Curriculum Vita - Stephen J. Reynolds

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Degrees/Registration

University of Texas, El Paso: B.S., Geology, 1974
University of Arizona: M.S., Geosciences, 1977, Ph.D., Geosciences,1982
Arizona Registered Geologist #26773 (1993-present)

Recent Professional Experience

Arizona State University, Dept. of Geology: Professor (6/97 to present), Associate Professor (8/91 to 6/97). Teaching responsibilities include Advanced Geologic Field Mapping, Advanced Structural Geology, Applied Arizona Geology, Cordilleran Regional Geology, Geology of Arizona, Geotectonics, Introductory Geology, Orogenic Systems, Summer Field Geology, Methods of Geoscience Teaching

ASU Center for Research on Education in Science, Mathematics, Engineering, and Technology, Associate Director (6/99 to present); chairman of founding committee.

Arizona Geological Survey and Arizona Bureau of Geology and Mineral Technology: Research Geologist (6/88 to 7/91), Associate Research Geologist (6/87 to 6/88); Assistant Research Geologist (2/81 to 6/87).

University of Arizona, Dept. of Geosciences: Visiting Associate Professor, (1991 to ~1997); Adjunct Associate Research Scientist (1987 to 1991); Research Associate and Assistant (1/75 to 12/80); Teaching Assistant (8/74 to 7/75)

Geologist and Consulting Geologist: Clients include Animas Resources (2007 to present), Pediment Exploration, Ltd. (2007 to present), Clear Creek Associates (2000 to 2006), BHP Minerals (1995-97), Conoco Minerals (1976-1979), Dames and Moore **(**1994), U. S. Geological Survey (1974), and Homestake Mining Company (1973, 1975)

Organizations/Committees

ASU

School of Earth and Space Exploration/Geological Sciences (past and present): Awards, Curriculum (chair), Graduate (chair), Personnel (chair), Lead Undergraduate Advisor, Student-Faculty Relations (Geology Club Sponsor), Undergraduate Curriculum; Undergraduate Computing (chair), Faculty Search Committees, Undergraduate Curriculum Reform

ACEPT: Faculty Advisory Committee and others

College Liberal Arts and Sciences: Excellence in Instruction

ASU Center for Research on Education in Science, Mathematics, Engineering, and Technology, Associate Director and Chairman of committee that founded the center

Other

Arizona Geological Society: President (1990), Vice President for Programs (1988 and 1989), Councilor (1987), Digest Editor (1987-1989), Publications Committee (1985-1991), Program Committee, Geologic Highway Map Comm.

Arizona Geological Survey Geologic Mapping Advisory Committee (1993-2001; 2010-present; Chairman at times)

Geological Society of America, Fellow, and Division of Structure and Tectonics, Best Paper Committee (1993-1994); Bulletin Associate Editor (1995-1997)

IASTG (International Association of Structural/Tectonic Geologists) (1991-present)

U.S. Dept. of Interior, National Geologic Mapping Advisory Committee (1992-1998); EDMAP Review Committee (1995-1997); National Geologic Mapping Standards Committee (2001-present)

Awards

- McGraw-Hill Corporate Achievement Award for Innovation (for *Exploring Geology* textbook), New York, 2008
- University of Texas, El Paso (UTEP) College of Science Gold Nugget Award (Outstanding Alumni, 2004)
- ASU Alumni Association *Faculty Achievement Award* in Teaching, 2000, one of ASU's highest teaching honors
- University of Arizona, Department of Geosciences Distinguished Alumni Award, 1998
- National Association of Geoscience Teachers Distinguished Lecturer (1998-2002)
- First-ever *Teacher of the Month* on ASU Website, February 1997
- ASU Department of Geology Outstanding Teacher Award: 1992, 1993, 1996
- Nominated for several University and Liberal Arts and Sciences Teaching Awards, 1993 - present
- USGS award for outstanding service, 1974
- ASU School of Earth and Space Exploration Undergraduate Professor of the Year (2014)

Contributions to Teaching Excellence

ASU Science Education Reform

- One of three leaders of SESE GLG101 Redesign Project, funded by ABOR. My activities required hours to tens of hours of effort each week, on the average, designing online materials, including online quizzes, geologic investigations, and interactive learning modules. In addition to the online materials, we developed 18 graphically based worksheets to accompany the online investigations.
- Co-PI for Arizona Collaborative for the Excellence in Preparation of Teachers (ACEPT) initiative, whose goals are to train new teachers in pedagogically sound science-education methods, and to reform introductory science classes at ASU and affiliated institutions
- ACEPT Faculty Advisory committee and various other committees and workgroups
- Funded participant in Arizona Teacher Excellence Coalition (AZTEC)
- Coordinator for Geology Faculty participation in ACEPT and ran numerous faculty summer workshops
- Coordinator of Department of Geology TA training and the Introductory Geology laboratory

Course Development

- Existing Courses taught: Introduction to Geology, Advanced Field Geology, Advanced Structural Geology, Cordilleran Regional Geology, Geotectonics, Summer Field Geology, and Geology of Arizona (for teachers).
- New Courses Developed:
    - Applied Arizona Geology – a field-classroom, writing-intensive course for teachers and industry geologists
    - Introduction to Geology in the Field – a hands-on, project-based nonmajors field course
    - Patterns in Nature – an interdisciplinary math-science-education class
    - Orogenic Systems – a project-oriented, interdisciplinary, writing-intensive graduate course
    - Methods of Geoscience Teaching – course for Geology Dept. graduate students
    - Field Geology I – First semester of a two-part field geology field program
    - Earth, Solar System, and Universe – Redesigned majors course

