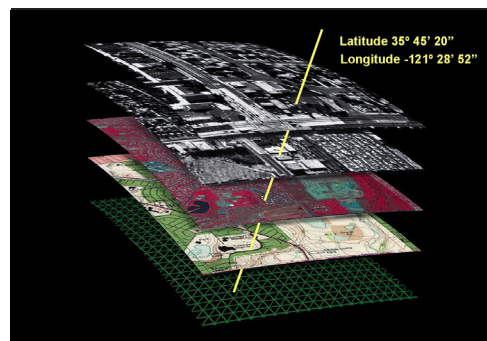
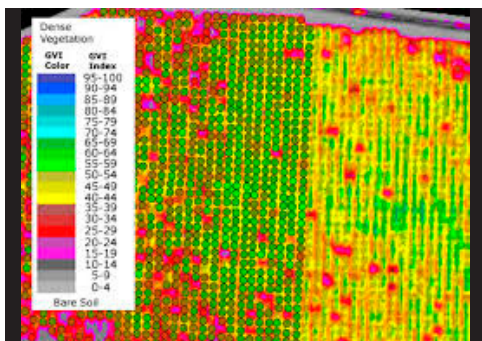
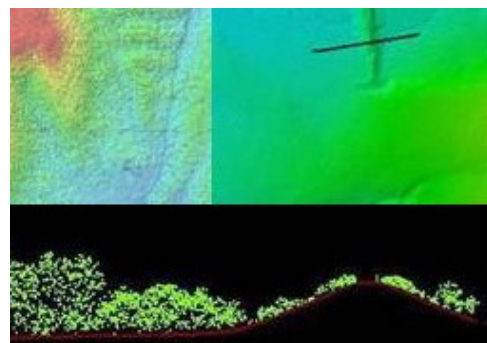
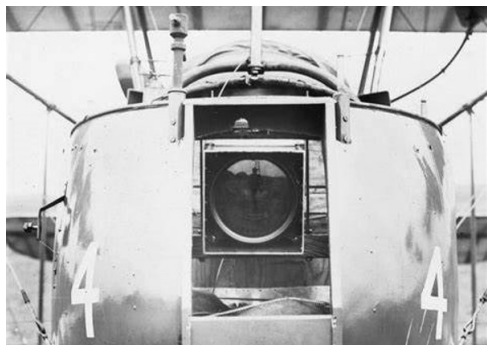




United States Department of Agriculture



Geospatial Enterprise Operations

Business Services Catalog

Version Tracking

The GEO Business Services Catalog is an online publication of the services GEO provides to its customers. The online version is the authoritative source of information on GEO's offerings and is a living document that changes as services are added, changed or retired.

This version is a cumulative document for the purpose of downloading and is updated with addendum notices as necessary. The online version of this catalog is maintained regularly and is the authoritative source.

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About Information Solutions Division (ISD)

The **Information Solutions Division (ISD)** provides national leadership and technical direction while serving as the principal advisor on information technologies to the Farm Production and Conservation (FPAC) mission area, its leadership, and other key officials. Organizationally, ISD resides in the FPAC Business Center (FBC) as an enterprise level shared service to the Farm Service Agency (FSA), Natural Resource Conservation Service (NRCS), and Risk Management Agency (RMA). ISD is led by the FPAC Assistant Chief Information Officer (ACIO) who is responsible for establishing, implementing, maintaining, and managing all Information Technology (IT) policies, practices, guidelines, frameworks, programs, procedures and standards as required by statute, regulation, and United States Department of Agriculture (USDA) Departmental policy.

About Geospatial Enterprise Operations (GEO)

Geospatial Enterprise Operations, under the FBC Assistant Chief Information Officer (ACIO), serves as an enterprise leader in the FPAC mission area geospatial environment (geography, Geographic Information Systems (GIS), Global Positioning System (GPS), Remote Sensing and Geo Science) while additionally contributing to in creating and maintaining the USDA's geospatial policy, governance, and enterprise strategic design in concert with FPAC strategy. GEO partners with FPAC, USDA, and other external customers to deliver some of the nation's most foundational geospatial information.

GEO has three sections that address multiple geospatial capabilities and customer needs which include geospatial strategy, planning, operations, and delivery. These geospatial capabilities are delivered through the following organizational sections:

- Geospatial Data Management and Provisioning Section;
- Geospatial Data Inspection, Enhancement and Delivery Section;
- Geospatial Technology, Coordination, and Project Execution Section.

This approach allows GEO to unpack the vast diversity of geospatial technologies and expertise and develop solutions that meet and often exceed business needs.

- **Geospatial information technologies** – Geospatial data files are very large when compared to tabular data. These factors necessitate an information technology-oriented staff that are experts in various types of geospatial data sets. Proper data management is key when developing a strategy to facilitate the right geospatial data being available to the consumer while adhering to prudent financial management practices.
- **Geospatial “reach-back” expertise** – Field staff are often confronted with disaster situations where additional support is needed. GEO employs a cadre of Cartographers, GIS specialists, Imagery Analysts, and other geospatial professionals who deliver solutions for challenges that

provide support field staff with time sensitive real world events that require geospatial tools and applications that are deployed quickly and efficiently. GEO also has expertise in historical data, trend analysis, and remote sensing technologies such as land cover identification. Additional projects include enabling historical information for inclusion in the digital library and conducting trend analysis to tell the story of identified areas of America's vast land inventories.

- **Innovative solutions** – Geospatial technology brings out the power of location through analytics, geospatial modeling, data-intensive geospatial information science, and spatial related application development. Comprehensively addressing opportunities and challenges, roadmaps for research and development, trends, and impacts of GIS in the era of big data. Ensuring a high performance, resilient platform allowing government and enterprise sectors to leverage a plethora of geospatial technology and data types, including 3D data and imagery to optimize business processes and develop new products and services.
- **Centralized management practices** – GEO employs program and project management specialists to consolidate geospatial work. Imagery, elevation, and records digitization are more effectively executed when subject matter experts (SME) provide solutions that serve more enterprise consumers. The USDA experiences more financial and usage efficiencies as GEO finds solutions to more projects throughout the agency.

Geospatial Enterprise Operations serves the FPAC Mission Area with best-in-class innovative customer-focused geospatial information and solutions that are accessible, current, and authoritative.

NOTE: This document describes GEO's current service offerings; however, it should be understood that this is a "living document" and continues to receive updates to services and products.

Contact GEO

For more information on the Products and Services offered by GEO, contact the Customer Fulfillment Center (CFC) Email: GEO.CFC@usda.gov

To comment on the Service Catalog please contact the Customer Experience office at GEO.CXO@usda.gov

Internal to USDA

GEO Customer SharePoint Site: <https://ISDGEO.sharepoint.com/>

External to USDA

[GEO/CFC Web Site](#)

Geospatial Data Management and Provisioning

Services Description

Geospatial Data Management and Provisioning analyzes, designs, and develops enterprise level solutions to geospatial data ingestion, storage, and Geographical Information Systems (GIS) in collaboration and alignment with FPAC ISD Branches and standards. It is here that GEO manages FPAC's vast historical digital imagery library, containing nearly 10+ petabytes of digitized film images dating back to the 1950's.



Geospatial Data Management and Provisioning supports geospatial components of enterprise application development in conjunction with ISD Information Solutions Service Delivery and Operations Branch (ISSDOB). Advises Mission Area subject matter experts (SMEs) and ISD Branches as appropriate on application development investment decisions in cases where there is a geospatial component.

