ILLINOIS GEOLOGIC MAPPING ADVISORY COMMITTEE (IGMAC)

September 8, 2011
Illinois State Geological Survey, CR 101

MINUTES

Present: Alison Anders, Steven Baumann (Chair), Tom Berns, Diane Burns, Ken Gill Cole, Tom Emerson, Steven Esling, Steven Gustison, Martin Hamper, John Henriksen, Dave Johnson, Laura Keefer, Brad Koldehoff, Edwin Kroeger, Don McKay (Secretary), David Mick, Eric Miller, Cheyenne Morgan, Robert Nelson, Jonathan Remo, Marchelle Robinson, Shelley Silch, Barry Suits, Jamie Tosetti, Ed Wagner, Bill White, Chris Widga, Charles Wiles, Doug Yeskis

I. Welcome and Introductions

Steve Baumann, Chair, and Don McKay, ISGS Director and committee Secretary, welcomed everyone to the meeting. Attendees provided introductions. Committee member candidates were introduced. They were: Steve Gustison, Ed (Bane) Kroeger, Jonathan Remo, and Chuck Wiles. There was a motion to accept these new members. The motion was seconded and approved.

Don McKay Remarks

- Don welcomed and thanked everyone for coming to the meeting. The IGMAC is one of the largest of its kind. IGMAC provides feedback and advice on the ISGS mapping program. It also drafts a letter of support for the ISGS mapping program which is used to secure funding. The competition for available funding has gotten stiffer as the proposals have improved.
- The ISGS is now part of the newly renamed Prairie Research Institute. The Prairie Research Institute is currently operating with no budget. The State of Illinois did not pass the portion of the budget that included the Institute. The UI is covering the Prairie Research Institute until the Fall Veto Session. At that time it is hoped that the budget will be approved. Don asked that everyone to talk to any contacts that they may have about the ISGS and the Prairie Research Institute. If anyone needs more information, Don asked that they call him.
- Two ISGS publications were highlighted; both publications are available for purchase from the ISGS.
  - Circular 578, “Synopsis of Current Three-dimensional Geological Mapping and Modeling in Geological Survey Organizations”, was written with the contribution of 14 different organizations.
  - Geology of Illinois celebrates the Centennial of the ISGS.

II. Old Business, Steve Bauman, Chair.

Approval of Minutes from September 2, 2010

A motion was made to approve the 2010 IGMAC minutes; the motion was seconded. Motion unanimously passed to approve the minutes as presented.

III. Drew Phillips, ISGS

- Drew discussed the current and future mapping plans for the ISGS. He reviewed the status of mapping in Illinois, talked about short (1-3 yr), medium (2-10 yr) and long term mapping priorities, and asked for input from the committee. Current mapping is mostly supported by STATEMAP and GLGMCP.
The results of the FY11 funding cycle were presented and discussed. The total amount of $9.8 million were requested from the USGS. $6.9 million were awarded to 45 states. The ISGS was initially awarded $226,000, 75% of its request. An additional $30,000 were added because another state declined to participate. The total amount that has been given to the ISGS since 1993 is $3.25 million. Federal funding increased over time and then started to level off due to award caps and leveling of awards across the US.

The areas that are going to be included in the FY12 proposal are:
- Cave-in-Rock, Dekoven (bedrock)
- Dixon West (bedrock)
- Hamburg, Hebron (bedrock)
- Beaver Creek, Emma, Rantoul, Stolletown (surficial)
- Kane County Digital Compilation (surficial)

IV. Bill Shilts, Executive Director, Prairie Research Institute
Bill Shilts was introduced and he welcomed everyone on behalf of the Prairie Research Institute. Bill talked about the Institute’s place within the University of Illinois and funding issues. The Institute is the only externally-funded part of the University of Illinois. The Institute is working hard to secure core funding. Funding for the Institute was not passed in the last legislative session. Bill noted that the Institute was not specifically targeted by the government, but rather it was caught in the middle of the other budget negotiations. He expects the issue to be straightened out during the upcoming veto session. The ISGS and the Institute are getting some publicity out of the funding issue.