Curriculum Development

- In 2016, updated the *Visualizing Topography* website and *Interactive 3D Geologic Blocks* website, redoing most webpages and recreating all movies as MP4 files instead of QTVR, which Apple no longer supports. These are used by students at ASU and across the world.
- Gave presentations to SESE faculty and faculty across the U.S. on new teaching methods for large introductory geoscience
- Wrote innovative college textbooks based on cognitive and educational research. *Exploring Geology*, *Exploring Physical Geography*, and *Exploring Earth Science*.
- Developed PowerPoint presentations, interactive media, test questions, and instructor's guide for *Exploring Geology*, *Exploring Physical Geography*, and *Exploring Earth Science*.
- Developed a number of educational websites, including Biosphere 3D, Plate Tectonics 3D, Arizona Geology 3D, and others at http://reynolds.asu.edu

- Wrote a new, innovative laboratory manual and developed an accompanying website for the laboratory for Introduction to Geology; supervised installation and setup of 16 new computers in each of two lab rooms.
- Co-authored a new edition of the most widely used undergraduate structural geology textbook
- Developed a number of new exercises and techniques for infusing active participation and cooperative learning into large introductory geology classes
- Assumed lead role in informing other introductory geology instructors of new teaching methods for large introductory geology classes
- Developed the *Arizona Geology Virtual Tourist*, a hands-on, critical thinking activity for the World Wide Web
- Developed *Treasure of the Sierra Cobre*, a critical thinking, geology-chemistry activity for in-class or WWW use
- Developed *Painted Canyon*, a virtual reality world, based on Southwest geology, for learning introductory geology.
- Developed multimedia versions of spatial visualization tests and QTVR block diagrams, with user-controlled transparency, for assessing the role of spatial visualization in undergraduate geology laboratories
- Coordinated acquisition and geology department use of multimedia instruction on the ASU information server
- Wrote a detailed prospectus and outline for an introductory geology textbook, from a constructivist perspective
- Developed *Volcano Island*, an interactive, multimedia computer simulation, in which students may freely explore a computer-generated landscape, observing various computer-rendered geologic environments and their associated hazards. Simulation includes video narratives from a black, female geologist as a role model.
- Invited key attendee and presenter to publisher-funded symposium on the future of geology textbooks.

Example Outreach and Field Activities at ASU

- Led 5 to 10 voluntary field trips per year for GLG 101, school groups, professional societies, and other organizations
- Gave 5 to 10 presentations per year to teachers, school groups, and community organizations
- Helped develop demonstrations and coordinate presentations by graduate students to elementary/middle schools
- Keynote presenter in the Minerals in Society Summer program for in-service teachers (multiple years)
- Featured on PBS specials and videos for the Arizona Science Center and American Museum of Natural History

Books

Reynolds, S.J., and Johnson, J.K., in press, *Exploring Earth Science, 2nd Edition*: McGraw-Hill Education, Dubuque, Iowa, 687 p.

Reynolds, S.J., Johnson, J.K., Morin, P.J., and Carter, C.M., in press, *Exploring Geology*, *5th Edition*: McGraw-Hill Education, Dubuque, Iowa, XXX p. (to be published Spring 2018)

Reynolds, S.J., Rohli, R.V., Johnson, J.K., Waylen, P.R., Francek, M.A., 2018, *Exploring Physical Geography*, *2nd Edition*, McGraw-Hill Education, Dubuque, Iowa, 696 p. (published in 2017)

Reynolds, S.J., and Johnson, J.K., 2015, *Exploring Earth Science*: McGraw-Hill Education, Dubuque, Iowa, 683 p.

Reynolds, S.J., Johnson, J.K., Morin, P.J., and Carter, C.M., 2015, *Exploring Geology*, *4th Edition*: McGraw-Hill Education, Dubuque, Iowa, 672 p.

Johnson, J.K., and Reynolds, S.J., 2010-present, *Observing and Interpreting Geology*: Terra Chroma Inc., Tucson, AZ, 210 p. (separate Spring and Fall Editions for both in-person and online lab manuals, and Summer edition for online lab manual)

Reynolds, S.J., Rohli, R.V., Johnson, J.K., Waylen, P.R., and Francek, M.A., 2014, *Exploring Physical Geography*: Dubuque, McGraw-Hill Education, 696 p.

Reynolds, S.J., Johnson, J.K., Morin, P.J., and Carter, C.M., 2013, *Exploring Geology*, 3rd Edition: McGraw-Hill, Dubuque, Iowa, 649 p.

Davis, G.H., Reynolds, S.J., and Kluth, C., 2012, *Structural Geology of Rocks and Regions* (3rd Edition): John Wiley and Sons, Inc., New York, 839 p.

Reynolds, Stephen J., Johnson, Julia K, Kelly, M. M, Morin, P J, and Carter, C M, 2010, *Exploring Geology, 2nd Edition*: McGraw-Hill, Dubuque, Iowa, 616 p.

Reynolds, S.J., Johnson, J.K., and Stump, E., 1999-2009, *Observing and Interpreting Geology – A Laboratory Manual for Introductory Geology*: Terra Chroma, Tucson, 150 p. (separate editions for Fall and Spring Semesters)

Reynolds, S.J., Johnson, J.K, Kelly, M.K., Morin, P.J., and Carter, C.M., 2007, *Exploring Geology*: McGraw-Hill Higher Education, Dubuque, Iowa, 575 p.

Reynolds, S.J., in revision, *Landscapes of the Southwest — A Practical Guide to Observing and Interpreting Geologic Scenery*: Tucson, University of Arizona Press. (Long-term revision)

Davis, G.H., and Reynolds, S.J., 1996, *Structural Geology of Rocks and Regions* (2nd Edition): John Wiley and Sons, Inc., New York, 776 p.

