

Federal Advisory Committee

for the

U.S. Geological Survey

National Cooperative Geologic Mapping Program

Annual Report to the Secretary of the Interior – 2005

Executive Summary

The Committee feels that the National Cooperative Geologic Mapping Program is progressing admirably. It is effective in creating new geologic maps that serve the Nation in dealing with a broad range of issues, including reducing risks from natural hazards; land-management and land-use decisions; assessment of water, energy, and mineral resources; environmental and health concerns; and furthering our scientific knowledge about Earth processes. The Program also is helping to train the next generation of geologic mappers, whose future is bright, given the need for new geologic maps throughout the country. Despite its accomplishments, the Program needs a substantial increase in funding to accomplish its mission “to provide accurate geologic maps and three-dimensional framework models that help to sustain and improve the quality of life and economic viability 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, and understanding onshore-offshore sediment processes.” The Committee recommends that Program funding be boosted by at least \$10 million per year to help keep up with the demand for new geologic maps and digital, geographic information system versions of previously published geologic maps. Because geologic maps are vital to risk reduction from natural hazards (including floods, earthquakes, landslides, tsunamis, volcanoes, etc.), part or all of this funding could come from the USGS’s initiative in hazards. The Committee has further recommendations intended to enhance the EDMAP and FEDMAP components of the Program. The NCGMP provides accurate geologic maps and three-dimensional framework models that help to sustain and improve the quality of life and economic vitality of the Nation

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 Federal Advisory Committee (FAC) for the National Cooperative Geologic Mapping Program (NCGMP) is required to 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 2005.

The NCGMP FAC met March 24-25, 2005 in Washington, DC at the Department of the Interior. Representatives who were present included: Robert D. Hatcher, Jr. (Distinguished Scientist and Professor at University of Tennessee), Carla Kertis (USDA-Natural Resources Conservation Service), 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 Robert J. Silva (U.S. Department of Energy). Gene Whitney (Office Science and Technology Policy, OSTP) and Randall Orndorff and Laurel M. Bybell (NCGMP Associate Program Coordinators) also attended. David R. Soller (USGS) made a presentation on the status of graphics in the National Geologic Map Database (NCGMDB), and David L. Govoni (USGS Geospatial Information Office) presented the new NCGMP Web site.

Progress of the National Cooperative Geologic Mapping Program

The NCGMP has continued to carry out its primary mission of funding geologic map production across the United States through its three components: FEDMAP, STATEMAP, and EDMAP. During 2005, the Program is being evaluated by the Office of Management and Budget through the Performance Appraisal Rating Tool (PART). As a result of this review, several Program management changes have been made.

Program

In response to the PART process, the NCGMP has worked to formalize and track the results of ongoing interactions with the National Park Service (NPS), the USGS Water Resources Discipline (WRD), and the USGS Hazards Programs, which can be found in measures developed for PART. In a discussion of potential PART measures, the FAC suggested that the Program should concentrate on efficiency, timeliness, and accuracy.

The FAC is weighing the value of forming a task force that develops recommendations for NCGMP outreach. Several ideas were discussed: (1) emphasizing the connection between increased funding and increased geologic map production; (2) developing fact sheets based on congressional districts for each State (done with the Association of American State Geologists, AASG); (3) developing handouts for Congress that would include a geologic map and related derivative maps; and (4) collaborating with OSTP to sponsor a workshop on potential interaction with other agencies and setting realistic priorities for this work.

With David Soller's development of status graphics information, the Program for the first time has accurate up-to-date information on the percent of the United States that has geologic map coverage at 1:100,000 or larger scale.

The NCGMP has now released its new Web site, which has received favorable comments. The Program will send out a follow-up questionnaire in 2006 to document its improvement over the previous Web site.

Once the Program is finished with the PART process, it will work to complete its new five-year plan (2006-2010), which provides annual guidance for the Program. The FAC will work with the Program to develop this plan and to insure better integration of the three components (FEDMAP, STATEMAP, and EDMAP).

The Committee formed a Task Force on Education and Awareness Issues, charged with drafting recommendations for better ways of communicating the benefits of geologic mapping and the Program and for assisting non-geologist users of geologic maps.

The Committee formed a Task Force on Legacy Maps, charged with drafting recommendations for ways to rapidly publish maps for which field work has been entirely or partially completed but have not been through the peer review process for formal publication.

