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Civil Applications Committee

2003

Activity Report

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Civil Applications Committee Background

Overview

The Civil Applications Committee (CAC) is an interagency committee that coordinates and oversees the Federal civil use of classified collections. The CAC was officially chartered in 1975 by the Office of the President to provide Federal civil agencies access to National Systems data in support of mission responsibilities. In recent years, CAC activities have expanded beyond traditional mapping applications to a broad range of environmental and remote sensing applications central to Federal agency missions. Examples include monitoring volcanoes; [REDACTED]; coordinating emergency response to natural disasters, such as hurricanes, earthquakes, and floods; monitoring ecosystems; and mapping wetlands.

Membership

The CAC is made up of voting representatives from the Department of the Interior (DOI), U.S. Department of Agriculture (USDA), Department of Commerce (DOC), Department of Transportation (DOT), Department of Health and Human Services (HHS), U.S. Coast Guard (USCG), Federal Emergency Management Agency (FEMA), National Aeronautics and Space Administration (NASA), U.S. Army Corps of Engineers (USACE), Environmental Protection Agency (EPA), and the National Science Foundation (NSF). The CAC charter identifies the Director of Central Intelligence (DCI) as an ex officio member of the CAC. Additional non-voting associate members of the CAC include representatives of the National Geospatial-Intelligence Agency (NGA) – formerly the National Imagery and Mapping Agency (NIMA), National Reconnaissance Office (NRO), Defense Intelligence Agency (DIA), Central Intelligence Agency (CIA) Community Management Staff, Department of State (DOS), and Department of Energy (DOE).

Functions and Responsibilities

Functionally, the CAC is composed of a technical and coordinating committee – chaired by the Director of the U.S. Geological Survey (USGS) – that meets monthly; an Executive Steering Group – chaired by the Deputy Secretary of the Interior – that meets as necessary; and the CAC Secretariat, which is hosted by the USGS. The CAC sponsors the Global Fiducials Working Group (GFWG) as a standing interagency working group that meets monthly. In addition, the CAC sponsors the Imagery Derived Products Working Group (IDPWG), the Security Working Group (SWG), the Emergency Response Working Group (ERWG), and the Requirements Working Group (RWG) on an ad-hoc basis.

Primary CAC responsibilities are: 1) facilitate the relationship between the Civil Community, the Department of Defense (DOD), and the Intelligence Community (IC); 2) provide oversight of all Civil Community source collection and management; 3) support National disaster response; 4) represent and advocate civil requirements and interests in various DOD and IC forums; 5) provide an inter-community forum for technology and information exchange; 6) coordinate training for CAC member agency personnel; 7) provide oversight for the Global Fiducials Program (GFP); 8) promote civil use of Imagery Derived Products (IDPs); and 9) ensure Civil Community needs are considered and addressed in the design of future space architectures. The CAC provides a forum through which Federal civil agencies coordinate data requirements, develop tasking strategies, certify proper use of data, and track and plan for the progress and

evolution of National Systems. The CAC coordinates the use of imagery exploitation and application resources and supports remote sensing research and development activities at special facilities, such as the USGS Advanced Systems Center (ASC). At these facilities, appropriate capabilities and exploitation tools are available for CAC members to use for end-to-end data processing and developing custom products. Through the CAC, arrangements can also be made for technical support from military and IC agencies.

Data Acquisition and Management

Through the National Civil Applications Program (NCAP), the USGS Eastern Region Geography (ERG) staff in the ASC assists the CAC by processing requests from member agencies for the acquisition of National Systems data. The team provides expertise for acquiring, receiving, archiving, and disseminating data in support of a wide variety of scientific investigations and mapping projects with unique requirements. Government and contractor personnel work together with customers to analyze these requirements, plan and coordinate support for submitting data requests, and acquire approval from appropriate authorities. Archive searches are also performed to locate existing data sources to meet project needs in addition to initiating new data collections. Upon receipt of data, USGS specialists perform a quality assessment to ensure that requirements are met, archive the data, and deliver a copy of the data to the requestor. The GFL is also managed and operated by staff at the ASC. As with other operations, this includes defining the sites and determining collection requirements in coordination with the CAC sponsoring agency, Domestic Imagery Request (DIR) generation, tasking and acquisition of data, archiving of data, and dissemination to library users.

[REDACTED]

[REDACTED] Regular participation in the Domestic Requirements Working Group is particularly important because most CAC requirements fall within the U.S. and its territories. Daily interaction with other Departmental Requirements Officers and specialized teams facilitates solving problems with imagery collections, production, and distribution while increasing awareness and knowledge of USGS staff. This improved coordination with other members of the imagery community results in higher success rates for competing and obtaining source on a non-interference basis with other agency requirements.

CAC Highlights

CAC Membership

In 2003, DOE membership status changed from voting civil member to non-voting associate member; representation is now being provided by the DOE Office of Intelligence. A non-voting associate member, the National Imagery and Mapping Agency (NIMA), was renamed the National Geospatial-Intelligence Agency (NGA). The new name is used throughout this document.

The Department of Homeland Security (DHS) was established in March 2003 by assembling related elements from numerous Federal departments and agencies. Two CAC members were significantly affected as FEMA and a portion of DOT (U.S. Coast Guard) became components of

DHS. An invitation was extended to DHS to join the CAC as a voting member. However, because the statutory authority that created DHS identifies it as a member of the Intelligence Community, and DHS components encompass civil-environmental, law enforcement, and intelligence related missions, a policy issue exists regarding whether DHS is eligible to be a voting member of the CAC. This issue was referred to DHS leadership, and the CAC ESG for discussion and resolution. In the interim, FEMA and USCG petitioned, and were approved to maintain separate CAC representation until the issue is resolved. DOT, which was formerly represented by USCG, has not identified a new representative to CAC.

CAC Executive Steering Group

The CAC Executive Steering Group (ESG) was established in 2002 under the Chairmanship of the Deputy Secretary of DOI to provide a forum for senior administration officials to discuss and resolve key National policy issues that impact Civil Community access to, and exploitation of data from National Systems.

