

Staff Publications and Activities

Publications

- Agency Activities—Fiscal Year 2003*: Idaho Geological Survey Web site on Web page, “Agency Activities,” 2004.
- Applying Surficial Geologic Mapping to Geologic Hazards Mapping, Nez Perce County, Idaho*, by L.R. Stanford, K.L. Othberg, B. Reynolds, and R.M. Breckenridge, in D.R. Soller, ed., *Digital Mapping Techniques '03 Workshop Proceedings*: U.S. Geological Survey Open-File Report 03-471, p. 235-236.
- Bedrock Geologic Map of the Weippe North 7.5' Quadrangle, Clearwater County, Idaho*, by J.H. Bush, D.L. Garwood, J.D. Kauffman, and K.F. Sprenke: Idaho Geological Survey Digital Web Map 19, 2003, scale 1:24,000.
- Counterclockwise Rotation of the Packsaddle Syncline Is Consistent With Regional Sinistral Transpression Across North-Central Idaho*, by R.F. Burmester and R.S. Lewis, in D.R. Lageson and R.B. Christner, eds., 2003 Tobacco Root Geological Society Field Conference at the Belt Symposium IV: Northwest Geology, v. 32, p. 147-159.
- Creating a Shaded-Relief Geologic Map Using World Construction Set and Adobe Illustrator Software*, by L.R. Stanford, in D.R. Soller, ed., *Digital Mapping Techniques '03 Workshop Proceedings*: U.S. Geological Survey Open-File Report 03-471, p. 237-238.
- Geologic Map of the Eden Quadrangle, Jerome and Twin Falls Counties, Idaho*, by K.L. Othberg and R.M. Breckenridge: Idaho Geological Survey Digital Web Map 22, scale 1:24,000.
- Geologic Map of the Gooding Quadrangle, Gooding County, Idaho*, by J.D. Kauffman and K.L. Othberg: Idaho Geological Survey Digital Web Map 20, scale 1:24,000.
- Geologic Map of the Kimberly Quadrangle, Jerome and Twin Falls Counties, Idaho*, by K.L. Othberg and R.M. Breckenridge: Idaho Geological Survey Digital Web Map 21, scale 1:24,000.
- Geologic Map of the Wendell Quadrangle, Gooding County, Idaho*, by J.D. Kauffman and K.L. Othberg: Idaho Geological Survey Digital Web Map 23, scale 1:24,000.
- Glacial Lake Missoula, Clark Fork Ice Dam and the Floods Outburst Area: Northern Idaho and Western Montana*, by N.B. Smyers and R.M. Breckenridge, in T.W. Swanson, ed., *Western Cordillera and Adjacent Areas: Geological Society of America Field Guide 4*, p. 1-15.
- Idaho Report*, by R.M. Breckenridge and S. Weiser: Western States Seismic Policy Council Proceedings, 2003, p. 22-23.
- List of Publications, 2004*, by R.C. Stewart: Idaho Geological Survey booklet, 52 p.
- Mineral Industry of Idaho (2002)*, by A. Tanner and S.D. Smith with V.S. Gillerman: U.S. Geological Survey Minerals Yearbook Chapter, v. II, December, 2003, p. 14.0-14.7.
- Miocene and Younger Faults in Idaho*, by R.M. Breckenridge, R.S. Lewis, G.W. Adema, and D.W. Weisz: Idaho Geological Survey Map 8, scale 1:1,000,000.
- Miocene and Younger Faults in Idaho*, by R.M. Breckenridge, R.S. Lewis, G.W. Adema, and D.W. Weisz: Idaho Geological Survey Web site.
- Progress in Mapping the Belt Supergroup in Idaho, 1997-2003*, by R.S. Lewis, R.F. Burmester, and M.D. McFadden, in D.R. Lageson and R.B. Christner, eds., 2003 Tobacco Root Geological Society Field Conference at the Belt Symposium IV: Northwest Geology, v. 32, p. 160-166.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume III: Coeur d'Alene River Drainage Surrounding the Coeur d'Alene Mining District (Excluding the Prichard Creek and Eagle Creek Drainages), Major Properties*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-3, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume IV: Prichard Creek and Eagle Creek Drainages, Secondary Properties*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological

