

**Federal Advisory Committee**  
**for the**  
**U.S. Geological Survey**  
**National Cooperative Geologic Mapping Program**  
**Annual Report to the Secretary of the Interior – 2004**

This report summarizes the activities of the National Cooperative Geologic Mapping Program (NCGMP) in 2004 and makes several recommendations. In our judgment, the NCGMP continues to be one of the most successful and cost-effective U.S. Geological Survey (USGS) programs, providing oversight, funding through a competitive proposal process, and a searchable database of final products for its Federal, State, and University components. Moreover, the NCGMP regularly creates partnerships that are defined by state-specific priorities and bring additional, non-federal dollars into the program. Recent changes to the program include documentation of square miles geologically mapped each year, a revised, more user-friendly Web site, development of a mission statement, and formulation of a new 5-year plan. The NCGMP also has increased the number of individual FEDMAP and STATEMAP project reviews.

This new 5-year plan has three major goals:

- Produce high quality, multipurpose detailed geologic maps and related databases and reports for high priority areas.
- Make these geologic maps, databases, and other products more accessible and easily available by providing them in a variety of digital formats.
- Ensure that the NCGMP will continue to have an adequate, experienced workforce to meet the Nation's future geologic mapping needs.

Based on its most recent meeting, the Committee makes the following recommendations:

- The USGS and State Geological Surveys should make every effort to increase communication, cooperation, and coordination between contiguous FEDMAP, STATEMAP, and EDMAP projects.
- The NCGMP should do a better job of tracking production and subsequent distribution of all geologic maps, reports, and other products.
- State Geological Surveys should be encouraged to run field trips for potential government and private sector users of new geologic maps to increase understanding of the value of these products.
- The NCGMP should explore new, more consistent ways of capturing, referencing, and distributing geologic map information produced by the EDMAP component.
- The NCGMP should regularly schedule informational and feedback sessions for Program leaders and EDMAP faculty and students at regional professional geologic meetings.
- The language of the current reauthorization legislation should be changed so that the funding formula that distributes dollars among the three program components can be modified and the membership of the Federal Advisory Committee (FAC) can be altered

by adding a second representative of private industry and a second representative from a Department of the Interior (DOI) land management agency/ bureau.

- The NCGMP should make an effort to distribute more widely the recent American Geological Institute (AGI) publication “Meeting Challenges with Geologic Maps”.

## **Introduction**

As mandated by the National Geologic Mapping Act (NGMA) of 1992 (Public Law 102-285) and its reauthorizations of 1997 and 1999 (Public Laws 105-36 and 106-148, respectively), the FAC for the NCGMP will submit an annual report to the Secretary of the Interior that evaluates progress made toward fulfilling the Federal, State, and Educational components of the NGMA. This document fulfills this requirement for 2004.

The NCGMP FAC met on February 10-11, 2004, in Washington, DC at the Department of the Interior. Representatives that were present included: Robert D. Hatcher, Jr. (Professor at University of Tennessee), Carla Kertis (U.S. Department of Agriculture National Resources Conservation Service), Robert J. Silva (U.S. Department of Energy), P. Patrick Leahy (USGS Associate Director for Geology), Peter T. Lyttle (NCGMP Program Coordinator), Jonathan G. Price (State Geologist from Nevada), James M. Robertson (State Geologist from Wisconsin), and Susan M. Landon (Thomasson Partner Associates). Gene Whitney (Office of Science and Technology Policy) and Randall Orndorff and Laurel M. Bybell (NCGMP Associate Program Coordinators) also attended. David R. Soller (USGS) gave a presentation on the National Geologic Map Database.

## **Progress of the National Cooperative Geologic Mapping Program**

The NCGMP has continued to fund the production of geologic maps across the United States through its three components: FEDMAP, STATEMAP, and EDMAP. Within the past 2 years, the Program has made a significant effort to monitor and guide these components more effectively and efficiently. These efforts and accomplishments will be discussed below.

