ILLINOIS GEOLOGIC MAPPING ADVISORY COMMITTEE (IGMAC)

September 10, 2015
Illinois State Geological Survey, Room 101, Leighton Conference Room

MEETING MINUTES


1. Welcome and Introductions
   a. Dave Malone, ISU and Committee Chairman
      i. Dave welcomed everyone to the meeting. Attendees introduced themselves and gave information about their affiliation and mapping interests.
      ii. Reason for the meeting is to set mapping priorities and provide opportunities for collaborations.
      iii. Commented on the value of diversity of membership of the committee.
   b. Dick Berg, ISGS
      i. Dick thanked everyone for coming to the meeting. He commented on the diversity and commitment of the group.
   c. Dave Malone, ISU
      i. The purpose of the Committee is to provide advice to the STATEMAP proposal and to help set short- and long-term mapping priorities.

2. Old Business, Dave Malone, Chair:
   a. Approval of Meeting Minutes from September 11, 2014
      i. A motion was made to approve the 2014 IGMAC minutes. The motion was seconded and approved.

3. New Business, Dave Malone:
   a. Approval of new members, Dave Malone, Chair:
      i. No new members were in attendance. Any new members will be approved at next year’s meeting.
   b. Biennial Officer Election, Dick Berg, ISGS:
      i. Shelley Silch proposed that Steven Esling (SIU) serve as new Chair.
      ii. Alison Anders (UIUC) was nominated to serve as vice-chair.
      iii. A motion was made to elect Steven Esling as Chair and Alison Anders as vice-chair. The motion was seconded and approved.
   c. Long Range Planning – Dave Grimley, ISGS
      i. Review of FY 2014 - Delivered 6 quadrangles to the USGS: Frankfort, Sag Bridge, Keyesport, Hardin, Harco, Galatia. All maps available online.
      ii. STATEMAP - $5.6 million was awarded to 45 state geological surveys; $10 million was requested. The ISGS was the 11th highest awardee with $169,354,
although the top-funded proposal received only $176,000. The highest level of funding has been decreasing within the past few years. Funds are more evenly distributed this year because all states are submitting better proposals and maps. The ISGS submitted 6 quadrangles to accommodate the reduced award. A chart of the distribution of funds across states from 2009-2015 was shown. The ISGS has received a total of nearly $4 million from the USGS since 1993.

iii. Current mapping for FY 2014 include the Mahomet, Mokena, Mount Carmel, Hamburg, and Eldorado Quadrangles, as well as a Pope County compilation.

iv. Great Lakes Geologic Mapping Coalition (GLGMC) - $750,000 was awarded to eight states; the ISGS received about $100,000. 3-D Mapping of Lake and McHenry counties was completed and sent to counties. Will County 3-D mapping started two years ago with a 5-year goal for completion.

v. A map of GLGMC long-range mapping priorities was shown.

vi. Long-term plan based on institutional review; input from IGMAC, mappers, and ISGS Director; and consideration of economic, environmental and scientific aspects.

1. IGMAC offered no changes to the ISGS’s long-term mapping plans.

vii. Bedrock mapping: 2-5 year plan

1. Geographic
   a. Southern Illinois – coal belt
   b. Lower Illinois River Valley – moving northward
   c. Northern Illinois – St. Peter Sandstone (fracking sand; aquifer)

2. Targets
   a. Energy resources
   b. Mineral and Rare Earth Element resources
   c. Bedrock structure related to groundwater and seismic hazards
   d. Research: geologic history and stratigraphy

viii. Surficial mapping: 2-5 yr plan

1. Geographic
   a. Northeastern Illinois – Will Co. region
   b. Central Illinois – Mahomet Valley (Sangamon Valley CZO)
   c. Middle-lower Kaskaskia valley region
   d. Lower Wabash valley region
   e. Rock Island County
   f. McLean County

