

# **Sarah E. Tindall**

Department of Physical Sciences  
Kutztown University  
Kutztown, PA 19530  
Phone: 610 683 4325  
Email: tindall@kutztown.edu  
<http://faculty.kutztown.edu/tindall/>

## **Education**

**Ph.D., 2000, University of Arizona** Structural Geology and Tectonics

*Dissertation:* Development of Oblique-Slip Basement-Cored Uplifts: Insights from the Kaibab Uplift and from Physical Models, 261 p.

*Thesis Advisor:* Dr. George H. Davis

**B.S., 1995, College of William and Mary** Geology

*Thesis:* Geochemical exploration for gold in the Eastern Slate Belt, Amelia and Dinwiddie Counties, Virginia, 99 p.

*Thesis Advisor:* Dr. C. R. Berquist

## **Professional Experience**

**2007-Present:** Associate Professor of Geology, Kutztown University

Courses taught: *Introduction to Geology, Historical Geology, Introduction to Environmental Science, Physical Geology, Field Methods, Structural Geology, Senior Seminar*

**2002-2007:** Assistant Professor of Geology, Kutztown University

**2001-2002** Postdoctoral Researcher, Department of Geology and Geophysics, University of Wisconsin  
Research Areas: Physical analog modeling, oblique deformation, intracratonic uplifts, joints and deformation bands in sandstone reservoirs

**2000-2001** Visiting Assistant Professor, Geology Department, Middlebury College

Courses taught: *The Dynamic Earth, The Colorado Plateau, Plate Tectonics, Structural Geology, Earthquakes and Volcanoes*

**January-June 1998** Intern, Mobil Exploration and Production Technology, Structural and Stratigraphic Processes Research Group, Dallas, TX

Project: Physical analog modeling of cover deformation above strike-slip, dip-slip shortening, and oblique-shortening basement faults

**May-August 1997** Intern, ARCO Exploration and Production Technology, Structural Geology Research Group, Plano, TX

Project: Compilation and comparison of structural and geochemical data from oil-rich rift basins

**1996-2000** Graduate Teaching Assistant, Department of Geosciences, University of Arizona

Courses taught: *Structural Geology, Physical Geology, Geology Field School, Natural Sciences - A Geological Perspective*

**1995-1996** Graduate Research Assistant, Department of Geosciences, University of Arizona

Project: Orientation analysis of deformation band shear zones, Colorado Plateau

**1994-1995** Undergraduate Teaching and Research Assistant, Geology Department, College of William and Mary

Courses: *Physical Geology, Historical Geology*

Research Projects: Drilling and characterization of Virginia coastal plain sediments; digitizing state geologic maps

## **Service Activities**

### ***Kutztown University***

Calendar Committee (2010-2011)  
 Commission on the Status of Women (2008-2010)  
 PASSHE Faculty Professional Development Grants peer reviewer (2005, 2007, 2009)  
 Research Committee (2007-2009)  
 Undergraduate Exceptions Committee (2007-2009)  
 Academic Achievement Awards Committee (2004-2009)  
 Graduate Council Representative for Department of Physical Sciences (2003-2009)  
 Faculty/Staff Campaign Captain and Volunteer (Spring 2006)  
 Institutional Review Board for the Protection of Human Subjects (2003-2005)  
 Strategic Initiative Subcommittee of the Strategic Planning and Resources Committee (2002-2003)

### ***College of Liberal Arts and Sciences***

Science & Math Shadowing Program (2004-2005)  
 Science Building Ribbon-Cutting Committee (2003-2004)  
 LAS Retention Effort (SWAT Team) (2003-2004)

### ***Department of Physical Sciences***

Geology Program Assessment Committee (2010-present)  
 Physical Sciences Faculty Prize Committee (2006-present)  
 Geology Club co-sponsor (2003-present)  
 Marine Science Committee (2004-2009)  
 Chair / Member of numerous Faculty Search Committees, 2004 – present  
 PET Committee Member, 2007-present

