

1997 Annual Report

Civil Applications Committee



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Department of Agriculture • Department of Commerce • Department of Energy • Department of the Interior
Department of Transportation • Environmental Protection Agency • Federal Emergency Management Agency
National Aeronautics and Space Administration • U.S. Army Corps of Engineers
• National Science Foundation

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**1997 Annual Report
Civil Applications Committee**

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The Civil Applications Committee

The Civil Applications Committee (CAC) is a civilian interagency committee established in 1975 by Presidential directive to facilitate the appropriate use of classified advanced remote sensing technology and data by Federal civil agencies in support of their missions and programs. The CAC provides a forum through which the civil agencies coordinate requirements, applications, and research pertaining to the tasking and use of these assets for their mission-related responsibilities. For civil agencies, the CAC provides the communication channels and the procedures for interaction with the military and intelligence communities on issues related to the use of classified remote sensing data.

Responsibilities and Functions

Recent years have seen a dramatic change in remote sensing capabilities and an ever increasing use of this valuable national resource by the civil community. Since its inception, the CAC has grown in scope, membership, and activities. CAC activities have expanded beyond traditional mapping applications to a broad range of environmental and remote sensing applications central to Federal agency missions. Furthermore, national interests have expanded beyond U.S. territorial boundaries to encompass global concern for scientific and environmental issues. Current national concerns and activities include such matters as global change, monitoring environmental scientific research activities on subjects such as worldwide earthquake patterns, foreign crop conditions, and assessment of and response to natural and manmade disasters.

The CAC's major responsibilities are to provide oversight on the use of classified remote sensing data (hereafter referred to as national systems data), facilitate the acquisition and use of these data, and provide a forum for the exchange of information and new applications.

- Oversight responsibilities extend to ensuring knowledge of policies on the proper nonintelligence use of the data and to protecting the intelligence sources and materials. The CAC receives, reviews, approves, and prioritizes all civil requests and acts as the interface between the Federal civil agencies and the intelligence and military communities.
- The CAC, through support infrastructures provided by the U.S. Geological Survey (USGS), provides access to exploitation resources and supports research and development of remote sensing technology. The CAC also makes arrangements for technical support from the national security agencies.
- Through the CAC, pertinent knowledge on the use of remote sensing capabilities is promoted among the civil community members. The CAC also represents the civil community in national security forums and serves as an advocate for policies and technology of common benefit to the civil, military, and intelligence communities.

CAC meetings are held once each month, usually at the USGS Advanced Systems Center in Reston, Va. to provide informational briefings and conduct routine business. CAC working groups are established to address specific CAC programs and issues and meet on an as-needed basis. The Security, Emergency Response, and Imagery Derived Products working groups were active during 1997.

Membership

The CAC is made up of representatives from the Departments of the Interior, Agriculture, Commerce, Transportation, and Energy; the Federal Emergency Management Agency; the National Aeronautics and Space Administration; the U.S. Army Corps of Engineers; the Environmental Protection Agency; and the National Science Foundation. A representative of the Director of Central Intelligence serves as the ex officio member to provide liaison with the intelligence community. CAC meetings also include participation by representatives of the Department of Defense (DoD), including intelligence systems collectors from the National Reconnaissance Office, and requirements integrators and processors from the National Imagery and Mapping Agency (NIMA). By direction of the Secretary of the Interior, the Chair of the CAC is assigned to the U.S. Geological Survey (USGS).

Historical Highlights

- **1960's** - To serve important domestic needs, Federal civil agencies begin to use national systems data collected by classified overhead sensors carried on U.S. satellite platforms.
- **1969** - Congress funds USGS to establish a special facility where Federal civil agencies can use national systems data and technology on a regular basis in their various research, mapping, and other production programs. The initial focus of the new facility is on domestic mapping, charting, and geodetic applications.
- **1975** - The Rockefeller Commission recommends that an interagency committee of Federal civil agencies be established to oversee applications of classified overhead photographic sensor capabilities and to allay concerns about improper or illegal uses of such imaging activities. The Commission concludes that the existing applications by Federal civil agencies are appropriate and desirable uses of costly, nationally funded, classified resources.
- **1975** - In response to the Rockefeller Commission's recommendations, President Ford directs the establishment of an interagency committee through a memorandum signed jointly by the Assistant to the President for National Security Affairs, the Director of the Office of Management and Budget, and the Director of Central Intelligence. The memorandum directs the Secretary of the Interior to establish the "Committee for Civil Applications of Classified Overhead Photography of the United States" and spells out the mission of the Committee. The Secretary directs that the chairmanship be the responsibility of the Associate Director of the USGS.