The CAC ESG convened in March 2003 to discuss the recently completed U.S. Government Satellite Remote Sensing Study jointly sponsored by the CAC and NRO, and the development of a Commercial Remote Sensing Space Policy Implementation Plan. The USGS reported that an interagency group was being formed to develop the implementation plan, focusing on four key areas:

- Civil requirements for imagery and geospatial information that can be effectively provided by commercial remote sensing capabilities
- Allocations of resources to meet civil requirements
- Mechanisms for interagency coordination to meet requirements
- Feasibility of designating a single agency as civil procurement agent

The National Oceanic and Atmospheric Administration (NOAA) agreed to lead a separate working group to review Civil Community mission-based information needs that can be mapped to capabilities of civil and commercial satellites and National Systems.

Commercial Remote Sensing Space Policy (CRSSP)

On April 25, 2003, President Bush authorized a new national policy that established guidance and implementation actions for commercial remote sensing space capabilities.

As a result of the new policy, a CRSSP Implementation Plan Working Group (IPWG) was convened on May 22, 2003, to establish a plan to create an effective long-term partnership between U.S. civil agencies and the U.S. commercial remote sensing industry in support of the goals of the CRSSP. The IPWG, which included representatives from DHS, DOC, DOI, EPA, NASA, USDA, and NSF, met approximately 30 times during 2003. Additionally, the CRSSP Interagency Review Board (IRB) consisting of three members – the Director of USGS, an Associate Administrator for NOAA, and an Associate Administrator for NASA – was established to review the implementation recommendations of the IPWG prior to their submission to the National Security Council. In December 2003, the IPWG presented its initial recommendations to the IRB. It is anticipated that the implementation plan will be finalized in 2004. Additional information about the CRSSP may be found at <http://crsp.usgs.gov>.

Also as a result of the new policy, NGA issued for review in December 2003 a revised draft of Section 9, Part D of the Imagery Policy Series entitled "Commercial Remote Sensing Satellite Imagery Policy." The focus of this revision was to reflect security guidance for "Upper Tier" commercial imagery (also referred to as Tier 2), for which sales are restricted to only the U.S. Government or U.S. Government users. This guidance will increasingly come into play if and when the next generation of commercial systems becomes operative with resolutions of less than 0.5-meters.

Of additional concern to the Civil Community in regard to the NGA response to the CRSSP is the NGA policy that all commercial imagery over the United States that is acquired by NGA for Defense and Intelligence Community requestors is subject to strict proper use justification requirements. While such restrictions may be appropriate for Defense and Intelligence Community uses of this imagery, use of commercial imagery over the United States by civil agencies for mission-related purposes has always been free of such restrictions. The CAC articulated this concern to NGA and requested that the process for approval of civil agency requests for commercial imagery over the United States acquired through NGA be exempt from the proper use documentation requirements that are imposed on Defense and Intelligence Community requestors. A decision from NGA regarding this request is still pending.

Civil Community Capability Requirements Document (CRD)

At the June 2002 meeting of the CAC ESG, members were presented with a briefing detailing cost estimates associated with upgrading data processing and exploitation components within specific Civil Community facilities to make them compliant with the Future Imagery Architecture (FIA). As a result of the request by the ESG for more detailed requirements, the CAC Secretariat gathered and compiled Civil Community requirements into a document entitled *Civil Community Capabilities Requirements Document...* The creation of the CRD represents a milestone in the nearly 30-year history of the CAC as it marks the first time civil capabilities and requirements have been thoroughly documented. The CRD provides a high level overview of capabilities required by the Civil Community that will allow it to maintain technological parity with the implementation of FIA and the National System for Geospatial Intelligence (NSGI).

National Space Exercise – Thor's Hammer

In May of 2003, NRO presented a briefing detailing the National Space Game (Thor's Hammer) to be hosted by NRO February 23 – 27, 2004, and the Homeland Security Seminar to be conducted July 10 – 11, 2003, to develop scenarios, limiting factors, problem sets, research questions, and solution metrics for input to the National Space Game. The primary objective of the game was to examine an integrated National Security Space (NSS) operating concept and how it enables support for the IC, as well as interagency and regional commands. Major goals of the National Space Game are to: a) compile and examine the shared space equities and issues of the IC, DOD, Civil Community, and commercial enterprises; b) assist in the validation of long-term investment strategy for space assets; c) provide an understanding of changing national intelligence collection needs; and, d) provide a seminar for collaboration and investigation of NSS issues. In preparation for both events, NRO personnel solicited CAC membership for input in the development of and participation in the National Space Game.

Special Events

On September 8 – 9, 2003, the U.S. Northern Command's Interagency Directorate and the CAC co-sponsored an Interagency Roundtable (IR) meeting at the Centralized Integrated Support Facility (CISF) on Peterson Air Force Base in Colorado Springs, Colorado. The meeting was co-hosted by MG Raymond F. Rees, USA, North American Air Defense Command (NORAD)-U.S. Northern Command (USNORTHCOM) Chief of Staff, Chairman of the Joint Interagency Coordination Group (JIACG) and Dr. Charles G. Groat, Director of the U.S. Geological Survey and Chairman of the CAC. Numerous senior executives representing NGA, DOD, DHS, NRO, DOI, USGS, Bureau of Land Management (BLM), Bureau of Reclamation (BOR), EPA, USDA, DOE, NASA, NOAA, USACE, and USCG were in attendance.

On the first day briefings were presented by the CAC, USGS, NGA, NRO, and NORTHCOM on a variety of topics related to supporting NORTHCOM homeland security (HLS) and homeland defense (HLD) missions. On the second day participants established three working groups (WG): the Support Policy WG, Architectures and Technology WG, and Information Needs WG. The purpose of the working groups was to discuss issues raised by the previous day's briefings, chart a way ahead to resolve identified issues, and within 90 – 120 days report out recommendations to CAC and NORTHCOM for resolving technical and policy issues impacting support to NORTHCOM HLS and HLD missions.

