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AASG
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CONTENTS

PRESIDENTS' PAGES.....	4	NEW HAMPSHIRE.....	141
ALABAMA.....	7	NEW JERSEY.....	145
ALASKA.....	12	NEW MEXICO.....	148
ARIZONA.....	18	NEW YORK.....	154
ARKANSAS.....	22	NORTH CAROLINA.....	159
CALIFORNIA.....	26	NORTH DAKOTA.....	162
COLORADO.....	32	OHIO.....	166
CONNECTICUT.....	36	OKLAHOMA.....	172
DELAWARE.....	40	OREGON.....	178
FLORIDA.....	45	PENNSYLVANIA.....	182
IDAHO.....	51	SOUTH CAROLINA.....	186
ILLINOIS.....	56	SOUTH DAKOTA.....	188
INDIANA.....	65	TENNESSEE.....	192
IOWA.....	71	TEXAS.....	197
KANSAS.....	75	UTAH.....	202
KENTUCKY.....	81	VERMONT.....	206
LOUISIANA.....	87	VIRGINIA.....	211
MAINE.....	94	WASHINGTON.....	214
MARYLAND.....	102	WEST VIRGINIA.....	221
MASSACHUSETTS.....	107	WISCONSIN.....	225
MICHIGAN.....	111	WYOMING.....	231
MINNESOTA.....	115	AWARDS.....	234
MISSISSIPPI.....	118		
MISSOURI.....	125		
MONTANA.....	130		
NEBRASKA.....	135		
NEVADA.....	138		



PRESIDENTS' PAGES



Steven S. Masterman

It has been an honor and privilege to serve as AASG President this past year. Our organization has a rich history of service to the states and the nation and it is a history of which we can be proud. It has been my honor and privilege to serve as the President of this esteemed Association for the year ending June 30, 2018.

Much was accomplished during the 110th year of the Association, and it is a true testament to the dedicated membership and Executive Committee with whom I have had the pleasure to work: Past-President David Spears (VI); President-Elect Karen Berry (CO); Vice President Richard Ortt (MD); Secretary John Metesh (MT); Treasurer Harvey Thorleifson (MN); and Honorary Members Representative Robert Marvinney (ME). As many of my predecessors have noted, there is never enough time to accomplish all the initiatives and plans envisioned at the beginning of the Presidential term of office. However, I feel we made progress in the past year, and am confident the incoming executive team will lead us forward in the spirit of the association.

The Executive Committee met formally during the 2017 Fall Liaison Meeting, the 2018 Spring Liaison Meeting, and, prior to the 2018 Annual Meeting. Additionally, the Executive Committee met monthly by phone during the business year to plan, discuss, and report on meetings and initiatives associated with the liaison, the mid-year, the annual meeting, and legislative and funding initiatives. These meetings were informal but very important in allowing AASG leadership the opportunity to have a dialogue on business matters and strategic planning.

In September 2017, AASG conducted its Fall Liaison in Washington, visiting 28 agencies and hill offices over the course of three days. In a change from the recent Liaison model, emphasis was placed on legislative issues and securing funding for a new mapping initiative. Primary topics of discussion centered on NCGMP reauthorization, Critical and Strategic Minerals (3DEEP) funding, and natural hazards (NVEWS, Landslides, and NEHRP). This strategy was partially successful with the NCGMP being introduced for re-authorization in both the House and Senate, and movement in committee on several of these bills.

The March 2018 Spring Liaison in Washington was a success, with 54 meetings being held. As with the fall Liaison, the focus this spring was to advocate for the benefits of reauthorization of the National Cooperative Geologic Mapping Act, and for funding for the Critical Minerals Initiative (3DEEP). The annual AASG Pick and Gavel Awards Banquet was well attended with Senator Cantwell of Washington being recognized as a most deserving recipient. Senator Cantwell was unable to attend, but her staff was presented with a beautiful specimen of petrified wood from

her home state of Washington. We welcomed three new state geologists and bid farewell to those retiring.

At our mid-year meeting, AASG recognized the recipient of the Charles J. Mankin Memorial Award: Hussey, A. M., II; Bothner, W. A.; Thompson, P. J., 2018, Bedrock geology of the Kittery 1:100,000 quadrangle, southwestern Maine and southeastern New Hampshire: Maine Geological Survey Bulletin 45, 99 p.