National Research Council, 1995, *Ward Valley: an examination of seven issues in Earth Sciences and Ecology*: National Academy Press, 212 p.

Jenney, J.P., and Reynolds, S.J., eds., 1989, *Geologic evolution of Arizona*: Arizona Geological Society Digest 17, 866 p.

Reynolds, S.J., and others, 1986, *Compilation of radiometric age determinations in Arizona*: Arizona Bureau of Geology and Mineral Technology Bulletin 197, 258 p.

Coney, P.J., and Reynolds, S.J., eds., 1980, *Cordilleran metamorphic core complexes and their uranium favorability*: U.S. Department of Energy Open-File Report GJBX-258 (80), 627 p.

Book-Related Materials

Johnson, J.K., and Reynolds, S.J., 2016, Instructor's Guide for *Exploring Physical Geography*, 2nd Edition: McGraw-Hill, 140 p.

Johnson, J.K., and Reynolds, S.J., 2016, Teaching Tips for *Exploring Physical Geography*, 2nd Edition: McGraw-Hill, 7 p.

Johnson, J.K., and Reynolds, S.J., 2015, *Instructor's Guide for Exploring Earth Science*: Distributed electronically by McGraw-Hill Education, 34 p.

Johnson, J.K., and Reynolds, S.J., 2015, *Teaching Tips for Exploring Earth Science*: Distributed electronically by McGraw-Hill Education, 8 p.

Perkins, D.E., Johnson, J.K., and Reynolds, S.J., 2015, *Instructor's Guide for Exploring Geology 4th Edition*: Distributed electronically by McGraw-Hill, 143 p.

Johnson, J.K., and Reynolds, S.J., 2015, *Teaching Tips for Exploring Geology, 4th Edition*: Distributed electronically by McGraw-Hill, 7 p.

Johnson, J.K., and Reynolds, S.J., 2014, *Instructor's Guide for Exploring Physical Geography*: Distributed electronically by McGraw-Hill Education, 34 p.

Johnson, J.K., and Reynolds, S.J., 2014, *Teaching Tips for Exploring Physical Geography*: Distributed electronically by McGraw-Hill Education, 7 p.

Perkins, D.E., Johnson, J.K., and Reynolds, S.J., 2012, *Instructor's Guide for Exploring Geology, 3rd Edition*: Distributed electronically by McGraw-Hill, 143 p.

Johnson, J.K., and Reynolds, S.J., 2012, *Teaching Tips for Exploring Geology, 3rd Edition*: Distributed electronically by McGraw-Hill, 7 p.

Perkins, Dexter, Reynolds, S.J., and Johnson, J.K., 2009, *Quick Start Guide, Exploring Geology Second Edition*: McGraw-Hill, Dubuque, Iowa, 10 p.

Perkins, D.E., Johnson, J.K., and Reynolds, S.J., 2009, *Instructor's Manual for Exploring Geology 2nd Edition*: Distributed electronically by McGraw-Hill, 141 p.

Reynolds, S.J., and Johnson, 2008, *Teaching Tips for Exploring Geology*, McGraw-Hill, distributed electronically, 3 p.

Johnson, J.K, Reynolds, S.J., and Kelly, M.K., 2007-2008, *Instructor's Guide for Exploring Geology*: Dubuque, McGraw-Hill Higher Education, CD-ROM and distributed electronically.

Kelly, M.K., Morin, P.J., Reynolds, S.J., Johnson, J.K., and Carter, C.M., 2007, *Exploring Geology Instructors PowerMedia DVD-ROM*: Dubuque, McGraw-Hill Higher Education, 2 DVD-ROMs.

Reynolds, S.J., Johnson, J.K., and Stump, E., 2000-present, *Observing and Interpreting Geology – A Laboratory Manual for Introductory Geology*, Spring 2000 Edition, 152 to 182 p. (major and minor revisions for each semester).

Electronic Media

Reynolds, S.J., Morin, P.J., Johnson, J.K., Kelly, M.M., and Carter, C.M., 2009, Exploring Geology Instructors PowerMedia DVD-ROM: Dubuque, McGraw-Hill Higher Education, 2 DVD-ROMs.

Kelly, M.K., Morin, P.J., Reynolds, S.J., Johnson, J.K., and Carter, C.M., 2007, Exploring Geology Instructors PowerMedia DVD-ROM: Dubuque, McGraw-Hill Higher Education, 2 DVD-ROMs.

ExploringGeology.com – Electronic media for introductory physical geography courses, including media-enabled PowerPoint files, rotating globe and terrain movies, linear movie files, Google Earth files, test pools, materials for investigations, and instructor guides.

ExploringEarthScience.com – Electronic media for introductory earth science courses, including media-enabled PowerPoint files, rotating globe and terrain movies, linear movie files, Google Earth files, test pools, materials for investigations, and instructor guides

ExploringPhysical Geography.com – Electronic media for introductory physical geography courses, including media-enabled PowerPoint files, rotating globe and terrain movies, linear movie files, Google Earth files, test pools, materials for investigations, and instructor guides

General ASU Website: http://reynolds.asu.edu/ (all sites below are linked to this page)

Arizona Geology 3D – QTVR movies of the Geologic Map of Arizona draped over digital topography for each 1° X 1° quadrangle.

Arizona Geology Virtual Tourist: Vies different sites in Arizona and learn about the three provinces

Arizona Geologic Map – Interactive: Interactive version of Geologic Map of Arizona, with photos of map units

Arizona Geophysics 3D – Interactive QTVR movies of gravity, magnetic, and depth-to-bedrock maps draped over digital topography

Arizona Satellite 3D – Interactive QTVR movies of thematic map images draped over digital topography

Arizona Topo 3D – Interactive QTVR movies of 1x1 degree topographic maps draped over digital topography

Biosphere3D: Interactive globes showing factors of the environment, such as precipitation, soil pH, and rainfall.