On November 4, 2003, a follow-on meeting of the working groups was held at the USGS in Reston, Virginia. Products from the Information Needs WG, which includes the DHS Enterprise Architecture (EA) WG, were recognized as driving the schedule and progress of the Architecture and Technology WG and Support Policy WG. The three geospatial WGs continue to add value to all agencies involved, and are in direct support of and laying the groundwork for national level policy being directed by the Geospatial Preparedness Act.

Disaster Response

During 2003, CAC members requested imagery in support of the following events:

[REDACTED]	January
Washington State Floods	January
Columbia Space Shuttle Disaster	January
Pennsylvania River Ice-Jam Flooding	February
Staten Island Oil Fire	February
Trans-Alaska Pipeline System (TAPS)	February
[REDACTED]	April
Missouri State Fire Mapping	April
[REDACTED]	May
Landslides, American Samoa	May
Midwest Tornadoes	May
[REDACTED]	May
Ten Cow, New Mexico, Wildland Fire	June
Hurricane Claudette	July
Kramer, Idaho, Wildland Fire	July
Gallatin National Forest, Montana, Wildland Fire	August

Hurricane Isabel	September
California Wildfires	October
Texas City Barge Spill	November
Typhoon Lupit, Ulithi Atoll/Yap Island	November
San Simeon, California, Earthquake	December

Participation in External Forums

During 2003, the CAC participated in the following external forums to represent civil interests and advocate for civil requirements:

Domestic Requirements Working Group (DRWG)
Global Fiducials Working Group (GFWG)
Imagery Policy and Security Committee (IPSCOM)
Intelligence Community Mission Requirements Board (MRB)
Law Enforcement Working Group (LEWG)
National Security Space Architect (NSSA) Integrated Spectral Architecture (ISA)
NGA Future Needs Working Group (FNWG)
NGA Geospatial Intelligence Board (GIB)
NGA Geospatial Intelligence Council (GIC)
NORTHCOM Joint Interagency Coordination Group (JIACG)
NORTHCOM JIACG Architecture and Technology Working Group
NORTHCOM JIACG Information Needs Working Group
NORTHCOM JIACG Policy Working Group
NSSA Environmental Working Group
NSSA Multispectral Needs Working Group
Operations Committee (OPSCOM)
Overhead National Users Exchange Group (ONUEG)
USGS National Civil Applications Program (NCAP) Steering Committee

Document Reviews

The CAC Secretariat is routinely called upon to facilitate Civil Community review of various policy and technical requirements, and advanced systems concept documents generated by DOD and IC organizations. The nature of the reviews is to ensure inclusion of Civil Community requirements, identify opportunities for technology and information exchange, and ensure new or revised policies do not compromise civil use of National Systems data. When possible, the CAC Secretariat solicits review and comment by the CAC membership; occasionally however, due to prohibitively short deadlines for review and comment, the CAC Secretariat is unable to solicit member inputs. During 2003, the following documents were reviewed:

- Commercial Remote Sensing Space Policy
- Commercial Remote Sensing Space Policy Implementation Plan
- U.S. Air Force Operational Requirements Document for the Advanced Point Mensuration Tool
- Draft Global Fiducials Program Classification Guide
- U.S. Government Satellite Remote Sensing Descriptive Study
- NGA Imagery Policy Series, Section 9, Part C, Law Enforcement Activities

- NGA Imagery Policy Series, Section 9, Part D, Commercial Remote Sensing Satellite Imagery Policy
- NGA Operational Requirements Document (NORD) Addressing NGA's Programmatic Responsibilities to the National System for Geospatial Intelligence (NSGI) Core Capabilities
- Initial Concept of Operations for Space-Based Radar

Outreach

Under the direction of the CAC Chairman, in 2003 the CAC Secretariat continued to emphasize outreach to senior officials in the Civil, DOD, intelligence, and Law Enforcement Communities. The objectives of the outreach effort are to enhance the visibility of CAC activities at senior levels across government; facilitate civil agency participation in development of a new commercial remote sensing policy; provide advisory assistance to the Law Enforcement Working Group (LEWG); and develop new relationships across government to begin the process of clarifying the role of CAC in support of homeland security activities. Significant CAC or CAC/NCAP sponsored meetings and briefings included:

- **February 26** – Dr. John Marburger, Director, Office of Science and Technology Policy (OSTP), and Dr. Kathy Olsen, Deputy Director, OSTP (Topics: CAC, LANDSAT, USGS Hazards Programs)
- **March 6** – Pam Malam, USGS Eastern Region Geographer, (Topic: FIA Impact on Civil Infrastructure)
- **March 14** – Richard Roy, Deputy Director Imagery Intelligence (IMINT) Directorate, NRO, combined NRO-NGA FIA Program Office Staff, and NRO/IMINT Systems Engineering staff (Topic: FIA Impact On Civil Infrastructure)
- **March 28** – Mr. John Russack, Director, Office of Intelligence, Department of Energy. (Topic: CAC and DOE membership discussion)
- **April 17** – Mr. Fred Faithful, Director, Office of Geospatial Intelligence Management (OGM), NGA; and Michelle Williams, Deputy Director, OGM, NGA. (Topic: FIA Impact On Civil Infrastructure)
- **May 1** – Col. Stover James, Director, Emergency Preparedness, NORTHCOM (Topic: CAC Overview, HSS/Firesat Overview)
- **May 16** – Future Imagery Architecture Briefing for CAC members at USGS, ASC
- **June 3** – NGA/P Corporate Board; included analysis and production managers from NGA and theatre commands (Topic: Potential Civil Community Support to NGA Unified Operations)
- **June 5** – Mr. Anthony Lowe, Director Mitigation Division, Emergency Preparedness and Response Directorate, DHS (Topics: CAC, NCAP, USGS HLS Support, Anatahan Response, ASC Tour)
- **July 15** – Law Enforcement Working Group (Topic: Weapons of Mass Destruction – CAC Advisory Representation)
- **July 18** – NGA Key Components Meeting chaired by Bobby Lenczowski (Topic: FIA Impact on Civil Infrastructure)
- **August 5** – 22 Central Intelligence Agency Special Security Officers (SSO), 1 Minerals Management Service SSO, Deputy Director for Operations - DOI Law Enforcement and