V. Dave Grimley, ISGS, Surficial Geological Mapping
Dave discussed the following proposed mapping areas:
- **Kane County Digital Compilation.** The project would merge and update 17 detailed surficial geology maps. This is of interest because of rapid suburban growth and development, ground water recharge and quality issues, the geometry and variability of sand bodies, and the occurrence of wetlands and recently-recognized ice-walled lake deposits. The project deepen the understanding of ice walled lakes and local glacial chronology.
- **Rantoul Quadrangle.** This area is being proposed because of the underlying Mahomet Aquifer, reclamation of Chanute Air Force base, and the need for a geologic framework for local infrastructure development. The history of the fill of the Mahomet valley likely has implications for other buried valleys in Illinois. The quadrangle is adjacent to the recently completed Gifford Quadrangle, but there is otherwise limited detailed mapping in the area.
- **Emma Quadrangle.** Among the motivations for mapping this area are earthquake hazards associated with the Wabash Valley Seismic Zone, the map will complement the work done under EDMAP and NEHRP, and there are ecological aspects due to the Illinois Natural History Survey field station that is in development. The geologic framework developed will also complement ongoing research on meander processes at the University of Illinois.
- **Stolletown and Beaver Creek Quadrangles.** This area is being proposed because it expands earlier STATEMAP work in the lower the Kaskaskia Basin, there are earthquake and flooding hazards, aggregate resources, and possible new ground water supplies. Illinois Episode glacial moraines and meltwater channels will be a research focus.

VI. Brett Denny, ISGS, Bedrock Mapping
Brett discussed the areas of interest and the economic importance of each.
- Cave in Rock and Dekoven Quadrangles. The area has the remains of an igneous intrusion and an anticline that is related to this intrusion. The fluorite district is the largest in the western hemisphere. Most of the mines are closed and the easily reached fluorite
already mined. There is a new mine in Kentucky opening soon. Additional deposits may be found through mapping of this area. Autolithic breccia was analyzed last year and the results were presented at the 47th Forum on the Geology of Industrial Minerals. Synchisite (economic rare earth mineral) was found and two mining companies have expressed interest in this.

- Dixon East Quadrangle. Of interest is the occurrence of the Ordovician/Cambrian boundary, potential aggregate resources, the St. Peter Sandstone (used in drilling), and groundwater. The area is also of interest for sequestration since it has some of the same formations used for sequestration in other locations.
- Hamburg and Hardin Quadrangles. These quadrangles near the Metro St. Louis area include the Mississippi and Illinois River Valleys. They are of interest because of the potential aggregate resources, the need to locate and map potential unstable areas, the occurrence of the structurally deformed Plio-Pleistocene Grover Gravel, and possible neotectonic features.

VII. Steve Brown/Dick Berg, ISGS – Great Lakes Geological Mapping Coalition (GLGMC)
An overview of how the GLGMC works and is funded was presented. The GLGMC is comprised of eight states and the USGS. The ISGS interacts collaboratively with the other states for GLGMC funds. The ISGS is primarily working in Lake Co., which and should be complete in the next year. Work is continuing in McHenry Co. (2 years into a 5 year program). A question was asked about the Peotone airport project. The project may still occur, and the mapping has already been done there.

VIII. Steve Bauman, IGMAC
Steve opened the floor up for discussion of the ISGS mapping plans. Lidar acquisition plans, status, and synchronization were discussed. Sheena Beaverson (ISGS) expects that most of the state will be available in the next few years with the exception of the south central Illinois. The Beaver Creek and Stolletown area will not be done soon. Lidar and DEM deliverables have lower resolution than the raw data. In 2012 Illinois topographic maps will be revised and it should take three years. Don Luman (ISGS) has a presentation on the mathematical errors between lidar and 10 m and 30 m DEM data.

IX. IGMAC Committee Discussion
(ISGS Personnel leaves with a few staying to offer clarification as needed)
The floor was opened up for discussion of the ISGS mapping proposals.