### ***Professional***

Geological Society of America Campus Representative (2002-2005, 2008-present)  
 Reviewer for Journal of Structural Geology, Journal of Geoscience Education, Marine and Petroleum Geology, Journal of Geophysical Research – Solid Earth, National Science Foundation, American Chemical Society: Petroleum Research Fund, PASSHE Annual Grant Program, W.H. Freeman & Company, and Prentice-Hall  
 Faculty Mentor for Hannah Wolf, Parkland High School student, winner of 2006 Intel International Science and Engineering Fair

## **Awards and Honors**

2003 Faculty Achievement Award for receipt of major grant

## **Professional Affiliations**

Geological Society of America

## **Grants Received**

**KU Research Committee Grant, \$5,064**, January 2010 – June 2011. Project title: Physical analog models of basement-cored uplifts.

**American Chemical Society – Petroleum Research Fund, \$49,964**, September 2006 – August 2009.  
 Project title: Structural, sedimentologic and stratigraphic study of Late Cretaceous normal faults and syntectonic sediments in the Kaiparowits basin region, southern Utah.

**KU Professional Development Grant, \$650**, Fall 2006, for travel to present research at ‘Learning from the Land: Grand Staircase – Escalante National Monument Research Symposium’, Sept. 12-14, 2006.

**Pennsylvania State System of Higher Education – Faculty Professional Development Council, \$5,292**, June 2006 – June 2007. Project title: Deformation of unconsolidated sediments at the tip of an earthquake-generating fault.

**Geological Society of America Rocky Mountain Section Student Travel Grant, \$1,200**, Spring 2006, for four KU undergraduate students to present research at a Rocky Mountain GSA meeting in Gunnison, Colorado.

**KU Professional Development Grant, \$650**, Fall 2005, for travel to present research at a national Geological Society of America meeting.

**KU Research Committee Grant, \$3,814**, July 2005 – June 2006. Project title: Seismites: Records of ancient earthquake activity.

**KU Professional Development Grant, \$650**, Fall 2004, to attend a Geode seismograph training workshop in San Jose, CA.

**American Chemical Society – Petroleum Research Fund, \$35,000**, September 2003 – August 2006. Project title: Joints within deformation band shear zones: controls of reservoir compartmentalization and connectivity in porous sandstones.

**KU Professional Development Grant, \$600**, Fall 2002, for travel to present research at a national Geological Society of America meeting.

### **Invited Presentations**

Northern Illinois University, DeKalb, IL (November, 2005)

Edinboro University of Pennsylvania, Edinboro, PA (March 2002)

Kutztown University of Pennsylvania, Kutztown, PA (March 2002)

College of William and Mary, Williamsburg, VA (February 2002)

Pennsylvania State University - The Behrend College, Erie, PA (February 2001)

Tennessee Technological University, Cookeville, TN (January 2001)

Middlebury College, Middlebury, VT (June 2000, October 2000, January 2001)

The University of Arizona, Tucson, AZ (October 1998, October 1999, March 2000)

### **Publications**

#### **Peer-Reviewed Journals and Special Publications**

(*Blue denotes Kutztown University undergraduate student co-author.*)

**Tindall, S. E., Storm, L. P., Jenesky, T. A.** and Simpson, E. L., **2010**, Growth faults in the Kaiparowits basin, Utah, pinpoint initial Laramide deformation in the western Colorado Plateau: *Lithosphere*, v. 2, no. 4, p. 221-231.

**Moran, K., Hilbert-Wolf, H. L., Golder, K., Malenda, H. F., Smith, C. J., Storm, L. P., Simpson, E. L., Wizevich, M. C., and Tindall, S. E., 2010**, Attributes of the wood-boring trace fossil *Asthenopodichnium* in the Late Cretaceous Wahweap Formation, Utah, USA: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 297, p. 662-669.

Simpson, E. L., Hilbert-Wolf, H. L., Wizevich, M. C., Lucas, S. G., **Tester, E., Tindall, S. E., and Bernard, J. J., 2010**, A crocodylomorph track in the Upper Cretaceous capping sandstone member of the Wahweap Formation, Grand Staircase-Escalante National Monument, Utah, USA, *in* Milan, J., Lucas, S. G., Lockley, M., and Spielman, J. A., *eds.*, *Crocodyle Tracks and Traces: New Mexico Museum of Natural History & Science Bulletin* 51, p. 165-169.