Available Services

Geospatial Data Management and Provisioning guides and provides expertise to other GEO Branch sections and FPAC Mission Area SMEs to assess out of the box data models, scripts, and tools to develop, deploy and support enterprise level workflow.

- Define policy
- Assess process
- GEO Data Strategy
- Coordinate / assess RACI - CEC/DISC
- Commercial of the Shelf (COTS) applications consolidation
- Hierarchical Storage Management (HSM) consolidation
- Cloud Strategy/participation
- Software Development Life Cycle (SDLC) Oversight of implementation
- Consolidation of Data Services
- Assessment of Infrastructure
- Asset consolidation
- Ensure Authority to Operate (ATO) of all systems
- Change Management
- Establish GIT Hub repository
- Oversight of Service Level Agreements (SLA(s))

Geospatial Software Support and Hardware Procurement

Services Description

Often times, the use of geospatial data in mission area workflows requires specialized software or hardware configurations, Geo-spatial Software Support and Hardware Procurement ensures GIS applications, tools and products are integrated and available in mission area program support and delivery processes.



Available Services

Supports escalated geospatial software decisions to include:

- Tier 3 application support for escalated tickets, and technical support to the states for GIS applications in collaboration with the ISD Information Solutions Service Delivery and Operations Branch, as appropriate.
- Use of imagery, elevation, global positioning system (GPS) and other data across FPAC and other organizations.
- Geospatial software needs of the FPAC agencies.
- Leads GIS/geospatial data hardware requirements, evaluation, testing and procurement assistance in collaboration with ISD Information Solutions Service Delivery and Operations Branch as appropriate to include but not limited to leadership, management, and support of geospatial data specific storage devices.
- Liaises between the geospatial community and ISD, on hardware and software requirements, systems diagnostics, and troubleshooting.
- Evaluates and advises on geospatial software purchases.
- Ensures new software and application updates are certified for use in the FPAC environment.
- Ensures annual maintenance and licensing agreements are current.
- Provides technical integration and deployment of enabled GPS software, GPS supporting software, and other data collection software to end user devices and to infrastructure in collaboration with the ISD Information Solutions Service Delivery and Operations Branch as appropriate.
- Remains abreast of state-of-the-art concepts related, but not limited to GIS, remote sensing, digital image processing, graphics and crop models, and trends in application, hardware, and software development.
- Works in concert with USDA and its subordinate Agencies on GIS software evaluations, version updates, and deployment strategies.

GIS Application Development

Services Description

The mission of GIS Application Development (GAD) is to provide the USDA with technical leadership and expertise in GIS applications, tools, and products. Our vision is to enable business application solutions to take advantage of location data by leading the FPAC mission area in delivering enterprise geospatial solutions through an Application Program Interface (API).



Business Functions

- Modernize program delivery systems to meet business needs and leverage IT strategic goals.
- Modernize information technology systems, reducing processing times for program benefits.
- Oversee the creation of authoritative national GIS layers such as the Common Land Unit.
- Evaluate potential new technologies for improving data development and program delivery.
- Work with GIS application sponsors to capture and refine policies and procedures.
- Provide support and assistance for software used in spatial analysis for business needs.



Source: Getty Images.

Geospatial Governance

Services Description

Geospatial Governance provides technical standards for geospatial data in alignment with the Federal Geographic Data Committee (FGDC) and the International Organization for Standardization (ISO) to include, but not limited to, imagery, high resolution elevation data, and other geospatial data for use by geospatial information consumers.

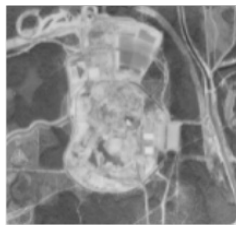


Governance Support

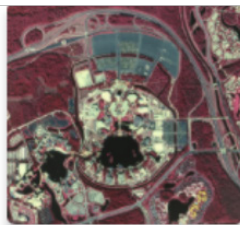
- Account management of Geospatial systems and services
- Maintain web presence
- Maintain Business Process Documentation
- Needs assessment and solutions engineering
- Requirements
- Establish repository and versioning
- ATO Draft GEO-IT policy and guidance

Website change requests such as these below, are performed to educate geospatial customers to the vast amount of data available for a wide and varied use in everyday applications. Geospatial Information and data captures are integrated into ever increasing business operations and require appropriate standardization.

PHOTO PRODUCTS



1980 Black & White

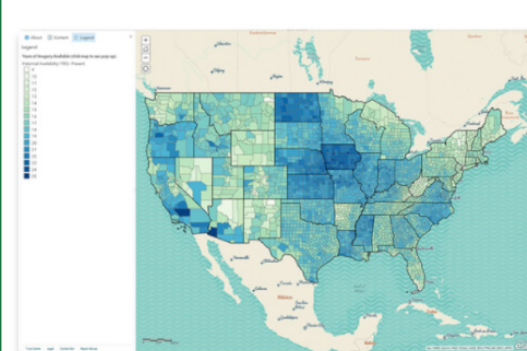


1998 Color Infrared



2013 Natural Color

Historical Availability Map



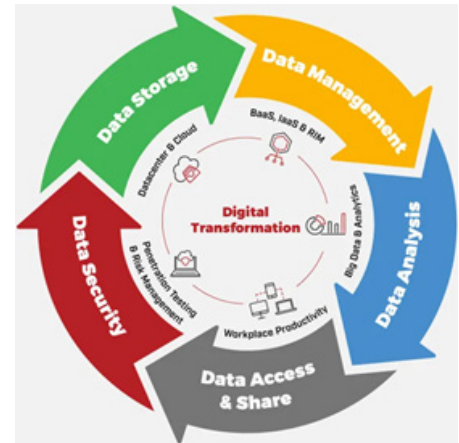
IMAGERY CATALOGS

Geo Database Management

Services Description

Geo Database Management supports program leaders in acquiring, managing, and maintaining FPAC imagery, elevation, and geospatial databases such as the Oracle Imagery database. The organization will perform research, design, plan for and develop, review, maintain, and make recommendations concerning database program changes. There is a continued effort to move into a cloud based technology and this work is quickly evolving as we develop new input forms and reports with an emphasis in Oracle.

- Management of all Databases - Oracle, Structured Query Language (SQL), etc.
- Impact assessment
- Recommendation for new Database's (DB)
- OBIEE (Oracle Business Intelligence Enterprise Edition)



Source: <https://precisionagriculture.re/gps-has-evolved-in-state-and-use-in-the-past-years-in-the-agricultural-industry/>