Gallery of Virtual Topography – Virtual depictions of topography, including 3D perspectives and QuickTime Virtual Reality (QTVR) movies with topographic contours draped over the landscape.

Geology and Remote Sensing of the White Tank Mountains: A metamorphic core complex near Phoenix

Geology of the Sierra Cobre: A Porphyry Copper Exploration Simulation

Geologic Scenery: Images and movies showing how landscape features form

Hidden Earth – Web-based versions of spatial visualization tests.

How to Observe Landscapes: How to observe landscapes and geologic scenery

Interactive 3D Geologic Blocks – An educational module with QTVReality (QTVR) movies of interactive geologic blocks containing layer, folds, and faults. Spin them, cut into them, erode them, make them transparent, and move their faults.

Painted Canyon – A Geologic Wonderland: A virtual world used in GLG 103 labs at ASU

Structure Map 3D Gallery – QTVR 3D perspectives of geologic features on digital topography.

Southwest 3D – 3D perspectives, presented as pictures and QuickTime movies, depicting the landscape of the Desert Southwest with colors showing different elevations.

Stereonet 3D –QuickTime VR movies of a lower-hemisphere with a plane and its pole.

3D Geologic Map Gallery – Classic, quadrangle-scale geologic maps draped over digital topography for various regions and geologic features.

Visualizing Topography – Educational module to teach students about contours and visualizing topography.

Virtual Geologic Field Trip to Papago Park: Tilted Tertiary redbeds near Phoenix

Educational Videos

Under Arizona: ASU PBS affiliate (KAET), Tempe, AZ (I was a featured on-camera person and reviewed the show prior to broadcast for geologic content); first aired 2007

Red Rock County – Geologic Landscapes of Colorado Plateau: Arizona Science Center, Phoenix (narrator, on-screen science host, script editing/rewriting); first aired 2004 but ongoing

Deserts of the Southwest: Arizona Science Center, Phoenix (narrator, on-screen science host, script editing/rewriting); first aired 2004 but ongoing

Geologists at Work: Interpreting Sedimentary Environments — American Museum of Natural History (main on-screen science "expert"); first aired 2005 but ongoing

Journal Articles and Chapters in Books

Jaeger, A.J., Shipley, T.F., and Reynolds, S.J., 2017, The roles of working memory and cognitive load in geoscience learning: Journal of Geoscience Education, v. 65, no. 4, p. 506-518.

Spencer, J.E., Reynolds, S.J., Scott, R.J., and Richard, S.M., 2016, Shortening in the upper plate of the Buckskin-Rawhide extensional detachment fault, southwestern USA, and implications for stress conditions during extension: Tectonics, 35, doi:10.1002/2016TC004345

Busch, M.M.D., Coyan, J., and Reynolds, S.J., in revision, Promoting text-figure integration and learning in introductory geology courses through spatial arrangement of text and figures: Journal of Geoscience Education.

Coyan, Joshua, Busch, M.M.D., and Reynolds, S.J., in revision, How visual distractors in landscape photographs influence learning behaviors of college geology students: Journal of Geoscience Education.

Rohli, R.V., Joyner, T.A., Reynolds, S.J., and Ballinger, T.J., 2015, Overlap of global Köppen-Geiger climates, biomes, and soil orders: Physical Geography, v 36, p. 158-175

Rohli, R.V., Joyner, T.A., Reynolds, S.J., Shaw, C., and Vazquez, J.R., 2015, Globally extended Köppen-Geiger climate classification and temporal shifts in terrestrial climate types: Physical Geography, v36, p 142-157.

Riedell, K.B., Sandberg, R.J., Guthrie, J.O., Gorecki, A.D., Lambiotte, M.J., Reynolds, S.J., Proffett, J.M., Ybarra, S.J., and Poulter, J.E., 2013, Early Halo Type Porphyry and Breccia Cu-Mo Mineralization at Copper Creek, Pinal County, Arizona: Prospectors and Developers Association of Canada 2013 Annual Convention, Whistler, B.C., 7 p. (invited extended poster)

Riggs, N.R., Reynolds, S.J., Lindner, P.J., Howell, E.R., Barth, A. P., Parker, W.G., and Walker, J.D., 2013, The Early Mesozoic Cordilleran arc and Late Triassic paleotopography: The detrital record in Upper Triassic sedimentary successions on and off the Colorado Plateau: Geosphere v. 9 no. 3 p. 602-613

Reynolds, S.J., 2012, Some important aspects of spatial cognition in field geology, in Kastens, K.A., and Manduca, C.A., eds., Earth and Mind II: A Synthesis of Research on Thinking and Learning in the Geosciences: Geological Society of America Special Paper 486, p. 75–77.

Martin, M.E., and Reynolds, S.J., 2011, Geologic Evolution of the Mid-Tertiary Ash Creek Paleovalley, Black Hills, Central Arizona, in Beard, L. Sue, Karlstrom, Karl E., Young, Richard E., and Billingsley, George H., CREvolution 2—Origin and Evolution of the Colorado River System, Workshop Abstracts: U.S. Geological Survey Open-file Report 2011-1210, p. 212-213.

Clark, D., Reynolds, S., Lemanowski, V., Stiles, T., Yasar, S., Proctor, S., Lewis, E., Stromfors, C., and Corkins, J., 2008, University Students Conceptualization and Interpretation of Topographic Maps: International Journal of Science Education: v 30., n. 3, p. 377-408 (online version published November, 2007)

Michalski, J. R., Reynolds, S. J., Niles, P. B., Sharp, T., Christensen, P. R. (2007). Alteration mineralogy in detachment zones: Insights from Swansea, Arizona. Geosphere, 3, 184-198.