- **1992 - The Environmental Task Force (ETF) is formed to determine how national systems data can be used to assist the global change and environmental research community. The Environmental Program, an outgrowth of the ETF, is formed to determine how such support can be achieved without adversely affecting the intelligence mission and to provide support through the established intelligence infrastructure.**
- **1992 - The CAC initiates development of a revised charter that broadens the scope of the original charter to include non-U.S. areas and all relevant remote sensing data and renames the committee the "Committee on Civil Applications of Classified Overhead Remotely Sensed Data."**
- **1994 - Under the Environmental Program, MEDEA is formed as a standing scientific advisory committee to support the evaluation of potential advanced systems and identification of new applications.**
- **1994 - Under the Environmental Program, the Government Applications Task Force (GATF) is formed to assess the potential for national systems data to contribute to the environmental observation, monitoring, and resource management missions of U.S. Government organizations. The GATF concludes that classified remote sensing information systems have clear potential to provide improved support to the environmental and other missions of the civil agencies.**
- **1995 - President Clinton's Executive Order (EO) 12951 declassifies 1960-72 reconnaissance satellite imagery known as the Corona, Argon, and Lanyard Missions.**
- **1995 - On the basis of EO 12951, the Director of Central Intelligence decompartmentalizes and downgrades most classified imagery to the SECRET level.**
- **1995 - On the basis of EO 12951, the generation of unclassified imagery derived products is allowed from national systems data.**
- **1996 - The fact of the CAC and the civil agency use of national systems data for mapping, scientific, environmental, and disaster support are declassified.**
- **1995 - Eight 1-year GATF pilot (proof-of-concept) projects are started that demonstrate the operational use of national systems data for Federal civil agency missions. Future actions are formulated for CAC modernization, increased field agency facilities, and personnel clearance and training.**

Charter Revision

The CAC has initiated an action to modify and update several provisions of the existing Charter, which was formulated in 1975. This action has required extensive deliberation and coordination, both internally within the CAC, as well as externally with other organizations. This process is now nearing completion. The Secretary of the Interior concurs in and supports the proposed revised charter. Also, the Director of Central Intelligence, one of the three signatories to the original charter, has indicated his formal concurrence. Action is under way to obtain the approval of the two other signatories, the Director of the Office of Management and Budget and the President's Assistant for National Security Affairs.

The goals of the revised charter are to amplify and expand the responsibilities of the CAC. The most significant proposed changes authorize the CAC to use national systems data worldwide and to ensure the effective application of the data collected. The CAC will facilitate the use of these data to derive basic information for civil applications, including mapping, making disaster assessments, monitoring environmental changes, supporting other scientific research activities relative to improving knowledge of the Earth's environment, and deriving other information needed to support national policies and objectives.

The revised charter will include the following provisions:

- National policy directives and the scope and concerns of Federal civil agencies now extend to non-U.S. areas;
- Civil Federal agencies have the opportunity to develop applications for new remote sensing technology;
- The committee title is changed from "Committee for Civil Applications of Classified Overhead Photography of the United States" to "Committee on Civil Applications of Classified Overhead Remotely Sensed Data" to reflect its new scope;
- The membership provisions are clarified to provide for the inclusion of all Federal agencies whose civil responsibilities can be accomplished through the application of advanced remote sensing technology;
- The preparation of an annual report is required to increase national awareness of the usefulness of national systems data and to provide national policy makers and responsible department and agency officials with an information resource for reviewing agency achievements and problems associated with CAC operations;
- The CAC is required to obtain the most current guidance on legal restrictions on collection and proper use of national systems data to ensure that constitutional and other legal rights of U.S. persons are not violated.

Working Group Report Summary

Working groups are established under the CAC to deal with specific CAC related programs and issues. In 1997, there were three active working groups, the Security Working Group, the Imagery Derived Products Working Group, and the Emergency Response Working Group.