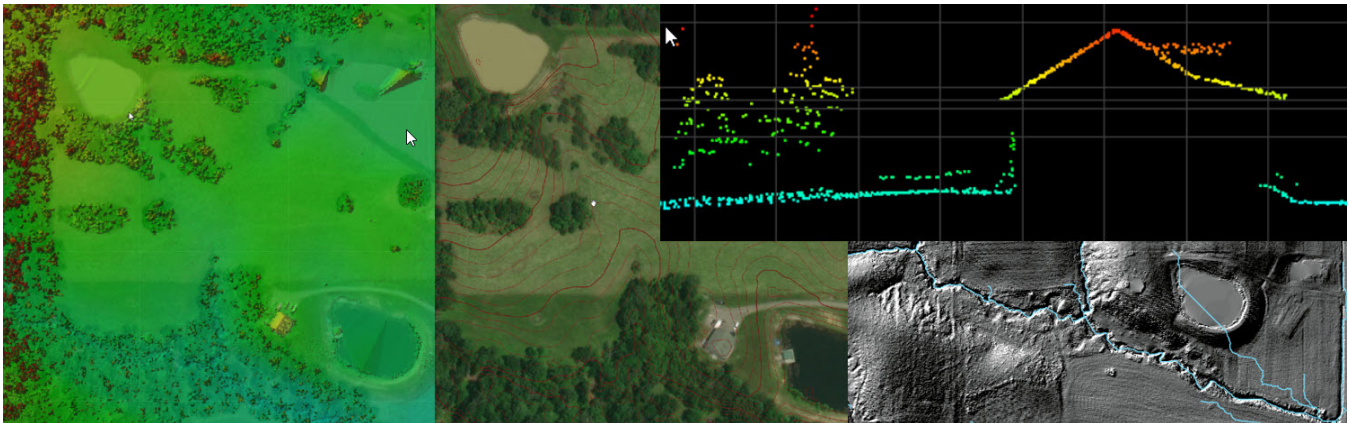
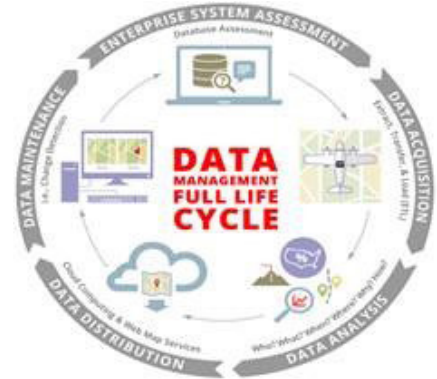
Geospatial Data Management Services

Services Description

Geospatial Data Management Services develops, manages, and supports authoritative FPAC geospatial data and the distribution networks of such data to mission area, federal, and public customers supported by the ISSDOB as appropriate.

Geo-Data Delivery Solutions

- Geodata Analysis
- Data Management
- Data Distribution
- Archive
- Storage Assessment
- Provide Input to policy
- Input to Data Strategy
- Metadata
 - ◊ Standards (ISO)
 - ◊ Production
 - ◊ Management

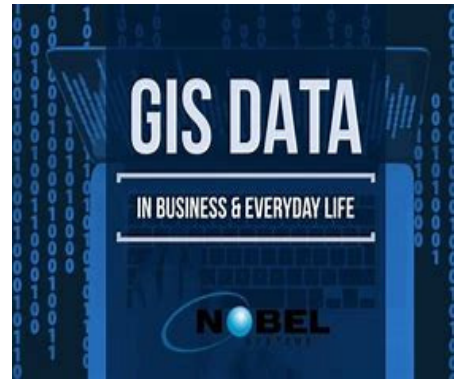


The image was created by using ArcGIS Pro and “value add” Light Detection and Ranging (LiDAR) points and hillshade for use in a conservation plan.

Geospatial Data Provisioning

Services Description

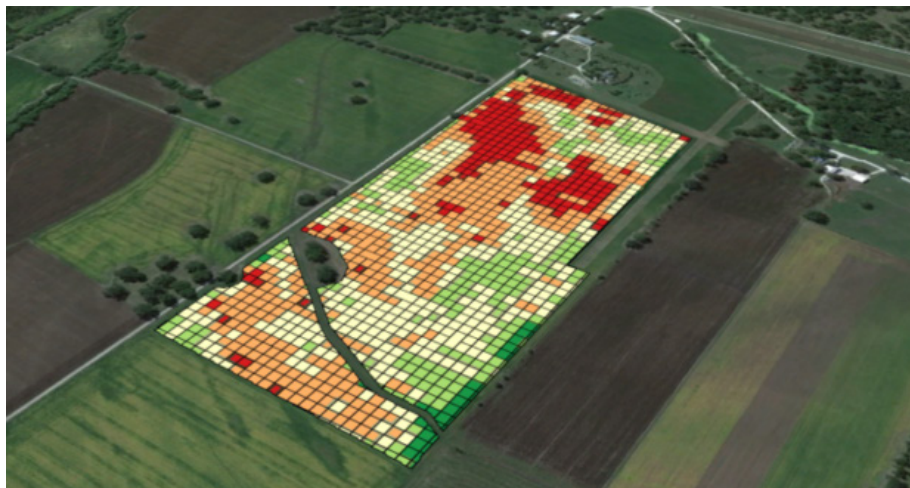
Geospatial Data Provisioning creates the proper IT infrastructure to manage access to authoritative geospatial data and resources. This critical function facilitates the continuous availability of actionable information into consuming business applications and user systems. Some of these provisioning systems include the Geospatial Data Gateway, Continental United States (CONUS) Prime, Historical Imagery, Common Land Unit databases, and various other catalogs.



- Develops, manages, and supports authoritative FPAC geospatial data and the distribution networks of such data to mission area, federal, and public customers supported by the ISDDOB as appropriate.
- Manages external and internal-facing geospatial data portals and cartographic products (for example: Enterprise Data Center (EDC) ArcGIS Online (AGOL)).
- Windows Based environment for the distribution of aerial imagery via web services and applications.

Available Systems

- Geospatial Shared Services System
- Provides geospatial web services and components that can seamlessly integrate into enterprise business systems.
- Geospatial Data Gateway
- Provides a one stop shop for environmental and natural resource data, at any time, from anywhere, to anyone.
- Web Mapping Services
- Provide National Agriculture Imagery Program (NAIP) layers that can be consumed by geospatial desktop applications.

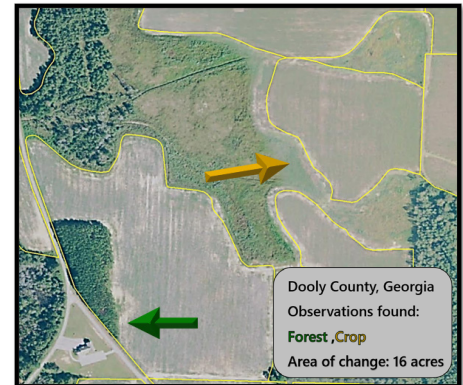


Source: <https://www.farmmanagement.pro/mapping-as-a-path-to-success-in-precision-agriculture/>

Data Inspection, Enhancement, and Delivery

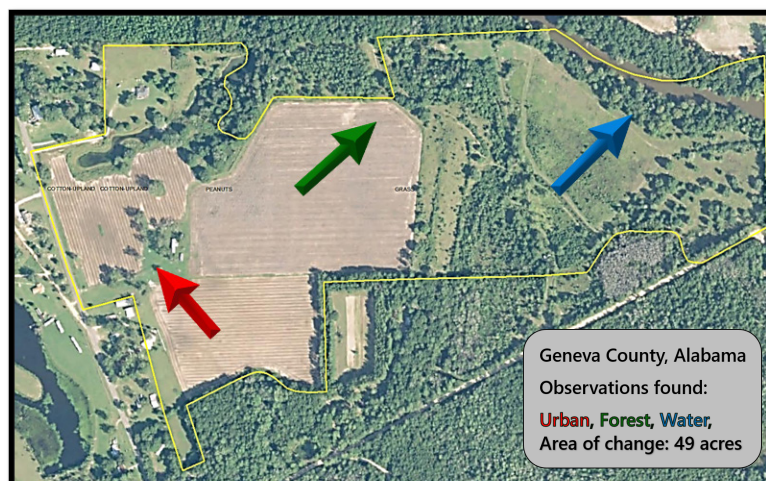
Services Description

Data Inspection, Enhancement, and Delivery (DIED) Section provides quality assurance, product, and solution delivery services for FPAC GEO. Our Inspection team works to ensure the integrity and quality of geospatial data products acquired and processed through FPAC GEO. We offer a state-of-the-art film scanning laboratory for historical imagery and photographic support services for customized printing. The Technology, Science and Analytics teams provide innovative geospatial solutions based on custom models, algorithms, and configurations of new and existing software to solve mission critical needs around the FPAC partner agencies and USDA. Unique to FPAC GEO the DIED Customer Fulfillment team provides the public face of FPAC GEO for support and delivery of imagery products.