Lemanowski, V., Yasar, S. Reynolds, S., and Clark, D., 2006, The Evolution of a Test Item: Using Item Analysis to Build a Better Geology Test: National Association of Research in Science Teaching (NARST), Annual Meeting, San Francisco.

Reynolds, S.J., Piburn, M.D., Leedy, D.E., McAuliffe, C.M., Birk, J.P., and Johnson, J.K., 2006, The Hidden Earth - Interactive computer-based modules for geoscience learning, in Manduca, C., and others, eds., Earth and Mind, Geological Society of America Special Paper 413, p. 171-186.

Reynolds, S.J., Johnson, J.K., Piburn, M.D., Leedy, D.E, Coyan, J.A., and Busch, M.M., 2005, Visualization in undergraduate geology courses, *in* Gilbert, J.K., ed. Visualization in Science Education: Kluwer Academic Publishers, Boston, p. 253-266.

Piburn, M.D., Reynolds, S.J., McAuliffe, C., Reynolds, S.J., Leedy, D.E., Birk, J.P, and Johnson, J.K., 2005, The role of visualization in learning from computer-based images: International Journal of Science Education, v. 27, p.513-527.

Reynolds, S.J., Piburn, M.D., Johnson, J.K., Leedy, D.E., Coyan, J.A., and Busch, M.M., 2005, The Hidden Earth Curriculum Project: spatial visualization in undergraduate geoscience courses, *in* Cunningham, S. ed., Invention and Impact: Building Excellence in Undergraduate STEM Education: National Science Foundation, Washington, D.C., p. 141-145.

Johnson, J.K., and Reynolds, S.J., 2005, Concept sketches – Using student- and instructor-generated annotated sketches for learning, teaching, and assessment in geology courses: Journal of Geoscience Education, v. 53, p. 85-95.

Reynolds, S.J., Coyan, J.A., Johnson, J.K., Leedy, D.E., and Piburn, M.D., 2004, Using Interactive Animations to Prepare Students for the Field: Presentations from the Workshop Teaching Structural Geology in the 21st Century, 9 p. http://serc.carleton.edu/NAGTWorkshops/structure/presentations.html

Clark, D. and others (including S.J. Reynolds), 2004, Interpreting topographic maps: strategies and assumptions of university students: National Association of Research in Science Teaching, 2004 Annual Meeting, 97 p.

Reynolds, S.J., 2003, Several QuickTime Virtual Reality Movies included in CD-ROM, *in* Peterson, M.P., editor, Maps and the Internet: Elsevier, 468 p. and CD-ROM.

Reynolds, S.J., contributor, in press, Metamorphic map of the western U.S.: Geological Society of America.

Michalski, J.R., Reynolds, S.J, Christensen, P.R., and Sharp, T.G., 2004, Thermal infrared analysis of weathered granitic rock compositions in the Sacaton Mountains, Arizona: Implications for petrologic classifications from thermal infrared remote-sensing data: Journal of Geophysical Research, v. 109, E03007, 15 p.

Potochnik, Andre, and Reynolds, S.J., 2003, Side canyons of the Colorado River, Grand Canyon, *in* Beus, S.S., and Morales, M., eds., Grand Canyon Geology, 2nd Edition: New York, Oxford University Press, p. 391-406.

Johnson, J.K., and Reynolds, S.J., 2002, Geologic field guide to the Phoenix Mountains, central Arizona: Arizona Geological Society Spring Field Trip, 26 p.

Reynolds, S.J., and Bartlett, R.D., 2002, Subsurface geology of the easternmost Phoenix Basin – Implications for groundwater flow: Arizona Geological Survey Contributed Report CR-02-A, 72 p.

Johnson, J.K., and Reynolds, S.J., 2002, Visualizing the land surface: chapter for Prentice-Hall Geosciences laboratory manual, in review.

Reynolds, S.J., and Johnson, J.K., 2002, GeoBlocks 3D - Interactive 3D Geologic Blocks. In: Bobyarchick, A., editor, Visualisation, Teaching and Learning in Structural Geology: Journal of the Virtual Explorer, v. 9, p. 39-40, CD-ROM.

Reynolds, S.J., and Johnson, J.K., 2002, Interactive 3D Geological Maps. In: Bobyarchick, A., editor, Visualisation, Teaching and Learning in Structural Geology: Journal of the Virtual Explorer, v. 9, p. 41-42, CD-ROM.

Piburn, M.D., Reynolds, S.J., Leedy, D.E., McAuliffe, C., Birk, J.E., and Johnson, J.K., 2002, The Hidden Earth: Visualization of geologic features and their subsurface geometry: Paper accompanying presentation to national meeting of National Association of Research in Science Teaching (NARST), New Orleans, LA, 47 p. with CD-ROM.

Reynolds, S.J., 2000, Geology faculty summer workshop: ACEPT Newsletter, v. 4, p. 5-6.

Peacock, S.M., and Reynolds, S.J., 2000, Explore the data first: Journal of Geoscience Education, v. 48, p. 592.

Reynolds, S.J., and Semken, S., 2000, Rocks before terms and tables – From the Concrete to the Abstract: Journal of Geoscience Education, v. 48, p. 572.

Reynolds, S.J., 2000, List what to know, not what is on the test: Journal of Geoscience Education, v. 48, p. 603-604.

Fayon, A.K., Peacock, S.M., Stump, E., and Reynolds, S.J., 2000, Fission track analysis of the footwall of the Catalina detachment fault, Arizona: Tectonic denudation, magmatism, and erosion: Journal of Geophysical Research, v. 105, p. 11,047-11,062.