At our mid-year meeting, AASG recognized the recipient of the John C. Frye Memorial Award: White, J. L.; Morgan, M. L.; Berry, K. A., 2018, The west Salt Creek landslide: A catastrophic rockslide and rock/debris avalanche in Mesa County, Colorado: Colorado Geological Survey Bulletin 55, 57 p.

During the year, the Association increased dues and entered into contracts for administrative assistance through the AIPG, and a contract for professional services in Washington DC to provide guidance and advice in our advocacy efforts. Both have proved valuable, but the professional services in DC were especially so, facilitating many meetings on the Hill that were instrumental in garnering support for the 3DEEP initiative.

As an Association we have accomplished a considerable amount during this and previous years, yet there will be a variety of issues we must continue to address and successfully navigate if we are to remain a viable and relevant organization. In many ways we are very much the same spirited organization that was founded in 1908. In many other ways we have changed and adapted to new environments, politics, paradigms, and cultural shifts.

I encourage new members to get involved with the Association. It has helped me build relationships with many of the decision makers in the federal agencies we work with and build friendships with other state geologists who are a wealth of knowledge and a great resource. The benefits far outweigh the associated responsibilities.

Finally, I would like to thank all of the members of AASG who made this year a success: those on the Executive Committee tackle the enormous jobs of preparing Liaisons, organize advocacy efforts for funding and legislative initiatives; arrange the Mid-Year and Annual Meetings, keep our finances in order, identify candidates for various awards, and coordinate with our agency partners; those who work to raise money for AASG initiatives; the Committee Chairs and members; and the membership at large for your unwavering support of this organization. You are the Association of American State Geologists and it has been a great honor to serve as your President.

Respectfully yours,

A handwritten signature in blue ink that reads "S. Masterman".

Steven S. Masterman, Alaska, AASG President 2017-2018



Group Photo. Participants in the 2018 AASG Annual Meeting, held in Rehoboth Beach, Delaware. Only State Geologists present at the meeting are shown. *Left to Right:* Thomas Serenko (OH), John Parrish (CA), John Metesh (MT), Jonathan Arthur (FL), John Yellich (MI), Richard Berg (IL), Ronald Zurawski (TN), Harvey Thorleifson (MN), Nelia Dunbar (NM), Jeffrey Hoffman (NJ), David Dockery (MS), Karen Berry (CO), Rick Allis (UT), Scott Tinker (TX), Michael Ratchford (ID), David Wunsch (DE), Ken Bradbury (WI), Steve Masterman (AK), Richard Ortt (MD), Gail Blackmer (PA), Keith Schilling (IA), Margaret Thomas (CT), Steve Mabee (MA), Todd Thompson (IN), Robert Marvinney (ME), James Faulds (NV), Marjorie Gale (VT), Nick Tew (AL), Dave Norman (WA), David Spears (VA), Phil Pearthree (AZ), and Jeremy Boak (OK).



David Spears

Editor's Note: *The AASG journal was not published in 2017, so the 2016–2017 AASG President's page is included in the 2018 journal.*

"Let's do *something*, even if it's wrong. We can fix it later." I was working with my electrical engineer father-in-law, Dick Paxton, on a construction project in my backyard. We'd worked for several days on the foundation for a small building, and were now done with that part. What should we do

next? We were both analytical thinkers and could envision about a dozen different paths forward. We weighed our options, considered our tools and materials, and generally dithered. Finally, having heard enough talk, he said those two sentences. Sometimes, even when you're not absolutely sure, you just have to do something. Maybe you'll make mistakes, but you can fix them later. Even though Dick has been gone many years, his philosophy of action in the face of uncertainty has stuck with me.

Being President of AASG provides one with many opportunities to make mistakes. As I've said before, when you get onto the AASG executive track, you do each job for only one year, which is just long enough to do it badly. Fortunately, for FY16–17, I had an excellent Executive Committee to help keep me out of trouble: Past President Joe Gillman of Missouri, who also served as host for our Annual Meeting; President-elect Steve Masterman (AK);

Vice President Karen Berry (CO); Secretary John Metesh (MT); Treasurer Derric Iles (SD); and Honorary Representative Bob Marvinney (ME). I extend a heartfelt "Thank you!" to all of them.