Available Products and Services

- Imagery
- Common Land Unit (CLU)
- Certification
- Geospatial Data Research
 - ◊ Aerial Coverage Determination
 - ◊ Customized Photographic Reproductions
 - ◊ Electronic & Media Delivery
 - ◊ Georeferencing
- Digital Image Customization
- Film Digitization
- Historic Film Image Scans
- Index Scans
- Georeferenced Photo Indices
- Create Historical Photo Center Points
- GPS Support
- Analytic Services
- LCAT (Land Change Analysis Tool) Data
- Historical Imagery Orthorectification
- Geospatial Scripting, Application, and Model Development
- Support ArcGIS Online (AGOL)
- National Agriculture Imagery Program (NAIP) Contract Spec
- Imagery Inspection Services
- Geospatial Help Desk
- Customized Environmental Systems Research Institute (ESRI) Web Applications



Customer Services

Services Description

The Customer Services team is the public facing front door to FPAC's geospatial products and services. Geospatial information held by FPAC is used by a wide consumer base for government, commercial, and private citizen activities. Due to a delegated authority from the Secretary of Agriculture, GEO serves as the collection point for imagery projects across the USDA and has developed a significant library of information that is used outside the agriculture community. This information serves as a tool assisting government organizations in planning, litigation, and disaster assessment while also establishing a base map image for everyday citizenry.



The team manages the public facing Customer Fulfillment desk that supports customers (virtually and physically) by assisting with research in determining the geospatial content specific to their need. Available content may include spatial (a certain place) and/or temporal (a certain time period) requirement. The team's daily activities include receiving research requests, creating customer orders, processing reimbursable collections, working with production staff, and managing product delivery. The team collaborates with the Production, Geospatial, and IT Services teams to deliver customer needs.

Available Products

Imagery – GEO offers copies of desired imagery in many formats, sizes, and delivery mechanism. Hard copy photos as well as digital representations are available.

CLU – Common Land Unit is a county farm and tract boundary used to measure acreage and determine crop yield among other uses. This dynamic geospatial process is frequently updated to ensure dataset is current. Section 1619 (7 USC § 1619) of the 2008 Farm Bill restricts sharing of CLU data.

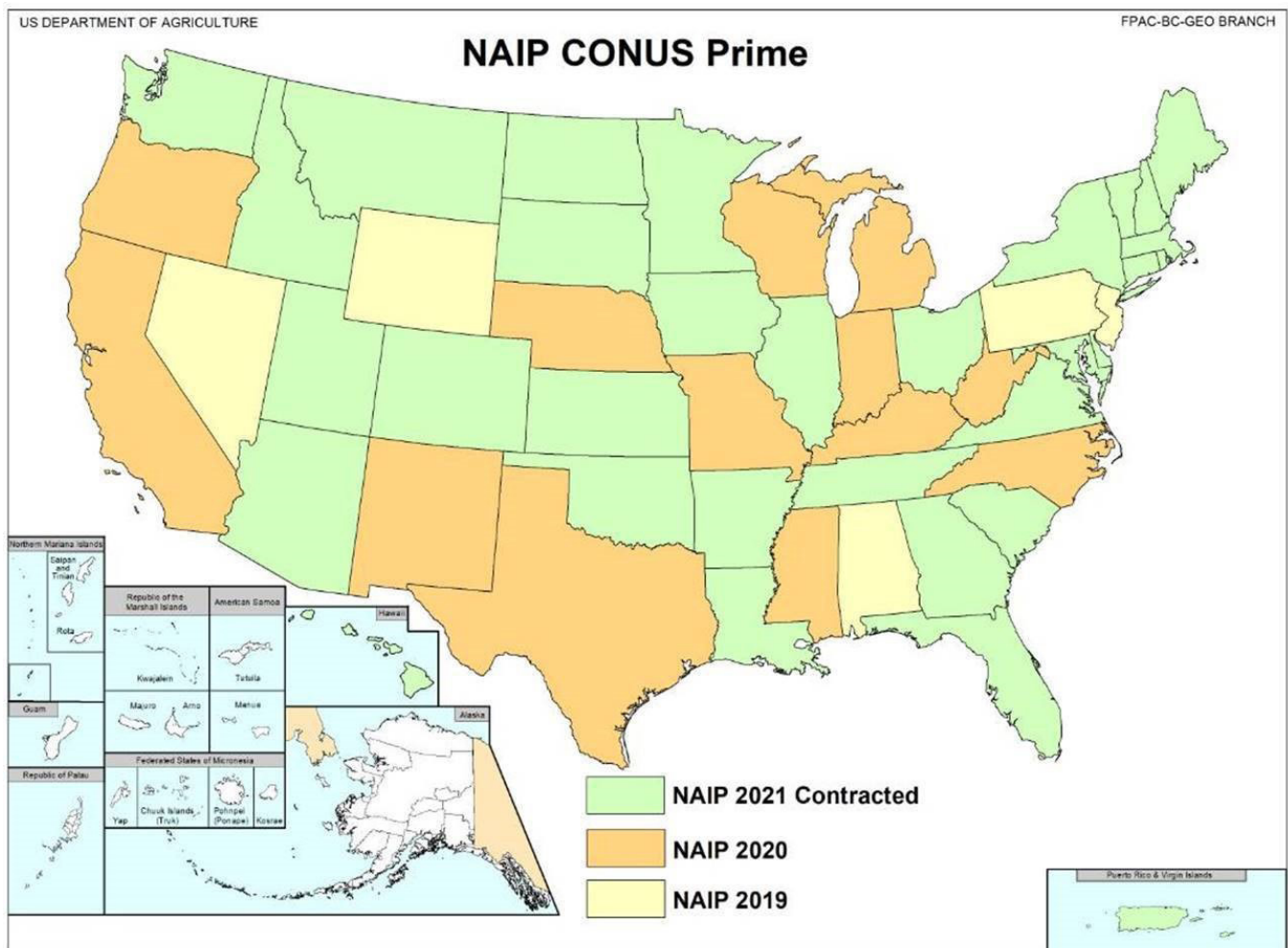
Certification – A letter stating official regulation and original film holdings location indicating aerial identification and date with state and county covered. Used for court cases and physically attached to aerial photographic reproductions. Also available is a standard Letter of Origin that can be provided without certification and includes the same information.



Available Services

Geospatial Data Research – Is an innovative-systematic approach to verify and study GEO's geospatial holdings to increase the level of knowledge, awareness, and understanding the nature and availability of products and services available to support the FPAC mission and supports the following ordering activities:

- Aerial Coverage Determination
- Customized Photographic Reproductions
- Electronic & Media Delivery
- Georeferencing



Production Services

FPAC Mission Area and Beyond

Production Services operates and maintains GEO's historical film scanning operation which includes 14 photogrammetric grade film scanners. This world-class capability puts GEO on the forefront of film digitizing efforts within the Federal government. The Production Services Team is currently embarked on scanning over 9 million USDA historic film images kept at its Salt Lake City library location and is expected to be complete within the next decade. While scanning the USDA's film library is a huge undertaking, this effort does not interfere with providing film scanning services to a wide variety of customers needing historical film scans for projects requiring geospatial data analysis in agriculture, environmental, litigation, and academia just to name a few.