Richard, S.M., Reynolds, S.J., Spencer, J.E., and Pearthree, P.A., 2000, Geologic Map of Arizona: Arizona Geological Survey Map, scale 1:1,000,000.

Reynolds, S.J., 2000, Simulated view of the southwestern edge of the Colorado Plateau from space: Computer-generated color image *in* The Making of the Grand Canyon by Sid Perkins: Science News: v. 158, p. 219.

Smith, M.J., Piburn, M., and Reynolds, S.J., 1999, Research for Earth Science Learning: Geotimes, August, p. 27-28.

Goodwin, L.B., Reynolds, S.J., Ferranti, C.J., Ellzey, P.D., and Lister, G.S., 1998, Pseudotachylyte from the South Mountains metamorphic core complex, *in* Snoke, A.W., Tullis, J.A., and Todd, V.R., eds., Fault-related rocks — a photographic atlas: Princeton, Princeton University Press, p. 122-123.

Reynolds, S.J., Goodwin, L.B., Lister, G.S., Ellzey, P.D., and Ferranti, C.J., 1998, Development of ultramylonite from pseudotachylyte, South Mountains metamorphic core complex, Arizona, *in* Snoke, A.W., Tullis, J.A., and Todd, V.R., eds., Fault-related rocks — a photographic atlas: Princeton, Princeton University Press, p. 124-125.

Reynolds, S.J., and Peacock, S.M., 1998, Slide observations — promoting active observation, landscape appreciation, and critical thinking in introductory geology courses: Journal of Geoscience Education, v. 46, p. 421-426.

Kruger, J.M., Faulds, J.E., Reynolds, S.J., and Okaya, D.A., 1998, Seismic reflection evidence for detachment polarity beneath a major accommodation zone, west-central Arizona, *in* Faulds, J.E., and Stewart, J.H., eds., Accommodation Zones and Transfer Zones: The Regional Segmentation of the Basin and Range Province: Boulder, Colorado, Geological Society of America Special Paper 323, p. 89-113.

Pappalardo, R.T., Reynolds, S.J., and Greeley, R., 1997, Extensional tilt blocks on Miranda: Evidence for an upwelling origin of Arden Corona: Journal of Geophysical Research, v. 102, p. 13,369-13,379.

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Davis, G.A., Lister, G.S., and Reynolds, S.J., 1983, Interpretation of cordilleran core complexes as evolving crustal shear zones in an extending orogen: Geological Society of America Abstracts with Programs, v. 15, no. 5, p. 311.

Rehrig, W.A., Reynolds, S.J., and Armstrong, R.L., 1982, Geochronology and tectonic evolution of the Priest River crystalline complex of northeastern Washington and northern Idaho: Geological Society of America Abstracts with Programs, v. 14, p. 227.

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Davis, G.H., Bittson, A.G., Koschinski, G., Marrs, C.D., Menges, C.M., Phillips, M.P., Reynolds, S.J., and Varga, R.J., 1976, Kinematic analysis of an epidermal free-glide system in relation to the early Mesozoic tectonic framework of southern Arizona: Geological Society of America Abstracts with Programs, v. 8, p. 582.

NAGT Distinguished Lecture Tour and Related Science Education Talks

Each of the following generally was the site of a multi-day visit with a workshop in addition to one or two talks

Georgia State University (1999)
University of Tennessee (1999)
Western Washington University (1999)
Dayton University (2000)
Iowa State University (2000)
University of Nevada at Las Vegas (2000)
Central Washington University (2000)
Cal State Northridge (2001)
Stanford University (2001)
Grand Valley State University (2001)
Central Missouri State University (2001)
University of Akron (2001)
New Mexico Tech University (2002)

Service and Outreach

In charge of teaching training for Geology Graduate Teaching Assistants at ASU

Provided interviews or figures to the Arizona Daily Star, Arizona Daily Wildcat, Arizona Republic, Arizona Research Report, Geotimes, KAET-TV, KJZZ, KJ, KUAT-TV, NPR Morning Edition, Science News, State Press, Tempe Daily News, Mesa Tribune, Tucson Citizen

Conceived, initiated, and supervised computerization of AZGS; in charge of all AZGS computer activities, including: acquisition, installation, and maintenance of hardware and software; supervised computerization of Arizona Geological Survey library, thesis bibliography, general Arizona bibliography; directed AZGS input to USGS Mineral Resources Data System (MRDS)

Conceived, initiated, and supervised AZGS Open-File Report series

Answered inquiries (several per day) from geologists, teachers, students, or the public

Theses Directed

Alter, Michael, 1994, Early Proterozoic structural and metamorphic geology of the White Tank Mountains, central Arizona: Tempe, Arizona State University M.S. thesis, 77 p.

Busch, Melanie M.D., 2004, Geology of Cave Creek Recreation Area and misconceptions about sedimentary environments: Tempe, Arizona State University M.S. thesis, 142 p.

Busch, Melanie M.D., 2011, Late Quaternary normal faulting and hanging wall basin evolution of the southwestern rift margin from gravity and geology, B.C.S., MX and Exploring the influence of Text-figure format on introductory geology learning: Tempe, Arizona State University Ph.D. dissertation, 209 p.

Coyan, Joshua A., 2005, Subsurface geology of a groundwater remediation site, eastern Phoenix Basin, Arizona: Tempe, Arizona State University M.S. thesis, 128 p.

Coyan, Joshua A., 2011, Eye-tracking investigations exploring how students learn geology from photographs and The structural setting of hydrothermal gold deposits in the San Antonio area, B.C.S., MX: Tempe, Arizona State University Ph.D. dissertation, 342 p.