In August 1997, the CAC established a **Security Working Group (SWG)** to provide consistent, comprehensive, and coherent security guidance to CAC member agency facilities to support their use of national systems data. The SWG works with individual agency security offices and agency representatives. The Security Policy Board, a group established by the President for the coordination and oversight of national security policy and procedures, has provided the SWG with completed and draft directives relating to national security policy, which the SWG is using as the basis for developing security policy guidance for CAC member agencies. These guidelines will be completed in 1998.

The **Imagery Derived Products Working Group (IDPWG)** is a newly formed CAC working group that has evolved from the Imagery Derived Products Task Force. A formal charter for this group will be completed in early 1998. Imagery Derived Products (IDP's), the literal (image) or non-literal (maps and other graphics) products that are generated from national systems data, play an important role in the scientific and environmental applications of CAC member agencies. The IDP Task Force was set up in January 1997 to support the IDP program by promoting IDP policy and providing a forum in which the civil agencies could discuss and address IDP issues related to their missions and goals. Accomplishments in 1997 included the identification of civil agency requirements for unclassified IDP's and documentation of these requirements in 5-year implementation plans for each participating agency; assistance in completing the development of an IDP users guide for the civil community; and coordination of the civil agency review of the IDP ToolKit, a software package that allows the automated production of IDP's using NIMA-approved product generation techniques.

The **Emergency Response Working Group (ERWG)** coordinates the civil agency response to emergency situations by identifying the data needs of the various departments and agencies, establishing communications channels for requesting and disseminating information before, during, and after an emergency situation, and providing an arena where competing needs can be discussed and relative priorities identified. ERWG's 1997 accomplishments include the completion and CAC approval of the "Civil Applications Committee Emergency Response Procedures," which formally outlines the procedures for requesting national systems data support in response to emergency situations and the initiation of the development of matrices showing the remote sensing platforms and assets available to assist in emergencies. Matrices addressing agency responsibilities and authorities under various emergency situations are planned for development in 1998.

Department and Agency Report Summary

U.S. Department of Agriculture

The U.S. Department of Agriculture (USDA) has diverse applications for geospatial data and IDP's to support agricultural production monitoring and estimation, natural resource conservation, and ecosystem management. Applications have included disaster preparation, mitigation, response, and recovery necessitated by wildland fires, volcanoes, floods, landslides, hurricanes, tornadoes, insect and disease outbreaks, and drought. Agencies within the USDA that have participated and used these resources include the Forest Service, Natural Resource Conservation Service, Agricultural Research Service, Foreign Agricultural Service, Farm Services Agency, National Agricultural Statistics Service, and World Agricultural Outlook Board.

During 1997, national systems data were used to augment (1) commercial aerial photography in emergency [REDACTED] in Alaska and [REDACTED], (2) a special Natural Resource Inventory on impacts of the new Farm Bill, conducted by the Natural Resource Conservation Service, (3) the ecosystems management and restoration research project in Baxter State Forest in Maine, and (4) mapping updates in the Wasatch National Forest in Utah.

USDA agencies anticipate routine use of unclassified IDP's from national systems data produced in collateral USDA and interagency facilities. Working with the CAC and the IDP Program, the Forest Service has been selected to participate in a cost-sharing initiative to create and establish automated and semiautomated IDP techniques and processes and develop IDP production capabilities.

Department of Commerce

The Remote Sensing Division of the National Oceanic and Atmospheric Administration's (NOAA) National Geodetic Survey (NGS) continued to use national systems data for charting and geodetic purposes during 1997. These data were used for revising shorelines, updating nautical charts, and determining the mean low water and mean high water shorelines.

Department of Energy

Through the CAC, the Department of Energy (DOE) has clarified its roles and responsibilities in relationship to the Federal Emergency Management Agency (FEMA) and the CAC for tasking data collection in support of certain domestic emergency response activities. The DOE has worked closely with the CAC's ERWG, helping to develop the ERWG charter and reviewing the draft "Civil Applications Committee Emergency Response Procedures" produced by the ERWG. The latter document governs the procedures and relationships for acquiring national systems data and IDP's during national emergencies. The DOE information helped clarify the various Federal plans, relationships, authorities, and responsibilities among CAC member agencies. The DOE also provided the ERWG with

an imagery resource reference, a matrix of interagency responsibilities associated with each of the Federal plans (i.e., the Federal Response Plan, the Federal Radiological Emergency Response Plan, and the national Contingency Plan).