Attendance at Fall Liaison had been shrinking for several years, so instead of fighting the trend and begging people to come, we decided to bring just the Executive Committee to Washington DC in September 2016. Normally we spend the first morning with USGS senior leadership at the Main Interior Building downtown, but since there were more of them than there were of us, we decided to travel out to USGS headquarters and spend the whole day there. We rode the Metro out to Reston and Darcy McPhee, STATEMAP coordinator, picked us up in a van at the station. We had a productive day meeting with all the usual Associate Directors, and in the afternoon had an entire hour with Director Suzette Kimball.

Less than a month later, we held the AASG Mid-year Meeting in Denver. Several important items were on the agenda for the business meeting, including a report from an ad hoc committee formed to make recommendations about getting professional assistance to organize liaison meetings, administer the day-to-day business of AASG, and help direct our efforts in Washington. The fundamental conclusion of the report was that we needed help and would probably need to raise our dues to pay for it. Also on the agenda was reauthorization of the National Cooperative Geologic Mapping Act (NCGMA). As the home for STATEMAP, the Act is extremely important to AASG, and the time had come to push for reauthorization. On a motion from Karen Berry (CO),

we voted to dedicate \$25,000 of our cash reserve to providing assistance to the Executive Committee in its efforts to get the Act reauthorized and funding to the program increased. Exactly how that money would be spent was left up to ExComm.

One of the greatest responsibilities of AASG President is to organize the Pick and Gavel Banquet, including selection of the P&G Award recipient. The award is intended to recognize someone who has contributed to the advancement of public good through action at the intersection of geoscience and public policy. I once had the pleasure of sitting at the witness table before a hearing of the Energy and Mineral Resources subcommittee of the House Natural Resources Committee. The hearing was about the management of our national forests, specifically the drafting of language for the leasing of fossil fuels and minerals in forest management plans. The chair of the subcommittee at that time was Representative Doug Lamborn (R-CO) and the ranking member was Rush Holt (D-NJ), a past recipient of the Pick and Gavel Award. I was impressed by the way they worked together to run the hearing, so when the time came for me to pick a Pick and Gavel recipient, I considered Rep. Lamborn. My online research turned up some interesting facts. He was one of the most conservative members of Congress. He had proposed eliminating funding for the Corporation for Public Broadcasting. As an enthusiastic consumer of both NPR and PBS content, I found this disturbing. He had, however, a respectable record of votes regarding the management of public lands, and had more than once made public remarks critical of the direction the USGS was taking, expressing opinions that were remarkably aligned with those of AASG leadership at the time. After discussion with the Executive Committee, we decided to invite Rep. Lamborn to receive the award. He accepted the invitation, and agreed to appear in person to receive it (an important consideration!) He turned out to be an appreciative and charming guest at our banquet, even attempting to stump the AASG President with a rock sample that he had in his pocket (thank you, Vicki, for the hint that saved me from great embarrassment). Many months later, when it came time to find a Republican sponsor for our National Cooperative Geologic Mapping Act reauthorization bill, he agreed. Thank you, Representative Lamborn.

The 2017 Annual Meeting was hosted by the Missouri Geological Survey in Branson, MO. Joe Gillman and his team put on an excellent meeting in a beautiful venue with great field trips, food, beverages, and camaraderie. At the business meeting, we once again struggled with the idea of professional assistance. In the recent past, we couldn't seem to decide what we needed most, administrative assistance or an advocate in Washington. On conference calls of the Executive Committee leading up to the meeting in Branson, we decided we needed both. Of course, to do this we would need to raise our dues again. We voted to go with a tiered dues structure, with smaller surveys remaining at \$600 annually, medium-sized surveys paying \$1,200, and the largest surveys paying \$2,400. Any Survey finding the new structure onerous could petition the Executive Committee for relief. The resulting increased revenue eliminated the need for AASG to dip into its reserves to pay for the NCGMA reauthorization effort. We then voted to hire both an administrative assistant through a cooperative agreement with the American Institute

for Professional Geologists at their Colorado headquarters, and a Washington-based advisor and advocate familiar with geoscience issues. For this, on the recommendation of several of our colleagues in Washington, we selected Elizabeth Duffy, who represents the Seismological Society of America and who serves on the organizing committee of the USGS Coalition. Branson was a milestone meeting for AASG, and we owe great thanks to the Missouri Geological Survey for providing the environment and the refreshments to make it all happen.

Serving AASG as President was a great honor and privilege. I thank all the members, associates, honoraries, and emeriti for their confidence and support. Finally, I encourage the newer members of AASG to consider serving as an officer of the Executive Committee. If asked, just say "Yes!"

