
Nathan A. Toké

Utah Valley University (after July 11)
Department of Earth Science
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Education

Arizona State University

Ph.D. Geological Sciences, 2011, Advised by Dr. J Ramón Arrowsmith
Dissertation: "Earthquake Geology, Hazard and Social Vulnerability along the San Andreas Fault."
(Defended in summer 2011)

Universidad De Granada (Spain)

IGERT Visiting Graduate Student, spring 2008
Sponsoring Faculty: Antonio Azor, Departamento de Geodinamica

Arizona State University

M.S. Geological Sciences, 2005, Advised by Dr. J Ramón Arrowsmith
Thesis: "Paleoseismology, Slip Budget, and Fault Behavior along the Parkfield segment of the San Andreas Fault." (Defended in fall 2005)

University of Vermont

B.S. Geology (Cum Laude), 2003, Advised by Dr. Paul Bierman.
John Dewey Honors Thesis: "Compacted green space and effects on storm water hydrogeology in Burlington, Vermont." (Defended in spring 2003)

Employment

Utah Valley University, Department of Earth Sciences
Assistant Professor of Earth Science, Starting in August 2011

Honors and Awards

NSF GK-12 Fellowship, Arizona State University 2010-2011
NSF IGERT Fellowship in Urban Ecology, Arizona State University
GSA Diversity Scholarship, 2009
Troy L. Péwé award for quaternary geology, Arizona State University, 2006
John Dewey Scholar, University of Vermont, 1999-2003
Vermont Scholars Award, University of Vermont, 1999-2003
NSF-Research Experience for Undergraduates, Plattsburgh State University, 2002
Most Outstanding ALANA student (African, Latino(a), Asian, and Native American Student Association),
University of Vermont, 2001 and 2002
Salutatorian, People's Academy High School – Morrisville, Vermont, May 1999

Professional Memberships

American Geophysical Union (AGU): 2004-present
Arizona Hydrological Society (AHS): 2009-2010
European Geosciences Union (EGU): 2008
Geological Society of America (GSA): 2002-present
National Association of Geoscience Teachers (NAGT): 2010-present
Southern California Earthquake Center (SCEC): 2003-present

Service to the Profession

Peer Review: 2011: *Earth Planet. Sci. Lett., Earth Surf. Processes Landforms*

Committees: 2003: Search Committee for Department of Geology Chair, University of Vermont.

Research Interests

- Active Tectonics, Earthquake Geology, Tectonic Geomorphology, and Paleoseismology
- Urban Geology - geomorphology, hydrology and sedimentary records
- Environmental Justice related to socio-environmental hazards.
- Interdisciplinary and Geoscience Education

Publications

- Toké, N.A., JR.** Arrowsmith, M.J. Rymer, A. Landgraf, D. Haddad, M. Busch, J. Cohan, and A. Hannah (2011) "Late Holocene slip rate of the San Andreas Fault and its accommodation by creep and moderate magnitude earthquakes at Parkfield, California" *Geology*, 10.1130/G31498.1
<http://geology.geoscienceworld.org/cgi/content/full/39/3/243?ijkey=Lo.bt.nO9TX3c&keytype=ref&siteid=gsgeology>
- El-Ashrawy, L., N.A. **Toké**, and JR. Arrowsmith (2009) "Geologic Investigations of Urban Sedimentation in Tempe, AZ using retention structures." Arizona Hydrological Society Symposium Proceedings, 10 pp. http://azhydrosoc.org/MemberResources/Symposia/2009/Papers/El-Ashrawy_etal.pdf
- Toké, N.A., JR.** Arrowsmith, J.J. Young, C.J. Crosby (2006) "Paleoseismic and post-seismic observations of fault slip along the Parkfield segment of the San Andreas Fault." *Bulletin of Seismological Society of America* 96, 221-238.
<http://www.bssaonline.org/cgi/content/abstract/96/4B/S221>
- Toké, N.A.** and JR. Arrowsmith (2006) "Reassessment of a slip budget along the Parkfield segment of the San Andreas Fault" *Bulletin of Seismological Society of America* 96, 339-348.
<http://www.bssaonline.org/cgi/content/abstract/96/4B/S339>
- Rymer, M.J., J.C. Tinsley, III, J.A. Treiman, J.R. Arrowsmith, K.B. Clahan, A.M. Rosinski, W.A. Bryant, H.A. Snyder, G.S. Fuis, N.A. **Toké**, and G.W. Bawden (2006) "Surface Fault Slip Associated with the 2004 Parkfield, California, Earthquake" *Bulletin of the Seismological Society of America*, 96, 11 - 27.
<http://bssa.geoscienceworld.org/cgi/content/abstract/96/4B/S11>

