



NASA OFFICE OF INSPECTOR GENERAL

OFFICE OF AUDITS
SUITE 8U71, 300 E ST SW
WASHINGTON, D.C. 20546-0001

October 2, 2020

TO: Jeff Seaton
Acting Chief Information Officer

Thomas Zurbuchen
Associate Administrator, Science Mission Directorate

SUBJECT: Final Memorandum, *Audit of NASA's Compliance with the Geospatial Data Act*
(IG-21-001, A-20-013-00)

The Geospatial Data Act of 2018 seeks to foster efficient, government-wide management of geospatial data—objects, events, or phenomena that have a location on the surface of the Earth—technologies, and infrastructure.¹ The Act codifies committees, processes, and tools in support of the National Spatial Data Infrastructure (NSDI).² It also formalizes governance processes related to geospatial data, provides policy and guidance for the use of geospatial data and technology, and facilitates cooperation between the public and private sector.

The Act requires Inspectors General to audit the collection, production, acquisition, maintenance, distribution, use, and preservation of geospatial data by covered agencies at least once every two years.³ Specifically, the Act requires a review of agency compliance with (1) the geospatial data

¹ The Geospatial Data Act of 2018 became law on October 5, 2018, as a component of the FAA Reauthorization Act (P.L. 115-254, Subtitle F). Geospatial is a type of spatial data related to the Earth. According to the United States Geological Survey, the terms “spatial” and “geospatial” are equivalent.

² The NSDI is the technology, policies, standards, and human resources necessary to acquire, process, store, distribute, and improve utilization of geospatial data.

³ A covered agency is one that collects, produces, acquires, maintains, distributes, uses, or preserves geospatial data on paper or in electronic form to fulfill the agency’s mission, either directly or through a relationship with another organization. Under the Act, a covered agency is an Executive Department, as defined in 5 U.S.C 101 and includes 15 Executive Departments, the Environmental Protection Agency, and NASA. Section 752 of the Act excludes the Department of Defense (including 30 components and agencies performing national missions) or any element of the intelligence community from its definition of the term covered agency. In addition to NASA, other covered agencies include the Department of Homeland Security, Department of Energy, and Department of the Interior.

standards established under Section 757, (2) the 13 agency responsibilities listed in Section 759(a), and (3) the limitation on the use of federal funds in Section 759A.

In May 2020, we began our mandated audit of NASA's compliance with the Geospatial Data Act of 2018. Our audit objective was to evaluate the extent to which NASA is managing its geospatial data in accordance with the Act. After the Geospatial Data Act was enacted, the Council of the Inspectors General on Integrity and Efficiency (CIGIE) convened a working group to coordinate an approach for this first government-wide audit. The group notified relevant Congressional committees that the primary focus would be agencies' progress toward compliance with the 13 responsibilities listed in Section 759 of the Act, and we followed that approach in setting the scope of our work.⁴ Moving forward, we anticipate geospatial data strategies, standards, and criteria will be further clarified for agencies' use in implementing the Act, and we will examine these topics in subsequent audits.

Background

Since at least 1990, the federal government has recognized the need to organize and coordinate the collection and management of geospatial data. In 2002, the Office of Management and Budget (OMB) revised Circular A-16—which provides guidance regarding coordination of federal surveying, mapping, and related spatial data activities—to establish the Federal Geographic Data Committee (FGDC) and to promote the coordinated use, sharing, and dissemination of geospatial data nationwide.⁵ In the past, Congress had recognized the challenge of coordinating and sharing geospatial data, and until enactment of the Geospatial Data Act in 2018, the Executive Branch conducted most efforts related to the coordination and sharing of geospatial data within the federal government. The Geospatial Data Act and the Open, Public, Electronic, and Necessary (OPEN) Government Data Act of 2019 (part of the Foundations for Evidence-Based Policy Making Act) created a regulatory framework to address sharing geospatial data, making it openly available and usable to inform decision-making.⁶

