

UGS BOARD MEETING
Department of Natural Resources
Utah Geological Survey, Utah Core Research Center
240 N. Redwood Road, Salt Lake City
Thursday, August 7, 2024

The meeting of the UGS Board was called to order at 8:31 a.m.

ATTENDANCE

Board members: Elissa Richards – Chair, Ken Fleck – Vice Chair, Riley Brinkerhoff, David Garbrecht, Samuel Quigley, Becky Hammond, and Stephanie Barber-Renteria (Trust Lands). Rick Chesnut attended remotely. James McVey and Tara Tankersley joined us for staff introductions.

UGS Staff: Bill Keach, Darlene Batatian, Russell Fillmore, Cheryl Wing, and Patrick Engberson were in attendance. Ben Dlin (Grants Coordinator) attended the first half of the meeting; Stefan Kirby (Mapping & Paleo Program Manager) presented on STATEMAP. Mackenzie Cope and Rachel Willmore presented website tours.

ACTION ITEMS

Approval of Minutes from Previous Meeting

Riley Brinkerhoff motioned to approve the minutes of the April 11, 2024, UGS Board meeting. Sam Quigley seconded the motion. The Board voted unanimous, and the motion carried.

Formal Approval of Project Proposals

Although contract proposals for external funding are provisionally approved by the Board by email, they require formal approval at the next Board meeting. The proposals are:

Northeastern San Rafael Swell Mid-Mesozoic Paleontological Survey; funding from the Bureau of Land Management; new funding to the UGS \$19162.65; total project funding \$38,325.30; estimated start date October 1, 2024; estimated end date December 31, 2025.

Paleontological Resources Database; funding from the Bureau of Land Management; new funding to the UGS \$28,733.55; total project funding \$57,467.10; estimated start date October 1, 2024; estimated end date December 31, 2026.

Geochemical reconnaissance of alunite deposits in southwest Utah; funding from the USGS; new funding to the UGS \$329,998; total project funding \$366,664; estimated start date July 1, 2024; estimated end date June 30, 2027.

Wasatch Front and Back Landslide Mapping; funding from the USGS; new funding to the UGS \$151,247.15, total project funding \$302,494.30; estimated start date July 1, 2024; estimated end date June 30, 2025.

CORE-CM Region 7: Pacific Coast & Basin and Range Critical Minerals Initiative; funding from the DOE; new funding to the UGS \$75,000; total project funding \$1,400,000; estimated start date March 1, 2025; estimated end date February 28, 2028.

CORE-CM Region 6: Assessment, Characterization, Planning, for Carbon Ore and Critical Minerals; funding from the DOE; new funding to the UGS \$200,000; total project funding \$9,500,000 (UGS cost share \$50,000); estimated start date March 1, 2025; estimated end date February 28, 2028.

Watershed Restoration Initiative – Year 9; funding from Utah’s Watershed Restoration Initiative/Wildlife Resources; new funding to the UGS \$174,750; total project funding \$233,000; estimated start date July 1, 2024; estimated end date June 30, 2025.

Sam Quigley motioned to formally approve the project proposals. Riley Brinkerhoff seconded the motion. The Board voted unanimously, and the motion carried.

DIRECTOR’S REPORT

Director’s Report – August 2024

Contract proposals:

Enclosed in the materials is the Contract Proposal spreadsheet from 2019 forward. This is a good indicator of how the survey is doing with outside funding awards, both federal funds and dedicated credits, and what’s on the horizon.