Department of the Interior

Several agencies of the Department of the Interior now use national systems data in support of their domestic missions. The Bureau of Land Management (BLM) has used these data since 1994. Current uses by the BLM include mapping wildfire suppression, supporting environmental studies on public lands, delineating and monitoring glacial forelands and ice margins, monitoring beach and ice erosion, identifying and assessing existing and potential wildlife habitat; assessing hazards for recreation and transportation, monitoring the condition of riparian areas, updating wetlands inventories, and mapping change detection.

The Bureau of Reclamation (BOR) operates multipurpose water and hydropower projects in 17 Western States. Remotely sensed data have become essential to BOR operations, including the extensive use of satellite data relay beginning almost a quarter of a century ago. The BOR has attempted to use national systems data in dam safety investigations but has not been successful because of the lack of timely data. However, the BOR Technical Services staff intends to use IDP's for problems of water supply system integrity and soil moisture detection in 1998.

The National Park Service (NPS) is working to provide new information to park GIS specialists and resource managers for park management and protection, long-term monitoring, and scientific studies. The NPS is using national systems data for locating and mapping previously unknown cave openings to help protect hikers from unsafe areas, protect caves from vandals, and provide new information about the local geology and extent of caves. These data are also being used in combination with Landsat multispectral data to create weed potential maps and other land cover maps. The NPS has identified 63 Global Fiducial sites in 14 national parks where data will be collected to help set up long-term monitoring protocols and resource management strategies. In the future, a standard set of derived products will be produced on an annual basis for park use and scientific research by the NPS and cooperators.

The U.S. Fish and Wildlife Service (FWS) and the BLM tested the applicability of national systems data for identifying and classifying wetlands and hydrographic features in a study conducted in Alaska in 1995 and 1996. The results of the Alaska Wetlands GATF project indicate that these data have the potential to meet the accuracy requirements of the Status and Trends Program, which requires a report on the status of wetlands and deep water habitats in the conterminous United States every 10 years. FWS has selected 10 Global Fiducials sites that will provide data to help accomplish this mandate.

The USGS supports a wide variety of civil mapping, scientific, and environmental applications of national systems data and provides many support services for the CAC. National systems data are used in classified USGS facilities to support standard USGS mapping applications, such as the digital orthophoto quadrangles, digital line graphs, and the graphic revision program; disaster-related activities, such as

volcanic eruptions and flood monitoring; and other earth science investigations, such as water resource studies, land characterization, flood dynamics, geology, wetland dynamics, and trend in marine mammal population.

The USGS provides the CAC chairmanship, the CAC secretariat staff, and numerous other resources to help operate the CAC. USGS resources are responsible for organizing monthly CAC meetings, participating in CAC working groups, representing civil agencies at CAC-related meetings, and conducting and participating in other briefings, training sessions, and conferences that frequently take place in the civil and intelligence communities. In addition to these support services, the USGS provides resources at the Advanced Systems Center in Reston, Va., to process all CAC civil agency requests for national systems data. USGS facilities and systems for data exploitation are made available for use by CAC member agencies.

Department of Transportation

The Department of Transportation has used national systems data on a limited basis to locate aircraft wreckage, investigate a plane crash, and monitor a pipeline rupture.

Environmental Protection Agency

The mission of the U.S. Environmental Protection Agency is to protect human health and to safeguard the natural environment - air, water, and land - upon which life depends. EPA works with the CAC to ensure that all relevant information available is made accessible to appropriate EPA decision makers. For more than 20 years, EPA's Environmental Photographic Information Center has worked with CAC and with national systems data and, in recent years, the EPA has developed secure facilities that permit use of these data at many of its locations around the United States. EPA has worked on the development of the Global Fiducial Library and has sponsored many global fiducial sites. It has undertaken research on the use of national systems data for habitat evaluation and for the study of various aspects of global climate change. Through the Environmental Working Group of the Gore Chernomyrdin Commission, it has conducted research on the use of national systems data for risk assessment in Siberian energy development and participated in evaluating the use of these data for military base cleanup and understanding global change. In addition to EPA participation in the CAC ERWG, unclassified IDP's are also used in helping fulfill EPA's broad disaster and emergency response responsibilities.