Available Services

Digital Image Customization – Photographic print and image layout customization services include but are not limited to a single image, merging multiple images or several standalone images intended for display on a single piece of media, resizing, color correcting and a variety of customization options are only limited by software application and customer requirements. Deliverables typically range in size from 10" x 10" to 30" x 40" display products.

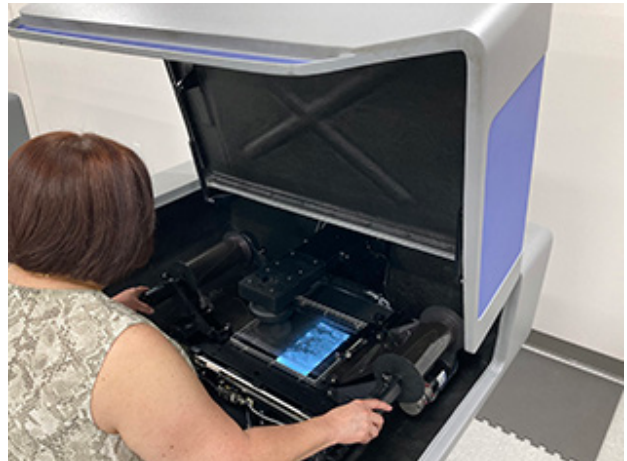
Film Digitization – Film scanning service supports the digitization of film image records for government and general public customers. The original film scale determines the ground sampling distance of the scanned image. Our scanning resolution range is 7 to 50 microns in tiled-Tagged Image File Format (TIF) and produces a submeter image resolution typically ranging from 0.25m to 0.71m with file sizes from 0.35 GB to 1.1 GB. The high-resolution images provide the ability to zoom in and enlarge to meet most user's needs. Years of availability range from 1951 to 2012 depending on the various programs and some years may have already been digitized.



Historic Film Image Scans – 12.5-micron high resolution film image scans of historical aerial photography collected from 1951 to 2012. Includes:

- Agriculture Stabilization Conservation Service (ASCS/FSA), 1955 - 1994, Film scale of 1:20,000 from 1951 -1970, Film scale 1:40,000 from 1970 – 1994
- US Forest Service (FS), 1951 – 2012 film scale ranging from 1:3,000 to 1:40,000
- Soil Conservation Service (SCS/NRCS), 1955 – 2006, Film scale of 1:20,000 from 1951 - 1970, Film scale 1:40,000 from 1971 – 2006
- National High Altitude Program (NHAP) 1980 – 1987 film scale 1:60,000
- National Agriculture Photography Program (NAPP) 1987 – 2006 film scale 1:40,000
- National Agriculture Imagery Program (NAIP) 2003 – 2009, film scale range of 1:40,000 to 1:60,000

Index Scans – Image scans of historical program photo indices from 1955 – 1994. Line Index scans for all programs from 1980's to film collection end. An index provides a visual representation of the flight lines or photo overlapped frames for coverage and imagery identification. Standard digital formatted are available and are extensively used to support geospatial data research.



Geospatial Technology and Training

Services Description

Geospatial Technology and Training provides geospatial centric training and assistance to FPAC agencies, specifically FSA field units. This includes support for GPS technology evaluation and employment, imagery application into workflows, and enabling historical geospatial information for inclusion in modern day analysis through georeferencing of historical imagery and photo indexing.

Available Services

Georeferenced Photo Indices – The team creates georeferenced historical film indices in support of generating center points.

Create Historical Photo Center Points – The team creates photo center points that are generated from the georeferenced historical film indices. These points are then used in research tools and catalogs.

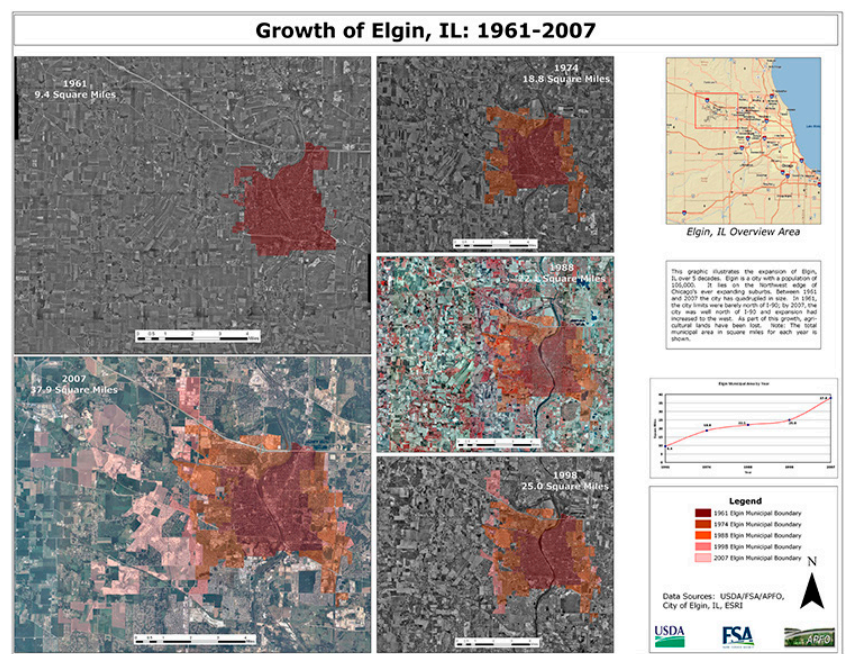
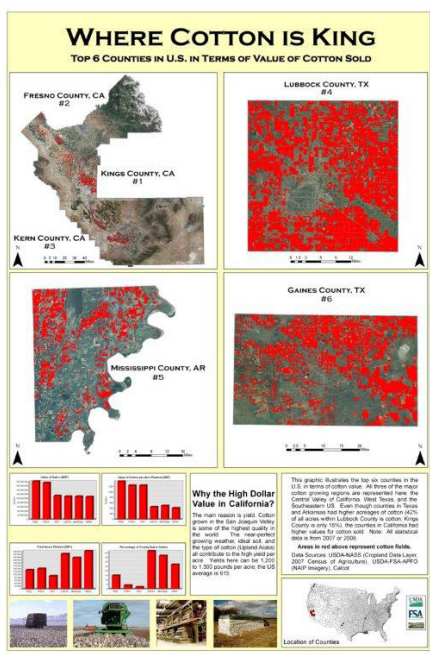
GPS Support – The team provides support for GPS units. This includes device refresh, software updating, and general support.

Georeferencing – The team performs spatial correction of non-referenced imagery.

Analytic Services – The geospatial services team provides imagery analytics to support FPAC needs. This includes raster analysis, image classification, and image processing.



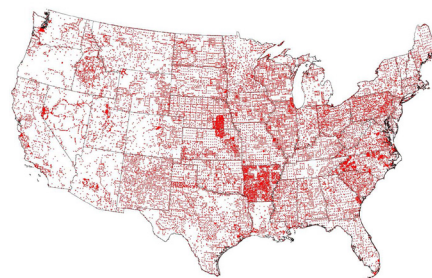
Examples of Geospatial Technology and Training



Geospatial Research and Science

Services Description

The Geospatial Research and Science teams are the heart of applying geoscience capabilities to address mission area challenges. By providing subject matter expertise in the areas of scripting, remote sensing analysis, image classification, and general geospatial support, customers can better understand land developments and changes. GEO can assist mission areas with change analysis, disaster impacts, and better understanding of “where” something has or has not happened.