2. Targets
   a. Groundwater
   b. Land-use; waste siting
   c. Geologic hazards
   d. Aggregate resources
   e. Research: glacial history, geomorphology

d. Discussion on long- and short-range mapping plans
i. Dave Malone, ISU: How could the ISGS be more competitive than 11th in the nation for STATEMAP funding?
   1. Steve Brown, ISGS: Doesn’t seem to be a trend in what the STATEMAP review panel is looking for each year—a “moving target.”
   2. Brett Denny, ISGS: Some states are marked down for not having certain components in their deliverable maps like cross sections, which is not even a requirement in the RFP.
   3. Dave Grimley, ISGS: The ISGS doesn’t receive much detailed feedback on its proposal, so it’s difficult to know how to improve our ranking.

ii. Dick Berg, ISGS: Why is the ISGS proposing $300,000 when the maximum award is $175,000?

iii. Steven Esling, SIUC: Agrees with moving up the Kaskaskia and Illinois River Valleys and not just focusing on population centers. Students have benefitted greatly from working with ISGS’s southern field office in Carterville.

iv. IGMAC committee member: Prioritization for deciding mapping areas seems to be solely economic—are there other prioritization factors?
   1. Dick Berg: Chicagoland area presents biggest bang-for-buck because of population density. ISGS is working with UIUC Business School to develop improved advertising and marketing strategies for geologic mapping. Geologic mapping contributes to risk calculations, so involving insurance and banking industries will be important.
   2. Joe Devera, ISGS: Mapping contributes to tourism throughout Illinois.
   3. Paul Silch, Kane Co.: Mapping contributes to total-resource planning: transportation and land-use planning.

v. Scott Tess, City of Urbana: Should the ISGS be prioritizing areas with contamination potential (Superfund sites or mining waste)?
   1. Dick Berg: The ISGS is already doing this by focusing on population centers.

vi. Zakaria Lasemi, ISGS: Why are aggregate resources shown as a target resource in the Kaskaskia Valley but not in northeastern Illinois?
   1. David Grimley: Since sand deposits are more scarce in the Kaskaskia Valley, greater proportion of economic resources are limestone aggregate.

vii. Alison Anders, UIUC: The NSF-funded Critical Zone Observatory (CZO) in central Illinois has benefitted enormously from synergy with the ISGS STATEMAP program.

viii. Jim Curtis, IDOT: Wants to refine comment from last year about focusing mapping efforts on areas with high population density. Voiced support for ISGS’s maps and thinks that the mapping products are very good. The questions should be: How does the ISGS get these maps into the hands of the most citizens? What are the demographic trends in the next 10 years—which areas are growing vs. shrinking? Who is going to be using the maps and what are the best ways to disseminate the information?
1. Ken Gill Cole, IGS: Does the ISGS market maps to county planning commissions?
   a. Steve Brown: The ISGS has provided quarterly updates on 3-D mapping projects in Kane, Will, and McHenry Counties and is trying to become more proactive in outreach.
   b. Joe Devera, ISGS: The ISGS reached out to the St. Louis Metro East county planning commissions for karst issues when mapping was ongoing there in the early 2000s.

2. Dick Berg: The ISGS wants to become more involved with the American Planning Association—Illinois Chapter. Grassroots support by counties is essential to our mapping efforts.

3. Steve Brown: The ISGS is working on becoming better at delivering mapping products (2-D and 3-D maps and GIS layers) to the counties we’re working in.

4. Ken Gill Cole: May be useful to mobilize local junior college students to disseminate the information from our maps to the community.

5. Dave Grimley: Even though we communicate with landowners and county highway departments, it’s hard to find the right person who will know how to use our maps.