- Survey Staff Report 03-4, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume V, Section A: Coeur d'Alene River Drainage Surrounding the Coeur d'Alene Mining District (Excluding the Prichard Creek and Eagle Creek Drainages), Secondary Properties*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-5, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume V, Section B: Coeur d'Alene River Drainage Surrounding the Coeur d'Alene Mining District (Excluding the Prichard Creek and Eagle Creek Drainages), Secondary Properties*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-6, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume V, Section C: Coeur d'Alene River Drainage Surrounding the Coeur d'Alene Mining District (Excluding the Prichard Creek and Eagle Creek Drainages), Secondary Properties*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-7, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume V, Section D: Coeur d'Alene River Drainage Surrounding the Coeur d'Alene Mining District (Excluding the Prichard Creek and Eagle Creek Drainages), Secondary Properties*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-8, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume VI: St. Joe River Drainage*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-9, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume VII: Priest Lake Ranger District, Bonner and Boundary Counties, Idaho*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-10, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume II: Gold Creek Drainage*, by E.H. Bennett and V.E. Mitchell: Idaho Geological Survey Staff Report 03-1, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume IX, Section A: Sandpoint Ranger District, Bonner and Boundary Counties, Idaho*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-12, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume IX, Section B: Sandpoint Ranger District, Bonner and Boundary Counties, Idaho*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-13, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume IX, Section C: Sandpoint Ranger District, Bonner and Boundary Counties, Idaho*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-14, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume IX, Section D: Sandpoint Ranger District, Bonner and Boundary Counties, Idaho*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-15, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Clearwater National Forest: Volume I, Section A: Palouse Ranger District, Latah and Clearwater Counties, Idaho*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-16, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive*

- tive Mines in Idaho on U.S. Forest Service Lands (Region 1), Clearwater National Forest: Volume I, Section B: Palouse Ranger District, Latah and Clearwater Counties, Idaho*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-17, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Clearwater National Forest: Volume II: Pierce, North Fork, Powell, and Lochsa Ranger Districts, Clearwater, Idaho, and Shoshone Counties, Idaho*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-18, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Nez Perce National Forest: Volume I: Florence and Rapid River Areas, Idaho County, Idaho*, by J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-19, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Nez Perce National Forest: Volume II: Dixie Area, Idaho County, Idaho*, by E.H. Bennett, J. Kauffman, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-20, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Nez Perce National Forest: Volume III, Section A: Elk City, Orogrande, Buffalo Hump, and Surrounding Areas, Idaho County, Idaho*, by T. Erdman, J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-21, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Nez Perce National Forest: Volume III, Section B: Elk City, Orogrande, Buffalo Hump, and Surrounding Areas, Idaho County, Idaho*, by T. Erdman, J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-22, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Nez Perce National Forest: Volume III, Section C: Elk City, Orogrande, Buffalo Hump, and Surrounding Areas, Idaho County, Idaho*, by T. Erdman, J. Kauffman, E.H. Bennett, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-23, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume VIII: Bonners Ferry Ranger District, Boundary County, Idaho*, by E.H. Bennett, J. Kauffman, and V.E. Mitchell: Idaho Geological Survey Staff Report 03-11, 2003, CD.
- Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume I: Prichard Creek and Eagle Creek Drainages, Major Properties*, by E.H. Bennett and V.E. Mitchell: Idaho Geological Survey Staff Report 03-2, 2003, CD.
- Stratigraphy, Structure, and Mineral Deposits of the Lemhi Pass Area, Central Beaverhead Mountains, Eastern Idaho*, by V.S. Gillerman, K. Lund, and K.V. Evans: Northwest Geology, 2003, v. 32, p. 134-146.
- Summary of the Glacial Geology in the Western Sawtooth Mountains, Upper South Fork Payette River*, by L.R. Stanford, in J. Pierce, comp., Central Idaho Field Trip Guidebook: Friends of the Pleistocene, Rocky Mountain Cell, 2003, variably paginated.
- Tectonic and Magmatic Evolution of the Snake River Plain Volcanic Province*, edited by B. Bonnicksen, C.M. White, and M. McCurry: Idaho Geological Survey Bulletin 30, 482 p.

Abstracts

- The Advanced National Seismic System for Idaho—A Resource for Idaho Teachers*, by K.S. Sprenke, S.W. Weiser, and R.M. Breckenridge: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 88.
- Age Constraints on Metasedimentary Rocks Northwest of the Idaho Batholith Based on Detrital Zircons and Intrusive Sills*, by R.S. Lewis, J.D.