Personnel Changes

Retirements:

Mike Hylland – Deputy Director

Lori Steadman – Sr GIS Analyst

Basia Matyjasik – Sr GIS Analyst

Resignations:

Kiersten Winwood – GIS Analyst

New positions:

Adam McKean – Supervisor, Hazards

Elisabeth Stimmel – Program Specialist I (from TL Geotech), Wetlands

Emily Jainarain – Geologist (TL to Sched B), Groundwater

Torri Duncan – Moved from Bookstore to Hazards

New hires:

Izzy DeLagerheim – Summer Intern, High School

Adamary Vazquez – Summer Intern, High School

Darlene Batatian – Deputy Director

James McVey – Project Geologist, Energy and Minerals

Noah Christensen – GeoTech, Energy and Minerals

Tara Tankersley – GeoTech, Energy and Minerals

Rachel Adam – Geologist, Hazards

Recent Activities – Looking Forward

The past three months have been very busy at the UGS.

Perhaps the most notable was the hosting in June of the annual meeting of the Association of American State Geologists in Park City. Over 40 of our staff worked on this event. They built field trips, arranged for speakers, meals, hotels, etc. You name it, they did it. And they did it exceptionally well. Approximately 145 people representing 35 states and multiple federal agencies were in attendance.

We continue to celebrate our 75th Anniversary, including at our Summer Picnic held July 11-12. Thank you to our Board members who were able to join us for this event.

Energy and Minerals –

Andrew Rupke was awarded an Earth MRI grant from the USGS (\$360,000 over 3 years) to study alunite resources in west-central Utah. This project already hit the ground running when UGS was able to salvage several alunite exploration cores from a storage shed in Milford, Utah.

Stephanie Mills was also awarded an Earth MRI grant from USGS (\$350,000 over 2 years) to evaluate mine waste for critical mineral potential. This project will be in partnership with the Energy & Geoscience Institute at the University of Utah.

Fervo Energy (a geothermal company), in partnership with UGS, was awarded a \$25 million DOE grant to study Enhanced Geothermal Systems in west central Utah (UGS portion is \$485,000 over 2 years). Christian Hardwick is a key scientist in this work.

We are now under contract with a company to collect additional bathymetric lidar data at Great Salt Lake. The first step will be to collect reconnaissance data from several areas of the lake to determine sensor limits, this should occur in the next month. Next step is to use our newly established best practices to start collecting data in the near shore environments of the north and south arms.

Elliot Jagniecki was awarded a FFSL GSL tech team grant (\$75,000 over 1 year) to study lithium input into Great Salt Lake.

Geologic Hazards –

The UGS Geologic Hazards Program was recently awarded a one-year project with the U.S. Geological Survey (USGS), Landslide Hazards Program to perform detailed landslide inventory mapping of about 16 1:24,000-scale quadrangles in Salt Lake, Summit, and Utah Counties using available lidar elevation data, historical stereoscopic aerial photography, and field reconnaissance. Results of this mapping will be published in the Utah Geologic Hazards Portal (<https://geology.utah.gov/apps/hazards>) late 2025. In addition, the UGS was also awarded a one year project (past projects funded yearly since 2007) with the USGS, National Geological and Geophysical Data Preservation Program to inventory, archive, and preserve geologic related maps and documents (data added to the UGS GeoData Archive: <https://geodata.geology.utah.gov>); add new borehole data to the Utah Subsurface Geotechnical Database (<https://geology.utah.gov/apps/borehole>); fund the purchase of geologic data preservation related equipment; and a sub-project focused on critical minerals, with sub-projects spread between three UGS programs.

Our new InSAR Specialist, Tara Shreve, will also start work later this month and comes to us via the University of Alaska, Fairbanks, where she is finishing a post-doctoral research position. Over the next year, Tara will be working on developing a reconnaissance-level map of ground subsidence for the state to determine areas of interest for further detailed study, along with supporting detailed ground deformation monitoring for the Utah FORGE project and several other geothermal projects in the vicinity. If all goes according to the latest plan, the new, joint NASA/Indian Space Research Organization NISAR satellite will be launched in early 2025 and provide additional data for InSAR analysis of Utah and the Intermountain West.