NASA's stewardship of geospatial data aligns with its vision “to discover and expand knowledge for the benefit of humanity.” Scientists and policymakers depend on the continuous flow of geospatial information—such as active fire data, flooding projections, weather modeling, mapping, transportation information, and population distribution—to inform their decisions. For more than 25 years, NASA has made its data available at no charge to research communities, private industry, academia, and the general public. To enable the efficient production, archiving, and delivery of data, NASA participates in government-wide efforts to develop data standards, create and curate metadata, and build tools to enable search and discovery, all of which helps ensure interoperability with other systems, agencies, and organizations.⁷

⁴ The CIGIE working group's approach is narrower than what the law requires because the geospatial standards used in evaluating compliance have not been determined for this inaugural audit.

⁵ OMB Circular A-16, *Revised, Coordination of Geographic Information and Related Spatial Data Activities* (August 19, 2002).

⁶ On January 14, 2019, the OPEN Government Data Act became law requiring federal agencies to publish their information online as open data, using standardized, machine-readable data formats, with their metadata included in the Data.gov catalog.

⁷ Metadata is elements of information that answer the questions “who, what, where, when, and why” regarding electronic records. Metadata elements provide administrative, descriptive, and technical information that describe the structure and content of electronic records.

Roles and Responsibilities

NASA has one of the world's largest repositories of Earth science data, with more than 11,900 geospatial datasets.⁸ As a matter of long-standing policy and practice, NASA archives all science mission data to ensure long-term usability and promote widespread usage by scientists, educators, decision-makers, and the general public.⁹ Broadly, geospatial data and records management responsibilities are divided among four groups at the Agency:

- The Office of the Chief Information Officer (OCIO) is responsible for the Agency's Records Management Program and compliance with federal regulations and requirements. Within the OCIO, the Chief Data Officer and Records Officer direct records management, including preservation.
- The Chief Archivist in NASA's History Division provides archival and technical guidance for the management and preservation of historical records.
- The Earth Science Data Systems (ESDS) Program within the Science Mission Directorate (SMD) oversees the life cycle of NASA's Earth science data—from acquisition through processing and distribution; the Office of Strategic Infrastructure manages geospatial data in support of NASA's Centers and field locations.
- Distributed Active Archive Centers (DAACs), operated collaboratively by NASA and contractor staff, are responsible for processing, archiving, and distributing NASA's science data.¹⁰ The archives are stored at 12 DAACs located at NASA Centers, universities, and other federal agencies and are organized according to science discipline or theme.¹¹

⁸ A dataset is a structured collection of data generally associated with a unique body of work.

⁹ Data archiving is a process that supports long-term storage of scientific data and methods used to read or interpret it.

¹⁰ The primary website for access to all NASA Earth Science data located within DAACs is Earthdata Search, available at <https://search.earthdata.nasa.gov/search>.

¹¹ In March 2020, the Office of Inspector General issued a report on NASA's management of the DAACs. NASA Office of Inspector General, *NASA's Management of Distributed Active Archive Centers* (IG-20-011, March 2, 2020).

Data Generation, Presentation, and Collection



With geospatial data, location information can be static or dynamic. Examples of static data include the location of a road or the location of an earthquake event; dynamic data might include the location of a moving vehicle or pedestrian, or the spread of an infectious disease. Geospatial data generally combines location information (usually coordinates of latitude and longitude), attribute information (the characteristics of the object, event, or phenomenon concerned), and temporal information (the time or lifespan at which the location and attributes exist). Maps are the most common way of presenting geospatial data. Maps with

geospatial data can provide evidence for decision making, serve as teaching tools, and improve our understanding of natural and human-made phenomena.¹²

Geospatial data is collected in a number of ways, with Global Positioning System being the most familiar. Another example is remote sensing systems that measure (via satellite, airplane, or balloon) emissions and reflections from the Earth and its atmosphere. The data is stored in a variety of ways, including in Geographic Information Systems, which include information on the relationships between objects as part of the data structure.¹³ The power of geospatial data lies in the ability to derive new information from relationships between various data layers.