- Barry Suits, Illinois American Water; asked about the Clinton area and landfills. He said that there is a lack of information about water contamination and landfill siting. Dick Berg (ISGS) responded that the ISGS has worked on contamination potential but has no detailed maps. This would be an interesting area for work. The EPA has been taking water level information for study and has seen more fluctuation in wells in the Clinton area that is not seen in Mahomet aquifer wells. Barry Suits said that the fluctuations seen in Clinton are not uncommon in other Illinois American Water wells.
- There is some interest in mapping in the Peoria area.
- Steve Baumann asked if work was being done in the Galena area. The area has been looked at long term for economic and groundwater issues, such as whether the groundwater quality has been affected by mining.
- Are there and efforts being made in mapping the coal in Illinois? There are a few mines that have opened along the I-57 corridor and a few more will be opening in the future. Is a map about the chlorine in coal being made?
- A suggestion to have an overall summary of the priority areas [?] be sent out to aggregate producers so that they can offer suggestions for future work. The summary should be sent out a few months prior to the IGMAC meeting so that all groups have time to offer their
input. This will also allow associate members to offer input and to promote or advocate for IGMAC funding

- Geologic hazards are not well mapped (sinkholes, karst, etc.) with the exception of the Metro Saint Louis area.
- Can earthquake hazard information be incorporated into state wide maps? Bob Bauer (ISGS) will be contacted about this.
- IDOT is looking to build a road that connects I-55 and I-57. The will need maps for the area.
- Are there any plans to put surficial layers on ILOIL or ILWATER? The ISGS is trying to collate information in digital form which will facilitate dissemination of this information. This is still a work in progress.

Discussion completed and there was a motion to accept the proposed program. The motion was seconded and approved. Steve Baumann will write a letter as Committee Chair in support of the program.

The priority of the research areas was discussed. There are ten quads proposed and 2-3 likely will be dropped if the award is lower than the request. Steve Esling recommended that if maps must be dropped, they be dropped from areas with more than one proposed site in order to maintain the geographic distribution. It was also recommended that map areas be looked at in terms of economic development, prior to making the decision to drop the area. A motion was made that if the mapping plan needs to be reduced should expected funding not materialize, then the geographic distribution of mapping should be retained and the reduction accomplished by eliminating individual quadrangles eliminated where multiple quadrangles are proposed. The motion was seconded and approved by acclamation.

X. Break for lunch (11:52 am)

XI. EDMAP Updates
- Alex Bryk (UIUC student of Jim Best): Alex presented his work on the surficial geology of Wabash Island 7.5 minute quadrangle in IL-IN-KY. He is looking at well data to determine which wells to use. He is looking at Mackey Bend a recently cutoff meander which is turning into an oxbow lake and has now developed a second cut off. He would like to link this to the Grayville STATEMAP area to study the subsurface. The area was flooded this spring. The flooding left a deposit that was not typical to a backwater oxbow.
- Other EDMAP work; Dave Malone has a student with an EDMAP project. ISU may propose other possible projects in the future. Jim Best hopes to propose another EDMAP project this year.

XII. Topical Presentations
- Drew Phillips, Surficial Mapping Methods, Drew presented portions of a poster created by Jennifer Carrell that gave a simplified description of the methods in creating a surficial map. The components of map creation were: Data Compilation, Data Cleaning and Massage, Building the Model, and Finalizing the Model.
- Steve Brown, Glacial Geology of Lake Co., Steve showed the glacial geology of the area through time. He discussed the processes that formed Lake and McHenry counties. The depositional history was explained and related to ground water resource issues. Brandon Curry is looking for organic tundra fossil remnants to use for carbon dating.
- Bob Bauer, Derivative Maps for Seismic Hazard Analysis, These maps are used for development of IEMA earthquake exercises, estimates of damage from Wabash Valley and New Madrid earthquakes, IDOT annual exercises, and eight states FEMA New Madrid Catastrophic Plan. He also explained the factors that affect ground motion and
intensity of earthquakes. He is working on a Metro Saint Louis Urban Hazard Mapping Project.

XIII. Adjournment

There was an open invitation to attend the Great Lakes Coalition meeting in January. For information contact Steve Brown, ISGS. There being no further business, the meeting adjourned at 2:45.

Respectfully submitted,
Kathleen M. Henry