David Spears, Virginia, AASG President 2016–2017

VERMONT

VERMONT GEOLOGICAL SURVEY

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INTRODUCTION

The Division of Geology and Mineral Resources, also known as the Vermont Geological Survey (VGS), is the source for geologic information, maps, and data used to assess and solve environmental and natural resource issues in Vermont. Our responsibilities are defined by Vermont Statute, Title 10, Chapter 7, Section 101: to provide aid and advice, provide geologic expertise to regulatory programs, conduct research related to geology and mineral resources, and publish and disseminate geologic reports. In 2016 to 2018, our major accomplishments included publication of the online landslide inventory (GIS database) of Vermont (three counties), publication of geologic and hydrogeologic maps for seven quadrangles, significant work on PFOA contamination issues and leadership of an emerging contaminants session at NEGSA 2018, securing funds for a third position in our office, and providing geologic services to state government Divisions and Agencies.

GEOLOGIC MAPPING

Geologic mapping is the foundation of our work in Vermont and provides base maps for hazard avoidance and mitigation, evaluation of sites for groundwater contamination, planning for groundwater supply and source protection, and geologic resources and land use. Following publication of the Bedrock Geologic Map of Vermont in 2011, our mapping focus shifted to 1:24,000-scale surficial geologic maps. Geologic mapping is intrinsically linked to GIS data development and analyses of geologic data in three dimensions. The VGS is actively developing and adopting new data formats and standards for geologic data. We are also expanding our ability to display and interpret geologic information in 3D. In 2017, we standardized surficial map units, began to transfer and edit map data on lidar basemaps, and began compilation of the Montpelier one-degree sheet.

STATEMAP, a component of the USGS National Cooperative Geologic Mapping Program, is an important source of funding for our mapping projects. Funds are further leveraged through field-based student intern projects ranging from water chemistry to tectonics. Maps and GIS data are posted on the VGS website, the Vermont Open Data Portal, and the NGMDB for easy access.

The following are a sampling of maps released in 2017–2018:

DeSimone, D. J., 2017, Surficial geology of the Bennington area, Vermont: Vermont Geological Survey Open-File Report VG2017-1, scale 1:12,000, 3 plates. GIS Data.

Kim, J. J., 2017, Preliminary bedrock geologic map of the Bennington area, Vermont: Vermont Geological Survey Open File Report VG2017-4A, scale 1:12,000.

Kim, J. J.; Dowey, C. W., 2017, Derivative maps generated from water well data logs in the Bennington area, Vermont:



Figure 1. Setting up for a drone flight at the Champlain Thrust in northwest Vermont. The drone is useful for mapping and interpreting fractured bedrock at specific sites.

Vermont Geological Survey Open File Report VG2017-3, 4 plates, scale 1:12,000.

Springston, G. S., 2018, Surficial geology and hydrogeology of the Joes Pond 7.5-minute quadrangle, Vermont: Vermont Geological Survey Open File Report VG2018-3, scale 1:24,000, report plus 8 plates. GIS Data.

Springston, G., 2017, Landslide inventory of Washington County, Central Vermont: Vermont Geological Survey Open File Report VG2017-7, scale 1:100,000, report plus 1 plate.

Van Hoesen, J., 2018, Surficial geology and hydrogeology of the southern half of the Proctor 7.5-minute quadrangle, Vermont: Vermont Geological Survey Open File Report VG2018-2, scale 1:24,000, report plus 10 plates.

Wright, S., 2018, Surficial geology and hydrogeology of the Bolton Mountain Quadrangle, Vermont: Vermont Geological Survey Open File Report VG2018-4, scale 1:24,000, report and 5 plates. GIS Data.

Wright, S.; Dowey, C. W., 2018, Surficial geology and hydrogeology of the Jeffersonville quadrangle, Vermont: Vermont Geological Survey Open File Report VG2018-5, scale 1:24,000, 4 plates. GIS data.



Figure 2. Alluvial fan deposited on the north shore of Lake Mansfield. Toe of fan extends beneath the lake surface.

