

## **Advisory Board Meeting Idaho Geological Survey**

**November 17, 2017 9:00 am – 3:00 pm**

**Idaho Water Center  
322 E. Front Street, Suite 448A  
Boise, ID 83702**

### **MEETING NOTES compiled by K. Pekas**

**Present:** Keith Nottingham, David Hawk, Jim McNamara, Bob Smith, Chris Dail, Ben Roever sitting in for Susan Cleverly, Leslie Baker, Rich Reed, Mike McCurry (remote), Ed Ratchford, Kristen Pekas

**Absent:** Dan Moore, Tom Schultz

#### **Opening remarks, Bob Smith**

- UI market-based compensation to bring pay of UI employees to average market rate. The University's goal is to have average compensation comparable to market rate based on national databases by 2025.
- The process also considers compensation factors (amount of experience, longevity, education, etc.).
- UI has initiated a process of reallocation of internal resources to start to address the compensation issue. IGS has a separate line item so IGS has challenges on how to implement.
- University has realized that we must pay competitive salaries to maintain staff, recruit, and fix high turnover.
- Keith and Chris commented that it's a miracle IGS can recruit anyone.
- Bob mentioned there is 20% turnover for staff; 10% turnover for faculty.
- Ed mentioned there are four survey staff retiring in next five years. The Hydrogeologist candidate will not accept job due to low salary.
- Alan Kolock is new IWRRI director. Perhaps integrate hydrogeologist into IWRRI.
- The primary function of IGS is focused on service to state outside of the University while the primary focus of IWRRI is serving the University and the UI community in terms of facilitating advancement of faculty and student research. They have fundamentally different missions. David wants a summary of what Bob just said and explain budget and distinctions. Ed, Alan, and Bob can work on a statement.
- UI has been involved in implementing the regulatory and legal structure to operate UAS devices. UI has registered 19 drones with FAA since July 2017. UI has authorized 15 projects (most are research activities). We have an internal organization, NKN, that provides centralized data acquisition service using drones (for internal or external customers). They have 4 trained and certified pilots and are looking to expand fleet to fixed wing. They have high resolution cameras

and tools that allows them to process that data. NKN is working with a couple of Idaho companies to help with data collection and processing. They are interested in acquiring lidar technology.

- Keith suggests supporting the effort of acquiring data and then budget for processing as needed.
- David asked if there are courses at Universities to train in utilization and application of drone technology. Jim said they are offering their first course on drones at BSU. Nancy Glen, lidar expert, is involved. They are experimenting in the department.
- Chris suggested IGS as a repository instead of the University, but more resources are needed for that. It would be easier to get to the data if it is available through IGS than tracking down a professor at a University. Bob said NKN was established to move this away from individual faculty and have a central, readily accessible repository. We are working through the federal system in terms of what publicly available means for data funded by federal grants and how data storage is funded after a grant runs out. NKN was created to start to address these issues of data collection, data management, data processing, and data availability.
- Ed also mentioned that NKN is not hosting the data; they are the vehicle for moving the data to INL for storage. Ed likes this model. Bob clarified that NKN uses INL as a redundant server so the data is physically stored in 2 locations that are hundreds of miles apart. INL provides the backup.
- At ISU Donna Delparte offers a course. There is a complimentary course on remote sensing.
- Keith asked if lidar acquisition can be a part of Statemap. Ed said he doesn't think so, but we sometimes target our Statemap project areas where we have good lidar coverage.
- Leslie said there is a discussion at UI for an interdisciplinary Data Science program which will be a collaboration of math, statistics, computer science, and others. Jim mentioned there are similar programs at all 3 Universities. BSU has a PhD program in Computational Science.

#### **Overview of IGS, Budgets, Grants, and Contracts, Ed Ratchford**

- Ed reviews budget and grants.
- Sources of funding include 75% state appropriations. We want to grow federal grants and contracts. Ed wants more private sector contracts.
- Trends in personnel costs, grants, & contracts.
- Publication sales are not high because most publications are available for free download.
- Product downloads continue to increase.
- Website is functional but drab and needs a face lift. We will be working with NKN to redo the website and start work in the next 6 weeks.
- Bob asked about the top items that have been downloaded, and if we can use this data to inform planning; do more of what people are looking at and less of what people are not looking at. 40% of users are coming from mobile devices.
- David suggested creating a database of faculty expertise and current research projects statewide. But there could be a problem with that getting out of date.

