

## Introduction

The Mapping Applications Center (MAC), National Mapping Division (NMD), is the eastern regional center for coordinating the production, distribution, and sale of maps and digital products of the U.S. Geological Survey (USGS). It is located in the John Wesley Powell Federal Building in Reston, Va. The MAC's major functions are to (1) establish and manage cooperative mapping programs with State and Federal agencies; (2) perform new research in preparing and applying geospatial information; (3) prepare digital cartographic data, special purpose maps, and standard maps from traditional and classified source materials; (4) maintain the domestic names program of the United States; (5) manage the National Aerial Photography Program (NAPP); (6) coordinate the NMD's publications and outreach programs; and (7) direct the USGS map-printing operations.

## Cooperative Mapping Programs

The MAC aggressively seeks out and establishes partnerships with Federal, State, and local governments, private industry, and academia. These partnerships take many forms, from Memorandums of Understanding to Cooperative Research and Development Agreements. The intent in all partnerships is to foster the exchange of information and resources among government agencies, private industry, and academia. Partnerships also develop capabilities, produce geospatial information, and encourage data applications. The MAC also has a lead in the international cartographic community, often formulating programs for consultation and research exchange, including training, with foreign mapping agencies. An example of one such international involvement is reflected in the MAC's program in the Antarctic. The MAC's primary contributions are to act as a liaison with the National Science

Foundation and other Federal and international agencies and to assist in developing mapping systems applications, in collecting geospatial data, and in applying these data to ecosystems, resources, and operational needs.

## Research and Applications

The MAC leads in the development and implementation of new methods for producing and revising geospatial data, including aerial photography and satellite systems. The MAC specialists use geographic information system and image processing and analysis tools to apply geospatial data to land and resource management, hazards detection and mitigation, and socioeconomic problems. One innovative approach to cartographic research and development is the MAC's Geospatial Technology Laboratory. The lab supports the USGS in spatial data research, image processing, data visualization, spatial data collection and processing, and assessing spatial data applications.

An important area of research the MAC actively supports is ecosystem assessment. Members of multidisciplinary teams of USGS scientists review and track the status of natural resources in several ecosystems, such as the Upper Mississippi River area, the Chesapeake Bay watershed, and South Florida. The MAC facilitates the application of classified satellite imagery to these issues through its National Advanced Remote Sensing Applications Program.

## Data Collection and Management

The MAC collects, processes, and archives digital cartographic data and produces digital orthophotoquads and special and thematic products to support the requirements of other Federal and State agencies or reimbursable customers. A variety of production systems is used to digitize, scan, edit, integrate,

process, and plot data produced by either the MAC or its partners.

The electronic "National Atlas of the United States of America" is one example of a current data collection and management project. This is a joint project with the USGS's Geologic, Biological Resources, and Water Resources Divisions, as well as with other Federal agencies and private companies. The Atlas will provide geospatial data of national or regional scope and tools to enable users to acquire, display, and analyze the data.

## Classified Operations

The MAC provides a consistent environment to support secure operations and allows for use of classified data and related information by a diverse user community. MAC personnel consolidate and prioritize classified data needs; manage the sensor tasking, collection, and dissemination of these data; provide exploitation expertise; and assist in generation of derived products. As part of these operations, MAC also supports the effective operations of the Civil Applications Committee (CAC). The CAC provides access to national security information for civil government agencies and their associated personnel. The CAC members participate in interagency committees and panels to ensure maximum use of these source data and products in land and resource management, hazards detection, and disaster mitigation. MAC provides support and coordination in connection with multi-agency use of the Advanced Systems Center facility.

## Geographic Names Program

The MAC's involvement in the Geographic Names Program includes executive leadership and support for the U.S. Board on Geographic Names (BGN). The program manager also

serves as the BGN's executive secretary for the domestic and Antarctic names programs. (The National Imagery and Mapping Agency serves as the leader in foreign names issues.) The Geographic Names Program is important because it standardizes domestic name usage throughout the Federal Government, maintains the automated national geographic names information repository, provides names support for cartographic product generation, and develops standardization programs for regional and international names.

### **National Aerial Photography Program (NAPP)**

The MAC provides oversight and technical leadership for the procurement and operational activities of the NAPP. The NAPP makes black-and-white and the most recent color-infrared aerial photographs of the Nation easily accessible, ensuring that the photographs are consistently uniform in scale, image quality, and orientation. Indexes showing national coverage are available from USGS Earth Science Information Centers (ESIC).

### **Outreach Efforts**

Another of the MAC's program areas is outreach. One of the most effective mechanisms currently supported in outreach is the educational component. Educational materials for grades K-12 take many forms, from formal teacher packets on the earth sciences to career information material. Posters, booklets, and many other publications, both educational and general interest, are produced to disseminate information about the programs and products of the NMD and USGS. This information is distributed through a network of ESIC's.

The MAC, as the USGS eastern region coordinator, is responsible for two ESIC's, one in Reston (the USGS headquarters) and the second in the District of Columbia. Another major outreach effort managed by the MAC is the NMD's exhibit program. This program is designed to provide national exposure to the NMD and to USGS programs and products. The MAC investigates and procures new and innovative exhibit systems and supports an extensive exhibit schedule.

### **Map Printing**

No discussion of the MAC would be complete without a mention of its printing operations. The MAC operates the largest civil map printing operation in the Federal Government. The presses roll out maps not only for the USGS but for 11 other Federal agencies as well; most notable are the 1:100,000-scale maps printed for the Bureau of Land Management on a regular basis. The MAC assisted in the production of Landforms of the Conterminous United States, Satellite Image Map of Antarctica, and South Florida Satellite Image map; also reproduced the authentic D-Day map celebrating the 50th anniversary of D-Day. The printing plant also produces various atlases for the Geologic and Water Resources Divisions of the USGS and educational posters for school-age children.

### **For More Information**

For information on the MAC or any of its programs and products or other USGS products and services, call 1-800-USA-MAPS, e-mail: [esicmail@usgs.gov](mailto:esicmail@usgs.gov), or fax 703-648-5548.

Receive information from the EARTHFAX fax-on-demand system, which is available 24 hours a day, at 703-648-4888.

The address for the USGS home page is <URL: <http://www.usgs.gov/>>

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