GROUNDWATER

The VGS and our university and government partners develop geologic data, maps, and information for the public, to inform decisions about groundwater use and protection related to public health concerns (arsenic, radioactivity, asbestos, radon, nitrates). We also conduct site-specific aquifer characterization studies. For example, arsenic levels above health-based standards in drinking water supplies were investigated by integrating mapping with water and bedrock geochemistry. During the past two years we have contributed to the newly adopted Vermont Department of Environmental Conservation (DEC) Groundwater Management Plan, produced water supply maps for towns, investigated PFOA in groundwater, worked with farms to understand best management practices to avoid groundwater nitrate contamination, served on the Drought Task Force, and upgraded private well locations through the USGS Water Use Grant.

PFOA Project

Dr. Jon Kim (VGS) leads the VGS's work on PFOA contamination of groundwater in southern Vermont. An informal consortium, based on shared research interests, includes SUNY Plattsburgh, Middlebury College, Bennington College, UMASS, and EPA. The consortium began studies of the PFOA issue in 2016 and shared results at sessions at NEGSA in Burlington in Spring 2018. The group investigated surface water and groundwater contamina-

tion through comprehensive water chemistry, hydrogen and oxygen isotopes, mapping, and geophysical well logging.

Water Use Project

The VGS, in coordination with other divisions in DEC, received a U.S. Geological Survey Water Use Data and Research program grant to assess and inventory the state of water withdrawal and consumptive use data in Vermont. The work plan includes improvement of water well location information for eight counties, a review and update of the 2010 USGS water use report and database for Vermont, and development and population of standardized databases within DEC, including snowmaking data.

Colin Dowe, staff geoscientist, updated data for wells in four counties, thereby increasing the number of wells with E911 or GPS locations from 20 percent to 46 percent. Data, available on the ANR Atlas, is used for groundwater resources and to inform decisions about wastewater. Colin and staff in other divisions, designed and populated a database which incorporates hourly to sub-hourly snow-making water use information and allows for detailed analysis of natural and downstream streamflow through the snowmaking season.

Other Groundwater Activities

The State Geologist is a member of the broad-based Groundwater Coordinating Committee (GWCC), a group which produced a plan for managing and protecting Vermont's source waters. GWCC is composed of government agencies, individuals from



Figure 2. Sampling surface water in Bennington for tritium, isotopes and water chemistry. Age dates are a component of the aquifer characterization project in Bennington.

the private sector, consultants, and non-profit organizations. Specific work is outlined for the VGS in the adopted Groundwater Management Plan and is aligned with our groundwater resource mapping and strategic plans. The document recognizes the importance of geological information in evaluating water supply and contamination issues.

The State Geologist was contacted by the Groundwater Protection Council (GWPC) for input into the development of an information sheet on how State Source Water Coordinators nationwide can collaborate with their geological surveys. Specific examples of assistance provided by geological surveys were provided including investigation of PFOA contamination of groundwater in fractured bedrock (VT) and participation in state strategic planning for water resources (VT). A draft document was subsequently forwarded by GWPC to other geological surveys for review. Since most geological surveys are not regulatory agencies, regulatory groups are often unaware of the role their state surveys can play in groundwater protection. Vermont was a partner in development of the information sheet due to our participation at the national GWPC forum in September 2017.

HAZARDS

The VGS conducts significant work on natural hazards and develops and distributes public information concerning these hazards. We provide seismic hazard information and communicate seismic risk to the Department of Public Safety and the public, partner with the Northeast States Emergency Consortium and with Regional Planning Commissions, conduct landslide hazard mapping, and serve on work groups to develop state hazard mitigation and prevention plans.

Landslide Hazards

Landslide hazard mapping and monitoring of landslide and rockfall sites to reduce public exposure to hazards are the goals of the hazard work. The Landslide Inventory Geoform was launched online at: <http://dec.vermont.gov/geological-survey/hazards/landslides>. Since past failures are an indicator of future slope instability, the form is a crowd-sourced tool to help us locate existing landslides, including rockfalls, debris flows, gullying and other mass failures.

George Springston (Norwich University), under a grant from DEC, completed landslide hazard inventory maps for Washington and Chittenden Counties. The maps identify existing and relict landslides, including falls, topples, slides, and flows. The map, drawing heavily from lidar, also incorporates river corridor assessment data for gullies and mass failures. A statewide GIS database with 43 attributes was developed and shows data collected to date: <http://anrgeodata.vermont.gov/datasets/landslides>. Data is distributed as point data although companion maps at 1:24,000 scale show polygons.

