user needs analysis, identify options for appropriate human and financial resourcing,

and identify needs relating to standards for NGDA datasets in support of nationwide population of priority geospatial datasets.

In accordance with the GDA definition of NGDA data theme, the NGDA Theme Strategic Plan template will allow theme plans to focus on nationwide population of the core datasets within the theme and allow agencies to document, provide citations to, and report on efforts that facilitate meeting this requirement. NGDA Theme Strategic Plans covering the period from 2025-2027 will be due by the end of FY2024. Once completed, the strategic plans will be published on the GeoPlatform Theme sites.

### C. Establish Goals That Support the NSDI Strategic Plan

The NSDI mission is to enable a “national network of geospatial resources that seamlessly integrate location-based information to serve the needs of the Nation and wider global interests.” The FGDC and the geospatial community have partnered for decades in building the National Spatial Data Infrastructure. Through this collaboration and modernization of geospatial data resources on the internet, combined with advances in technology and availability of mobile devices, situational awareness has increased. Having geospatial data and information available on demand for a wide variety of applications has become an expectation for most users. The vision of the NSDI Strategic Plan 2021-2024 of a “geo-enabled Nation and world for place-based decision making” is to support efficient resource allocation and provide a platform for partnerships to support high quality data. The FGDC is developing a new NSDI Strategic Plan which is scheduled to be finalized by the end of FY2024. The goals of the Theme Strategic Plans will subsequently be revised based on the new NSDI Strategic Plan.

The NGDA Theme Strategic Plan template described in the “Background” section above will allow agencies to identify actions and accomplishments that align with mission requirements, and support implementation of the NSDI Strategic Plan and its goals and objectives. For the NGDA portfolio, the NSDI Strategic Plan 2021-2024 objectives include efforts to: 1) streamline portfolio management practices and establish standards for NGDA themes and associated datasets, 2) develop common approaches to implement data acquisition and lifecycle management strategies, 3) advance the practice of integrating government and nongovernment data into national datasets, as necessary and 4) ensure that geospatial and other meaningful data can be easily integrated and used by stakeholders and the public.

### D. Addressing User Needs

The NGDA Theme Strategic Plan (planned publication at the end of FY 2024) will identify the needs of users related to NGDA datasets within the Theme and provide strategies to meet those needs. Additionally, the GeoPlatform offers open geospatial hosting and services for US federal agencies with geospatial data assets to address the needs of a diverse user community, including government, non-government, and public users. Each NGDA Theme has a site within the GeoPlatform that hosts the NGDA datasets. These Theme sites, along with the GeoPlatform, provide access to open geospatial data assets including metadata, services, applications, and tools for an open-source geospatial suite of capabilities. These capabilities are consistent with the 'Findability, Accessibility, Interoperability, and Reuse (FAIR) Guiding Principles for scientific data management and stewardship'<sup>9</sup> as part of meeting user needs. Through ongoing GeoPlatform modernization and FGDC efforts to improve and enhance NGDA metadata and services, users have access to analysis-ready data to meet their geospatial analytical needs.

## Appendix A: Survey Picklist

This appendix provides the full set of available choices presented for the Meeting General Responsibilities – USC Sec.2805(b)(2) question.

### **How is the Lead Covered Agency(ies) participating in ensuring the coordinated management of the Theme? (Select all that apply)**

- Agency participated in cross-agency activities related to the development of the Theme Strategic Plan Template
- Theme Executive Champion(s) attend NGDA Theme Community Meetings
- Theme Lead(s) attend NGDA Theme Community Meetings
- Theme Lead(s) participate in GDA Working Group meetings
- Theme Leads(s) review the outcomes from GDA Working Group meetings and provide feedback on approaches for GDA compliance
- Theme Lead(s) coordinate GDA compliance activities with Theme personnel
- Theme Lead(s) coordinate changes to the Portfolio inventory for Steering Committee approval
- Theme Lead(s) update Dataset Managers and other points of contact (e.g., metadata POC)
- Theme Lead(s) coordinate Theme Hub Sites on the GeoPlatform with established points of contact (e.g., Site Maintainers, site editors)
- Theme Lead(s) evaluate standards applicable to the Portfolio inventory
- Theme Lead(s) communicate new and ongoing Portfolio Management activities and priorities with Dataset Managers in the Theme
- Steering Committee members coordinate with the Theme
- No participation in ensuring coordinated management of the Theme
- Other [Textbox provided]