6. Rose Grant: The ISGS needs to convey to its constituents, “What’s behind these maps? How are people going to use the information provided by the maps? What tools can we provide people to help them understand our maps?”
   a. Dave Grimley: A good approach would be to spend the time to explain our maps and develop a long-term relationship with the planners in the areas in which we’re working.
   b. Dick Berg: The ISGS does not currently have the outreach staff to be able to do all the follow-up that is necessary.
   c. Jim Curtis: The geologic maps sell themselves when people understand how to use them. The value to the state becomes more obvious as people learn the wealth of information provided in the geologic maps. People intrinsically understand the value of the mapping.

   e. FY 2015 results and FY 2016 STATEMAP proposal presentations
      i. **Bedrock Mapping** (Brett Denny, ISGS)
         1. FY 2014 results: Total organic carbon and δ C13 data from the New Albany Shale Group in the Juhl #1 stratigraphic borehole were presented (Hardin Quadrangle).
            a. Franklin Grove – continuation of multi-year project in northern Illinois, aggregate resources, St. Peter Sandstone (frack sand,
groundwater), refine Ordovician stratigraphy, Sandwich Fault Zone.

b. Pleasant Dale Valley and Kampsville – continuation of multi-year project in IL river valley, structural geology near Lincoln Anticline and Cap au Gres monoclone, aggregate resources, New Albany Shale oil and gas resources, Devonian-Mississippian stratigraphy, collaboration with SIU faculty and student researchers.

c. De Soto – coal resources; this quadrangle is 1 of 3 still remaining which would complete the Carbondale 30’ x 60’ quadrangle (a project that is planned for the near-future in cooperation with the Missouri Geological Survey).

d. Thebes – tectonics and neotectonics within Mississippi Embayment along Commerce Geophysical Lineament, aggregate and tripoli (novaculite) resources, global stratigraphic correlations within Silurian units.

e. Ridgway – continuation from previously mapped quadrangles (Harco/Galatia), coal mine planning, oil and gas exploration on the Omaha Dome, seismic hazards along Wabash Valley Fault Zone, locating ultramafic dikes and sills with magnetic surveys. Variation in oil and gas production may be related to locations of igneous intrusions. John Sexton (SIU-C) has a large seismic dataset that will help locate dikes and sills. This quad will help complete Saline County.

ii. **Surficial Mapping** (Drew Phillips, ISGS)

1. FY 2014 results: In the Frankfort and Sag Bridge quads, glaciolacustrine deposits were common, and thick tongue of outwash was found between the Wadsworth Formation and Yorkville Member.

2. FY 2016 maps being proposed: Romeoville, Joliet, Monticello, Pleasant Mound, and Saint Francisville quadrangles

a. Romeoville/Joliet – connects previous mapping, advances Will County project, rapid urbanization in Will County, near proposed Illiana Expressway and 3rd airport, economic resources (groundwater, sand and gravel, and dolomite), protect wetlands and stream ecosystems. Research questions include last glacial chronology, Chicago outlet history, and till characterization, and Wadsworth-Haeger stratigraphic complexities.

b. Monticello – follows 2-5 yr plan, adjacent Mahomet Quad currently being mapped, builds on Mahomet Aquifer studies, framework for Critical Zone Observatory (CZO) in upper Sangamon watershed, possible interactions between surface and groundwater resources, recent mapping in region, glacial legacy important in Sangamon River history. Research
questions: understand complex late-glacial ice-marginal landscape; Mahomet Aquifer supply, protection, and connectivity; and correlations of till composition in moraines.

c. Pleasant Mound – new discoveries of aggregate resources, which are limited in the region; groundwater reserves; seismic hazards from New Madrid and Wabash Valley seismic zones. Research questions: Illinois Episode deglacial history of the Kaskaskia Sublobe, extent of Pearl outwash terrace, origin of elongated and streamlined hills.

d. Saint Francisville – connects recent Wabash Valley STATEMAP and EDMAP projects, groundwater in Wabash Valley fill, aggregate resources, flooding. Research questions: Chronology, sedimentology, and ecosystems of river meander cutoffs, seismic hazard and paleoliquifaction due to Wabash Valley Seismic Zone, slackwater lake chronology and ecology, Wisconsin Episode to Holocene transition.

Lunch at 11:57 am.

3. New Business (cont.)

e. FY 2015 results and FY 2016 STATEMAP proposal presentations (cont.)

iii. Final discussion of bedrock and surficial mapping proposals:

1. Dennis Kolata, ISGS-emeritus: As mappers, we don’t know what the societal or economic impact may be at the time of mapping, but recent mapping in the Daysville Quad (FY 2013) led to the discovery of a 300 ft-thick St. Peter Sandstone beneath St. Mary’s Cement Company that will be permitted for mining.