OUTREACH

Survey staff is active in education and outreach through school visits, field trips for towns and local officials, lectures, and our website. Presentations at professional meetings such as the National Groundwater Association, Northeast Geological Society of America, and local non-profit organizations are important venues for sharing our geologic expertise and contributing to the science community. We also gave numerous presentations to other government agencies and non-profit organizations including lifelong learning programs, planning commissions, scouts, university seminars and classes, and conservation groups.

The Northeast Section Geological Society of America was held in Burlington, Vermont in 2018. The meeting was hosted by



Figure 3. Student interns preparing core material for x-ray diffraction as part of the Bennington aquifer characterization project.

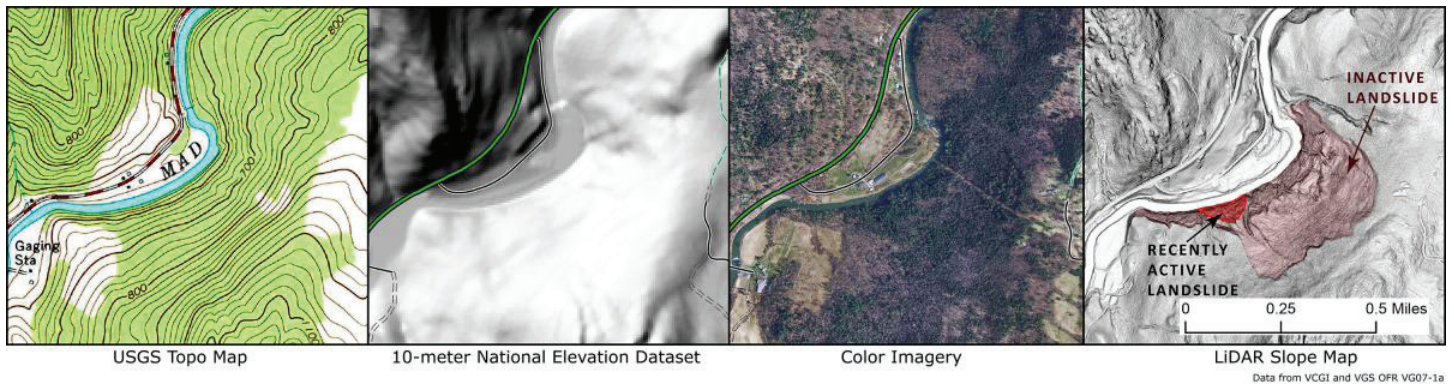


Figure 4. Comparison of topographic maps, imagery and lidar. Lidar is used to distinguish previously unrecognized slope instability areas.

University of Vermont, Middlebury College, Norwich University
SUNY Plattsburgh, and the Vermont Geological Survey, DEC.
Technical sessions featured DEC groundwater and contamination, private wells and health, tectonics of the Appalachians and Adirondacks, river restoration, engineering geology, lake studies, hazards, and government issues. Staff from the Geology Division gave presentations, chaired or co-chaired several technical sessions, participated as mentors in student luncheon events with more than 300 attendees, and served on the organizing committee.

AWARDS

DISTINGUISHED SERVICE AWARD

The Distinguished Service Award is presented to particularly deserving living, retired, or retiring State Geologists, Associates, and Honorary Members other than current officers who deserve to be recognized for the excellence of their efforts over the long term, and their pride in advancing our science and its application, in improving the work of State Geological Surveys, in improving dissemination of the knowledge we produce, in achieving effective coordination with partner agencies, and in promoting camaraderie among the membership of AASG.

Sponsored by AASG for service to AASG, the 2018 recipients of this award are:

Maeve Boland, AGI

Derric Iles, South Dakota State Geologist

JOHN C. FRYE MEMORIAL AWARD

Environmental geology has steadily risen in prominence over recent decades, and to support the growth of this important field, the John C. Frye Memorial Award was established in 1989 by GSA and AASG.

John C. Frye joined USGS in 1938, he went to the Kansas Geological Survey in 1942, he was its Director from 1945 to 1954, he was Chief of the Illinois State Geological Survey until 1974, and he was GSA Executive Director until his retirement in 1982, shortly before his death.

John was active in AASG and on national committees, and was influential in the growth of environmental geology.

The John C. Frye Memorial Award is given each year to a nominated environmental geology publication released in one of the three preceding calendar years, either by GSA or by a state geological survey.