Security (LE&S) Watch Center (Topics: CAC, NCAP, USGS Support To Homeland Security and Counter Terrorism)

- **August 7** – Mr. Peter Colvin, Director, Pacific Disaster Center (PDC) and Mr. Craig Chellis, PDC (Topic: CAC and USGS support to PDC)
- **September 4** – Mr. Harry McWreath, Department of the Interior, Office of Law Enforcement and Security (Topic: CAC support to DOI LE&S)
- **September 9, 10** – Joint CAC and NORAD/USNORTHCOM Interagency Roundtable meeting, Colorado Springs, Colorado
- **September 17** – Mr. Robert Faber, Senior Counsel for Oversight and Investigations for the Majority Staff, Committee of Transportation and Infrastructure; Mr. Derek Miller, Investigative Counsel for the Committee on Transportation and Infrastructure. (Topic: CAC)
- **September 24** – Mr. Paul Kurtz, Special Assistant to the President for Infrastructure Protection (Topic: CAC)
- **September 25** – Dr. John Williams, Senior USDA Animal and Plant Health Inspection Service (APHIS) Scientific Advisor and Assistant to the Deputy Secretary of Agriculture; Dr. Joe Anelli, APHIS, Veterinary Services Director of Emergency Programs; Dr. Alan Dowdy, Deputy Director of the Plant Protection Quarantine Center for Plant Health Science and Technology; Mr. Tim Johnson, USDA Homeland Security Staff, and Ms. Jessica Fantinato, Assistant to the Administrator, USDA APHIS. (Topic: CAC)
- **November 4** – Joint CAC-NORTHCOM JIACG Policy, Architectures and Technology, and Information Needs Working Group meetings in Reston, Virginia.

Imagery Derived Products

The CAC Secretariat was successful working with NGA and IPSCOM to secure authorization for the USGS to create unclassified U.S. Government Use Only (USGUO) Literal IDPs of volcanoes located within the U.S. and its territories as required to support federally mandated programs. This authorization superseded case-by-case approval previously granted.

[REDACTED]:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

[REDACTED]

Training

July 8 – 9, 2003, members of the CAC Secretariat attended derivative classification training.

August 19 – 21, 2003, the CAC Secretariat conducted a training class for approximately 50 Civil Community attendees entitled *NTM for Civil Applications* at the Northrop-Grumman/TASC facility in Chantilly, Virginia.

Budget

At the close of 2003, funding to address the projected impacts of FIA on civil secure facilities remains unresolved. The June 2002 CAC ESG meeting did not result in adoption of a recommendation for funding of the projected impacts either through a department or agency acting as executive agent for the Civil Community, or separately through individual department and agency budgets. Refining the rough cost estimates for impacts of FIA developed by the CAC Secretariat remains a high priority for CAC members operating secure facilities; individual agencies operating secure facilities should dedicate resources to this task in 2004 in order to ensure sufficient lead time for developing future budget initiatives.

CAC Monthly Meetings – Briefing Topics (2003)

Jan	Update on Status of National Space Policy Review	Jim Devine
	Closure of Russell Fiord and Hubbard Glacier Outburst Flood	Bruce Molnia
	U.S. Government Satellite Remote Sensing Descriptive Study (█ █ Executive Session)	Jim Hirsch

Feb	Update on Status of National Space Policy Review	Jim Devine
	National Polar Orbiting Satellite System (NPOESS) Status	Stan Schneider
	Global Fiducials Working Group (GFWG) Status	Lawrence Friedl

Mar	Update on Status of National Space Policy Review	Jim Devine
	Interagency Geo-spatial Preparedness Team (IGPT)	Barry Napier
	Earth Observing-One (EO-1) Successes	Gran Paules

Apr	MASINT (National Signatures Program/Target/Threat Signature Data System – NSP/NTSDS)	Peter De Forth Ron Fleming
	NOAA Environmental Remote Sensing Requirements/Architecture Development	Mike Crison
	Summary Findings and Conclusions from First National Security Space Program Assessment (█)	Jay Moody

May	Geophysical MASINT	George Rothe
	DOE National Technical Means (NTM) Applications	John Russack
	National Space Game – Homeland Security Seminar	Bruce Waggoner
	Radio Frequency Interference with Environmental Sensors (6 GHz Map)	John Cunningham

Jun	MASINT: Overhead Non-imaging Infrared Systems	Jerry McEntire
	CRSSP Working Group Status	R.J. Thompson
	Coast View System (National Coastal Data Development Center)	Russell Beard

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Jun	Center for South Eastern Tropical Advanced Remote Sensing	Hans Graber
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Jul	No CAC Meeting	
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Aug	Special Session on Airborne Remote Sensing Technology	
	NOAA Airborne Applications	Mike Aslaksen
	Airborne Applications in the USDA	Glenn Bethel Paul Greenfield
	Airborne Overhead Cooperative Operations	Art DesLauriers
	Airborne MASINT Sensor Capabilities and Promise	Todd Hawley
	Airborne Integration NSGI	Donnie Self
	The Transition to Digital Cameras in the Commercial Aerial Photography Market	Greg Tilley
	Incorporating Unmanned Aerial Vehicles (UAVs) into Earth Science and the Global Observing System	Cheryl Yuhas Chuck Johnson
	DOI Airborne Applications	Jay Storey Joe Senftle
	Airborne and Satellite Remote Sensing Systems: Competitive or Complementary?	John Baker