- Vervoort, W.C. McClelland, and Z. Chang: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 87.
- Bedrock and Surficial Geologic Mapping, Clearwater River Corridor Project of the Idaho Geological Survey's Statemap Program*, by J.D. Kauffman and K.L. Othberg: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 20.
- Current Mapping in the Twin Falls Region of the Idaho Geological Survey's STATEMAP Program*, by K.L. Othberg, J.D. Kauffman, and V.S. Gillerman: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 20.
- Diversity in the Banbury Basalt: Hydrovolcanoes, Sediments, and Structures of the Banbury and Thousand Springs Area, Snake River Canyon, Idaho*, by V.S. Gillerman: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 86.
- Geologic Controls on Tree Nutrition and Forest Health in the Inland Northwest*, by M.T. Garrison-Johnston and R.S. Lewis: Geological Society of America Abstracts with Programs, 2003, v. 35, no. 6, p. 433.
- Geologic Map of the Kooskia 30' x 60' Quadrangle: A Project of the Idaho Geological Survey's STATEMAP Program*, by R.S. Lewis, J.D. Kauffman, and R.F. Burmester: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 53.
- Idaho's Geologic Map Data and Digital Geologic Map Data Model*, by L.R. Stanford: Geological Society of America Abstracts with Programs, 2003, v. 35, no. 6, p. 278.
- Map of Miocene and Younger Faults and Earthquakes in Idaho*, by R.M. Breckenridge and L.R. Stanford: Basin and Range Seismic Hazards Summit II, Western States Seismic Policy Council Meeting, Conference Proceedings Abstracts, p. 66.
- New Ages for Bellevue Formation—Implications for Quaternary Stratigraphy of the Wood River Valley, Idaho*, by R.M. Breckenridge, K.L. Othberg, and R.P. Esser: Geological Society of America, Abstracts with Programs, 2003, v. 35, no. 6, p. 334.
- New Interpretations of Structures in the Columbia River Basalt Group of the Clearwater Embayment, Idaho*, by D.L. Garwood, J.H. Bush, J.D. Kauffman, and T.E. Jones: Geological Society of America Abstracts with Programs, 2003, v. 35, no. 6, p. 551.
- Newly Identified Oligocene Alkali Volcanics Along the Eastern Margin of the Columbia Plateau, Latah and Surrounding Counties, Idaho*, by J.D. Kauffman, J.D. Bush, and R.S. Lewis: Geological Society of America Abstracts with Programs, 2003, v. 35, no. 6, p. 549.
- Probability Mapping As a Tool to Portray and Prioritize Water Quality Trends*, by J.A. Welhan: Agriculture and Water Quality in the Pacific Northwest and Idaho Ground Water Connections Conference, Boise, October.
- Probability Mapping As a Decision Tool for Water Quality Monitoring*, by J.A. Welhan, M. Merrick, K. Neely, and E. Hagen: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 29.
- Quartz Diorite Plutonism Across the Orofino Segment of the Salmon River Suture Zone, Idaho: Implications for Magma Generation Across Island Arc Collision Zones*, by K.L. Schmidt, R.S. Lewis, J.S. Currin, C.A. Lucas, and R.L. Watkins: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 69.
- Spatial-Temporal Analysis of Ground-Water Quality Data: The Use of Multi-Dimensional Kriging*, by J.A. Welhan, K. Neely, and E. Hagen: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 32.
- Structural Preservation of Gold Deposits: Northwest-Trending Faults in the Boise Basin*, by D.E. Leppert and V.S. Gillerman: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 4.
- Surficial Geologic Map of the Wood River Valley Project Area, Idaho Geological Survey Statemap Program*, by R.M. Breckenridge, K.L. Othberg, and L.R. Stanford: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 21.
- Tertiary Granite and Granodiorite Suites of the Bitterroot Lobe of the Idaho Batholith*, by T.P.

- Frost and R.S. Lewis: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 69.
- U-Pb Dating of Plutons Along the Transfer Zone Between the Bitterroot and Priest River Metamorphic Core Complexes*, by R.F. Burmester, W.C. McClelland, and R.S. Lewis: Geological Society of America Abstracts with Programs, 2004, v. 36, no. 4, p. 72.
- The Use of 2- and 3-D Kriging to Prioritize Spatial and Temporal Water Quality Trends*, by J.A. Welhan, M. Merrick, K. Neeley, and E. Hagan: 14th Non-Point Source Water Quality Monitoring Workshop, Abstracts with Programs, Boise, January, 2004, p. 9-10.
- ## Reports and Presentations
- Abandoned Mine Awareness*, by M.J. Weaver: Stay Out, Stay Alive program, U.S. Bureau of Land Management, fourth and fifth grade classes, Osburn Elementary School, Osburn, and Russell Elementary School, Moscow, April and May.
- Annual Report of the Idaho Geological Survey, Fiscal Year 2003*: December.
- Bedrock and Surficial Geologic Mapping, Clearwater River Corridor Project of the Idaho Geological Survey's Statemap Program*, by J.D. Kauffman and K.L. Othberg: Geological Society of America, Boise, May.
- Characterizing the Geothermal Resource at Lava Hot Springs, Idaho*, by J.A. Welhan: Citizens' Working Committee on Resource Development, Lava Hot Springs, February.
- Detecting and Prioritizing Spatial-Temporal Trends in Ground-Water Quality*, by J.A. Welhan: Idaho Department of Agriculture, Ground Water Coordination Committee Meeting, Boise, March.
- Earthquakes in Idaho*, by R.M. Breckenridge, G.W. Adema, and D.W. Weisz: Idaho Bureau of Disaster Services, deliverable map, version 2003/09, CD, December.
- The Eastern Idaho Snake River Plain Aquifer System: Geology and Hydrology*, by J.A. Welhan: Guest lecture, Engineering Geology class, Idaho State University, November.
- Faults and Earthquake Epicenters in Idaho*, by R.M. Breckenridge: Western States Seismic Policy Council, poster session, Portland, Oregon, October.
- Geologic History of the Inland Northwest*, by R.S. Lewis: Inland Northwest Chapter, Society of American Foresters Annual Meeting, Sandpoint, March.
- Geologic Map of the Clark Fork Quadrangle, Bonner County, Idaho*, by R.F. Burmester, R.M. Breckenridge, R.S. Lewis, and M.D. McFadden: Idaho Geological Survey unpublished map, scale 1:24,000, April.
- Geologic Map of the Falls City Quadrangle, Jerome County, Idaho*, by J.D. Kauffman and K.L. Othberg: Idaho Geological Survey unpublished map, scale 1:24,000, April.
- Geologic Map of the Hagerman Quadrangle, Gooding and Twin Falls Counties, Idaho*, by K.L. Othberg, V.S. Gillerman, and J.D. Kauffman: Idaho Geological Survey unpublished map, scale 1:24,000, April.
- Geologic Map of the Hope Quadrangle, Bonner County, Idaho*, by R.F. Burmester, R.M. Breckenridge, R.S. Lewis, and M.D. McFadden: Idaho Geological Survey unpublished map, scale 1:24,000.
- Geologic Map of the Scotchman Peak Quadrangle, Bonner County, Idaho*, by R.F. Burmester, R.M. Breckenridge, R.S. Lewis, and M.D. McFadden: Idaho Geological Survey unpublished map, scale 1:24,000, April.
- Geologic Map of the Shoshone Quadrangle, Lincoln County, Idaho*, by J.D. Kauffman and K.L. Othberg: Idaho Geological Survey unpublished map, scale 1:24,000.
- Geologic Map of the Shoshone SW Quadrangle, Jerome and Lincoln Counties, Idaho*, by J.D. Kauffman and K.L. Othberg: Idaho Geological Survey unpublished map, scale 1:24,000, April.
- Geologic Map of the Thousand Springs Quadrangle, Gooding and Twin Falls Counties, Idaho*, by V.S. Gillerman, J.D. Kauffman, and K.L. Othberg: Idaho Geological Survey unpublished map, scale