## **Program**

- The Program is now counting the number of square miles mapped geologically each year, starting with NCGMP-funded geologic maps published in 2003.
- The NCGMP is completely redesigning its current Web site through cooperation with the Geospatial Information Office and the Office of Communication at USGS. Results of a questionnaire sent to a random selection of 250 Web site customers were used to determine the format and content for the redesigned Web site.
- The NCGMP has developed a mission statement. The mission of the NCGMP is to provide accurate geologic maps and three-dimensional framework models that help to sustain and improve the quality of life and economic vitality of the Nation through understanding ground-water availability and quality, supporting DOI land management decisions, mitigating hazards, assisting in ecological and climatic monitoring and modeling, training the next generation of geologic mapping scientists and understanding onshore-offshore sediment processes.

- The NCGMP is currently working on a new 5-year plan for 2006-2010, which has three goals:
  - **Goal 1** - Produce high-quality, multipurpose digital geologic maps and accompanying databases and reports to solve diverse land-use problems in high priority areas. Develop three-dimensional geologic frameworks that extend into the subsurface for use in a variety of predictive models, such as ground-water flow, seismic shaking, landslide probabilities, landscape change, and ecosystem health. Performance measures related to this goal include measuring the area covered by geologic maps and evaluating efficiencies implemented in the map production process.
  - **Goal 2** - Make geologic map information more accessible to the public by providing geologic maps, reports, and databases in a variety of digital formats. Preserve and make accessible the extensive USGS paleontologic collections and accompanying databases. Performance measures for this goal document the numbers of maps/reports that are produced and geologic map information provided to our customers through formal workshops and training.
  - **Goal 3** - Ensure that the NCGMP will have the capabilities/work force to meet the future needs of the Nation. Performance measures include documenting EDMAP student participation and follow-up of their EDMAP experience in geoscience careers.
- In FY 2004, the NCGMP modified its reporting of Government Performance and Results Act (GPRA) results for “Systematic Analyses” in order to be more comprehensive and more representative of the overall efforts of the Program. In the final year of each NCGMP funded multi-year project or geologic mapping effort (FEDMAP and STATEMAP), project chiefs or principal investigators must provide a written summary of the effort, including significant scientific findings and how project-generated information is being used by customers.

## **FEDMAP Component**

- The NCGMP has devised an effective method for using product information listed in USGS Budget and Science Information System Plus (BASIS+) to evaluate the ability of NCGMP-funded projects to meet their product delivery goals. The Program is documenting the progress of geologic maps, posters, presentations, reports, and Web sites from the time they are first proposed in BASIS+ to the date of final delivery. This information is one criterion the Program uses to evaluate and determine project funding.
- Each NCGMP-funded FEDMAP project must enter into BASIS+ with a statement of how its research, publications, or maps have been used in the past year by customers, such as other Federal agencies, State or local governments, private industry, etc. Actual relevant product citations must also be listed.
- The NCGMP implemented a project review questionnaire during panel review of fiscal year (FY) 2005 FEDMAP project proposals. Results of this questionnaire assist the Program Coordinator in determining future project funding.
- Each of the three regional Earth Surface Processes Teams now provides annual lists of their published products to the NCGMP. This information is then posted on each Team’s Web site. Part of this information is used to determine the number of square miles covered by published geologic maps each year, which in turn is part of the Program’s GPRA results and may be found in each year’s USGS Budget Justifications and Performance Information (green book).

## **STATEMAP Component**

- The NCGMP has compiled and is now maintaining up-to-date databases that track STATEMAP projects from initial application for funding to final submittal of products.
- The STATEMAP panel has included more detailed criteria on product quality and timeliness as part of the proposal review process.
- All STATEMAP proposals are required to include a statement of how their geologic maps have been used in the past year by customers.
- State Geological Surveys must provide an annual list of all published geologic maps and reports that result from the STATEMAP effort.
- The STATEMAP proposal process is transitioning into electronic submission via “grants.gov.” After completion of the first year in this process, 95 percent of the State Geological Surveys have used at least parts of the new system.