## Appendix B: Brief Summary

The following summary provides details on accomplishments the Imagery Theme made in FY2023 in meeting the GDA requirements under USC 43 Sections 2805(b)(3)(A)-(D).

### **Next Generation Landsat to Meet More User Needs**

Since the launch of Landsat 1 in 1972, the Landsat mission satellites, a partnership between the National Aeronautics and Space Administration (NASA) and the U.S. Geological Survey (USGS), have produced more than 10 million images of Earth's surface. This 52-year record—the longest continuous global record of the Earth's natural and human-induced surface change—is unmatched in quality, detail, and coverage, and provides a unique and valuable resource for people in a wide variety of professions. The Landsat Next mission, currently in formulation, will be far more capable than Landsat's 8 and 9 combined, meeting the evolving needs of users. These needs were rigorously documented by the USGS, to include improved spectral, spatial, and temporal detail that is critical for identifying and characterizing land surface change in areas of the world most vulnerable to climate change, while sustaining continuity with the 52-year archive. Landsat Next is in the Phase A stage of development since FY2023. Phase A activities included final refinement of draft science requirements, illustration of Landsat Next science benefits, support for the Landsat Next instrument suite request for proposal, and ground system studies, all of which are keeping Landsat Next development on schedule in Phase A. Through Landsat Archive Operations in FY2023, there were 20.2 billion accesses via the Commercial Cloud and 113.5 million products downloaded by users.

### **Improved Spatial Resolution for the National Agricultural Imagery Program**

The National Agricultural Imagery Program (NAIP) has continued on a two-year acquisition cycle. The number of states flown varies each year due to the different sizes of each state but averages approximately 50% of the area each year. The ground sample distance of the delivered imagery products continues to improve. The standard deliverable has been 60 cm for several years, with many states now delivered at 30 cm.

### **Enhancing NAIP Imagery Access**

The NAIP image tile dimensions and naming system are being updated to accommodate higher resolution data by reducing the tile buffer from 300 m to 12 m and using a new size and numbering system. These enhancements will reduce the product file size, which in turn makes it easier to download or stream data and reduces data storage space. This effort included extensive work and participation by Farm Production and Conservation Business Center (FPAC-BC) Geospatial Enterprise Operations personnel along with input from other organizations including USGS, the Census Bureau, the Bureau of Land Management, the National Oceanic and Atmospheric Administration as well as the NAIP vendors.

### **Reducing Costs and Improving Services for NAIP Users**

FPAC-BC is joining with the U.S. Forest Service and potentially others in completing the final stages of moving to a cloud-based storage and distribution system for NAIP and other data programs. The Interdepartmental Imagery Publication Platform (IIPP) will reduce costs and improve options and capacity for data ingestion, storage, distribution, and services.

### **Developing Efficient Technology for Imagery & Elevation Data Collection**

The U.S Department of Agriculture (USDA) is participating in an ongoing pilot project with USGS to

evaluate methods, coordination, technologies, and data for dual sensor / simultaneous acquisition of aerial imagery and lidar elevation data that meet both NAIP and 3D Elevation Program (3DEP) requirements. This new development could result in lower costs and increase acquisitions for both the 3DEP, NAIP, and possibly other programs or data.