- 1:24,000, April.
- Geologic Map of the Tuttle Quadrangle, Gooding and Twin Falls Counties, Idaho*, by J.D. Kauffman, K.L. Othberg, and V.S. Gillerman: Idaho Geological Survey unpublished map, scale 1:24,000.
- Geology and Geologic Hazards of the Clearwater Mountains*, by R.M. Breckenridge and K. L. Othberg: Field Workshop for Teachers, Lowell, July.
- Geostatistical Analysis of Water Quality Data*, by J.A. Welhan: Presentations, project results, and technical workshop, Idaho Department of Water Resources Geostatistics Training Workshop, Boise, August.
- Geostatistical Modeling of 3D Spatial-Temporal Data*, by J.A. Welhan: Three-day technical presentation and computer lab for Workshop on Spatial-Temporal Statistics, Darling Marine Center, Maine, July.
- Glacial Geology and History of the Sawtooth Mountains and White Cloud Peaks Area*, by L.R. Stanford: Wild Idaho Conservation Conference field trip, Sawtooth Valley, May.
- Glacial Lake Missoula, Clark Fork Ice Dam and the Floods Outburst Area: Northern Idaho and Western Montana*, by N.B. Smyers and R.M. Breckenridge: Geological Society of America Annual Meeting field trip, November.
- Hydrogeology, Water Resources, and Management of the Lower Portneuf River Valley Aquifer*, by J.A. Welhan: Introductory Hydrogeology class, Idaho State University, January.
- Ice Age Floods Field Trip*, by Roy M. Breckenridge: Mentorn Productions, WGN Boston Public Television. August.
- Idaho*, by R.M. Breckenridge, in J.P. Bluemle, ed., *The State Geologists Journal*, 2003: Association of American State Geologists, v. LV, p. 24-26.
- The Idaho Digital Geologic Map Data Model: A Summary and the Status of New Geologic Mapping in Idaho*, by L.R. Stanford: Idaho Geospatial Committee, Boise, September.
- Idaho Mining and Exploration, 2003*, by V.S. Gillerman: Northwest Mining Association 109th Annual Meeting, Spokane, Washington, December.
- Mineral Deposits of the Lemhi Pass Area, Central Beaverhead Mountains, Eastern Idaho*, by V.S. Gillerman: Belt Symposium IV and Tobacco Root Geological Society Field Trip 10, Salmon, August.
- Miocene and Younger Faults and Earthquakes in Idaho—An Update*, by R.M. Breckenridge: Poster presentation, Basin and Range Conference, Reno, Nevada, May.
- Miocene and Younger Faults in Idaho*, by R.M. Breckenridge, R.S. Lewis, G.W. Adema, and D.W. Weisz: Idaho Geological Survey unpublished map, version 2003/11, for the Bureau of Disaster Services, CD, December.
- New Ages for Bellevue Formation—Implications for Quaternary Stratigraphy of the Wood River Valley, Idaho*, by R.M. Breckenridge, K.L. Othberg, and R.P. Esser: Geological Society of America, Seattle, November.
- New Publications and Idaho Geological Survey Activity Update*, by V.S. Gillerman: Department of Environmental Quality Groundwater Monitoring Technical Committee, Boise, January.
- Newly Identified Oligocene Alkali Volcanics Along the Eastern Margin of the Columbia Plateau, Latah and Surrounding Counties, Idaho*, by J.D. Kauffman, J.H. Bush, and R.S. Lewis: Geological Society of America Annual Meeting, Seattle, Washington, November.
- Overview of the Idaho Phosphate Industry*, by V.S. Gillerman: Western Phosphate Mining and Processing Conference, Pocatello, June.
- Preliminary Geologic Map of the Northeast Part of the Deadwood River 30 x 60 Minute Quadrangle, Idaho*, by L.R. Stanford: Friends of the Pleistocene, Rocky Mountain Cell, central Idaho field trip, Grandjean, September.
- Preliminary Shaded Relief Map Coeur d'Alene Lake Area*, by L.R. Stanford, version 2003/10, Idaho Geological Survey unpublished map for the Bureau of Disaster Services, CD, December.
- Progress in Mapping the Belt Supergroup in Idaho, 1997-2003*, by R.S. Lewis: Belt Symposium IV, Salmon, August.
- Progress Report on Geologic Mapping and Belt Stratigraphy of the Sandpoint Quadrangle, Idaho*, by R.S. Lewis: Belt Association session, Northwest Mining Association annual meeting, Spo-