Groundwater & Wetlands–

Groundwater

Utah Groundwater Data Hub (UGDH, or “Ugh-Duh”) will have been officially launched by the time of this meeting. Two publications on the Bonneville Salt Flats, PI-106 and a new story map, along with in-depth research by the University of Utah and UGS are playing a key role as the U.S. BLM evaluates future management options. The groundwater section recently published “*Characterization of Groundwater in Johns and Emery Valleys, Garfield and Kane County, Utah, with emphasis on the groundwater budget and groundwater-surface-water interaction*” after a five-year study in the area funded by the Division of Water Rights and the National Park Service; and “*Groundwater-Level Trends in Snake Valley and Adjacent Basins, Utah and Nevada*” which analyzes groundwater-level trends in west-central Utah. Three more major publications are in process: 1. “*Matheson Wetlands Preserve water monitoring, water budget, wetland mapping, and wetland CHANGE analysis*”, 2. “*Groundwater of Pahvant Valley, Millard County, Utah*”; and 3. “*Great Salt Lake Shorelands Preserve Water Budget, Stream Monitoring, Vegetation Mapping, and Remote Sensing Analysis*”. Several eddy-covariance towers have recently been installed as part of the Utah Flux Network including sites at Bluff, Pelican Lake and GSL Shorelands Preserve, with a final site near Green River planned for this fall. New

hydrogeologic studies in Sanpete Valley, Castle Valley, Great Salt Lake groundwater inflow, and Milford Valley are underway.

Wetlands

The section is working toward wrapping up several EPA Wetland Program Development Grant projects with the goal of completing them by the end of the calendar year: 1. *“Improving Utah Wetland Quality Through Effective Monitoring, and Assessment”* (Becka Downard, PI); 2. *“Wetland plant guide for Utah’s central Basin and Range”* (Diane Menuz, PI); 3. *“Improved spatial data and new field data to better characterize Utah’s montane wetlands”* (Diane Menuz, PI); and 4. *“Wetland mapping around Utah Lake to address key data gaps and improve mapping consistency”* (Pete Goodwin, PI). The wetlands group is extremely busy with finishing these projects and beginning the next round of three EPA Wetland Program Development grants, as well as several other wetland monitoring and outreach projects. Diane Menuz will resign as section manager effective 10/4/24 and move to a new position, Data Scientist, in the groundwater section. Diane has been remarkably successful as section manager and now has chosen a new career path, and GWP and UGS are fortunate that Diane’s new interests are synchronized with our need for improved data processing and management.

Geologic Mapping & Paleontology –

Mapping

The geologic mapping group finalized their FY24 STATEMAP projects at the end of April. The UGS received \$645k from the USGS (\$1.29 M total state and federal). This is ~\$20k more than the previous year and making it the largest STATEMAP grant ever. For the past few years, the percentage awarded versus asked has been steadily increasing. This presumably reflects the increasing quality of UGS proposals relative to other states. The funding available for new mapping has also increased markedly. The total amount of grant funding available for all STATEMAP proposals has remained nearly constant at \$14.7 M for the last several years. Based on this award, we have resubmitted a revised proposal that includes a number of unique projects; mapping of the Oljeto 7.5’ quad for the Navajo Nation, the Bryce Canyon 7.5' quad, several high profile Wasatch front area 7.5' quads, Santaquin, Woodland, and others, continued work on the Wildcat Mt. 30x60 quad, a stratigraphic study of the Early Cretaceous in southeast Utah, and a geologic mapping fact sheet for Utah.

The mapping group submitted contract deliverables for the STATEMAP contract at the end of June. These materials were submitted on time for the first time since the inception of the USGS STATEMAP grant nearly 30 years ago. The deliverables included; 1) OFR publishing of seven 7.5' quads a majority of which were completed by first time mapping geologists and GIS analysts, 2) Three 30' x 60' contract deliverable quads including Beaver, Provo, and Dutch John, 3) Three major contract deliverable stratigraphic reports including the Green River Formation, Mancos Group, and Middle Jurassic of Utah, 4) A 3D borehole database, 5) Upload of the UGS geochronologic data to the USGS, and 6) Six GIS GEMS conversions of previously published maps.