Simpson, W. S., Simpson, E. L., Wizevich, M. C., **Malenda, H. F., Hilbert-Wolf, H. L., and Tindall, S. E., 2010**, A preserved Late Cretaceous biological soil crust in the capping sandstone member, Wahweap Formation, Grand Staircase-Escalante national Monument, Utah: Paleoclimatic implications: *Sedimentary Geology*, v. 230, no. 3-4, p. 139-145.

Simpson, E. L., Hilbert-Wolf, Hannah L., Wizevich, Michael C., **Tindall, Sarah E., Fasinski, Ben R., Storm, Lauren P., and Needle, Mattathias D., 2010**, Predatory digging behavior by dinosaurs: *Geology*, v. 38, no. 8, p. 699-702.

Simpson, E. L., Wizevich, M. C., Hilbert-Wolf, H. L., **Tindall, S. E., Bernard, J. J.** and Simpson, W. S., **2009**, An Upper Cretaceous sag pond deposit: Implications for recognition of local seismicity and surface rupture along the Kaibab monocline, Utah: *Geology*, v. 37, no. 11, p. 967-970.

- Hilbert-Wolf, Hannah L., Simpson, Edward L., Simpson, Wendy S., **Tindall, Sarah E.** and Wizevich, Michael C., **2009**, Insights into syndepositional fault movement in a foreland basin; trends in seismites of the Upper Cretaceous Wahweap Formation, Kaiparowits Basin, Utah, USA: *Basin Research*, v. 21, no. 6, p. 856-870.
- Simpson, E. L., Hilbert-Wolf, H. L., Simpson, W. S., **Tindall, S.E.**, Bernard, J. J., Jenesky, T. A. and Wizevich, M. C., **2008**, The interaction of aeolian and fluvial processes during deposition of the Upper Cretaceous capping sandstone member, Wahweap Formation, Kaiparowits Basin, Utah, U.S.A.: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 270, pp. 19-28.
- Tindall, S. E.**, 2006, Jointed deformation bands may not compartmentalize reservoirs: *American Association of Petroleum Geologists Bulletin*, v. 90, no. 2, p. 177-192.
- Tindall, S. E.**, and Davis, G. H., 2003, Joint spacing and distribution in deformation band shear zones: *Geological Magazine*, v. 140, no. 1, p. 1-9.
- Tindall, S. E.**, 2000, The Cockscomb segment of the East Kaibab monocline: Taking the structural plunge, in Sprinkel, D. A., Chidsey, T. C., and Anderson, P. B., eds., *Geology of Utah's Parks and Monuments: Utah Geological Association Millennium Guidebook*, p. 629-643.
- Tindall, S. E.**, and Davis, G. H., 1999, Monocline development by oblique-slip fault-propagation folding: the East Kaibab monocline, Colorado Plateau, Utah: *Journal of Structural Geology*, v. 21, no. 10, p. 1303-1320.

### Guidebook Contribution

- Tindall, S. E.**, 2003, Folding: Black Point Monocline, in Bezy, J. V., *Field Guide to the Geology of the Flagstaff Area: Arizona Geological Survey Down-to-Earth Publication 14*.

### Theses

- Tindall, S. E.**, 2000, Development of oblique-slip basement-cored uplifts: Insights from the Kaibab Uplift and from physical models: Ph.D. Dissertation, The University of Arizona, 261p.
- Tindall, S. E.**, 1995, Geochemical exploration for gold in the Eastern Slate Belt, Amelia and Dinwiddie Counties, Virginia: Undergraduate Honors Thesis, The College of William and Mary, Williamsburg, VA, 99p.

### Abstracts of Papers and Posters Presented Before Professional Societies

(Blue denotes Kutztown University undergraduate student co-author.)