Sep	Offsite at NORTHCOM, Colorado Springs	
	NORAD-USNORTHCOM: Road to Full Operational Capability	Tim Hill
	NORAD-USNORTHCOM: Washington Office Update	Gene Pino
	USJFCOM: JIACG Model for Combatant Commanders	John Lyles
	NORAD-USNORTHCOM: Info-Sharing Initiatives	Larry Klooster
	NORAD-USNORTHCOM: End User Imagery and Geospatial Access/Needs	Brad Jacobs
	NGA: NGA Support to Homeland Security (HLS) and Homeland Defense (HLD)	Bob Blair Steve Davila
	NGA: NGA/USGS Homeland Security Infrastructure Program	Bill Mullen
	NGA: Geospatial Intelligence Policy for Homeland Security	Kemp Lear Jim Lusby

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Sep	NGA: Imagery Collection Strategy for Homeland Security	Mark Severin Heath Rasco
	NGA: NGA HLS System and Data Architecture	Dan Vernon
	JIATF South: Imagery Support to Tactical End Users	Mark Luoma
	NRO: NRO Imagery Support to Homeland Defense	Stephen McKenna
	NORAD-USNORTHCOM: Geographic Information System (GIS) Requirements	Bob Mrak
	NORAD-USNORTHCOM: Common Operating Picture (COP) Concerns/Data Bit Storage	Bruce Robinson Mike Tavlik
	NASA: Joint Activities to Support National Security Community	Gran Paules
	CAC: CAC Overview	Keith Elliott
	CAC: USGS Support to USNORTHCOM	Max Etheridge
	Geospatial Data and Imagery Support to Homeland Security – A USGS Perspective	Marty Eckes

Oct	CRSSP Working Group Status Update	R.J. Thompson
	Information Security Oversight Office (ISOO) Overview	Emily Hickey
	DHS Geospatial Management Office	John Crowe
	NRO Way Ahead and Transformational Space and Airborne Project (TSAP) Update	Dave Svetz
	Terrorist Threat Integration Center Overview	Joe Augustyn

Nov	CAC/NORTHCOM – JIACG Interagency Roundtable Working Group (IRWG) Status Update	Dan Hansen IRWG Members
	Global Fiducials Working Group Status	Lawrence Friedl
	NGA GeoScout Initiative	Dave Plumley
	Commercial Imagery (NGA NextView Contract)	Corena Alexander

Dec	Interdiction of Weapons of Mass Destruction	John Lauder
	Advanced Imaging Techniques (B-Level)	William Scharpf

Working Group and Member Agency Activities

Global Fiducials Working Group

The Global Fiducials Working Group met several times in 2003 and made formal presentations to the CAC in February and November. Progress was made in promoting the program, though significant effort is still required to ensure an internationally representative suite of sites in the library. A primary focus was the discussion and organization of a series of workshops to identify sites that would boost international representation in the GFP. The first workshop is scheduled for June 2004.

Working group members collaborated with ASC staff to make significant progress in establishing collection parameters for proposed sites identified as priorities in 2002 (Phase 1) and to continue collections for existing sites. Specific achievements include:

- Established and validated 23 sites associated with the Long-Term Ecological Research (LTER) program; sites became part of regular collection (NSF lead)
- Continued to collect 60 sites sponsored by the National Park Service
- Increased the number of USGS sites in regular collection to 32
- Established collection parameters and received an approved DIR for 31 sites associated with EPA priorities
- Consolidated and withdrew sites associated with USACE based on NSF site characteristics
- Began work on establishing data collection parameters for USACE sites
- Began work on establishing data collection parameters for 56 NOAA Phase I sites
- Defined collection parameters for 8 BLM sites

The working group also pursued the development of a classification guide to address issues specific to the GFP. The guide will be completed in 2004

U.S. Department of Agriculture

USDA agency missions continue to benefit from the use of National Systems data for emergency response, natural resource inventory and monitoring, mapping, development of conservation measures, and land management support. Applications during 2003 include:

Forest Service

The Forest Service is responsible for mapping all National Forest lands. One of the critical steps in the mapping process is to obtain ground control point coordinates in order to accurately reference the map to a world coordinate system. The Forest Service typically uses Global Positioning System (GPS) technology to collect control by physically visiting field sites. In remote locations, such as wilderness areas, GPS field crews are prohibited from using motorized vehicles and can spend weeks hiking to the required locations to take the needed measurements. The Forest Service has tested and obtained approval for a technique to collect control that eliminates the need to visit these remote field sites. In 2003, this technique was used on two projects. In each case, surveyors obtained control for the accessible portions of the project, and the new technique was used where control was needed in remote wilderness areas and in glacier-covered mountains.

In addition to collecting control as described above, the process of control extension can be used to generate control locations based on a minimal number of field-surveyed control points. As part of the National Digital Orthophoto Program, the Forest Service is responsible for creating and maintaining digital orthophoto quadrangles over National Forest lands. In support of this activity, seven control extension projects were completed in FY 2003, covering approximately 19,000 square miles. This activity saved field personnel over \$200,000 in surveying costs during the year.

[REDACTED]

[REDACTED]

[REDACTED] During the 2003 fire season, 63,629 fires burned 3,960,842 acres (figures are from the National Interagency Coordination Center's 2003 wildland fire statistics).

Other Activities – The Forest Service is directed by Congress to perform a National Forest Inventory and Analysis (FIA) for all lands within U. S. borders, and to develop a strategy to incorporate remote sensing and other advanced technologies into this analysis. The benefits of National Systems data to support inventory and monitoring applications have been studied by the agency in previous years, with satisfactory results. In 2002, selected sites in Alaska were imaged; in 2003, statistical information such as forest/non-forest, tree type, health, etc. was derived for 104 permanent measure plots from those images, and approval was obtained for non-literal IDPs. The products will be used to supplement other plot data collected by field personnel in more accessible locations. With an average cost of \$4,000 per plot in Alaska, this activity saved field personnel over \$400,000 in data collection costs. In addition, the majority of these plots were in areas that were difficult and/or dangerous to access.