Staff of the Geologic Mapping group created and ran two separate field trips for the American Association of State Geologists. Both field trips were well received and will be readily available for future use.

Paleontology

The Paleontology group is continuing work on the modernization of its paleo sites database. Meetings on the database were held with the BLM staff who are interested in further collaboration using our standard setting schema. Jim Kirkland gave several high-profile talks focusing on dinosaurs in Utah that included the Alta Club, the American Association of State Geologists premeeting trip, and at the Clark Planetarium. The Paleo Group is currently in the midst of extended fieldwork at the Doelling's Bowl site. This fieldwork is well known in the greater paleo community and is used as a training ground for paleo students from several universities.

Geologic Information & Outreach –

Bookstore—After investigating the bookstore's costs, revenue, and role in serving the public, we were given the green light to hire a new manager. We had 127 applicants, reviewed 50 applications, and interviewed 6 people. We hope to make an offer at the beginning of August. We implemented and will continue tracking customer interactions relevant to DNR divisions.

A few initial highlights,

- We anticipate distributing ~1,500 State Park Honor Passes (free) to disabled vets in 2024. This averages nearly 6 per business day. We will also likely sell over 950 annual and senior passes in FY24 (the final count is not yet available).
- For FY21-23, we sold on average ~600 geologic maps per year, or 23/week.

GIO received positive feedback from the two AASG guest field trips we led in June. GIO with help from Adam Hiscock in Hazards installed replacement geologic signs at the GK Gilbert Geologic View Park. Jim Davis and Doug Sprinkel (retired mapper) helped create geologic signs for Escalante State Park. We were happy to help State Parks with this project and will also collaborate on signage for Antelope Island. In July, Jim Davis and Jackson Smith gave a well-received talk at the Gilbert geopark to a group of teachers in the Utah Master Naturalist program (see letter in Kudos packet).

Patrick Engberson has finished the first cut of a GeoSights video of the Thistle Landslide (it needs graphics created before review). This is intended as a pilot project. We hope to do a full series based on our GeoSights articles. Thanks to Bill Keach, Mark Milligan, and Lance Weaver (Cedar City office) for helping with this. The 2025 Calendar of Utah Geology is in layout and nearly ready for printing. Thank you to all those who served on the committee.

GEO Committee—Jackson contacted and received approval from the Division of Indian Affairs, an archaeologist from the Utah SHPO, and a representative of the southern Paiute tribe for Jim's GeoSights article on petrosomatoglyphs (handprints in rock) at Kodachrome Basin State Park (Jim previously contacted State Parks). Jackson and the GEO Committee onboarded two summer

interns from the Salt Lake Center for Science Education, a local Title I high school. The GEO Committee is also nearing completion of a draft 'derogatory place names' report that includes possible policy and a possible disclaimer statement.

Data Management

Significant enhancements have been made to the UGS website, including the addition of a "Give Feedback" button - users will find it on the right-hand side of the UGS website. Ongoing data additions happen on a regular basis for the Geologic Map Portal, Groundwater Data Hub, Groundwater Monitoring Portal, Subsurface Geotechnical Database, Carbon Capture Portal, and Geologic Hazards Portal. A new Geologic Hazards user interface is very close to completion and will hopefully replace the existing application before the next board meeting.

Behind the scenes, the backend development team has been building up the GCP production infrastructure for GeoServer and developing an automation application to streamline data delivery processes into each web application. The Utah Groundwater Data Hub recently went live and will be actively promoted in August, providing valuable resources to users. Notably, the Energy Resources web application has been recognized with the "Best in GIS" award, which was accepted by Mackenzie and Claire.

Website activity and usage continue to be high.

Cedar City office – Please see the separate report from Tyler and Lance

Funding and Budget –

Financially, the UGS is in good shape. Federal and other outside funding is strong. The UGS' challenge to pursuing additional outside funding is limited by its ability to fund internal staff to satisfy 'match' requirements.