- Needle, Mattathias D., and **Tindall, Sarah E.**, **2010**, A deeper look into orogenic curvature: analog models in cross section: Geological Society of America *Abstracts with Programs*, v. 42, no. 5, p.
- Needle, Mattathias D., and **Tindall, Sarah E.**, **2010**, Physical modeling of primary and progressive orogenic curvature: Geological Society of America *Abstracts with Programs*, v. 42, no. 1, p. 87.
- Folk, Shane N., Needle, Mattathias D., and **Tindall, Sarah E.**, **2010**, Modeled effects of deep-seated fault offset and strike on supracrustal geometries in basement-cored uplifts: Geological Society of America *Abstracts with Programs*, v. 42, no. 5, p.
- Malenda, H. F., Simpson, E. L., Wizevich, M. C., **Tindall S. E.**, and Boling, K. S., **2010**, Morphological variation and experimental compaction in the Colorado Plateau biological soil crusts: implications for their possible recognition in the rock record: Geological Society of America *Abstracts with Programs*, v. 42, no. 5, p.
- Hilbert-Wolf, H. L., Simpson, E. L., Wizevich, M. C., and **Tindall, S. E.**, **2010**, The identification of a tectonically controlled sequence boundary at the contact between the Upper Cretaceous Wahweap and Kaiparowits Formations: Geological Society of America *Abstracts with Programs*, v. 42, no. 5, p.
- Moran, K. L., Simpson, E. L., Hilbert-Wolf, H. L., Wizevich, M. C., Golder, K. B., and **Tindall, S. E.**, **2009**, The recognition and implications of the wood-boring trace fossil *Asthenopodichnium xylobiotum* in Upper Cretaceous strata of Grand Staircase – Escalante National Monument, Utah: Geological Society of America *Abstracts with Programs*, v. 41, no. 7, p. 262.