kane, Washington, December.

Proposed Guidelines for a Tiered System of Water Supply Planning Requirements for New Developments, by J.A. Welhan: Bannock County water planning officials, Pocatello, November.

Results of Well Interference Modeling, K & R Farms Well, Fort Hall Reservation, by J.A. Welhan: Shoshone-Bannock Tribal Water Resources Commission, Fort Hall, September.

Surgo-Derived Physical Properties for Evaluating Site Suitability in Septic Sewage Planning, by J.A. Welhan: Greater Portneuf Water Resources Partnership, Pocatello, February.

Status of Geologic Mapping and Digital Data at the Idaho Geological Survey, by L.R. Stanford: Idaho GIS User Community, Northern Region meeting, Coeur d'Alene, September.

Strategies to Bring Back Cartography to the Digital Mapping Techniques Workshops, by J.S. Freed: Digital Mapping Techniques Workshop, Portland, Oregon, May.

Subsurface Architecture Field Trip Guide, by J.A. Welhan: Inland Northwest Research Alliance Subsurface Science Graduate Program, March.

Surficial Geologic Map of the Lake Fork Quadrangle, Valley County Idaho, by R.M. Breckenridge and K.L. Othberg: Idaho Geological Survey unpublished map, scale 1:24,000.

Surficial Geologic Map of the McCall Quadrangle, Valley County Idaho, by R.M. Breckenridge and K.L. Othberg: Idaho Geological Survey unpublished map, scale 1:24,000.

Surficial Geologic Map of the Wood River Valley project area, Idaho Geological Survey Statemap Program, by R.M. Breckenridge, K.L. Othberg, and L.R. Stanford: Geological Society of America meeting, Boise, May.

Surficial Geology and Glacial History of the Western and Northern Sawtooth Mountains, by L.R. Stanford: Friends of the Pleistocene, Rocky Mountain Cell, central Idaho field trip, Grandjean, September.

An Update of Digital Geologic Mapping Projects in Idaho, by R.S. Lewis: Intermountain Forest Tree Nutrition Cooperative Annual Meeting, Moscow, April.

Upper Columbia Basin Network, by R.M. Breckenridge and L.R. Stanford: National Park Service Geologic Resource Evaluation Meeting, Moscow, March.

The Use of 2- and 3-D Kriging to Prioritize Spatial and Temporal Water Quality Trends, by J.A. Welhan: 14th Non-Point Source Water Quality Monitoring Workshop, Boise, January.

Professional Activities

Advisory board meeting, Idaho Geological Survey, Boise, June (R.M. Breckenridge, V.S. Gillerman, R.S. Lewis, K.L. Othberg, C.D. Fullerton).

Association of American State Geologists, annual meeting, Stevenson, Washington, June (R.M. Breckenridge, K.L. Othberg).

Association of American State Geologists, Auditing Committee meeting, Stevenson, Washington, June (R.M. Breckenridge).

Association of American State Geologists, midyear meeting, Seattle, Washington, November (R.M. Breckenridge, K.L. Othberg).

Association of American State Geologists, Western Cluster meetings, Portland, Oregon, and Stevenson, Washington, October and June (R.M. Breckenridge).

Belt Symposium IV and Tobacco Root Geological Society, Salmon, August (V.S. Gillerman, R.S. Lewis).

Chair, Search Committee, Assistant Research Geologist position, Idaho Geological Survey, September-March (K.L. Othberg).

Chair, Search Committee, Senior Geologist position, Idaho Geological Survey, January-February (K.L. Othberg).

Chair, Pocatello's Portneuf Ground Water Forum (J.A. Welhan).

Co-coordinator, field trip, Inland Northwest Research Alliance graduate program, March (J.A. Welhan).