Federal Emergency Management Agency

During 1997, FEMA used national systems data for Federal response and recovery missions to support presidential disaster declarations and development of an all-hazards predictive modeling system. The disaster-related uses were the results of hurricanes, typhoons, flooding, and wildfires throughout the

United States. To support Federal emergency management response, FEMA obtained timely, comprehensive damage and impact analysis over stricken areas and current threat assessment information. national systems data proved to be critical assessment and analysis tools that allow FEMA to target resources and tailor response efforts to areas and communities with the most urgent need.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) provides comprehensive engineering, management, and support services to DoD, other agencies, and State and local governments. The Topographic Engineering Center (TEC) represents the USACE on the CAC and provides support to the ERWG and the IDPWG.

The TEC used national systems data for a number of responses to crises during 1997. These included spring flooding in the Midwest and Northwest United States and Typhoon Paka in Guam. The TEC also studied the feasibility of using these sources to predict levee failure. In addition, national systems data were collected for baseline studies of flood-prone areas in the continental United States.

National Science Foundation

The National Science Foundation (NSF) made progress on several fronts in developing procedures for using data and other information from national systems data in research conducted by the NSF-supported scientists. With respect to Global Fiducial sites, the NSF continued to refine specifications for the sites it has nominated for inclusion in the Global Fiducial Library. Procedures began for obtaining security clearances for NSF-supported scientists who will work firsthand with information gathered for sets of sites. Work continued on refining procedures to develop IDP's for Global Fiducial sites. The NSF also participated in a secondary role in developing plans for a Global Disaster Information Network.

Major Accomplishments and Future Challenges

During 1997, the activities of the CAC and the use of national systems data by the Federal civil community expanded significantly. The number and diversity of research activities and applications of national systems data to mission responsibilities have steadily increased over the past 2 to 3 years. [REDACTED]

Development of the Global Fiducials Library moved forward, and civil agencies submitted their site selections through the CAC. A draft CAC charter that significantly expands the scope of CAC responsibilities was completed this year and is now in the process of higher level government review and finalization. The CAC also continues to be increasingly recognized as the voice of the civil community in a variety of military and intelligence forums related to the acquisition and use of national systems data.

The trend toward increasing civil applications will continue into the future, along with a parallel growth in CAC requirements for data collection, dissemination, and archiving. Technology will continue to evolve and provide capabilities to acquire and distribute more electronic data more quickly. Standards for electronic data will continue to evolve, and advanced computer systems will make data exploitation easier. The number of secure facilities within the CAC agencies will grow, providing more capabilities for the civil user. The CAC has an important role to play in facilitating the civil use of national systems data. The CAC must ensure that civil users understand and abide by the limitations imposed by the nature of these data, must help users define realistic collection requirements, and must provide the technical and educational support required by the civil community.

The years ahead will bring many challenges for the CAC and its Federal civil member agencies. Considerable progress has been made in implementing the national policy of using classified overhead imaging resources for appropriate civil agency applications. To sustain this trend of steadily increasing applications and to carry out its responsibilities, the CAC will need to take the following actions:

- increase support resources to handle expanding civil agency requirements; that is, resources to receive and process requirements and disseminate and archive the collected data;
- continue to be represented at various briefings, discussions, and other meetings within the military and intelligence communities in order to keep abreast of pertinent developments in the constantly evolving classified remote sensing arena and to ensure that the interests and concerns of civil agencies are appropriately considered;
- effectively interact with the military and intelligence communities to put in place reasonable and efficient procedures and processes for data collection, production, and use;
- provide the civil community with the most current information, education, and training on issues of security, new technologies, and policy through appropriate information dissemination avenues;
- obtain increased support and participation from each CAC member agency to ensure that the needs of their organizations are met and that CAC functions and responsibilities are effectively carried out.

The CAC is an advocate for the civil community within today's classified remote sensing environment. The CAC's new charter will provide an official, national-level policy acknowledgment of this role and will recognize that national systems data are being systematically and routinely used by Federal civil

agencies to carry out their congressionally mandated responsibilities in a cost effective and responsible manner. To effectively implement this national policy, each civil agency representative should disseminate copies of this annual report to ensure that senior levels within their respective organizations are cognizant of the purpose and activities, accomplishments, and resource problems of this important national program.