- Hilbert-Wolf, H. L., Simpson, E. L., Wizevich, M. C., and **Tindall, S. E., 2009**, Seismite intensity studies in the Wahweap Formation, southern Utah: Unraveling syndepositional fault movements and the differential effects in the hanging wall and footwall blocks: Geological Society of America *Abstracts with Programs*, v. 41, no. 7, p. 120.
- Wizevich, M. C., Simpson, E. L., Hilbert-Wolf, H. L., and **Tindall, S. E., 2009**, Syndeformational origin for internal laminations of spectacular seismogenic load structures in the late Cretaceous Wahweap Formation, Grand Staircase – Escalante National Monument, Utah: Geological Society of America *Abstracts with Programs*, v. 41, no. 7, p. 121.
- Hilbert-Wolf, Hannah L., Simpson, Edward L., **Tindall, Sarah E.,** Wizevich, M.C., Simpson, Wendy S., and **Bernard, Jonathan, 2009**, Recognition and implications of seismites in the Upper Cretaceous Wahweap Formation, Kaiparowits Basin, Utah: *Advances in Western Interior Late Cretaceous Geology and Paleontology conference*, St. George, Utah, May 22-23.
- Wolf, Hannah L., Simpson, Edward L., **Storm, Lauren P., Tindall, Sarah E.,** Wizevich, Michael C., and Simpson, Wendy S., **2008**, Implications of a sand volcano in the Late Cretaceous Upper Member of the Wahweap Formation: Geological Society of America *Abstracts with Programs*, v. 40, no. 1, p. 40.
- Storm, Lauren P. and Tindall, Sarah E., 2008**, Syntectonic sedimentation in the East Kaibab monocline: evidence for the timing of the onset of Laramide deformation in south-central Utah: Geological Society of America *Abstracts with Programs*, v. 40, no. 1, p. 65.
- Loope, David B. and **Tindall, Sarah, 2008**, Preferential development of deformation bands within grainflow tongues of the Navajo sandstone along the East Kaibab monocline, UT-AZ: Geological Society of America *Abstracts with Programs*, v. 40, no. 1, p. 86.
- Simpson, Wendy S., Simpson, Edward L., **Tindall, Sarah E.,** and Wizevich, Michael C., **2008**, A preserved Late Cretaceous cryptobiotic soil in Grand Staircase – Escalante National Monument: Paleoclimate implications: Geological Society of America *Abstracts with Programs*, v. 40, no. 1, p. 40
- Wolf, Hannah L., **Tindall, Sarah E.,** Simpson, Edward L., Simpson, Wendy S., **Bernard, Jonathan,** and **Jenesky, Timothy, 2007**, Proximal seismites in the Upper Cretaceous upper and capping sandstone members of the Wahweap Formation in Grand Staircase – Escalante National Monument, Utah: Geological Society of America *Abstracts with Programs*, v. 39, no. 6, p. 631.
- Wolf, Hannah L., Simpson, Wendy S., Simpson, Edward L., and **Tindall, Sarah E., 2007**, Trends in Late Cretaceous seismites: upper and capping sandstone members, Wahweap Formation, Kaiparowits Basin, Utah: Geological Society of America *Abstracts with Programs*, v. 39, no. 6, p. 310.
- Wolf, Hannah L., Simpson, Edward L., **Bernard, Jonathan, Tindall, Sarah E.,** Simpson, Wendy S., and **Jenesky, Timothy A., 2007**, Sag pond development at the upper and capping sandstone member contact, Upper Cretaceous Wahweap Formation, Grand Staircase – Escalante national Monument, Utah: Geological Society of America *Abstracts with Programs*, v. 39, no. 5, p. 12.
- Jenesky, Timothy A., Tindall, Sarah E.,** and Simpson, Edward L., 2007, Physical analog models of basement fault segmentation and monoclonal folding: Geological Society of America *Abstracts with Programs*, v. 39, no. 5, p. 37.
- Bernard, Jonathan,** Simpson, Edward L., Wolf, Hannah L., Simpson, Wendy S., **Tindall, Sarah E.,** and **Jenesky, Timothy A., 2007**, Possible debris flows in the Upper Cretaceous capping sandstone, Wahweap Formation, Grand Staircase – Escalante National Monument, Utah: Geological Society of America *Abstracts with Programs*, v. 39, no. 5, p. 42.
- Tester, Edward,** Simpson, Edward L., **Bernard, Jonathan,** Wolf, Hannah L., **Tindall, Sarah E.,** Simpson, Wendy S., and **Jenesky, Timothy A., 2007**, Isolated vertebrate tracks from the Upper Cretaceous capping sandstone member of the Wahweap Formation: Grand Staircase – Escalante National Monument, Utah: Geological Society of America *Abstracts with Programs*, v. 39, no. 5, p. 42.
- Orsulak, Megan,** Simpson, Edward L., Wolf, Hannah L., Simpson, Wendy S., **Tindall, Sarah E., Bernard, Jonathan,** and **Jenesky, Timothy A., 2007**, A lungfish burrow in late Cretaceous upper capping sandstone member of the Wahweap Formation, Cockscomb area, Grand Staircase – Escalante