Data Use

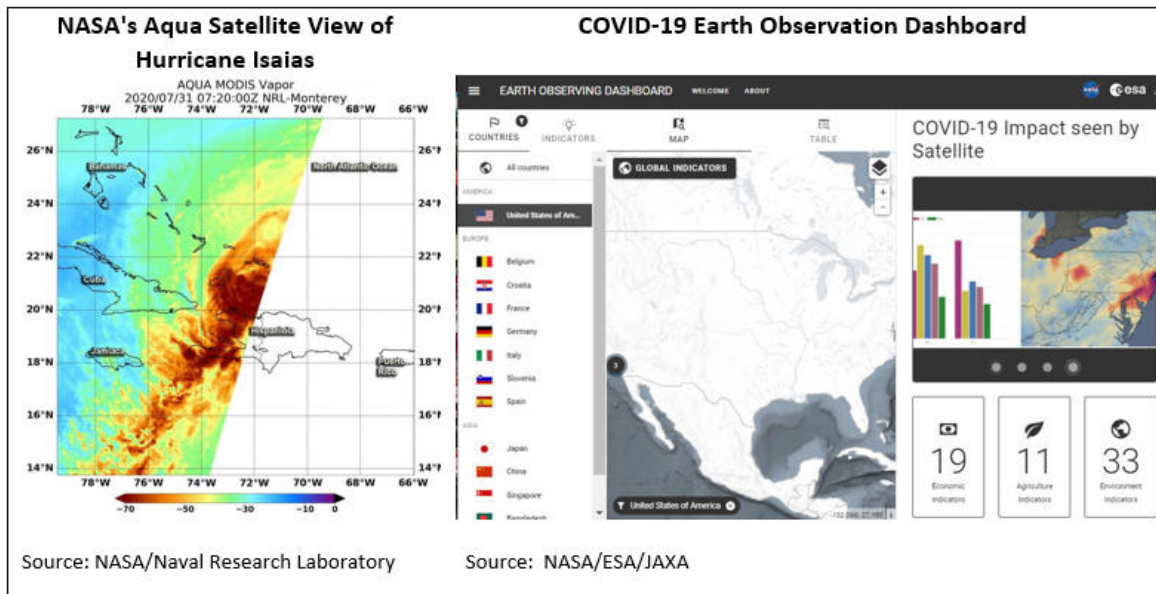
NASA uses geospatial data in many ways. For example, the Agency's Aqua satellite provided forecasters with a visible image of Hurricane Isaias as it was intensifying in the Atlantic Ocean in August 2020.¹⁴ Geospatial data is also being used to correlate data on the coronavirus pandemic (COVID-19). NASA, the European Space Agency (ESA), and the Japan Aerospace Exploration Agency (JAXA) created the COVID-19 Earth Observation Dashboard, which integrates multiple satellite data records with analytical tools for tracking changes in air and water quality, climate, economic activity, and agriculture (see Figure 1).

¹² With geospatial data, real-world phenomena are stored as points, lines, polygons, regions, volumes, and grids. For example, a point may represent a fresh water well or sampling location; a line may represent a boundary or a road; and a polygon could represent a containment cell or area that should be left undisturbed. Regions, volumes, and grids are often used to represent areas of subsurface contamination or groundwater concern. Image source: United Nations Committee of Experts, Global Geospatial Information Management.

¹³ A Geographic Information System is a computer system that analyzes and displays geographically referenced information using data attached to a unique location.

¹⁴ Aqua is an Earth Science mission collecting information about the Earth's water cycle, including evaporation from the oceans, water vapor in the atmosphere, clouds, precipitation, soil moisture, sea ice, land ice, and snow cover on the land and ice.

Figure 1: Examples of Geospatial Data



Source: NASA

Records Preservation

Geospatial data, like other data captured and produced by the federal government, can have historical significance that requires preservation. The National Archives and Records Administration (NARA) and federal agencies such as NASA share responsibilities for records management. NARA has general oversight responsibilities for preservation of permanent records documenting the activities of the federal government; NASA is responsible for identifying and submitting lists of its records with a proposed disposition schedule to NARA. Representatives from both NASA and NARA develop a disposition schedule to ensure all NASA records are retained for the appropriate length of time. While NARA provides authoritative instructions for the retention, destruction, or retirement of records held by NASA, it is only at the conclusion of this process that a final NASA records schedule is approved by the Archivist of the United States.