Conference Abstracts

- Toké, N. A.,** A. Johnson, and K. Nelson. "Earthquakes, Cities, and Lifelines: Lessons integrating tectonics, society, and engineering in middle school Earth Science" *Eos Transactions. American Geophysical Union*, Fall Meeting, San Francisco, California, December, 2010.
- Toké, N. A.,** C.G. Boone, and J.R. Arrowsmith. "Distribution of Seismic Hazard, Regulation, and Vulnerability in greater Los Angeles" *Annual Southern California Earthquake Center Meeting*, Proceedings and Abstracts, Vol. 20, Palm Springs, California, September 11-15, 2010.
- Toké, N. A.,** E. Cook, C Mead, K. Darby, J. Brian, T Benn, C.G. Boone, S. Fisher, and S. Semken. "Pedagogy in interdisciplinary higher education: an investigation of faculty and student perspectives." *12th annual CAP LTER Meeting*, Arizona State University, Tempe, Arizona, January 14th, 2010.
- Toké, N. A.,** K. Darby, E. Cook, C Mead, J. Brian, T Benn, S. Fisher, C.G. Boone, and S. Semken. "Pedagogy in interdisciplinary higher education: an investigation of faculty and student perspectives." *Annual Geological Society of America Meeting*, Abstracts with Programs Vol. 41, No. 7, Portland, Oregon, October 18-21st, 2009.
- El-Ashrawy, L., N.A. **Toké**, and JR. Arrowsmith "Sedimentary Geology of Urban Environments: an example of measuring sediment production and composition in Tempe, AZ" *Annual Geological Society of America Meeting*, Abstracts with Programs Vol. 41, No. 7, Portland, Oregon, October 18-21st, 2009.
- Toké, N. A.,** J.R. Arrowsmith, M.J. Rymer, A. Landgraf, J. Cohan, M. Busch, D. Haddad "Long-lived creep, M6 earthquakes, and a Holocene slip rate for the main trace of the San Andreas Fault at

- Parkfield, California” *Annual Southern California Earthquake Center Meeting*, Proceedings and Abstracts, vol. 19, Palm Springs, California, September 12-16th, 2009.
- El-Ashmawy, L., N.A. **Toké**, and J.R. Arrowsmith “Geologic Investigations of Urban Sedimentation in Tempe, AZ using retention structures.” *Arizona Hydrological Society Symposium Posters*, Scottsdale, Arizona, August 31st- September 2nd, 2009.
- Toke**, N. A., J.R. Arrowsmith, M. Rymer, A. Landgraf, J. Cohan, M. Busch, D. Haddad Paleoseismic interpretation and a preliminary geologic slip rate for the Parkfield segment of the San Andreas Fault, *Eos Transactions. American Geophysical Union*, Fall Meeting, Abstract T41A-1955, San Francisco, California, December 15-19th 2008.
- Hale, R. **Toké**, N.A., Grimm, N. and J.R. Arrowsmith “Aridland Urban Hydrology in Phoenix, AZ” *10th annual CAP LTER Meeting*, Arizona State University, Tempe, Arizona, January 10th, 2008,.
- Toké**, N.A. and J.R. Arrowsmith “Paleoseismic and Holocene slip rate investigations along the San Andreas Fault, at Parkfield, California” *EOS Transactions American Geophysical Union*, Fall Meeting, Abstract: T43A-1097, San Francisco, California, December 10-14th, 2007.
- Toké**, N.A. and J.R. Arrowsmith “Paleoseismic and Holocene slip rate investigations along the San Andreas Fault, at Parkfield, California” *Annual Southern California Earthquake Center meeting*, Proceedings and Abstracts, vol. 17, Palm Springs, CA, September 9-12th, 2007.
- Toké**, N.A. and J.R. Arrowsmith “Fluvial Processes in Phoenix, Maricopa County, Arizona: A natural laboratory for studying dryland fluvial systems” *9th annual CAP LTER Meeting*, Arizona State University, Tempe, Arizona, January 10th, 2007.
- Toké**, N.A. and J.R. Arrowsmith “Fluvial Processes in Phoenix, Maricopa County, Arizona: A natural laboratory for studying urbanized dryland fluvial systems” *EOS Transactions American Geophysical Union*, Fall Meeting, Abstract: H13A-1356, San Francisco, California, December 11-15th 2006.
- Busch, M., J.R. Arrowsmith, P.J. Umhoefer, G.M. Gutierrez, N. **Toké**, D. Brothers, E. Dimaggio, S. Maloney, O. Zielke, B. Buchanan “Late Quaternary Faulting in the Cabo San Lucas – La Paz region, Baja California.” *EOS Transactions American Geophysical Union*, Fall Meeting, Abstract: T41D-1612, San Francisco, California, December 11-15th 2006.
- Akciz, S.O., L.B. Grant, J.R. Arrowsmith, O. Zielke, N.A. **Toké**, G. Noriega, J. Cornoyer, E. Starke, N. Reusseau, B. Campbell “Does the new paleoseismological evidence from the Carrizo Plain section of the San Andreas Fault indicate abnormally high late Holocene slip rates?” *EOS Transactions American Geophysical Union*, Fall Meeting, Abstract: T21E-01, San Francisco, California, December 11-15th 2006.
- Toké**, N.A. and J.R. Arrowsmith “Fluvial Geomorphology and Urbanization in Phoenix, Maricopa County, Arizona: A Natural Laboratory for Studying Human Alteration of Dryland Fluvial Systems.” *Binghamton Geomorphology Symposium on the Human Role in Fluvial Systems*, October 20-22nd, 2006
- Toké**, N.A. and J.R. Arrowsmith “Estimating a Slip Budget along the Parkfield segment of the San Andreas Fault: A Slip Deficit since 1857” *Southern California Earthquake Center Annual Meeting*, Proceedings and Abstracts, vol. 15, Palm Springs, California, September 11-14th, 2005
- Akciz, S., L.B. Grant, J.R. Arrowsmith, O. Zielke, N.A. **Toké**, G. Noriega, E. Starke, and J. Cornoyer. “Constraints on ruptures along the San Andreas Fault in the Carrizo Plain: Initial Results from 2005 Bidart Fan Site Excavations.” *Southern California Earthquake Center Annual Meeting*, Proceedings and Abstracts, vol. 15, Palm Springs, California, September 11-14th, 2005.
- Toké**, N.A., Arrowsmith, J.R., Crosby, C.J., and Young, J.J. “Paleoseismology and Tectonic Geomorphology: Results from the Parkfield, CA Segment of the San Andreas Fault.” *EOS Transactions American Geophysical Union*, Fall Meeting, , Abstract T13A 1336, San Francisco, California, December 13-17th, 2004.
- Toké**, N.A., Arrowsmith, J.R., Crosby, C.J., and Young, J.J. “Preliminary Paleoseismology Results from the Parkfield, CA Segment of the San Andreas Fault.” *Southern California Earthquake Center Annual Meeting*, Proceedings and Abstract, vol. 14, Palm Springs, California, September 19-21st, 2004.
- Klepeis, K.A., Clarke, G.L., and **Toké**, N., “Exhumation and Topographic Uplift along Continental Strike-Slip and Oblique-Slip Faults in Southwest New Zealand.” *Annual Geological Society of America Meeting*, Abstracts with Programs, Vol. 35, No. 6, Seattle, Washington, November 2-5th 2003,
- Billow, S., Krasilovsky, M., Rimbault, J., **Toké**, N., Romanowicz, E.A, and Franzi, D.A. “A preliminary hydrogeochemical assessment of the Little Chazy River, northeastern New York” *Northeast Regional*