Imagery was collected of the continuing Pinyon pine mortality in the U.S. Southwest area. The combination of five years of drought and subsequent bark beetle infestation has lead to mortality in the pinyon-juniper woodlands type on a landscape level. Initial analysis of the imagery has yielded some promising results for land managers.

Department of Commerce

The Department of Commerce NOAA has been a participating member of the CAC since its inception. From the beginning, the NOAA National Ocean Service (NOS) has used National Systems data in support of its coastal mapping program, but the past several years have seen increased use for various applications by other NOAA offices.

National Ocean Service

NOAA's Coastal Services Center (CSC) used National Systems data in 2003 to support National Marine Sanctuary (NMS) visitor use. National Systems data were acquired for the Gray's Reef NMS, located 20 miles east of the Georgia coast, and the Flower Garden Banks NMS, located off the coasts of Texas and Louisiana. Eighty-eight IDPs were produced from the imagery. The sanctuaries management and research studies plans focus on the long-term status of fish

populations, benthic invertebrates, oceanographic conditions, sediment transport, benthic habitat, and visitor use. A boat census was performed for each sanctuary using National Systems data and Coast Guard Auxiliary flight observations to detect seasonal variations in visitor use.

National Marine Fisheries Service

The National Marine Fisheries Service (NMFS) is using archival imagery to study Chinook salmon habitat along the Sacramento River between Sacramento and Keswick Dam to identify diversions and other factors in the river and examine change in the riparian zone along the river. The imagery has not been exploited and no IDP request has been made. An alternate digital data source was obtained from the Naval Oceanographic Office. These data have been exploited, declassified and are being used by the NMFS office in Santa Rosa, California. As a consequence the original collections have not been exploited due to funding.

In September 1998, a massive dredging project was completed in the Atchafalaya River Delta creating new wetlands habitat in coastal Louisiana. Imagery has been acquired for September 1995, 1998, 1999, 2000, 2001, 2002, and 2003. The imagery has been exploited by the USGS to determine shorelines and areas of accretion and erosion from year to year. IDP approval has been obtained and products have been produced. The project was presented at the Federal Reconnaissance Users Conference at the NRO in 2002 and the GeoTools Conference in South Carolina in 2003. Effort is continuing on this project with Coastal Wetlands, Planning, Protection, and Restoration Act (Breaux Bill) funding and is directed at improving shoreline delineation. Similar studies also under the Breaux Bill are continuing on East Timbalier Island, an island along the Louisiana coast that is badly eroding in spite of efforts to protect it.

Department of the Interior

Bureau of Land Management

BLM is responsible for managing 164 million acres of public land, primarily in the West and Alaska. BLM has used National Systems data as one of its natural resource mapping and assessment tools since 1994. Starting with mapping wetlands, BLM use of National Systems data expanded to support other activities. However, in recent years some traditional uses of this data, such as hydrographic meander line mapping, has diminished as commercial high-resolution satellite imagery has become available. Unfortunately, commercial high-resolution satellites cannot fully match all the capabilities of National Systems data, and the Bureau continues to exploit the unique capabilities provided by these high tech tools. Below is a summary of major BLM activities involving the use of National Systems data in 2003.



Bering Glacier – BLM has used National Systems data to monitor the environment around the

Bering Glacier for over six years. The objectives of these activities include; a) delineate and monitor glacier forelands and ice margins, b) monitor beach side and ice erosion, c) identify and assess existing and potential anadromous fish habitat, d) identify Dusky Canada Geese habitat, e) monitor and assess seal populations, and f) assess hazards for recreation and transportation. As a result of these activities, BLM, along with the USGS, and with input from the Intelligence Community, has developed procedures and techniques to accurately map and measure subtle changes and movement of earth and ice masses. National Systems data have played an important role in enabling BLM to understand and monitor this unique environment.

National Petroleum Reserve-Alaska – The National Petroleum Reserve-Alaska (NPR-A) is an Indiana-sized area on the North Slope of Alaska that is the center of increasing interest for the production of oil and natural gas. Numerous leases have been issued for exploratory drilling and more are slated for sale. Although new drilling technology minimizes the impact on the environment, this delicate ecosystem requires continued monitoring to evaluate the effectiveness of our environmental policies. National Systems data provide unique capabilities for year-round environmental monitoring and are important tools that allow BLM to validate the guidance it provides to oil and gas companies.

Katalla Site Cleanup – The Katalla site has seen three different attempts in the last century to develop the oil and gas resources of the area. As a result, numerous artifacts, some of which are hazardous, were abandoned and left scattered throughout the area. Many of the items are now hidden by dense vegetation. National Systems data were initially used at this site to assess the extent of the problem and evaluate various image analysis techniques. While activity has wound down, 2003 still saw some collection to complete the evaluation of its usefulness in addressing this problem. However, this unique area continues to be a favorite test site for the development of other sensor and image analysis technologies.

BLM intends to make continued use of the unique capabilities of National Systems assets. However, it expects that overall National Systems data use will stay level or diminish slightly as the commercial remote sensing industry improves its capabilities.

U.S. Geological Survey

The Volcano Hazards Program, in collaboration with the Advanced Systems Center, made significant use of National Systems data in support of program activities at domestic volcanoes, and continued surveillance of foreign volcanoes of particular interest to the Volcano Disaster Assistance Program (VDAP), a combined USGS/Office of U.S. Foreign Disaster Assistance (OFDA) program. Principal activities in 2003 included:

- (1) Provision of information [REDACTED] in support of the Volcano Hazards Program's (VHP) response to the eruption of Anatahan Volcano in the Commonwealth of the Northern Marianas (CNMI). This volcano, dormant for over 400 years, began erupting in May 2003, blanketing the small island of Anatahan with ash, and posing health and safety hazards to the surrounding area.
- (2) Generation of literal IDPs (LIDPs) for a number of volcanoes in the Aleutians (Alaska) and in the Cascade Range (Oregon and Washington) in support of mapping for volcanic hazard assessments at those volcanoes. This was possible because in 2003, the USGS VHP (through the CAC) received permission to produce LIDPs for any domestic volcano in support of USGS

mission objectives.