Eddy, David, 2013, Geology of the western part of the Date Creek Mountains, Yavapai County, Arizona: Arizona State University M.S. thesis, 99 p.

Geier, J.J., 2011, Timing and Structural Control of Gold Mineralization, Santa Gertrudis, Sonora, Mexico: Tempe, Arizona State University M.S. thesis, 309 p.

Hargrave, Eric V., 1999, Stratigraphy and correlation of Triassic and Jurassic rocks in west-central Arizona and southeastern California: Tempe, Arizona State University M.S. thesis, 180 p.

Hutchinson, Kade, B.P., 2009, A postaudit of the Current Trends Alternative predictive scenario of the Salt River Valley Groundwater Flow Model, Phoenix, Arizona: Tempe, Arizona State University M.S. thesis, 136 p.

Johnson, Julia K., 2000, Geology of the Phoenix Mountains, central Arizona: Tempe, Arizona State University M.S. thesis, 135 p.

Jones, David A., 1996, Proterozoic structural geology and stratigraphy of the Squaw Peak area, Phoenix Mountains, Arizona: Tempe, Arizona State University M.S. thesis, 60 p.

Leighty, Robert S., 1997, Neogene tectonism and magmatism across the Basin and Range – Colorado Plateau boundary, Central Arizona: Tempe, Arizona State University Ph.D. dissertation, 1019 p.

McFarlane, Brian J., 2012, Stratigraphy, structure, and mineralization of Kinsley Mountain, Elko County, Nevada: Arizona State University M.S. thesis, 99 p.

McAlpin, D.B., 2008, Mid-Tertiary geology of the Hassayampa River Canyon, Central Arizona: Tempe, Arizona State University M.S. thesis, 32 p.

Michalski, Joseph R., 2002, Bedrock composition mapping in the Sacaton Mountains, Arizona, with the Thermal Infrared Multispectral Scanner: Tempe, Arizona State University M.S. thesis, 177 p.

Melchiorre, Eric B., 1992, Proterozoic geology of the Sierra Estrella, Arizona: Tempe, Arizona State University M.S. thesis, 143 p.

Morrissey, G.E., 1999, Structural attenuation in the Big Maria Mountains: A study with the Thermal Infrared Multispectral Scanner: Tempe, Arizona State University M.S. thesis, 220 p.

Murdock, Eric D., 1997, Paleostress reconstruction of the White Tank Mountains metamorphic core complex, Arizona: Tempe, Arizona State University M.S. thesis, 71 p.

Potochnik, Andre R., 2001, Cenozoic Structural and Paleogeographic Evolution of the Transition Zone, Central Arizona: Tempe, Arizona State University, PhD dissertation, 173 p.

Proctor, S., 2006, Contour Memory Map Test: Tempe, , Arizona State University, PhD dissertation.

Proctor, S., 1998, Volcano Island: A multimedia simulation of field geology and its assessment, and the terraces of Queen Creek, Arizona: Tempe, Arizona State University M.S. thesis.

Ryder, Philip L., 1999, Timing of upper-plate deformation in a low-angle detachment system, Fluorspar Hills, Nevada: Tempe, Arizona State University M.S. thesis, 40 p.

Salem, Anthony, 2005, Structural geology and stratigraphy of Paleozoic rocks of the Big Maria syncline, southeastern California: Tempe, Arizona State University M.S. thesis, 163 p.

Sanchez, Taylor, 2015, Early Mesozoic arc magmatism: the detrital zircon record of back-arc basin deposits, Triassic Buckskin Formation, western Arizona and eastern California: Northern Arizona University M.S. thesis

Severson, Allison R., 2015, Shear-zone-hosted gold and silver deposits in the Sierra Cacachilas, Baja California Sur, Mexico, Arizona State University M.S. thesis, 84 p.

Skotnicki, Stephen J., 1992, Geology of the Sycamore Creek region, Maricopa County, Arizona: Tempe, Arizona State University M.S. thesis, 126 p.

Stenner, Heidi D., 1998, A paleoseismic investigation of a portion of the Hurricane Fault, northwestern Arizona and southwestern Utah: Tempe, Arizona State University M.S. thesis, 102 p.

Wachter, Samuel, in progress, Geologic setting of shear-zone-host gold and silver mineralization in the Sierra Cacachilas, Baja California Sur, Mexico.

Wood, Stephen E., 1997, Proterozoic geology of the southern White Tank Mountains, Arizona, based on geologic mapping and thermal imagery: Tempe, Arizona State University M.S. thesis, 115 p.

Wright, Melinda C., 1994, Stress inversion of fault-striae data from the South Mountain detachment fault, Arizona: Tempe, Arizona State University Senior thesis, 19 p.

Vance, Brad L., 2012, Structural evolution of the McDowell Mountains, Maricopa County, Arizona: Arizona State University M.S. thesis, 112 p.

Zaffron, Lisa, 1993, Seismic attenuation study and scaled analogue modeling of the Brady earth fissure, Picacho Basin, Arizona: Tempe, Arizona State University M.S. thesis, 151 p. (Co-directed with Chris Sanders)

Invited Talks without Abstracts[1]

American Institute of Professional Geologists: The geologic framework program of the Arizona Geological Survey

American Institute of Professional Geologists National Meeting: The role of geologic mapping in exploration and land-use planning

Arizona Geological Society: Advances in Arizona Geology -- a cook's tour of the new Geologic Map of Arizona

Arizona Geological Society: Cordilleran metamorphic core complexes and their mineral potential

Arizona Geological Society: Mesozoic evolution of western Arizona

Arizona Geological Society: Fluids and faults -- Mineralization, metasomatism, and structural aspects

Arizona Geological Society: Tectonic evolution of the southwestern U. S.