## **EDMAP Component**

- The NCGMP has compiled and is now maintaining up-to-date databases that track EDMAP projects from initial application for funding to final submittal of products.
- The EDMAP proposal process is also now transitioning into electronic submission via “grants.gov.”
- NCGMP personnel have committed to making more field visits to ongoing EDMAP projects to ensure consistency with Program goals and quality of efforts.
- In 2003, the NCGMP began sending a questionnaire to all of its EDMAP students. Information is being gathered on the students’ education, satisfaction with the EDMAP program, and how the experience has helped with subsequent employment and their career. It is clear from the responses that students who participate in the EDMAP experience are well above the national average for continuing in the geoscience field:
 

Bachelors	74% continued in geoscience	National studies = 69%
M.S.	98% continued in geoscience	National studies = 91%
PhD	96% continued in geoscience	National studies = 88%

## **EDMAP Questionnaire Results**

### **Benefits from the EDMAP experience:**

- Gained personal independence and **professional** accountability.
- Gained confidence in mapping and observational abilities.
- Gained experience writing abstracts and presenting talks on mapping effort.
- Gained experience in writing contracts and grant proposals.
- Gained experience with Geographic Information Systems
- Had the experience of being an important part of a larger research project.
- Can use geologic maps as products for résumés.
- The EDMAP experience definitely helped in obtaining Earth science employment.
- EDMAP experience convinced them to become field oriented in their career.
- EDMAP experience with geologic maps frequently is used in current job.
- Knowledge and skills gained through EDMAP are being used in teaching their own students.

### **Suggestions for Improvement of EDMAP or Problems Encountered:**

- Association of American State Geologists (AASG) and USGS should investigate ways to publish additional EDMAP maps.

- Increase the amount of money or length of grants to allow consideration of regional geology in the area.
- Encourage more faculty to involve students in all aspects of EDMAP, including the proposal-writing process.
- Encourage EDMAP recipients to interact with their respective State Geological Surveys, which can provide a significant amount of expertise/mentorship/equipment.

## **Recommendations from NCGMP Federal Advisory Committee Meeting, February 10-11, 2004 and resulting actions**

- **Yes** The Committee recommended increased cooperation between FEDMAP and STATEMAP efforts within individual States, including development of long-range plans. Starting in FY 2004, all new FEDMAP projects must be coordinated with the appropriate State Geological Surveys during the initial project development. This cooperation is expected to continue throughout the life of the project.
- **Yes** It was recommended that the NCGMP track FEDMAP geologic maps and report production, particularly with regard to what is promised in BASIS+ proposals, and if possible, monitor the distribution of all geologic maps that are listed in the National Geologic Map Database. The NCGMP now has a database that tracks FEDMAP project production from project inception until all products are delivered. The more difficult task of tracking distribution of geologic map products is under study.
- **Yes** In order to encourage and facilitate the use of geologic map information, it was recommended that the State Geological Surveys run field trips for potential customers, such as local and State government officials, private industries, etc., to areas covered by a geologic map once it is published. This has already been done in Illinois, Kentucky, New Mexico, and Ohio.
- **Partial** Although the primary goal of the EDMAP component is to train the next generation of geologic mappers rather than produce map products, the Committee encouraged the NCGMP to develop a method to distribute the geologic map information produced by EDMAP. There have been significant discussions concerning this with all three components of the Program, and potential mechanisms for this are currently being explored.
- **Yes** It was suggested that the EDMAP component would benefit significantly from an ongoing series of informal meetings between EDMAP faculty and students and NCGMP coordinators. These meetings have now occurred at NE/SE Geological Society of America (GSA) (2004) meeting in Tysons Corner, Virginia, Cordilleran/Rocky Mountain GSA Section (2004) in Boise, Idaho, NE GSA Section (2005) in Albany, New York, and the SE GSA Section (2005) in Biloxi, Mississippi. These have been particularly useful meetings for providing information about the Program to faculty and students, and receiving feedback about the success of EDMAP, as well as a mechanism for suggesting improvements to the EDMAP component. Several meetings of this type will continue to be organized each year.
- **Yes** Several changes to the language of the NGMA were proposed through four meetings in 2004 between the NCGMP and the AASG. The NCGMP FAC examined these changes, which tighten the language of the Act and slightly modify the funding formula. In addition, it is proposed that the FAC membership be enlarged to include another private industry representative and a DOI land management bureau representative. The FAC concurred with all suggestions and added one of their own: to increase the

proportion of funds for the EDMAP component. All suggestions were presented to both Houses of Congress and are presently being considered during the Reauthorization process.