In addition, the following U.S. volcanoes were monitored intermittently by National Systems data in 2003: Veniaminof (reports of steaming, minor ash plumes), Shishaldin (steaming, swarms of small earthquakes), and Mt. Hague (summit lake went completely dry, and then reappeared within days).

The Volcano Hazards Program continued to monitor eruptive activity or unrest at the following volcanoes, on behalf of VDAP: [REDACTED] – active summit lava lake); [REDACTED] – final stages of effusion of large lava flow); [REDACTED] phreatic explosions), [REDACTED] – erupting). New unrest at [REDACTED] at [REDACTED] resulted in acquisition of baseline imagery at these volcanoes, against the possibility of their becoming more active.

In 2003 the Earthquake Hazards Program used National Systems data to determine the extent of ground breaking and evaluate damage following the December 22 San Simeon, California, earthquake and the earthquake that destroyed Bam, Iran, on December 26. The Landslide Hazards Program also used National Systems to look for landslides triggered by the January 22 temblor near [REDACTED], and to look for landslide activity in the Blue Ridge Mountains of Virginia following Hurricane Isabel.

Department of Homeland Security

Federal Emergency Management Agency

The FEMA mission, as part of the Department of Homeland Security, is to reduce the loss of life and property and to protect our nation's institutions from all types of hazards, caused either by natural disasters or from terrorist assaults. FEMA accomplishes this task through a comprehensive, risk-based emergency management program of preparedness, prevention, response, and recovery.

Since its creation, FEMA has responded to hundreds of disasters in all 50 states, Puerto Rico, Guam, the Pacific Island Trust Territories, and the U.S. Virgin Islands. FEMA reacts quickly when it becomes clear that a hurricane or other potentially catastrophic disaster is about to occur. Equipment, supplies, and people are pre-positioned in areas likely to be affected. In other situations, when disasters such as tornadoes or earthquakes occur without warning, FEMA must respond immediately with staff and supplies, and must assess if other federal agencies are needed as well. It will also lead the national response to any sort of biological or radiological attack. Not only will FEMA coordinate with first responders but also coordinate the involvement of other federal response teams in the event of a major incident. FEMA also manages the federal government's national response and recovery strategy. While the disaster response phase is quick and dramatic, the recovery phase is often long and painful. Communities and individuals must cope with great loss. In some disasters, whole towns have been virtually destroyed. In other disasters, the community survives, but residents lose everything they own. FEMA will lead the nation's recovery from catastrophes and help minimize the suffering and disruption caused by disasters.

Since July of 2003, six requests for the use of National Systems data were submitted by FEMA to aid in responding to emergencies. All events were natural in cause and included hurricanes, typhoons, wildfires, and an earthquake.

U.S. Coast Guard

The United States Coast Guard is a military, multi-mission, maritime service and one of the nation's five Armed Services. Its mission is to protect the public, the environment, and U.S. economic interests – in the nation's ports and waterways, along the coast, on international waters, or in any maritime region as required to support national security. The Coast Guard's five operating goals – Maritime Safety, Protection of Natural Resources, Maritime Mobility, Maritime Security, and National Defense – define the focus of the service's missions and enable it to touch everyone in the United States.

The Coast Guard's military structure, law enforcement authority, and humanitarian function make it unique within the government and enable it to support broad national goals. It is well positioned to be the first on scene bringing the right people, the right equipment, and the right partnerships to respond to any emergency. The Coast Guard continues to benefit from the use of National Systems data in support of Coast Guard missions. The Coast Guard continues to benefit from the use of national systems for all of our service missions to include emergency response and maritime security. Some of these benefits are described below:

Search and Rescue – The U.S. Coast Guard is best known worldwide for its search and rescue (SAR) expertise, which dates back more than 200 years to the earliest days of the Revenue Cutter Service and Life-Saving Service. Despite the nation's best efforts to prevent maritime accidents, the Coast Guard responds to about 60,000 emergency calls and saves nearly 5,000 lives annually. Historically, the Coast Guard's SAR response involves multi-mission stations, cutters (ships), aircraft, and boats linked by communications networks. The National SAR Plan divides the U.S. into regions, with the Coast Guard acting as the maritime SAR coordinator. To meet this responsibility, the Coast Guard maintains facilities on the East, West and Gulf coasts; in Alaska, Hawaii, Guam, and Puerto Rico; and on the Great Lakes and inland U.S. waterways. Today, the Coast Guard Intelligence Coordination Center (ICC) often augments SAR response efforts with National Systems, as appropriate, to refine large search areas for quicker response times to help prevent loss of life at sea.

Maritime Port Security – Worldwide, maritime cargoes and vessels are increasingly targeted by organized criminal conspiracies or individuals involved in alien smuggling, cargo theft, drug smuggling and terrorism. Exploiting weaknesses in port security is central to these crimes. The associated costs reduce the competitiveness of those affected, including the ports. So long as threats to trade exist, port security will remain as essential to port operations as cargo and good labor relations. Traditional views of port security responsibilities must be expanded. A complex transnational set of security issues threaten the maritime industry and the movement of cargo in international trade. Those threats include terrorism, piracy, smuggling of stowaways and drugs, cargo theft and fraud, bribery, and extortion. Sea robbery provides an excellent example of the complexity of port security issues. The nature of sea robbery necessitates that port security controls include both the waterside and the land side access of ports. The use of National imagery plays a vital role in ICC support to this mission. Although commercial imagery can be

an effective force multiplier, in most cases it is not timely enough to satisfy urgent requirements for force protection and situational awareness. When organic assets are unavailable or not adequate to satisfy security requirements, exploiting National assets can mean the difference between operational success and failure in locating and identifying potentially dangerous cargoes/vessels.