In fiscal year 2024, UGS ended with a non-lapsing balance of \$1,192,396. This balance will be allocated as follows: \$333,093 for Bonneville Salt Flats, \$297,849 for Great Salt Lake, and \$561,454 for General Fund non-lapsing. These non-lapsing funds are designed to cover unexpected expenses that may arise during the year. Mineral lease revenues for UGS in fiscal year 2024 totaled \$1,872,153, with the legislature appropriating \$2,312,600. This higher appropriation was requested due to an increase from the previous year, where the final revenue for fiscal year 2023 was \$3,034,447. UGS has been successful in securing federal and other outside funding. However, as noted above, our ability to pursue additional outside funding is currently limited by our capacity to fund internal staff to meet 'match' requirements. New legislation passed during the last general session mandates that Mineral Lease payments will be made to the UGS Oil, Gas, & Mining restricted account instead of directly to the budget. This change will allow funds to be carried over year to year, potentially saving funds during good years for use in lean years.

Financial documents in the Board packet include the closing package for FY24 and the Contracts Proposals Tracking.

The UGS plans to submit a few building block requests for the upcoming budget cycle. In order of priority:

Geothermal – Identifying and quantifying Utah’s geothermal resources - \$4,999,100.

Energy is moving to the forefront of state leaders’ concerns. Current energy policy states “any of the above”, meaning we need to have a clear understanding of what we have, where it is, and how we can leverage it. This is part of a larger effort to secure Utah’s energy for the future.

Earthquake Early Warning - \$5,000,000 one-time, \$1,000,000 ongoing. This follows work done in 2023 that determined an early warning system is feasible in Utah. This funding was requested last year. It is an important step towards maintaining Utah’s infrastructure following a major earthquake. Very little funding will stay within the UGS.

Paleontology - \$500,000 for curation and preservation of the ‘megablock’.

PRESENTATIONS

Stefan Kirby, Mapping and Paleontology Program Manager, gave the Board a presentation on the funding and completion of STATEMAP deliverables, and the significance of completing all deliverables on time, without requesting a no-cost extension, for the first time in 30 years.

Mackenzie Cope, Web Manager, gave the Board a tour of the UGS’ new websites: Groundwater Data Hub and Energy Resources of Utah.

BOARD DISCUSSION ITEMS

- Terms - Elissa Richards, Kenneth Fleck, and Samuel Quigley are currently lapsed. UGS will send emails to each lapsed member with directions to renew their terms, if interested. Rick Chesnut, Dave Garbrecht, Riley Brinkerhoff, and Becky Hammond current until March 2025.

Board policy changes:

- Association reimbursement (updated financial limit from \$100 to \$250)
- Reimbursements for professional association lunches/dinners (updated financial limit to GSA per diem rates & removed 75% reimbursement cap)
- Remove the procedure that requires the Director to present an annual summary to the Board for their approval of a list of the memberships, employee licenses the UGS proposes to fund, and an estimate of the cost of reimbursing employees for the cost of local luncheon and dinner meetings.

- International travel (removed text discouraging international travel- seems enough to say it requires justification & Board approval)
- Project proposal threshold. Current board policy is to require approval for all projects over \$5000. The threshold was raised to \$50,000 per Board discussion.
- Rescind the policy that requires the Board to approve permanent schedule B positions; the UGS Director has the authority to make staffing decisions.

Sam motioned to approve all discussed changes to board policy listed above, Becky Hammond seconded. The Board voted unanimous, and the motion carried.

UGS Board Field Trip

Field trip Sept 18-19: destinations will include a mix of oil and gas tours (water management recycling, fracking processes and other oil and gas locations in the Uinta Basin), AASG field trip stops (including gilsonite locations), and field review/map checking on the new Dutch John 30x60 map . Bill Keach and Stefan Kirby will develop the field trip itinerary and circulate to Board.

Board adjourned 11:57 am.