Preserving any type of information necessitates retaining both the information itself and sufficient context surrounding the information to render it understandable in the future. Importantly, as the information's present context changes over time as technology changes, the preserved context can be referred to by future custodians. For geospatial data, the problems of capturing and preserving enough of the data's context are especially challenging. In simpler contexts, knowledge of the format (for instance, a PDF document) is sufficient to support future usability of data. Geospatial data, however, tends to require much more complex contextual information. For example, understanding the remote-sensing imagery in a scientific model requires detailed knowledge of the specific platform and sensor characteristics, and in many cases calibration and processing steps as well. It is only in combination with this contextual information—also known as metadata—that geospatial data can be rendered useful for scientists and the public.

NASA CAN ENHANCE ITS MANAGEMENT OF GEOSPATIAL DATA

NASA is in the initial stages of addressing the requirements identified in Section 759 of the Geospatial Data Act. However, many activities are ongoing, and their outcomes are unknown. We determined the Agency is developing strategies in support of several data management initiatives including identifying its data holdings and inventory of geospatial data. These efforts will become more comprehensive in the coming years as the FGDC and OMB provide more clarity on requirements and other federal entities solidify their strategies. Additionally, we found that while the Agency has been collecting geospatial data, it has not established records schedules with NARA or appointed a senior official to manage geospatial data.

Section 759 of the Act lists 13 responsibilities that each agency must fulfill. NASA's status in addressing each follows:

1. Prepare and implement a strategy for advancing geospatial data activities appropriate to the agency's mission.

The FGDC is currently developing the strategic plan for the National Geospatial Infrastructure, scheduled for issuance in October 2020.¹⁵ Covered agencies, including NASA, have been tasked with developing their own plans in support of the national strategy, and the FGDC is expecting this to be completed by end of calendar year 2020.

Based on our discussions with the Program Executive for Earth Science Data Systems, NASA is aligning its work plan with the Federal Data Strategy, which requires, among other actions, that federal agencies identify priority data assets for their open data plans and publish and update their data inventories. NASA's geospatial strategy is expected to be finalized by December 2020, but that will be dependent on the FGDC first finalizing its strategy. By aligning with the Federal Data Strategy, NASA intends to meet strategy requirements for geospatial and other types of data.

Currently, three data sets from NASA's Aqua and Terra missions are officially designated as National Geospatial Data Assets through FGDC, and are managed jointly with the United States Geological Survey. In addition, NASA has over 1700 total geospatial data items in the catalog of the GeoPlatform in support of the National Spatial Data Infrastructure Strategic Plan.¹⁶ However, NASA has many other remote sensing science missions and other data sets, and at this time the Agency is unsure of the scope of expected submissions to the GeoPlatform per the Geospatial Data Act. Representatives from FGDC confirmed that additional clarity is needed to guide agencies on the breadth and scope of expected submissions.

2. Collect, maintain, disseminate, and preserve geospatial data such that resulting data, information, or products can be shared.

NASA, through its Earth Science Division, has been managing geospatial data in the form of Earth observing and remote sensing data for many years. NASA contributes to data.gov and other mandated

¹⁵ The FGDC submitted the draft National Spatial Data Infrastructure Strategic Plan for public comment on August 27, 2020.

¹⁶ The Geospatial Platform (GeoPlatform) is a strategic national resource that supports the Administration's Open Government, Open Data, and Digital Government strategies to enhance transparency, collaboration, and participation.

platforms as required by the Open Data Act and the Geospatial Data Act. Ultimately, NASA's Earth Science Data Systems Program and NASA OCIO work as data custodians, with the primary goal of making data accessible, understandable, reliable, and usable by a wide range of science and applications users. However, to date NASA has managed its data uniformly, and has not been focused specifically on geospatial data collections as detailed in the Geospatial Data Act.