Available Products

LCAT (Land Change Analysis Tool) Data – The land change analysis tool outputs maps and raster data that illustrate land cover types using NAIP imagery. The output data has a 60cm pixel size. Currently, LCAT is covering several states in the southeastern US for different years of NAIP.

Historical Imagery Orthorectification – FPAC’s vast imagery library needs to be enabled for use before it becomes useful to the broad consumer. Orthorectification corrects an aerial photograph or satellite image geometrically such that the scale is uniform following a given map projection. This process facilitates the images use in modern applications and systems, making the USDA Film Library a substantial source of information for all. GEO’s completed orthoimagery catalog will cover the years 1955 to 1994 and will have different ground sample distances. The resolution will vary from 25cm to 2 meter depending on the nominal scale of the imagery.

Available Services

Geospatial Scripting, Application, and Model Development – The team develops web applications within the ESRI environment, scripts, and models (using R Studio, Python, etc.) to assist and enhance geospatial projects. Development includes, inspections tools, change detection and land classification models.

Support ArcGIS Online (AGOL) – The team provides complete administration and support for AGOL. This includes creating and maintaining accounts, creating maps, and general support.

LCAT Service – The land change analysis tool outputs maps and data services for GEO and USDA customers. The LCAT data is generated through point classification and uses R and python scripting.

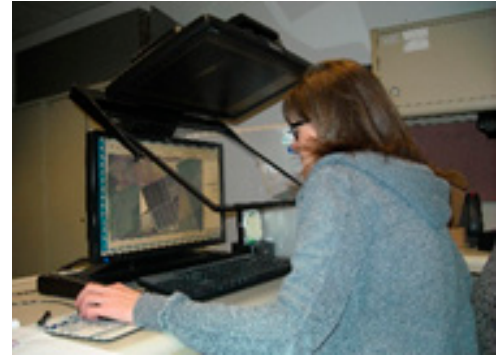
Historical Imagery Orthorectification Service – The team provides orthorectification services to customers of non-georeferenced imagery.

National Agriculture Imagery Program (NAIP) Contract Spec – The geospatial services team supports NAIP through subject matter expertise. This includes researching sensor systems, evaluating imagery samples, and supporting the contract officer regarding the NAIP contract. The team also develops and updates the NAIP technical specifications as needed.

Imagery Services

Services Description

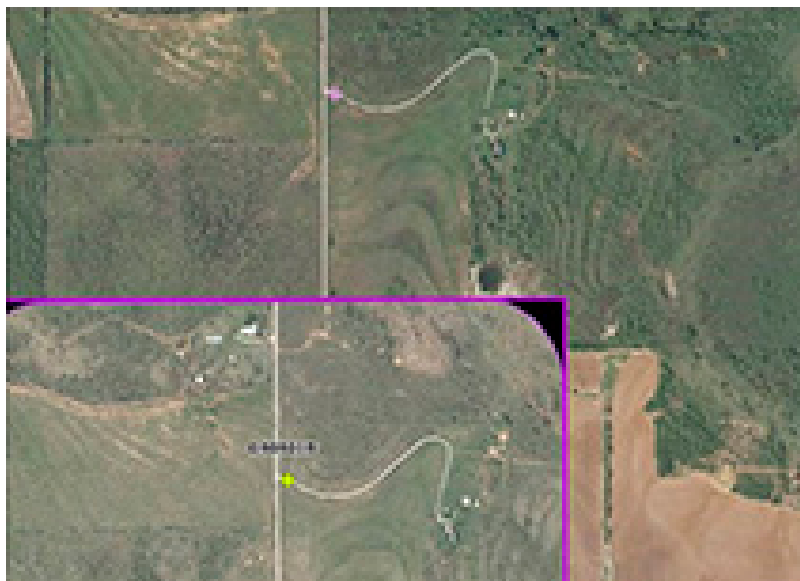
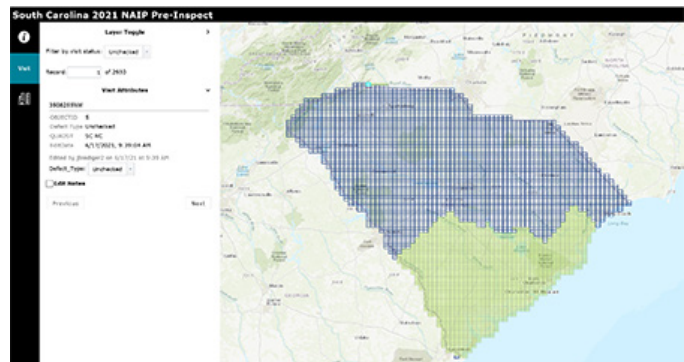
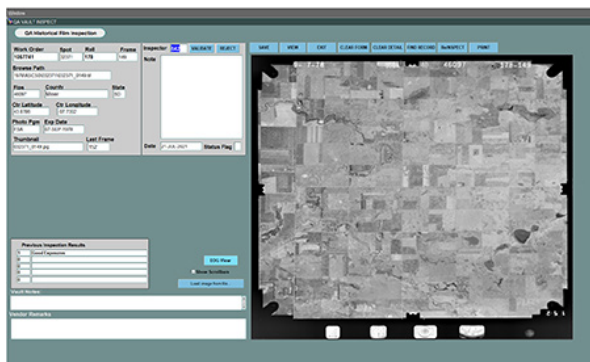
Quality assurance is critical to establishing the correctness of the foundation information sets that are acquired by and used within FPAC. The Imagery Services team provides inspection services for geospatial data to ensure compliance with product requirements/specifications. These services span both the digital and native film holdings.



Available Services

Imagery Inspection Services – Evaluates all Geospatial data against customer requirements, major defects include: (cloud cover, offsets, distorted imagery, horizontal accuracy, image clarity/distortion and pixel resolution) validates project completion through reconciliation processes, and reports findings to project management.

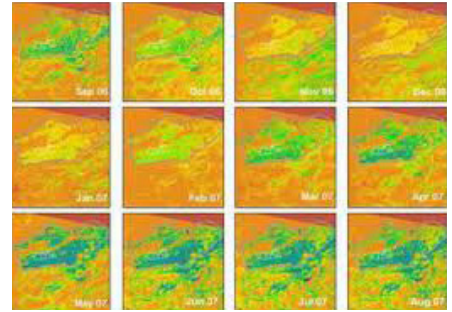
Examples of Imagery Services



Imagery Analytics

Services Description

Imagery Analytics provides customized ESRI applications utilizing ESRI Enterprise and AGOL infrastructure and provides GIS help desk management.