The nominated publications identify a geologically based environmental issue, provide sound and substantive information pertinent to the problem, relate geology to the issue, and present information directly usable by geologists, other professionals such as land-use planners and engineers, and ideally also by informed laypersons. The selection committee assesses uniqueness, significance as a model, and overall worthiness.

The 2017 award winner is:

The West Salt Creek Landslide: A Catastrophic Rockslide and Rock/Debris Avalanche in Mesa County, Colorado, 2015, by Jonathan L. White, Matthew L. Morgan, and Karen A. Berry, Colorado Geological Survey Bulletin 55, 57 p.

CHARLES J. MANKIN MEMORIAL AWARD

Geological survey agencies play an essential role in provision of comprehensive, jurisdiction-wide geoscience information. While the Frye Award recognizes work on environmental geology issues such as water resources, engineering geology and hazards, the Mankin Award recognizes state geological survey publications in regional, energy, or mineral resource geology, with an emphasis on surface or subsurface geologic mapping, compilations, and associated reports.

Charlie Mankin (1932–2012) earned a Ph.D. from the University of Texas in 1958, he joined University of Oklahoma in 1959, and from 1967 to 2007 he was Director of the Oklahoma Geological Survey. He was AASG President in 1975–76, AGI President in 1978–79, and Campbell Medalist in 1987. Charlie played a key role in establishing STATEMAP, a program crucial to the state geological survey role in geologic mapping.

The Award is given each year to a nominated geological map, compilation, or report on regional, energy, or mineral resource geology published in the current year or one of the three preceding calendar years by a state geological survey.

David Spears, State Geologist of Virginia, and Past President of AASG, announced the winner of AASG's 2017 Charles J. Mankin Memorial Award:

Bedrock Geology of the Kittery 1:100,000 Quadrangle, Southwestern Maine and Southeastern New Hampshire, 2017, by Arthur M. Hussey II, Wallace A. Bothner, and Peter J. Thompson, Maine Geological Survey Bulletin 45.

PICK AND GAVEL AWARD

The Pick and Gavel Award was initiated by AASG in 1999 to recognize distinguished friends of geology who have made or are making major contributions to advancing the role that geoscience plays in our society.

The Pick and Gavel Dinner is held in Washington D.C. in mid-March at the Cosmos Club, whose history is steeped in geology. One of its founders and first presidents was John Wesley Powell, 1881–1894 USGS Director and explorer of the Grand Canyon, and its membership has included many renowned geologists.

The Award consists of a mounted mineral, fossil, or rock, with a symbol that includes a geologist's pick, a policy maker's gavel, and the Capitol, where geologists and policy makers work together to respond to the needs of the nation.

The Association of American State Geologists presented the 2018 Pick and Gavel Award to **Senator Maria Cantwell of Wash-**

ington at the Cosmos Club, in Washington, D.C., on March 15. The award ceremony was preceded by a reception for the larger geoscience community followed by the annual Pick & Gavel Banquet.

Senator Maria Cantwell was chosen for the Pick and Gavel Award because of her own enthusiastic support of geoscience and the environment, her ongoing interest in science and technology, and her encouragement of partnerships among the state, local, tribal, and federal government. For example, her efforts led to renewal of the National Tsunami Hazard Mitigation Program and permitted the Hoh and Quileute tribes to begin to move their villages out of the tsunami hazard zone. She is the prime sponsor of the Senate Bill for the National Landslide Preparedness Act that will create a national landslide hazard mitigation program and will authorize the 3D Elevation Program to acquire improved topographic information using Lidar and IFSAR. She is also a co-sponsor of the National Volcano Early Warning and Monitoring System Act, and a cosponsor to reauthorize the National Earthquake Hazard Reduction Program.

AGI MEDAL IN MEMORY OF IAN CAMPBELL FOR SUPERLATIVE SERVICE TO THE GEOSCIENCES

The AGI Medal in Memory of Ian Campbell for Superlative Service to the Geosciences is AGI's highest award, given in recognition of singular performance in, and contributions to, the profession of geology. Candidates are measured against the distinguished career of Ian Campbell, whose service to the profession touched virtually every facet of the geosciences.