Co-instructor (Adjunct Professor), Economics 497, economics of natural resources seminar, Department of Economics, Boise State University,

- January-March (V.S. Gillerman).
Co-supervisor, Digital Geologic Mapping Lab, Idaho Geological Survey-Department of Geosciences, Idaho State University (J.A. Welhan).
Convener, teleconference meeting, Idaho-U.S. Array, EARTHSCOPE, February (R.M. Breckenridge).
Delegate, Geoscience, Western States Seismic Policy Council, (R.M. Breckenridge).
Discussion leader, Digital Mapping Techniques Workshop, Portland, Oregon, May (J.S. Freed).
Discussion leader, graduate seminar, Inland Northwest Research Alliance, October (J.A. Welhan).
Facilitator and technical presenter, Workshop on Spatial-Temporal Statistics, Darling Marine Center, Maine, July (J.A. Welhan).
Field trip, central Idaho-Sawtooth Mountains, Friends of the Pleistocene, Rocky Mountain cell, September (L.R. Stanford).
Field trip, high temperature rhyolites of Rogerson and Jarbidge areas, October (V.S. Gillerman with B. Bonnicksen).
Field trip, preparation for Geological Society of America Annual Meeting field trip, May (R.M. Breckenridge).
Field trip, preview of 2004 Field Workshop for Teachers, Cascade, June (R.M. Breckenridge, K.L. Othberg).
Field trip, White River altered areas and Osceola mudflow, Society of Economic Geologists, Washington, November (V.S. Gillerman).
Field Workshop for Teachers, Clearwater Mountains, Lowell, July (R.M. Breckenridge, K.L. Othberg, D.W. Weisz, G.A. Wells).
Geological Society of America Annual Meeting, Seattle, Washington, November (R.M. Breckenridge, V.S. Gillerman, J.D. Kauffman, R.S. Lewis, K.L. Othberg, L.R. Stanford).
Geological Society of America, Cordilleran and Rocky Mountain sections meeting, Boise, May (R.M. Breckenridge, J.S. Freed, V.S. Gillerman, J.D. Kauffman, R.S. Lewis, K.L. Othberg, L.R. Stanford, G.A. Wells).
Geologic Mapping Advisory Committee (IGMAC), Idaho Geological Survey, Boise, September (R.M. Breckenridge, V.S. Gillerman, R.S. Lewis, K.L. Othberg).
Geologic Mapping Advisory Committee teleconference, Idaho Geological Survey, Moscow and Boise, August (R.M. Breckenridge, K.L. Othberg).
GIS Day Conference, University of Idaho, Moscow, November (L. R. Stanford).
Guest lecturer, Engineering Geology, introductory hydrogeology classes, Idaho State University (J.A. Welhan).
Idaho Association of Professional Geologists meetings, Boise (V.S. Gillerman).
Idaho Digital Mapping meeting, Boise, May (R.M. Breckenridge).
Idaho Earth Science Teachers Association and Idaho Science Teachers Association annual conference, Idaho Falls, October (R.M. Breckenridge, K.L. Othberg).
Idaho Earth Science Teachers Association business meetings, Lowell and Idaho Falls, July and October (R.M. Breckenridge, K.L. Othberg).
Idaho Earth Science Teachers Association, Steering Committee meeting, Moscow, November (R.M. Breckenridge, K.L. Othberg, G.A. Wells).
Idaho Environmental Forum meetings, Boise, January and May (V.S. Gillerman).
Idaho Geologic Mappers Luncheon, Boise, May (J.S. Freed, R.M. Breckenridge, K.L. Othberg, J.D. Kauffman, R.S. Lewis, V.S. Gillerman, J.A. Welhan).
Idaho GIS User Community, Northern Region meeting, Coeur d'Alene, September (L.R. Stanford).
Instructor, Geosciences 606, geostatistics and spatial modeling, Department of Geosciences, Idaho State University, spring semester (J.A. Welhan).
Instructors, Geology 404 and 504, geology and geologic hazards of the Clearwater Mountains, Department of Geological Sciences, University of Idaho, July (R.M. Breckenridge, K.L. Othberg).
Judge, International Mine Rescue Competition, Ferny, British Columbia, Canada, October (M.J. Weaver).
Judge, Southwest Regional Mine Rescue Competition, Rock Springs, Wyoming, June (M.J. Weaver).
Lead instructor, Central Mine Rescue, twenty-three