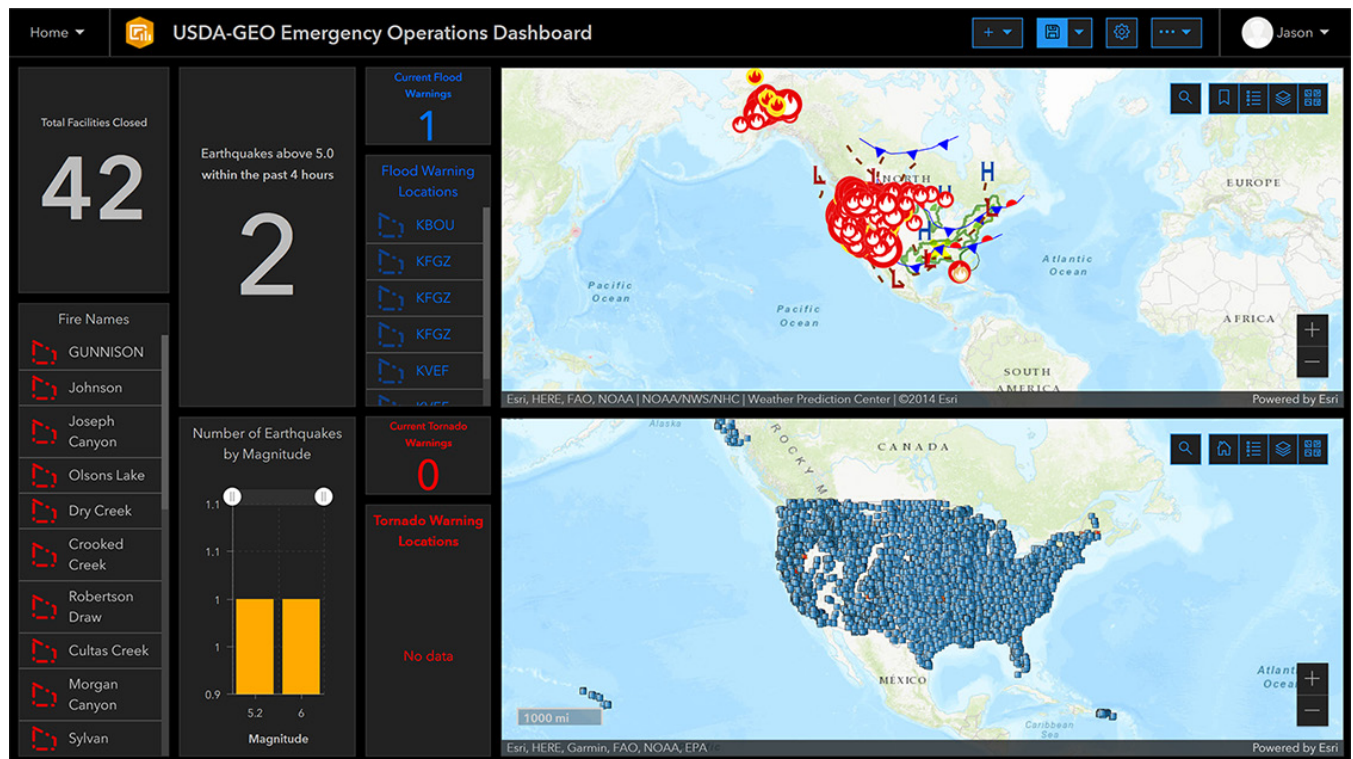


Available Services

Geospatial Help Desk – Assists internal customers with GIS related desktop, mobile, and online applications, as well as geospatial web services and accounts. The team identifies needs, troubleshoots problems, publishes solution papers, and hosts teleconferences for user groups. The team also serves as the government representative to ESRI for technical support and projects.

Customized ESRI Web Applications – Create customized GIS analytical web map apps and dashboards to leverage AGOL, ArcGIS Enterprise, ESRI Event Server to be able to perform situational analytics in near real time, creating GIS power tools for decision makers.

USDA-GEO Emergency Operations Dashboard.



Geospatial Technology Coordination and Project Execution

Services Description

Geospatial Technology Coordination and Project Execution provides leadership and support at the national and state level for the use of geospatial technologies including Global Positioning Systems (GPS) and Global Navigation Satellite Systems (GNSS), Geographic Information Systems (GIS), Light Detection and Ranging (LiDAR) elevation, Small Unmanned Aircraft Systems (sUAS), Mobile Workflows, and to the FPAC Mission Area.

- Represents the FPAC Mission Area geospatial activities and requirements to Federal Coordination Offices and other Federal Agencies and to industry.
- Provides program management support for GPS/GNSS, sUAS, LiDAR, and Mobile Workflows.
- Works with FPAC agencies to provide training and support for the use of geospatial technologies, information systems, and data.



Available Services

- Program Management
- Business Management
- Geospatial Training
- Technology Assessment



Texas A&M Master Degree student Michael Page operating a UAS and collecting imagery for NRCS project in Tolar, Texas. GEO is examining using UAS technology for detection of invasive grass species in pastures.

Program Management

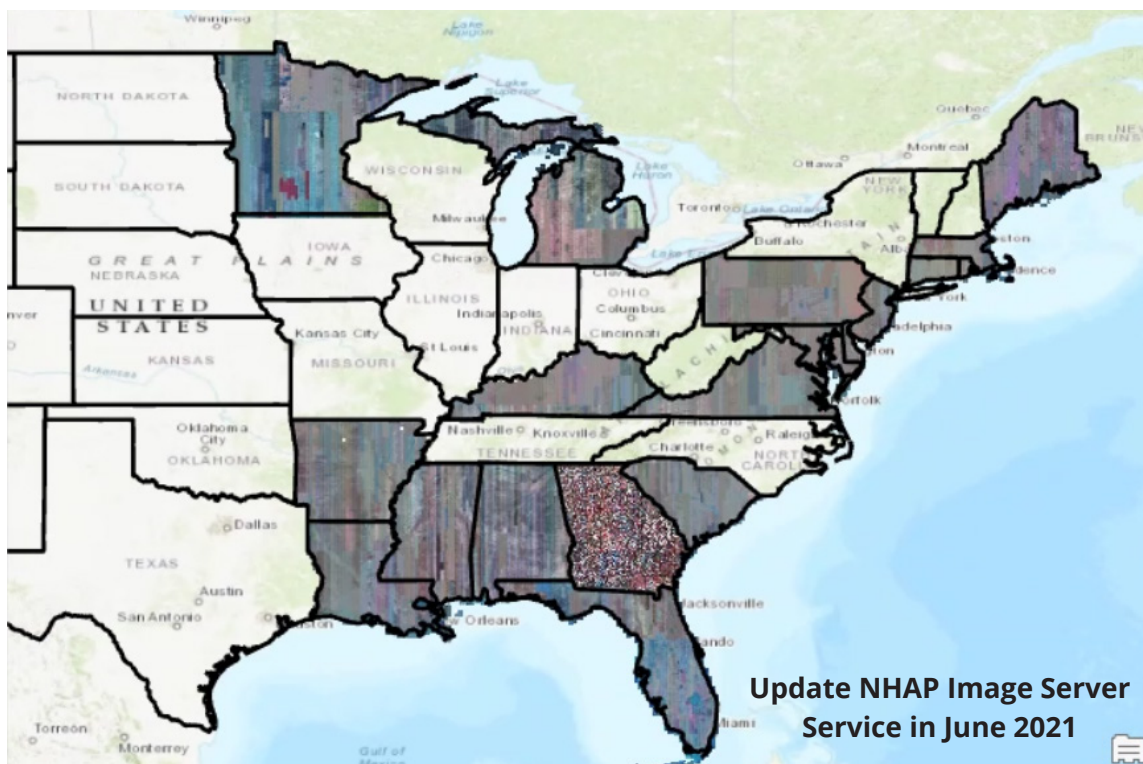
Service Description

Program Management capability assures timely completion and shipment of all work by or before the required delivery schedule. Resources available for project and their technical ability to meet the requirements (aircraft, drone, satellite, camera, and key personnel). Evaluates the capability and performance of government contractors for detailed description of planned approach, procedures, management techniques, capacities, and specialized equipment and processes to be used in performance of the work.



Programs Supported

- In response to the duties delegated through 7 CFR 2.41, GEO is responsible for the consolidated program management of imagery programs within USDA, as well as support and administration of the LiDAR Programs for FPAC agencies.
- National Agriculture Imagery Program (NAIP). A Multi-Agency program that collects imagery during peak agricultural growing seasons in all 50 states and unincorporated territories.
- Integration of technical program specifications, budgetary formulation, and contractual processes
- supporting geospatial programs.
- Support of conservation or entitlement rights through programs such as Small Area Projects. An easement/forest-based collection program that acquires high-resolution, orthorectified imagery for analysis of Land.