The 2018 recipient is **Scott Tinker, State Geologist of Texas.**

The following is an excerpt from the AGI press release:

"The American Geosciences Institute (AGI) is pleased to recognize Dr. Scott W. Tinker, Director and State Geologist of Texas, Bureau of Economic Geology, and Professor at the Jackson School of Geosciences at the University of Texas at Austin, as the 2018 recipient of the AGI Medal in Memory of Ian Campbell for Superlative Service to the Geosciences, AGI's highest award.

Since 2000, Dr. Tinker has led the Bureau of Economic Geology as the premier state geological survey, with more than 250 research and support staff and students working on hundreds of international grants and contracts. His distinguished service—from his start in the petroleum industry to his more recent work as an educator and administrator—is superlative.

Dr. Tinker's public service involves frequent testimony and briefings before federal and state legislatures and executive agencies. He has served on several boards and commissions that influence national energy policies, including the National Research Council's Board on Energy and Environmental Systems (2003–09), the National Academies Roundtable on Unconventional Hydrocarbon Development (2016–present), and the Interstate Oil and Gas Compact Commission (2007–present).

He co-produced the 2012 documentary film *Switch*, which has been viewed by more than 15 million people in over 50 countries, and he is Chairman of the Switch Energy Alliance, a nonprofit 501(c)(3) organization. He is now filming a sequel called *Switch On*, which will focus on global energy poverty. He is passionate about energy education and has given more than 750 lectures in 60 countries.

Dr. Tinker has served the geoscience profession admirably at many levels, including as President of AGI (2015–16), the American Association of Petroleum Geologists (2008–09), and the Association of American State Geologists (2007–08), as well as in various capacities for the Society for Sedimentary Geology and the Society of Exploration Geophysicists. He is the recipient of numerous awards, including the AAPG Halbouty Medal, the Gulf Coast Association of Geological Societies Boyd Medal, and the AGI Award for Outstanding Contribution to Public Understanding of the Geosciences. He is also a Fellow of the Geological Society of America."

THE WILLIAM B. HEROY JR. AWARD FOR DISTINGUISHED SERVICE TO AGI

The 2018 recipient is **Rex Buchanan, Director Emeritus of the Kansas Geological Survey.**

The following is an excerpt from the AGI press release:

"The American Geosciences Institute (AGI) is pleased to recognize Mr. Rex C. Buchanan, Director Emeritus of the Kansas Geological Survey (KGS), as the 2018 recipient of the William B. Heroy Jr. Award for Distinguished Service to AGI.

Mr. Buchanan's contributions to AGI span decades and are among the highlights of his career as a geoscientist and science communicator, and as interim director of the KGS from 2010 to 2016. His service to AGI has strengthened AGI's publications and programs alike.

Most recently, Mr. Buchanan was an active member of AGI's Critical Issues Advisory Committee from its inception in 2013 to his retirement in 2016. In this role, he helped define the mission and structure of the Critical Issues program and provided perceptive guidance and support to AGI staff.

Mr. Buchanan also served on the planning committee for the 2016 Critical Issues Forum, "Addressing Changes in Regional Groundwater Resources: Lessons from the High Plains Aquifer." He moderated a panel on groundwater perspectives from Kansas and Nebraska, and shared his extensive knowledge of the scientific, policy, and social issues associated with groundwater.

An expert on human-caused earthquakes, Mr. Buchanan currently serves as Director of the KGS Consortium to Study Trends in Seismicity. In April 2015, he spoke on AGI's first Critical Issues Webinar, "Induced Seismicity in the Mid-Continent." Since that time, the Critical Issues Webinar series has grown substantially, and has attracted thousands of live attendees from different

states, countries, sectors, and professions. Mr. Buchanan's early support was instrumental in this program's expansion.

Previously, Mr. Buchanan co-edited *Geowriting, a Guide to Writing, Editing and Printing in Earth Science*, 5th Edition—published in 1995 and revised in 2004—and was co-author, with Lisa Rossbacher, of *Geomedia, a Guide for Geoscientists Who Meet the Press*, published in 1988. He served as Chair of AGI's Publications Advisory Committee from 1992 to 1993 and was a committee member for several years prior.”

Buchanan writes, “I was pleased to receive the Heroy award. AGI has long served a critical role in representing all of the geosciences. One of the highlights of my career has been working with AGI staff and other geoscience professionals who contribute their time and talent to AGI efforts.”

The award is named after William B. Heroy Jr.'s exemplary service to the American Geosciences Institute. Heroy's professional accomplishments were exceeded only by his love of geology and his commendable modesty in the face of such achievements.