2. Walt Kelly, ISWS: The Sandwich Fault Zone really impacts groundwater flow. Mapping near the fault zone could have a significant impact on economic development. I support any work done near this fault zone.

   i. Steve Brown: What issues are being faced with groundwater?

      1. Walt Kelly: Production wells are going dry.

3. Paul Schuch, Kane Co.: Groundwater resource problems are complex in northern Illinois within the aquifer composed of the Cambrian Ironton-Galesville and Ordovician St. Peter Sandstones. Would like to see continued mapping of the Sandwich Fault Zone for groundwater resources in Kane, Kendall, and Will Co.

4. Rose Grant, State Farm: Thinks it’s great that the ISGS is being flexible with mapping plans to accommodate new information, opportunities, and collaborations.

5. Steve Brown: The ISGS may consider putting together a coalition of stakeholders to pursue direction for high-priority mapping areas that are beyond the scope of STATEMAP.
6. Dave Malone: Suggests adding the Rochelle, Chana, and Creston quads to the long-term plan to support groundwater issues along the Sandwich Fault Zone.
   a. Brandon Curry, ISGS: Suggests bedrock mapping of the Romeoville and Joliet quads, which are at the southeastern end of the Sandwich Fault Zone, for groundwater issues.
7. Brett Denny: Suggests adding the Elkville and Christopher quads to the 2-5 year plan—these quads would complete the Carbondale 30’ x 60’ quad.

iv. Approval of FY 2016 mapping program
1. A motion was made stating, “IGMAC endorses in entirety the proposed eleven quadrangles for FY16.” The motion was seconded and approved.

4. EDMAP (Steve Esling, Chair)
   a. Steve Esling: SIU does not have any EDMAPs this year.
   b. Dave Malone: ISU is currently doing the Saybrook Quad in SE McLean Co, which ties into the Critical Zone Observatory with Alison Anders (UIUC).
   c. Brandon Curry: NIU does not have any EDMAPs this year.
   d. Drew Phillips: There is some interest from UIUC students but no current plans.

5. Great Lakes Geological Mapping Coalition (GLCMC) Presentation (Olivier Caron, ISGS)
   a. Will County 3-D mapping is a five-year project and is in its 3rd year. Strong communication is being established with stakeholders and community.
   b. Over 50 boreholes have been drilled; current work includes working along the Des Plaines River and in the eastern portion of the county.
   c. Many examples of 3-D mapping products were shown including 3-D boreholes, fence diagrams, and complex visualizations.
   d. Discussion of GLCMC project:
      i. Zak Lasemi, ISGS: Why aren’t bedrock maps being made alongside the surficial maps in Will Co. if all of the new drill holes go 20 ft into bedrock?
         1. Mary Seid, ISGS: 7.5-minute quads in northeast IL may only have 1 or 2 bedrock polygons, which would not produce a visually appealing map.
         2. Joe Devera: A good approach might be to map these areas at the county scale once all the surficial mapping has been completed.
         3. Dave Grimley and Brett Denny: The ISGS’s bedrock and surficial mapping teams communicate about good exposures in their respective study areas.

e. Approval of GLCMC mapping in Will County
   i. A motion was made stating, “IGMAC approves the Great Lakes Geologic Mapping Coalition’s Will County mapping project as proposed.” The motion was seconded and approved.
6. Topical Presentations
   a. Miscellaneous ISGS notes: Lake County 3D Geology completed; North-Central Section GSA meeting, April 2016; Coastal Geologist position and opportunities related to the Lake Michigan Coast (Steve Brown, ISGS)
   b. Zircon ages and implications (Dave Malone, ISU)
   c. Economic impacts of mapping (Dick Berg and Subhash Bhagwat, ISGS)

7. Meeting adjourned at 2:55 pm.

Respectfully submitted,
Mary J. Seid