### **Ongoing recruitment of Personnel for IGS positions, Ed Ratchford**

- Management Assist - Boise Office - legislative request
- Geologic Editor – Moscow Office – legislative request
- Senior Petroleum Geologist – Boise Office - Mark Barton
- Hydrogeologist – national search still underway
- There will be four full-time geologists in the Boise office.

### **Accomplishments and updates, Ed Ratchford**

- Permanent increase in Annual Appropriation and Travel Appropriation.
- Two new positions with startup funding were requested & approved from the legislature, Geologic Hazards Geologist (Boise) and GIS Analyst (Moscow).
- Two new research programs started at the IGS - “Geologic Hazards” and “Petroleum Geology”.
- New Senior Petroleum Geologist hired from Shell Expl. & Production Company (December Startup).
- Two new confidentiality and research agreements executed; Alta Mesa Energy & Cedar Creek Resources.
- Wellhead Gas & Liquid Testing Project w/ Alta Mesa for producing and shut-in wells (June 2017) isotopic characterization to assist with petroleum modeling.
- Provided House & Senate testimony and successful passage of legislation for the IGS – House Bill 509 (data sharing IGS & IDL).
- Bob mentioned legal support is provided by UI.
- Boise office consolidation of personnel and assets at the Idaho Water Center; room for growth and no rent.
- \$12 Million Petrel software and technical services donation from Schlumberger to the IGS and UI.
- ~ \$350K Petra and SMT Kingdom petroleum software donation from IHS Energy - IGS and UI.
- Mike asked who has responsibility for SE region. Ed said Boise staff can access southern and central Idaho. There is only one hydrogeologist for the whole state which is not ideal.
- IGS By-Laws developed for the first time to facilitate promotion review process for non-tenured IGS Research faculty; last promotion review 10 -15 yr. ago.
- Professional activities from staff geologists 2015 -2017; In house and Peer Review journal publications: 58 Publications; 28 Abstracts; 29 Reports; 69 Presentations.
- Rigorous continuing education program for all employees to attend workshops and keep skillsets sharp and up to date (petroleum, geohazards, ESRI).
- Three Town Hall Meetings by this director: Idaho Falls, Boise and Coeur d’ Alene.
- IGS Representation at all Annual Meetings of the American Association of State Geologists and most of the Liaison Meetings in Washington D.C.
- Acquisition of 8 lightly used vehicles (less than 32K miles each) for vehicle fleet; trade in of older vehicles.
- New Zeiss Petrographic and Binocular microscopes for Boise office and miscellaneous field

equipment.

- Acquired a small drone for geologic hazard projects – “Structure for Motion” hardware & software.
- Acquired 10 Portable Satellite Locators for IGS personnel working in remote regions of the state.
- Purchased several power desks for sit to stand capabilities & better ergonomics for staff.

### **2017 Outreach Activities, Ed Ratchford**

- Dissemination of 50 AGI Earth Science Teacher’s kits to middle & high school teachers in SE Idaho.
- Participated onsite with Idaho Earth Science Teacher’s Workshop – Pocatello
- Provided onsite earth science presentation for Montpelier Middle School – hand delivered teaching materials Soda Springs & Georgetown public schools
- Participated in onsite Mock Interviews & Career Day Fair for 135 Cadets at Idaho Youth Challenge Academy – Pierce.