- underground mines in the western U.S., Osburn (M.J. Weaver).
- Leader, field trip, Glacial Lake Missoula and the Clark Fork Ice Dam: northern Idaho and western Montana, Glacial Lake Missoula Chapter: Ice Age Floods Institute, May (R.M. Breckenridge).
- Leader, field trip, Glacial Lake Missoula-Clark Fork ice dam and the floods outburst area, Geological Society of America Annual Meeting, November (R.M. Breckenridge).
- Leader, field trip 10, Belt Symposium IV and Tobacco Root Geological Society, Salmon, August (V.S. Gillerman).
- Member, Alpine Club of Canada (R.M. Breckenridge).
- Member, American Geophysical Union (J.A. Welhan).
- Member, American Quaternary Association (R.M. Breckenridge).
- Member, Association of American State Geologists (R.M. Breckenridge).
- Member, Association of American State Geologists, auditing committee (R.M. Breckenridge).
- Member, Association of Earth Science Editors (R.C. Stewart).
- Member, Basin and Range Committee, Western States Seismic Policy Council (R.M. Breckenridge).
- Member (lifetime), Certified Mine Safety Professional (M.J. Weaver).
- Member, Council and Program Committee, Society of Economic Geologists (V.S. Gillerman).
- Member, Ground-Water Monitoring Technical Committee, Idaho Department of Environmental Quality (J.A. Welhan).
- Member, National Association of Geology Teachers (K.L. Othberg).
- Member, Northwest Mining Association (R.S. Lewis).
- Member, Science Language Technical Team, North American Geologic Map Data Model (R.S. Lewis).
- Member, Seismological Society of America (R.M. Breckenridge).
- Member, Society of Economic Geologists (V.S. Gillerman).
- Member, Steering Committee, North American Digital Geologic Map Data Model (L.R. Stanford).
- Member, Storm Water Technical Advisory Committee, Pocatello (J.A. Welhan).
- Member, U.S. Mine Rescue Association (M.J. Weaver).
- Member and co-chair, Ground Water Guardian, Portneuf Chapter (J.A. Welhan).
- Member and co-facilitator, Greater Portneuf Water Resources Partnership Steering Committee (J.A. Welhan).
- Members, EDMAP Review Board, Idaho Geological Survey (R.M. Breckenridge, K.L. Othberg).
- Members, Geological Society of America (R.M. Breckenridge, V.S. Gillerman, R.S. Lewis, V.E. Mitchell, K.L. Othberg).
- Members, Idaho Earth Science Teachers Association (R.M. Breckenridge, K.L. Othberg, G.A. Wells).
- Members, Search Committee, Assistant Research Geologist position, Idaho Geological Survey, September-March (R.M. Breckenridge, V.S. Gillerman, R.S. Lewis, K.L. Othberg, J.A. Welhan).
- Members, Search Committee, Senior Geologist position, Idaho Geological Survey, January-February (R.M. Breckenridge, R.S. Lewis, K.L. Othberg).
- Members, Search Interviews, Director position, Idaho Water Resources Research Institute (R.M. Breckenridge, V.S. Gillerman).
- Members, Society for Mining, Metallurgy, and Exploration, Inc. (V.S. Gillerman, M.J. Weaver).
- Members, Steering Committee, Idaho Earth Science Teachers Association (R.M. Breckenridge, K.L. Othberg, G.A. Wells).
- Meetings, Departments of Geosciences, Boise State University and Idaho State University, Boise and Pocatello, October (R.M. Breckenridge, K.L. Othberg).
- Mine Safety Refresher Training, Bureau of Land Management, Boise, May (V.S. Gillerman).
- North American Digital Geologic Map Data Model, Steering Committee meetings, Seattle, Washington, and Portland, Oregon, November and May (L.R. Stanford).
- Northwest Mining Association 109th Annual Meet-

- ing, Spokane, Washington, December (V.S. Gillerman, R.S. Lewis, M.J. Weaver).
- Organizer, Idaho Geologic Mappers Luncheon, Boise, May (L.R. Stanford).
- Organizers, 2004 Field Workshop for Teachers, “Geology and Geologic Hazards of Long Valley,” Cascade, May-June (R.M. Breckenridge, K.L. Othberg).
- Panelist, Intergovernmental Relations Discussion on Water Resource Management, Idaho State University, December (J.A. Welhan).
- Program organizer, Belt Symposium IV, Salmon, August (R.S. Lewis).
- Recertification, Abandoned Mine Rescue Specialist, Central Mine Rescue (M.J. Weaver).
- Representative, Department of Geosciences, Idaho State University (J.A. Welhan).
- Representative, Department of Geosciences, Boise State University (V.S. Gillerman).
- Representative, School of Graduate Studies, Idaho State University Graduate Faculty (J.A. Welhan).
- Representative, Western Region (2004-2007), STATEMAP Peer Review Panel, U.S. Geological Survey-Association of American State Geologists (R.M. Breckenridge).
- Secretary, Belt Association Board of Directors (R.S. Lewis).
- Society for Mining, Metallurgy, and Exploration, Inc., Boise Section meeting, January (V.S. Gillerman).
- Society of Economic Geologists, Council and Program Committee meetings, Seattle, Washington, November (V.S. Gillerman).
- Technical advisor, Bannock County water planning officials (J.A. Welhan).
- Technical advisor, land acquisition to protect ground-water resources, city of Pocatello (J.A. Welhan).
- Technical advisor, Shoshone-Bannock Tribes’ Water Resources Department (J.A. Welhan).
- Technical presentations and workshop facilitator, Idaho Department of Water Resources Geostatistics Training Workshop, Boise, August (J.A. Welhan).
- Technical representative, Pocatello’s Intergovernmental Water Advisory Group (J.A. Welhan).
- Western Phosphate Mining and Processing Conference, Pocatello, June (V.S. Gillerman).
- Western States Seismic Safety Policy Committee meeting, Portland, Oregon, October (R.M. Breckenridge).
- Workshop, Abandoned Mine Land Restoration, U.S. Bureau of Land Management, Boise, May (V.S. Gillerman).
- Workshop, ArcGIS, Geospatial Research Facility, Boise State University, Boise, July (V.S. Gillerman).
- Workshop, Digital Mapping Techniques, Portland, Oregon, May (J.S. Freed, K.L. Othberg, L.R. Stanford).
- Workshop, Geostatistics Training, Idaho Department of Water Resources, Boise, August (J.A. Welhan).
- Workshop, Upper Columbia Basin Network Geologic Resource Evaluation, National Park Service, Moscow, March (R.M. Breckenridge, L.R. Stanford).
- Workshop, 14th Non-Point Source Water Quality Monitoring interagency conference, Boise, January (V.S. Gillerman, J.A. Welhan).