These legacy maps reside in the files of the USGS, State Geological Surveys, universities, and some individuals and companies.

FEDMAP Component

National Geologic Map Database

David Soller was encouraged to present his status graphics information about the NGMDB at a Geological Society of America meeting. His information on the status of each State's geologic map coverage could be sent to each State to encourage the States to update their map information to Soller in a timely manner.

There was discussion of what could be done about legacy maps from all three components. For those maps that aren't complete enough to actually publish, but contain useful information, possibilities include using a new informal USGS series or using the Evaluation and Report forms that have been used successfully for paleontological reports. These reports could be distributed as image files with a disclaimer. The FAC could form a taskforce to develop a policy statement on this and recommend standards to aid the process.

The possibility was discussed of having EDMAP and STATEMAP work more directly with updating GEOLEX, the USGS's National Geologic Lexicon.

The Committee is concerned that the rate of production of new geologic maps from the FEDMAP component is not as strong as from the STATEMAP component. The Committee will further investigate ways to increase productivity.

The Committee is requesting that the USGS provide it with information on how priorities are set for FEDMAP projects. The Committee is particularly interested in understanding the balance between Federal needs as perceived by individual investigators, objectives of the NCGMP, and needs of other programs within the USGS, other bureaus of the Department of Interior, and other Federal agencies; coordination with State Geological Surveys; and how the USGS deals with funding from other Federal agencies that are willing to pay for geologic mapping projects.

STATEMAP Component

The Program has increased its number of annual STATEMAP briefings and site visits. As part of the briefings, maps from several States are presented to show the range in quality, with the intent of increasing quality throughout this component.

The need for increased interaction between EDMAP students, faculty, and State Geological Surveys was discussed. State Surveys can help mentor students, provide equipment, publish student maps, and potentially hire them in the future. A question was raised whether EDMAP students who do interact with the State surveys end up with more State jobs. While there are currently no quantitative data regarding this question, these data should be available soon from questionnaires returned from former EDMAP students.

There was a lively discussion about the best method to distribute STATEMAP funds as the money available decreases. This also was discussed at the annual AASG meeting in Illinois, where the decision was made to set a dollar cap for individual proposals from States (\$300,000 per State per year at the current level of funding for the STATEMAP component), and use the

peer-review ratings of proposals as a means of distributing the funds as a percentage of requested funds.

A graph was presented that shows the increasing separation between the available Program funds for STATEMAP and the available State funds as stated in the STATEMAP proposals (Fig. 1). The States are capable of matching considerably more funds than are in the proposals. Under the current authorization for the Program, the States can match up to the level of full authorization (for a Program of \$64 million per year).

EDMAP Component

Since its inception, EDMAP has had very limited participation from minority colleges and universities. In 2005, Associate Program Coordinator Randall Orndorff will visit Fort Valley State University, a State and land grant institution in Georgia, and the University of Puerto Rico campuses in San Juan and Mayaguez to encourage participation in the EDMAP program.

Robert D. Hatcher, the university representative on the FAC, conducted several town hall meetings in the past year with EDMAP faculty and students to provide Program updates and collect information regarding perceptions about the Program. Recommendations from these meetings include: (1) agreement that the town hall meetings should continue; (2) finding a way to publish the EDMAP geologic maps; (3) broadening of the town hall meetings to include more geologists from State Geological Surveys and FEDMAP geologists with a goal to encourage cooperation between them and EDMAP students; and (4) increase the maximum stipend that can be provided to EDMAP students, noting that there has been no increase since the beginning of the Program (still at a maximum award of \$15,000 per year) and that the average cost for support of a graduate student in geological sciences is approximately \$25,000 per year.

Alternative methods for distribution of EDMAP maps were discussed. Part of the difficulty is the broad range in map quality, from excellent to poor. This may correlate with the amount of time that the supervising professor spends mentoring his/her students. A review process has existed since the beginning of EDMAP that requires review by STATEMAP and FEDMAP partners. A way to encourage more rigorous review would be to reword the EDMAP request for proposals, to changing "field trip" to "field review," on page 10 of the EDMAP Program Announcement, and add "We consider project review by partners (USGS and State Geological Surveys) an integral part of the Program." Review dates and participants should be added to EDMAP map acknowledgments. An incentive to conduct reviews could be addition of points to scores of subsequent proposals for faculty who conduct reviews. The results would then be sent to the Program for examination by the EDMAP Panel, which would affect future funding.