### **Enhancing Satellite Data Access with Cloud-based Solutions**

NASA launched the Terra and Aqua satellites in 1999 and 2002 respectively, with MODIS and ASTER instruments on board. NASA operates the instruments and partners with USGS to provide data management services through the Land Processes Distributed Active Archive Center (LP DAAC). Since launch, the LP DAAC has archived approximately 2.7 Petabytes of MODIS data and 1 PB of ASTER data. This data is being migrated to the cloud with the goal of making the data accessibility and analysis more convenient for a variety of land management and research professionals. Metadata has also been updated for the National Aeronautics and NASA MODIS-Terra, MODIS-Aqua, and MODIS-ASTER National Geospatial Data Assets (NGDAs). New XML files have been provided that meet FGDC standards.

### **Identifying User Needs for Earth Observation Data**

The U.S. Group on Earth Observations (USGEO) Satellite Needs cycle initiated in 2022 and completed in 2023, assessed civil agency needs for satellite data and products that could be supported by NASA and partner agencies. The process allows Federal departments and agencies to communicate their Earth observation requests for satellite-based Earth observation data and information products to agencies with Earth observing capabilities. Information gathered during this process is used to inform NASA and potentially other agency decisions on future sensors placed into orbit, new data products, and new data delivery strategies. The 2022 cycle identified needs for higher resolution data, lower latency access, training in the use of cloud technology, and potential activities related to enhanced land and atmospheric products and water quality information.

### **Making Imagery Data More Interoperable and Useful by Improving Data Standards**

After becoming the first recipient of the Committee on Earth Observation Satellites (CEOS) endorsement for CEOS Analysis Ready Data (CEOS-ARD)-compliant products with Landsat Collection 2 Level-2 surface reflectance and surface temperature products, and now its custom U.S.-based ARD product in 2023, the USGS has continued its leadership position across the international community with movement toward making CEOS-ARD a recognized standard through robust engagement with the International Organization for Standardization (ISO) and the Open Geospatial Consortium (OGC). The CEOS internationally recognized certification applies to satellite data that have been processed to a minimum set of requirements and organized into a structure that allows for immediate analysis with minimum user effort and interoperability both through time and with other datasets. Bringing this product certification approach to ISO/OGC will greatly enhance commercial partnerships and drive interoperability with USGS and other space agency product offerings. While co-leading the CEOS Land Surface Imaging Virtual Constellation (LSI-VC) and Vice-Chairing the CEOS Working Group on Information Systems and Services (WGISS), the USGS played a critical role in preparing a CEOS Interoperability Framework Roadmap. This Framework and its implementation will not only further drive interoperability with CEOS-ARD products but will also extend interoperability into vocabulary/semantics, architecture, interface/accessibility, quality, and policy. Finally, the imagery theme continues to inform future Landsat satellite systems with active user engagement on a scale never realized during the history of the Landsat program.

## Endnotes

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- <sup>1</sup> U.S. Code, Title 43 – Public Lands, Chapter 46: GEOSPATIAL DATA  
<https://www.fgdc.gov/gda/43-usc-ch-46-geospatial-data-geospatial-data-act.pdf>
- <sup>2</sup> FGDC GDA Information  
<https://fgdc.gov/gda>
- <sup>3</sup> NSDI Strategic Plan  
<https://www.fgdc.gov/nsdi-plan>
- <sup>4</sup> GeoPlatform  
<https://www.geoplatform.gov/>
- <sup>5</sup> NGDA Portfolio Community Site  
<https://ngda-portfolio-geoplatform.hub.arcgis.com/>
- <sup>6</sup> OMB A-16 Supplemental Guidance Roles and Responsibilities  
<https://fgdc.gov/policyandplanning/a-16/key-roles-and-responsibilities-a16-supplemental.pdf>
- <sup>7</sup> NGDA Theme Contacts  
<https://ngda-portfolio-community-geoplatform.hub.arcgis.com/pages/contacts>
- <sup>8</sup> NGDA Theme Hub Sites  
<https://ngda-portfolio-community-geoplatform.hub.arcgis.com/pages/ngda-themes>
- <sup>9</sup> FAIR Principles  
<https://www.go-fair.org/fair-principles/>