- National Monument, Utah: Geological Society of America *Abstracts with Programs*, v. 39, no. 5, p. 43.
- Orsulak, Megan, Tester, Edward, Jenesky, Timothy, Bernard, Jonathan, **Tindall, Sarah E.**, Simpson, Edward L., Simpson, Wendy S., and Wolf, Hannah, 2006, Effects of local faulting on sedimentation of the Late Cretaceous upper and capping sandstone members of the Wahweap Formation, Kaibab uplift, Utah: Utah: Geological Society of America *Abstracts with Programs*, v. 38, no. 6, p. 33.
- Bernard, Jonathan, Jenesky, Timothy, Tester, Edward, Orsulak, Megan, **Tindall, Sarah E.**, and Simpson, Edward L., 2006, Timing of Late Cretaceous fault-fold interactions, East Kaibab monocline, Utah: Implications for the onset of Laramide deformation: Geological Society of America *Abstracts with Programs*, v. 38, no. 6, p. 38.
- Simpson, Edward L., Wolf, Hannah, Simpson, Wendy S., **Tindall, Sarah**, and Jenesky, Timothy, 2006, Eolian strata of the Upper Cretaceous capping sandstone member, Wahweap Formation, Cockscomb area, Grand Staircase – Escalante National Monument, Utah: Geological Society of America *Abstracts with Programs*, v. 38, no. 6, p. 6.
- Wolf, H., Simpson, Wendy S., Simpson, Edward L., **Tindall, Sarah**, Bernard, J.J., Jenesky, T. A., \*Orsulak, M., and Tester, E.W., 2006, Sleuthing epicenter direction from seismites: Cretaceous Wahweap Formation, Cockscomb area, Grand Staircase – Escalante National Monument, Utah: Geological Society of America *Abstracts with Programs*, v. 38, no. 6, p. 6.
- Tindall, S. E.** and Quinn, P. V. Sr., 2005, The orientation consideration: a revised numerical model of joint development: Geological Society of America *Abstracts with Programs*, v. 37, no. 7, p. 209.
- Jenesky, Timothy A., **Tindall, Sarah E.**, Scalise, Renee L., Simpson, Edward L., and Simpson, Wendy S., 2005, Seismogenic normal faulting during deposition of the Late Cretaceous Wahweap Formation, Kaiparowits Basin, Utah: Geological Society of America *Abstracts with Programs*, v. 37, no. 6, p. 10.
- Hoefert, Catherine M. and **Tindall, Sarah E.**, 2004, Orientation and spacing of joints in deformation band shear zones east of Mount Hillers, Utah: Geological Society of America *Abstracts with Programs*, v. 36, no. 2, p. 102.
- Wolfinger, Seth, Ward, Kristen, Holland, Jeremy, Nase, A. M., Ferguson, Elizabeth, Zellner, Greg C., Frieauf, Kurt C., **Tindall, Sarah E.** and Schultz, Lane M., 2004, A multidisciplinary study of controls on ground-water flow in a karst aquifer in the Ordovician Beekmantown Group, Berks County, PA: Geological Society of America *Abstracts with Programs*, v. 36, no. 2, p. 128.
- Zellner, G. C. and **Tindall, S.E.**, 2004, Structural evidence for syntectonic sedimentation within the Cretaceous Wahweap Formation, Kaibab Uplift, Utah: Geological Society of America *Abstracts with Programs*, v. 36, no. 2, p. 102.
- Tindall, S. E.**, and Davis, G. H., 2002, Influence of Deformation Band Shear Zones on Joint Development: Geological Society of America *Abstracts with Programs*, v. 34, no. 6, p.372.
- Tindall, S. E.**, and Davis, G. H., 2002, Joints in Deformation Band Shear Zones: Geological Society of America *Abstracts with Programs*, v. 34, no. 4, p. 48.
- Tindall, S. E.**, Eisenstadt, G., Withjack, M. O., and Schlische, R. W., 1999, Characteristic features of oblique basement-cored uplifts: *Abstracts with Programs – Geological Society of America*, 31 (7), p. 236.
- Tindall, S. E.**, Eisenstadt, G., Withjack, M. O., and Schlische, R. W., 1999, Interpretation of oblique compressional structures: comparison of field examples and physical models: Annual Meeting Expanded Abstracts - American Association of Petroleum Geologists, Vol. 1999, p. A139.
- Tindall, S. E.**, and Davis, G. H., 1998, Partitioning of faulting within a reverse, right-lateral shear zone along the East Kaibab monocline, Colorado Plateau, Utah: *Abstracts with Programs – Geological Society of America*, 30 (6), p. 38.
- Davis, G. H., and **Tindall, S. E.**, 1996, Discovery of major right-handed Laramide strike-slip faulting along the eastern margin of the Kaibab Uplift, Colorado Plateau, Utah: EOS, Transactions of the American Geophysical Union, 77 (46), p. 641-642.

- Davis, G. H., Crosswhite, J. A., Libarkin, J. C., Ojha, T. P., Riley, B. C., **Tindall, S. E.**, and Woodburne, K. L., 1996, Laramide tear faulting and layer-parallel shearing as accommodations to thrust surge in the Huachuca Mountains, southeastern Arizona: Abstracts with Programs - Geological Society of America, 28, p. 60.
- Currie, Brian S., Beck, S., DeCelles, P. G., Chase, C., **Tindall, S. E.**, Kutney, M. P., Moore, J., and Haldar, J., 1996, A regional approach to geology field camp: mapping a transect from the Colorado Plateau through the Basin and Range, Utah and Nevada: Abstracts with Programs - Geological Society of America, 28 (7) p. 327.