U.S. Environmental Protection Agency

The EPA continued to use National Systems data to support environmental applications. The EPA's Environmental Photographic Interpretation Center (EPIC) is the Agency's lead for exploitation and analysis of National Systems data and continued to provide scientific expertise to EPA customers and assistance to other civil and IC agencies. EPA, through the leadership of the CAC, utilized National Systems for the following projects:

Accuracy Assessment – An Accuracy Assessment of land use and land cover change, derived from 1990 and 2000 National Land Cover Data (NLCD), was performed by USGS personnel at the ASC under an Interagency Agreement with EPA. Three hundred points, including several no-change points for quality control, were evaluated using National Systems data. The results are used to fulfill formal quality control requirements for the NLCD program and provide input into future land use and land cover change research.

GFP – EPA continued to be an active participant in the GFP, providing over 30 sponsored sites to the program. EPA assisted in the planning of scientific workshops for the peer-review of current and future sites in the program.

Operation Iraqi Freedom (OIF) – EPA utilized ASC facilities to access NGA Imagery Intelligence products concerning OIF and provided these finished intelligence products to the EPA Administrator and senior management. EPA was also ready and available to assist the DOD and IC community for any issues regarding human health and environmental effects during OIF operations. Of special concern were oil fire smoke and its effects on coalition partners and the Iraqi citizens. EPA monitored these oil fire events by creating a GIS database comprised of NGA geospatial products including oil refinery and pipeline locations, oil fields, and other geospatial data. This GIS data was merged with near-real time satellite data provided by NASA. Satellite data was received twice daily for all of Iraq and allowed EPA to track oil fires and associated smoke during the major portion of OIF.

Other IC Community Involvement – EPA continued to be involved with several committees and working groups related to IC issues. EPA attended the NRO sponsored Spectral Quality Metrics Working Group. NRO requested EPA scientific expertise during a funding proposal evaluation as part of the NRO Director's Innovation Initiative Program. EPA continued to be part of the testing and evaluation of data and image processing software programs for IC organizations and has communicated comments back to the respective organizations for software improvements. EPA has also taken advantage of several educational opportunities within the IC by attending classes in data processing and information technologies.

Department of Defense

U.S. Army Corps of Engineers

The Topographic Engineering Center (TEC) represents USACE on the CAC. TEC also participates in the activities of the GFWG. TEC did not submit or receive any DIR approvals during CY2003; however, TEC received a copy of DIR # 03-042, Hurricane Isabel, and the accompanying Proper Use Statement, in preparation to assist with post hurricane operations if necessary. Numerous IDP's were produced during CY2003 using Approved Technique ID 97-16. Efforts to collect, validate, and update the USACE Global Fiducials Site List continued. Three USACE sites were deleted due to the sites being categorized as "operational" in nature, rather than scientific. These were Leverett Glacier Base, Leverett Glacier Head, and Ross Ice Shelf, all in Antarctica. TEC continues to work closely with NGA's IPSCOM to gain and maintain approval authority for the production of IDPs.

National Science Foundation

NSF-supported scientists very much appreciate the assistance provided by the CAC and the Intelligence Community in making IDP's available that provide new information on environmental change at NSF's Long Term Ecological Research (LTER) sites and in several areas of the polar regions. The CAC process supports our scientific endeavors while maintaining appropriate oversight of our national security interests.

During 2003, NSF continued to work with the USGS and selected scientists to define scientific goals and data collection parameters for a large group of sites that are part of the GFP. As data are collected, an important archive will be built. NSF recognizes that this is an investment that will not likely pay off in the short term but rather the actions now will lay the framework for researchers who will exploit the data beginning in perhaps a decade. NSF believes that the GFP is a sound investment for future environmental research.

NSF sponsored researchers and NSF staff have learned considerably more over the last year about the potential research uses of IDP's. Of particular relevance is that NSF continues to learn about the research limitations and benefits of National Systems imagery. Despite limitations, NSF continues to find that the imagery is valuable for time series analysis of a wide array of land surface phenomena.

Participation in the GFP – NSF continues to participate in the GFP and the GFWG. Over one hundred sites are under active consideration by NSF for sponsorship. The 24 LTER program field sites, which include two in the Antarctic and one in the Arctic, are of principal interest. The LTER Network Office has been working with the GFL to validate data collected under the GFP and the LTER sites are now active. Up to three additional new near-coastal marine LTER sites may be added in FY04, which will be included in this activity in the future. A workshop is being jointly planned with the USGS to develop the scientific rationale, which then define collection parameters, for sites related to glaciers and periglacial environments. This workshop is planned for summer or fall 2004. Definition of collection parameters will follow the workshop.

Dry Valleys Region – An experiment to evaluate glacier front changes over time in the Antarctic Dry Valleys was begun in 2002 as a partnership between Dr. Andrew Fountain, of

Portland State University, and the U.S. Antarctic Resource Center hosted by the USGS. The goal was to use IDP's from the archive to fill gaps in time series coverage over the last two decades. In 2003, Dr. Fountain, working with Richard Sanchez of the USGS, utilized National Systems imagery to effectively map glacier fronts and discussions are underway to determine the potential viability of IDP's for possible use in publications related to changes in the Dry Valley glaciers. If found viable, then appropriate requests for release of IDP's will be developed.

Ross Sea Region Penguin Population Study – An experiment to use National Systems imagery to develop methods for using commercial high-resolution imagery to estimate populations of penguin colonies was undertaken as a partnership between Dr. Jerry Kooyman of Scripps Institution of Oceanography and Richard Sanchez of the USGS. Unfortunately, results of this experiment have led to the conclusion that high-resolution commercial imagery is not effective for estimating populations of groups or huddles of emperor penguins in their colonies. However, National Systems data do seem useful for monitoring environmental aspects of habitat change associated with penguin colonies; therefore, this type of activity might be considered for possible inclusion in the GFP.