### **Current/Proposed Projects, Ed Ratchford**

- Sage Grouse & Legislation (Governor’s office, & USGS)
- Stibnite Project (Midas Gold, & USGS)
- Wellhead Gas & Liquids Petroleum Assessment (Alta Mesa, Cedar Creek, USGS, Dan Jarvie - Consultant,)
- Statemap Project (USGS, Jim Coogan, MBMG)
- Data Preservation (USGS)
- Abandoned Mines & Lands (IDL)
- Smith’s Ferry Project (ITD)
  - Keith mentioned that needs include mapping the Pollock quad and working on new route selection in eastern Idaho.
  - Rich asked if IGS personnel could do work in Montana. Ed said that would be Montana’s area of responsibility but would be open to a discussion.
- Boise Foothills Project – Geologic Hazard Mapping (In House Startup, Seeking Collaborations).
  - Board members suggested the following collaborators:
    - Idaho Realtors Association?
    - Idaho Builders Association?
    - Ada County?
    - Meet with County Commissioners, City Hall, Governor’s staff?
- Big Wood River Project Geohazard Mapping (FEMA)
- Moyie-Kootenay River Project - Geohazards (ISU-BNSF?)
  - Chris suggested sending pre-proposals to the Idaho Panhandle NF; Chris will give names.
- Groundwater-Geothermal Projects (On hold pending hire)
- 2018 USGS Statemap Proposal
  - Keith mentioned 8-yr plan includes Jackson Hole where they are proposing a new route

so there is funding potential there. Elk City area has some hazard potential.

- Dave wants areas south of Twin Falls and south of Burley on the schedule for mapping.

***“Updates on Geology of the Boise/Weiser Area – A Review of 5 Years of Geologic Mapping”, Dennis Feeney***

- David asked if we will get the nose of the Snake River this year. Dennis answered not this year, but when we do we will work with DOGAMI.
- Keith asked if there is a map that covers Weiser and Midvale Hill. Mann Creek SE is already done and Weiser Cove will be done this year. Keith mentioned there is a landslide on the curve before Mann Creek store. ITD is monitoring this.
- Chris says Weiser North area has been mapped. Contact James Rytuba with USGS, Menlo Park.
- Chris says Stan Keith, petrochemist, has a database on rhyolites.

***“An Overview of the IGS Geologic Hazards Program”, Zach Lifton***

- David suggested Department of Agriculture may be interested in Zach’s work and could be a potential partner.
- Recent partnerships include Idaho Office of Emergency Management, Western States Seismic Policy Council, and Yellowstone Volcano Observatory.
- Recent activity includes Soda Springs Earthquake Sequence, Panhandle landslides and train derailments, new paleoseismic trench on Teton Fault, Elk City landslide mitigation.
- Rich asked if the railroad does an annual survey along that line. Zach said he doesn’t know as there hasn’t been much communication with the railroads, but he assumes they do.
- David asked if the landslide potential had been identified before the Elk City slide. Keith said yes. Ed mentioned there was no geologic mapping in that area of landslide complexes or propensity of landslides.
- Chris mentioned the Bureau of Reclamation has done a lot of studies on neotectonics and never published the data. Only way to get it is to go to the National Technical Information Service (NTIS).
- David mentioned landslide area near Bliss.
- Chris mentioned that the Panhandle NF might have flown some areas in the Panhandle. Chris can give contacts.
- Chris suggested USGS Seattle hazards folks and the Forest Service for funding.
- Ben mentioned some mitigation funds may be available.
- Ryan McDaniel was mentioned during lidar discussion.
- Chris suggested IFSAR data as it is faster and cheaper than lidar but not as high quality. We need a better topographic base for the state. Zach needs a bigger budget.
- Maybe Ben can hook him up with training flights with the National Guard.

***“Accommodation Controls on Deep Water Slope Systems”, Mark Barton***

- Slope aprons, a critical part of Shells DW portfolio, display significant variability in stratigraphic trapping, compartmentalization, and reservoir quality.
- Slope apron variability reflects gradient controls on depositional style across a stepped slope profile. Slope healing results in connected, high quality reservoirs whereas slope bypass results in poor quality reservoirs, compartmentalization, and loss of trap integrity.
- Characterizing reservoirs in context of slope accommodation (healing vs bypass) can assist in: a) the ranking/risking of prospects, b) the evaluation of reservoir architecture, c) well placement, and d) forecasting reservoir performance at the early appraisal stage.
- Research Plans- Carry out petroleum systems analysis, basin characterization, and basin modeling of the WSRB and other select regions in Idaho.