3. Promote geospatial data integration.

As noted above, FGDC is currently developing the National Geospatial data strategy and expects covered agencies to have their plans developed by end of calendar year 2020. NASA anticipates that, as agency strategies are developed that include geospatial data asset inventories, the Agency will be able to leverage and integrate these datasets into its own inventory as needed.

4. Ensure that geospatial information is included on agency records schedules that have been approved by the National Archives and Records Administration (NARA).

NASA has been collecting and managing geospatial remote sensing data since it began sending Earth observing satellites into space in the 1960s. This data is collected through the satellite's instruments, transmitted to earth, and received by NASA and partner ground stations. NASA also collects geospatial data through airborne missions and field research campaigns, and maintains geospatial data related to its geographically distributed Centers and field locations. Remote sensing data is collected in raw form and is then rendered usable by NASA's science data systems. Higher level data is then sent to the appropriate Distributed Active Archive Center for processing and dissemination to the scientific community and the public. While NASA has the infrastructure and expertise to effectively maintain its geospatial data holdings, the Geospatial Data Act requires that NARA and NASA coordinate development of geospatial data records schedules.

Currently, NASA does not have the required records schedules approved by NARA to ensure the historically significant geospatial assets are appraised for inclusion in the National Archives. Additionally, through our discussions with NASA and NARA representatives, we determined there is no affiliated archive agreement in place between the two agencies. Affiliated agreements are an alternative to the usual physical transfer of permanent historical records into a NARA facility from the creating agency and instead permit records to be maintained and made available to the public at a non-NARA facility by non-NARA staff. Essentially, the records are treated like any other records in the National Archives but the affiliate is responsible for all costs associated with establishing and maintaining the records and archival facility. Such an agreement could provide NASA and NARA the opportunity to collaborate on the development of geospatial records schedules for historically significant geospatial data assets while allowing NASA to continue to maintain and manage the data.

While such agreements are not required, they would help alleviate the concerns that NASA's geospatial data of historical significance is not included in records schedules, appraised, and resides with an official custodian of record. The lack of an affiliated agreement is consistent with the current practice at the National Oceanic and Atmospheric Administration (NOAA). NASA and NOAA have similar data stewardship activities through their Earth Observing Satellite Data Information System and Environmental Satellite Data and Information System, respectively. The two organizations work jointly on the Joint Polar Satellite System (JPSS), which collects geospatial data in the form of global measurements of atmospheric, terrestrial, and oceanic conditions, including sea and land surface temperatures, vegetation, clouds, rainfall, snow and ice cover, fire locations and smoke plumes, atmospheric temperature, water vapor, and ozone. JPSS also provides key observations for forecasting

severe weather like hurricanes, tornadoes, and blizzards and assessing environmental hazards such as droughts, forest fires, poor air quality, and harmful coastal waters. Both NASA and NARA representatives have discussed affiliated agreements with NARA; however, for reasons unknown to the current personnel, NARA has seen these agreements as unfavorable. Current discussions with NASA and NARA officials indicated they are open to considering these agreements. Moreover, FGDC officials acknowledged this as an area of concern and were in favor of agencies exploring solutions with NARA.

5. Allocate resources to fulfill geospatial data responsibilities.

NASA has not identified a senior agency official who will be responsible for geospatial information; however, the Program Executive for Earth Science Data Systems has been coordinating with the FGDC in an unofficial capacity since its formation in 2002. The Agency is currently determining the duties and responsibilities for this position and is in beginning stages of the hiring process, with an anticipated hire date not yet decided. Further, NASA's OCIO and Earth Science Division are currently gathering information to determine the full extent of the Agency's geospatial data holdings. These efforts should improve the Agency's ability to efficiently allocate resources for geospatial data management.