Business Management

Services Description

GEO has a vast business portfolio; creating data, managing workflows, providing analytics, and a host of scientific processes and services. To support this, the Business Management team assists with specialized services that better enable GEO activities through partnership agreements, stakeholder funding, and internal business and financial tracking.

- Providing Contracting Officer Representative (COR) support to Program Managers, SMEs and Technical points of contact (TPOC) for Geospatial Data acquisitions and services contracts.
- Providing project management support in the organization of resources and scheduling the implementation of programs within GEO.
- Provides FPAC program and technical leadership to interagency initiatives and technical advisory committees, including but not limited to, NAIP, National Digital Ortho-imagery Program (NDOP), 3D Elevation Program (3DEP), USDA Remote Sensing Coordinating Committee, USDA Enterprise Geospatial Management Office (EGMO), and the Federal Geographic Data Committee (FGDC).
- Coordinates with government and non-government agencies for the acquisition of needed spatial and topological data sets.
- Records Information and Management responsible for establishing and implementing policies, systems, and procedures to capture, create, access, distribute, use, store, secure, retrieve, and ensure disposition of GEO's Historical Imagery records and information.
- Custodianship of the USDA Film Library containing ~65,000 cans of aerial film, representing nearly 10 million images for American agriculture land dating back to 1950's.



Source: Getty Images.



Geospatial Training

Services Description

Geospatial Training is responsible for coordinating geoscience training delivery to FPAC Agencies to support programs and natural resources management.

- Provides enterprise training opportunities in the form of instructor-led courses.
- Work with corporate partners to customize training to meet FPAC business processes.
- Keep aware of emerging technologies to meet future training needs.
- Provides webinars and documents to support customers in geospatial activities.
- Providing internship opportunities for students to develop geospatial skills at academic institutions across the nation.



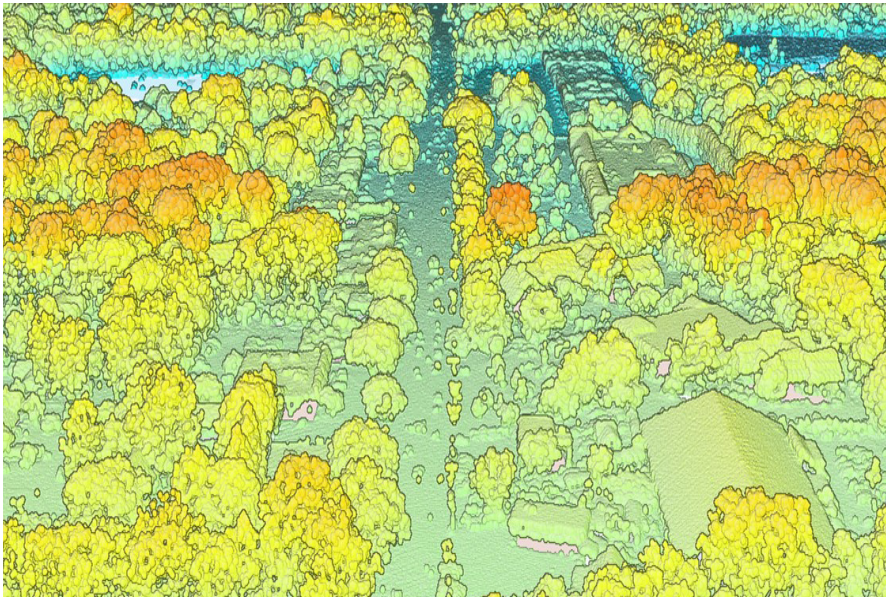
A 'Introduction to ArcGIS Pro for GIS Professionals' course taught in Greensboro, North Carolina.

Technology Assessment

Services Description

The organization provides program and lifecycle management support for the use of Positioning, Navigation and Timing (PNT), sUAS, LiDAR, and Mobile Workflows.

- Leads technology discovery, works with other federal agencies via interagency committees.
- Leads and/or participates with federal geospatial technology coordination groups (3DEP, NDOP).
- Conducts discovery work through academic institutions related to geoscience.
- Serves as subject matter experts in the fields of geospatial science, imagery, elevation, position, navigation and timing, and remote sensing.
- Evaluating the latest artificial intelligence and Deep Learning algorithms for image interpretation and collaborating with USDA OCIO CEC on the exploration of classification.
- Exploring container technologies for highly parallelized processing of Artificial Intelligence Machine Learning (AI/ML) algorithms against large geospatial datasets.
- Collaborating with Animal and Plant Health Inspection Service (APHIS) and the University of Maryland to monitor wildlife habitat at airports to reduce harmful bird strike incidents.
- Collaborating with NRCS-TX and Texas A&M University- Kingsville to collect sUAS imagery and elevation data for a USDA Plant Materials Center.



The above Image was created in ArcPro using LiDAR data from CT acquired in 2016. It shows an oblique view of a Laser (LAS) point cloud dataset from a suburban area.



Caption: GPS surveying for Concentrated Animal Feeding Operation (CAFO) project Rimrock Colony West of Sunburst, MT. Oct. 2007. Credit: Montana NRCS

Glossary

Acronyms	Description
3DEP	3D Elevation Program
ACIO	Assistant Chief Information Officer
AGOL	ArcGIS Online
AI/ML	Artificial Intelligence Machine Learning
APHIS	Animal and Plant Health Inspection Service
ASCS	Agriculture Stabilization Conservation Service
ATO	Authority to Operate
B	Blue
BC	Business Center
CIR	Color-Infrared
CLU	Common Land Unit
CONUS	Continental United States
COTS	Commercial of the Shelf
DB	Database
DIED	Data Inspection, Enhancement, and Delivery
EDC	Enterprise Data Center
EGMO	Enterprise Geospatial Management Office
ESRI	Environmental Systems Research Institute
FBC	FPAC Business Center
FGDC	Federal Geographic Data Committee
FOIA	Freedom of Information Act
FPAC	Farm Production and Conservation
FS	Forest Service
FSA	Farm Service Agency
G	Green
GEO	Geospatial Enterprise Operations
GIS	Geographic Information System
GNSS	Global Navigation Satellite Systems
GPS	Global Positioning System
GSB	Geospatial Services Branch

Acronyms	Description
HSM	Hierarchical Storage Management
ISD	Information Solutions Division
ISO	International Organization for Standardization
ISSDOB	Information Solutions Service Delivery and Operations Branch
IT	Information Technology
LAS	Laser
LCAT	Land Change Analysis Tool
LiDAR	Light Detection and Ranging
NAIP	National Agriculture Imagery Program
NAPP	National Agriculture Photography Program
NARA	National Archives and Records Administration
NDOP	National Digital Orthoimagery Program
NHAP	National High Altitude Program
NRCS	Natural Resource Conservation Service
OBIEE	Oracle Business Intelligence Enterprise Edition
PNT	Positioning, Navigation and Timing
R	Red
RGB	Red/Green/Blue
RMA	Risk Management Agency
SCS	Soil Conservation Service
SDLC	Software Development Life Cycle
SLA	Service Level Agreement
SME	Subject Matter Experts
SQL	Structured Query Language
TIF	Tagged Image File Format
sUAS	Small Unmanned Aircraft Systems
USDA	United States Department of Agriculture

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