- **Yes** The FAC offered to write a letter in support of reauthorization of the NGMA. This letter was sent from the FAC's industry representative to the Secretary of the Interior in March 2004.
- **Yes** The Committee recommended wide distribution of the publication "Meeting Challenges with Geologic Maps," an AGI Environmental Awareness Series that the NCGMP played a major role in producing. Copies of this publication have been distributed to 47 State Mapping Advisory Committees, the White House, Congress, the Association of State Legislatures, at national geological meetings, to international geological surveys, and elsewhere.
- **Yes** The FAC agreed that the NCGMP would not benefit significantly from a National Research Council (NRC) evaluation of the entire Program because such a study would lack an acceptable cost/benefit ratio, and there are sufficient mechanisms currently in place for Program evaluation. If the NCGMP does choose to obtain an NRC evaluation, the Committee recommended that any evaluation should focus on a specific issue.
- **Yes** The FAC recommended that the Program increase the number of project reviews that are conducted annually. In FY 2004, both FEDMAP and STATEMAP benefited from additional reviews.
- The Committee examined and discussed the preliminary outline and possible measures for the Program's new 5-year plan. The FAC will continue to actively participate as the Program formulates a final document.

## CORRESPONDENCE BRIEF

Accession # 2005447-DO

Date: July 20, 2005

**SUBJECT:** Transmittal of Report from the National Cooperative Geologic Mapping Program (NCGMP) Federal Advisory Committee to the Secretary of the Interior.

**BACKGROUND:** The National Geologic Mapping Act of 1992, reauthorized in 1999 as Public Law 106-148, established the NCGMP within the U.S. Geological Survey (USGS). The National Geologic Mapping Act (NGMA) requires that a geologic mapping advisory committee be established to advise the Director of the USGS on the planning and implementation of the NCGMP and that progress on the Program be reported to the Secretary of the Interior. The Committee, composed of nationally recognized experts from State Geological Surveys, academia, the private sector, and Federal agencies met on February 10-11, 2004. The attached report and recommendations are from that meeting and meet the requirement of the NGMA.

**SUMMARY OF CORRESPONDENCE:** A Report of the Committee is transmitted in accordance with the NGMA.

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**Reviewed and approved by:**

***/Signed/***

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Linda C. Gundersen  
Acting Associate Director of Geology

703-648-6600

## MEMORANDUM

To: Secretary

Through: R. Thomas Weimer (signed August 23, 2005)  
Acting Assistant Secretary – Water and Science

From: P. Patrick Leahy  
Acting Director, U.S. Geological Survey

Subject: Transmittal of a Report from the National Cooperative Geologic Mapping Program Advisory Committee to the Secretary of the Interior

As required by the National Geologic Mapping Reauthorization Act of 1999 (P.L. 106-148), attached is the report from the Federal Advisory Committee for the National Cooperative Geologic Mapping Program (the Committee). The Committee is composed of nationally recognized experts from State Geological Surveys, academia, the private sector, and Federal agencies. The Committee met on February 10-11, 2004, to evaluate the progress made towards fulfilling the Federal, State, and educational components of the National Geologic Mapping Act (NGMA).

The Committee determined that all components of the program have been fully implemented and that all partners are fulfilling their responsibilities under the NGMA. Efforts made through the National Cooperative Geologic Mapping Program (NCGMP) have increased the effectiveness of geologic mapping and are providing geologic map information for the solution of Earth science problems that are critical to public safety, and in balancing resource, environmental, and land-use issues.

This report of the Committee has not been reviewed or cleared by the Office of Management and Budget. Therefore, it does not necessarily reflect the views of the Administration at this time.

Attachment

Official File - 908

cc: Sec Surname  
ES  
AS/WS  
CL/WS  
OCL  
Dir File - MS 114  
Dir Chron (4) - MS 114  
Official File - MS 908  
AD/Geology Chron - MS 911

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