6. Use geospatial data and metadata standards.

As a custodian of geospatial data, NASA adheres to multiple federal data and metadata standards.¹⁷ Applying these standards ensures data is findable, accessible, interoperable, and repeatable. However, we found the Geospatial Data Act is not clear on the specific geospatial data and metadata standards agencies are required to use. While FGDC representatives confirmed a lack of clarity regarding which specific standards are expected to be adopted in meeting the Act's requirements, they continue to identify standards within the geospatial community to address the intent of the Act.

7. Coordinate with other federal agencies, state, local, and tribal governments, institutions of higher education, and the private sector.

NASA has long-standing partnerships and agreements with other federal agencies, institutions of higher education, and the private sector to process, archive, and make data available to the public.¹⁸ Further, NASA contracts with Amazon Web Services to provide access to NASA datasets by the scientific community and general public via cloud infrastructure. However, these agreements are not specific to geospatial data and focus on effectively managing data holdings from a broader perspective.

8. Make federal geospatial information more useful to the public, enhance operations, support decision making, and enhance reporting to the public and to Congress.

NASA has a history of collecting, storing, and disseminating data to be used by scientific communities, the public, and Congress. The Agency's policies on the open sharing of data have traditionally been broad, without a specific focus on geospatial data. However, as required, NASA is now developing a geospatial data strategy.

¹⁷ These NASA-endorsed standards help ensure data, services, and variables are described in a consistent and comprehensive manner and allow for the precise searching of metadata and subsequent retrieval of data and services. They also help identify the required metadata to be included in science data products, the physical quantities that the data represent, and other ancillary information useful in interpreting the data or comparing it with data from other sources. The various formats and standards used by NASA include NetCDF, OGC KML, ISO, HDF, and GeoTIFF.

¹⁸ These agencies include NOAA, the Department of Energy, the United States Geological Survey, and universities including the University of Colorado and Columbia University.

9. Protect personal privacy and maintain confidentiality in accordance with federal policy and law.

NASA considers personal privacy a key objective for data management, in accordance with the Privacy Act of 1974. The Agency's personal privacy guidance includes NASA Policy Directives, NASA Procedural Requirements, and NASA Information Technology Security Handbooks. System, application, and information owners are required to comply with NASA privacy policies and procedures, and all employees must appropriately protect such information. NASA's Records Officer (who also serves as the Agency Privacy Officer) is coordinating with key NASA data management officials on how best to address the privacy requirements of the Act.

10. Participate in determining whether declassified data can become part of the National Spatial Data Infrastructure (NSDI).

NASA is currently developing its geospatial data strategy. As an early part of this effort, the Agency continues to identify its inventory of geospatial data assets. While NASA maintains policies for declassifying data, the Agency has not determined if declassified geospatial data can become part of the NSDI.

11. Search all sources to determine if existing data meet the needs of the covered agency before expending funds to acquire geospatial data.

NASA's OCIO and Earth Science Division are currently gathering information to determine the full extent of the Agency's geospatial data holdings. As this effort progresses in conjunction with other Agency actions to comply with the Act, NASA will be better positioned to identify its geospatial data assets and leverage existing partnerships and agreements with other federal agencies, institutions of higher education, and the private sector.

12. Ensure that those receiving federal funds for geospatial data collection provide high-quality data.

NASA's Earth Science Division has policies and procedures for defining high-quality data and provides these standards to all NASA missions that collect geospatial data. NASA also has long-standing procedures requiring data management plans to ensure that missions and projects that collect or produce data adhere to NASA-approved standards for data, metadata, and quality. Further, as a result of a recent data quality initiative, 93 recommendations submitted by a NASA working group in support of the data quality information management lifecycle were approved in September 2019. However, based on our discussions with FGDC representatives, it is unclear at this point how "high-quality data" is defined under the Act and to what extent these new standards will impact existing NASA data and metadata processes.

13. Appoint a contact to coordinate with other lead-covered agencies.

NASA has not officially appointed such a contact; however, the Program Executive for Earth Science Data Systems has been coordinating with the FGDC since its formation in 2002.