All EDMAP geologic maps (and copies of theses) should be sent directly to the relevant State Geological Survey and FEDMAP geologist in order for them to provide feedback on the quality and perhaps distribute the better maps via their publication or open-file systems. The possibility of the USGS scanning and distributing the EDMAP maps as Open-File Reports with a disclaimer is being investigated. The possibility of distributing the maps via the National Geologic Map Database also was discussed. Regulatory limitations will be discussed with the USGS publications units.

Strengthening the EDMAP geologic map review process to focus more on map quality needs to be discussed and encouraged at upcoming town hall meetings.

Two EDMAP measures were developed for PART: number of EDMAP students trained each year, and percent of EDMAP students that work on subsequent geoscience degrees or obtain a job in a geoscience field.

Federal Advisory Committee

The U.S. Senate proposed some new wording in discussions about reauthorization of the National Geologic Mapping Act: “provide a scientific overview of geologic maps (including maps of geologic-based hazards) used or disseminated by Federal agencies for regulation or land-use planning.” The FAC discussed ways to implement this. One way is for the FAC to discuss topics of mutual interest with one or two agencies each year, and invite a representative from the agency to the FAC meeting. The FAC could generate a white paper or report on how those agencies make use of geologic maps, and/or the potential for using geologic maps in conducting agency business and include this write-up in the FAC annual report. Another suggestion was to proceed topic by topic. Agencies involved with the chosen topic could send a representative to FAC meetings to discuss how they use geologic maps. The FAC could write a circular describing how other agencies use geologic maps. The FAC would advise the USGS on how to encourage agencies to query the Program for advice on the use of geologic maps. Perhaps *ad hoc* subgroups of the FAC could be created to investigate this. In some cases, it might be more appropriate for only one or two FAC members (rather than the entire group) to meet with an agency. The purpose of these meetings would be to help agencies find opportunities to expand their use of geologic maps.

The best way to generate a FAC report was discussed. Robert Hatcher will do the final assembly of the FAC reports. In the future, a junior scientist might be invited to take notes of the meeting.

The FAC is considering the possibility of convening more than one meeting a year with a focus on a particular issue. Future meetings away from Washington DC were discussed that could include a field trip.

Recommendations from NCGMP Federal Advisory Committee Meeting, March 24-25, 2005 and Resulting Actions

1. **Partial** The FAC recommends that funding for the NCGMP be boosted by at least \$10 million per year to help keep up with the demand for new geologic maps and digital, geographic information system versions of previously published geologic maps. Because geologic maps are vital to risk reduction from natural hazards (including floods, earthquakes, landslides, tsunamis, volcanoes, etc.), part or all of this funding could come from the USGS’s initiative in hazards.

2. **Yes** The FAC recommends that each map resulting from an EDMAP project be reviewed in the field, if possible, and in the office by competent geologists before the map is submitted to the USGS and that each map produced from an EDMAP project be made available to the public. The proposal for an EDMAP project should include the planned procedures for this review for publication. Geologists from the relevant State Geological Survey and the USGS should be invited to participate in the field and office reviews, which should be organized by the professor overseeing the EDMAP project. The professor should make arrangements for the maps to be released to the public through the State Geological Survey, the USGS, or some other means

(such as in a peer-reviewed publication or in a thesis or dissertation that is readily available to the public).

3. **Partial** The FAC recommends that if funding for the NCGMP increases, the maximum amount of award to each EDMAP project also be increased to a maximum of \$25,000 per year.

4. **Partial** The FAC recommends that the USGS undertake a survey of employers of geologists to assess the need for geologic mappers. This information will be useful in setting goals for EDMAP funding in future authorizations of the Program. The survey should include employers who produce geologic maps for the public as well as those who create geologic maps for internal use.

5. **No** The FAC recommends that the USGS institute a policy of releasing preliminary geologic maps produced from FEDMAP projects as USGS Open-File Reports, and that each FEDMAP funded geologist, after the end of their second year of FEDMAP funding, be required to submit an annual open-file report.

CORRESPONDENCE BRIEF

Accession # 2006311-DO

Date:

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 March 24-25, 2005. 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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