Media Interviews

- Earthquakes in Idaho*: KTVB news interview, Boise, December (V.S. Gillerman).
- Yellowstone Supervolcano*: KBCI-TV news interview, Boise, September and November (V.S. Gillerman).

Graduate Thesis Committees

- Renee Farabaugh, Ph.D., Geosciences, Idaho State University (J.A. Welhan).
- John Lee, Ph.D., Biology, Idaho State University (J.A. Welhan).
- Tiisetso Masiane, M.S., Environmental Engineering, Idaho State University (J.A. Welhan).
- John Mazurek, M.S., Geosciences, Idaho State University (J.A. Welhan).
- Jason Pappani, M.S., Biology, Idaho State University (J.A. Welhan).

sity (J.A. Welhan).
Tom Rackow, M.S., Environmental Engineering,
Idaho State University (J.A. Welhan).
Grant Sha, M.S., Geology, Washington State Univer-
sity (R.S. Lewis).
Adele Williams, Ph.D., Geology, University of Idaho
(R.M. Breckenridge).

Grants and Contracts

Abandoned Inactive Mine Inventory: R.S. Lewis
(U.S. Forest Service, Region 1, September 2001-
September 2006, \$82,593).
*Geologic Mapping in the Prater Mountain 7.5'
Quadrangle:* R.S. Lewis (Idaho Department of
Lands, May 2003-April 2004, \$5,000).
*Geostatistical Analysis of Sediment Architecture in
the Big Lost River Volcanic Trough:* J.A. Welhan
(U.S. Geological Survey, September 2003-August
2004, \$70,000).
*Idaho Geological Survey Support of Idaho Bureau of
Land Management's Abandoned Mine Lands
Program:* V.S. Gillerman (U.S. Bureau of Land
Management, July 2003-December 2005,
\$40,000).
Idaho Mine Safety Training Program: M.J. Weaver
(Mine Safety and Health Administration, October
2002-September 2003, \$89,007).
Idaho Mine Safety Training Program: M.J. Weaver
(Mine Safety and Health Administration, October
2003-September 2004, \$89,007; supplemental
grant for vehicle, \$21,500).

Mine Site Database: R.S. Lewis (U.S. Forest Ser-
vice, Region 4, June 2003-December 2005,
\$185,000).
*Mitigation of Idaho Geologic Hazards, Earthquake
Education Workshop:* R.M. Breckenridge and
K.L. Othberg (Idaho Bureau of Disaster Services,
May-December 2003, \$45,000).
*Mitigation of Idaho Geologic Hazards, Earthquake
Education Workshop:* R.M. Breckenridge and
K.L. Othberg (Idaho Bureau of Disaster Services,
May-September 2004, \$45,000).
*Soil Properties Maps for GIS Analysis of Septic
Suitability:* J.A. Welhan (Three Rivers Resource,
Conservation and Development District,
July-December 2003, \$18,600).
*STATEMAP Project, Geologic Mapping in the Twin
Falls, Orofino, McCall-Cascade, and Sandpoint
Project Areas:* K.L. Othberg, R.M. Breckenridge,
R.S. Lewis, and V.S. Gillerman (U.S. Geological
Survey, May 2004-April 2005, \$220,375).
*STATEMAP Project, Geologic Mapping in the U.S.
95/SR 55 McCall-Cascade Impact Corridor and in
the Twin Falls, Orofino, and Sandpoint 30' x 60'
Quadrangles:* K.L. Othberg, R.M. Breckenridge,
R.S. Lewis, and V.S. Gillerman (U.S. Geological
Survey, May 2003-April 2004, \$225,000).
*Statewide Ground-Water Quality Kriging Data
Analysis, Second Phase:* J.A. Welhan (Idaho
Department of Water Resources, July-December
2003, \$12,000).