RECOMMENDATIONS, MANAGEMENT'S RESPONSE, AND OUR EVALUATION

The Geospatial Data Act provides an opportunity for NASA to enhance its management, coordination, and preservation of geospatial data. As the Act's requirements are further defined, NASA will likely have additional decisions to make in collaboration with the FGDC, the results of which we plan to assess during future audits. To utilize the Agency's existing expertise in data management, effectively align the national and NASA strategies to ensure a consolidated response to the Act, and to ensure that geospatial data is appropriately considered for historical preservation, we recommended that NASA's Acting Chief Information Officer and Associate Administrator for the Science Mission Directorate:

1. Appoint a senior agency official for geospatial information to coordinate with the Federal Geographic Data Committee to align NASA's geospatial data strategy with the national strategy and assist in the development of the required data, metadata, and quality standards.
2. Develop a unified Strategy Implementation Plan or "Roadmap" that defines detailed action items, milestones, and responsibilities for geospatial data management in support of missions across NASA.
3. Develop records schedules in coordination with NARA for NASA's historically significant geospatial data assets.
4. Collaborate with NARA to determine if there is value in establishing affiliated data archive agreements for NASA's remote sensing/earth observing geospatial data assets.

We provided a draft of this memorandum to NASA management, who concurred with three of our recommendations, partially concurred with a fourth, and described actions they planned to take. We consider management's comments responsive to all recommendations; therefore, the recommendations are resolved and will be closed upon completion and verification of the proposed actions.

If you have questions or wish to comment on the quality or usefulness of this memorandum, contact Laurence Hawkins, Audit Operations and Quality Assurance Director, at 202-358-1543 or laurence.b.hawkins@nasa.gov.

Paul Martin
Inspector General

Enclosures – 2

Enclosure I: Scope and Methodology

Objective and Scope

We performed this audit from May 2020 through September 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Our audit objective was to evaluate the extent to which NASA is managing its geospatial data in accordance with the Act. However, prior to our initial work on this audit, the Council of the Inspectors General on Integrity and Efficiency (CIGIE) convened a working group on how to approach this inaugural, government-wide audit. The group notified relevant Congressional committees that the primary focus of the audit should be agencies' progress toward compliance with the 13 responsibilities listed in Section 759 of the Geospatial Data Act.

Methodology

To determine whether NASA complied with the requirements of the Geospatial Data Act, we reviewed applicable laws and regulations and interviewed various NASA personnel including the Deputy Chief Data Officer, multiple geospatial specialists, the Chief Archivist, and the Records Officer. Additionally, we interviewed individuals from the National Archives and Records Administration (NARA), and the Federal Geographic Data Committee (FGDC). National Oceanic and Atmospheric Administration (NOAA) officials provided insight and benchmarks regarding the preservation of geospatial data. Finally, we performed our audit steps as outlined in the CIGIE guidance.

Assessment of Data Reliability

We used limited computer-processed data from the data.gov database to determine the number of NASA geospatial datasets. Although we did not independently verify the reliability of this information, we compared it with other available supporting documents to determine data consistency and reasonableness. From these efforts, we believe the information we obtained is sufficiently reliable for this report.

Review of Internal Controls

We assessed internal controls and compliance with laws and regulations necessary to satisfy the audit objective.

Prior Coverage

Because this is an inaugural government-wide audit of the Geospatial Data Act, the NASA Office of Inspector General has not issued any reports directly related to the Act; it has, however, issued reports on other aspects of science data which add context to this audit subject. The Government Accountability Office (GAO) has issued one recent report on geospatial data. Reports can be accessed at <https://oig.nasa.gov/audits/auditReports.html> and <https://www.gao.gov>.