Arizona Geological Society: Mid-Tertiary orogeny and our paths to present understanding

Arizona Geological Society Symposium on Frontiers of the geology and ore deposits of Arizona: Mesozoic structures in western Arizona

Arizona State University: Tectonic evolution of central and western Arizona

Arizona State University Colloquium: Geometry and origin of detachment faults from structural, seismic reflection, and paleomagnetic data

Australian Bureau of Mineral Resources, Canberra: Ductile to brittle evolution of the South Mountains metamorphic core complex, Arizona

Australian Bureau of Mineral Resources, Canberra: Structural evolution of metamorphic core complexes of the western U.S.

Australian Bureau of Mineral Resources, Canberra: Relationship between K-metasomatism and detachment-related mineralization

Australian Bureau of Mineral Resources Conference on Applied Extensional Tectonics, Canberra: Cenozoic crustal evolution in the Basin and Range Province, southwestern U.S.A.

Australian Bureau of Mineral Resources Conference on Applied Extensional Tectonics, Canberra: Igneous history related to extension, Basin and Range Province, southwestern U.S.A.

Australian Bureau of Mineral Resources Conference on Applied Extensional Tectonics, Canberra: Relation between mineralization and detachment faults, southwestern U.S.A.

Forum on the Geology of Industrial Minerals: Geologic evolution of Arizona - controls on the distribution of mineral deposits.

Georgia State University: Incorporating inquiry and active learning in introductory geology courses

Massachusetts Institute of Technology: Fluids and detachment faults: mineralization, metasomatism, and structural aspects

Melbourne University, Melbourne: Continental extension -- an overview based on the Basin and Range Province, southwestern U.S.A.

Melbourne University, Melbourne: Relationship between K-metasomatism and detachment-related mineralization

Monash University, Melbourne: Continental extension in the Basin and Range Province, southwestern U.S.A.

[1]Partial List, since 1985

Nevada Geological Society: Cenozoic tectonic evolution of the Colorado Plateau - Basin and Range boundary
New Mexico Institute of Technology: Fluids and detachment faults: mineralization, metasomatism, and structural aspects
Northern Arizona University: Mesozoic evolution of western Arizona
San Diego State University: Mesozoic and Cenozoic evolution of Arizona
San Diego State University: Geometry and origin of detachment faults from structural, seismic reflection, and paleomagnetic data
South Australian Geological Survey, Adelaide: Cenozoic extension in the southwestern U.S.A.
South Australian Geological Survey, Adelaide: Relationship between K-metasomatism and detachment-related mineralization
University of California, Los Angeles Rubey Colloquium: Mesozoic-Cenozoic tectonics and metamorphism in Arizona:
University of Arizona: Mesozoic evolution of western Arizona
University of Arizona: Tectonic evolution of Arizona the resulting crustal architecture
University of Arizona: Preparing tomorrows teachers
University of California at Davis: Cordilleran metamorphic core complexes
University of Nevada, Las Vegas: Structural aspects of fluid-rock interactions along detachment zones
University of Texas at El Paso: Tectonics of southern Arizona
University of Tennessee: Incorporating inquiry and active learning in introductory geology courses
University of Washington: Tectonic evolution of northeastern Washington
Western Mining Corporation, Olympic Dam, Australia: Relationship between K-metasomatism and detachment-related mineralization
Western Washington University: Incorporating inquiry and active learning in introductory geology courses
and many more I'm too busy to keep track of

Field Trips[2]

Arizona Geological Society: Phoenix Mountains and South Mountains
Arizona Geological Society - American Institute of Professional Geologists: South Mtns. and Papago Park
Arizona Geological Society Symposium on Frontiers in the Geology and Ore Deposits of Arizona and the Southwest: Harquahala, Granite Wash, and Buckskin Mtns.
Arizona Geological Society Symposium on Ore Deposits and Tectonics(South and Harquahala Mountains)
Arizona Geological Society: Geology of the Granite Wash and Harquahala Mtns.
Arizona Geological Society: Granite Wash Mtns.
Arizona Geological Society: South Mtns.
Arizona Hydrological Society: Papago Park
Arizona State University - University of Arizona - Northern Arizona University: South Mtns.
Arizona State University alumni group: South Mtns. and Papago Park
Arizona State University: South Mtns. and Papago Park
Arizona-Nevada Academy of Science: South Mtns.
Association of Engineering and Environmental Geologists National Meeting: Phoenix Mountains, South Mountains, and Papago Park
Australian National University: Tortolita Mountains
Flinn Foundation: Grand Canyon
Forum on Geology of Industrial Rocks and Minerals: Tucson-Globe area
Geological Society of America: Harcuvar complex, west-central Arizona
Geological Society of America: South Mtns.
Geological Society of America: Southeastern Arizona
Geological Society of America: Western Arizona
Geological Society of America Jurassic Penrose Conference: Buckskin Mountains
Grand Canyon River Guides Training Seminar: Grand Canyon
International Geological Congress: Tucson region
Northern Arizona University: Lower Granite Gorge, Grand Canyon
U.S. Geological Survey - western State Geologists Tucson-Picacho region

[2]Partial List

U.S. Geological Survey - McKelvy Forum, Rincon Mountains (1994)
University of Arizona Laboratory of Geotectonics: Catalina-Rincon Mtns.
University of Arizona undergraduate geology club: Catalina Mtns.
University of Arizona and ETH (Zurich): Santa Catalina Mtns.
University of Arizona Laboratory of Tectonics: Santa Catalina Mtns.
University of Arizona: Rincon Mtns.
University of Meinz, Germany: Western Arizona
University of Washington: Northeastern Washington and northern Idaho
Geologists from USGS, academia, and industry [probably close to 100 trips of varying formality]