NASA Office of Inspector General

NASA's Management of Distributed Active Archive Centers (IG-20-011, March 3, 2020)

Review of NASA's Fiscal Year 2019 Digital Accountability and Transparency Act Submission
(IG-20-004, November 7, 2019)

NASA's Compliance with the Digital Accountability and Transparency Act of 2014
(IG-18-004, November 7, 2017)

Government Accountability Office

Geospatial Data: Progress Needed on Identifying Expenditures, Building and Utilizing a Data Infrastructure, and Reducing Duplicative Efforts (GAO-15-193, February 2015)

Enclosure II: Management's Comments

National Aeronautics and
Space Administration

Headquarters
Washington, DC 20546-0001



October 2, 2020

Reply to Attn of: Office of the Chief Information Officer

TO: Assistant Inspector General for Audits

FROM: Associate Administrator for Science Mission Directorate
Chief Information Officer (Acting)

SUBJECT: Agency Response to OIG Draft Report, "Audit of NASA's Compliance with
the Geospatial Data Act" (A-20-013-00)

NASA appreciates the opportunity to review and to provide comments to the Office of Inspector General (OIG) draft report entitled, "Audit of NASA's Compliance with the Geospatial Data Act" (A-19-015-00), dated September 15, 2020.

The OIG conducted the mandated audit of NASA's compliance with the Geospatial Data Act of 2018. The objective of the audit was to evaluate if NASA is managing its geospatial data in accordance with the Act. In the draft report, the OIG noted that NASA is in the initial stages of addressing the requirements identified in Section 759 of the Geospatial Data Act, however, many activities are still ongoing, and their outcomes are unknown. Additionally, the OIG determined that while the Agency has been collecting geospatial data, it has not established records schedules with the National Archives and Records Administration (NARA) or appointed a senior official to manage geospatial data. The OIG made four recommendations addressed to NASA's Acting Chief Information Officer (CIO) and Associate Administrator for the Science Mission Directorate (SMD) intended to align the national and NASA strategies to ensure a consolidated response to the Act and to ensure that geospatial data is appropriately considered for historical preservation.

Specifically, the OIG recommends the following:

Recommendation 1: Appoint a senior agency official for geospatial information to coordinate with the Federal Geographic Data Committee to align NASA's geospatial data strategy with the national strategy and assist in the development of the required data, metadata, and quality standards.

Management's Response: Concur. The CIO, in consultation with SMD, will appoint a senior Agency official for geospatial information.

Estimated Completion Date: January 1, 2021.

Recommendation 2: Develop a unified Strategy Implementation Plan or "Roadmap" that defines detailed action items, milestones, and responsibilities for geospatial data management in support of missions across NASA.

Management's Response: Concur. The CIO in coordination with SMD will develop a unified Strategy Implementation Plan or "Roadmap" for geospatial data. This effort needs to be done in the context of the wider NASA data strategy. The Evidence Making Policy Act of 2018, the Federal Data Strategy, and OMB M-19-23 task the Chief Data Officer and the Data Governance Board to develop a NASA-wide data strategy and open data strategy. Geospatial data will be an important part of these wider efforts.

Estimated Completion Date: September 30, 2021.

Recommendation 3: Develop records schedules in coordination with NARA for NASA's historically significant geospatial data assets.

Management's Response: Partially Concur. NASA has existing National Archives and Records Administration (NARA)-approved retention schedules for program records that, in part, cover geospatial data assets for historically significant data assets. The Office of the CIO will collaborate with SMD to determine whether existing records schedules are adequate and identify any gaps in coverage. The records officer will then partner with SMD and NASA data owners to develop any required new or revised schedules. NASA will coordinate with NARA on any new or revised record schedules.

Estimated Completion Date: September 30, 2021.

Recommendation 4: Collaborate with NARA to determine if there is value in establishing affiliated data archive agreements for NASA's remote sensing/earth observing geospatial data assets.

Management's Response: Concur. The CIO's Records Officer, in collaboration with NARA, will determine if affiliated data archive agreements would be a valuable and efficient way to archive remote-sensing/Earth-observing geospatial data assets.

Estimated Completion Date: April 1, 2021.

We have reviewed the draft report for information that should not be publicly released. As a result of this review, we have not identified any information that should not be publicly released.

Once again, thank you for the opportunity to review and comment on the subject draft report. If you have any questions or require additional information regarding this response, please contact Ms. Fatima Johnson on (202) 358-1631.

Thomas
Zurbuchen

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Thomas H. Zurbuchen, Ph.D.
Associate Administrator
Science Mission Directorate

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