Geological Society of America Meeting, Abstracts with Programs, Vol.35, No.1, Halifax, Nova Scotia, Canada, March 27-29th, 2003.

Toké, N.A. “Tectonics and Topography: Some New Relationships Identified along the Alpine Fault in New Zealand”, Vermont Geological Society Newsletter, Presentation at Middlebury College, Middlebury, Vermont, spring 2002.

Klepeis, K.A., Claypool, A., and **Toké, N.**, “Dynamic topography in transpressional regimes: an example from the New Zealand plate boundary zone *Northeast Regional Geological Society of America Meeting*, Abstracts with Programs, Vol. 34, No. 1, Springfield, Massachusetts, March 25-27th, 2002.

Lord, A., Lini, A., **Toké, N.**, Parris, A., and Bierman, P. “Contrasting evolution of northern New England post-glacial lakes.” *Northeast Regional Geological Society of America Meeting*, Abstracts with Programs, Vol. 34, No. 1, Springfield, Massachusetts, March 25-27th, 2002.

Teaching

Mentoring:

Laila El-Ashrawy, Bachelors in Civil, Environmental, and Sustainable Engineering, 2011: Research Project: “Urban Sedimentation in a Desert City.”

Courses:

NSF GK-12 Fellow; Collaborative Teaching in Sun Valley Elementary 7th Grade Earth Science 2010-2011 School Year. My role is as an educational assistant where I help the science teacher (Ms. Johnson) develop new, inquiry-based material that will help meet the learning standards. I am in the classroom, teaching, 2 days a week.

Interdisciplinary and Career Opportunities in the Geosciences

<http://activetectonics.asu.edu/teaching/GLG494-ICOG/schedule.html>

Arizona State University, spring 2009.

I organized, created, and led a seminar for upper level undergraduate students with the purpose of instituting an additional level of mentoring for undergraduates in the School of Earth and Space Exploration at ASU. Topics covered included: interdisciplinary theory, professional development activities, literature review of interdisciplinary boundaries within the geosciences, and career opportunities. I organized guest speakers on career opportunities from academia, government, consulting firms, and industry.

Strike-Slip Tectonics: Evaluating Activity Along the San Andreas Fault System

University of Potsdam, Germany, Spring, 2008

I was a guest lecturer for a short course on Active Tectonics led by Manfred Strecker. Topics I covered included paleoseismology, evaluating tectonic landforms on strike slip faults, and a case study of the central San Andreas Fault. I also developed an exercise titled “Interpreting the earthquake record of the southern San Andreas Fault.”

Field Camp Teaching Assistant, Arizona State University, 2005 and 2006.

Supervisor: Tom Sharp (tom.sharp@asu.edu)

I participated in one on one instruction in geologic mapping and report writing with ASU field geology students near Payson, AZ. I covered topics such as mapping faults, folds, and paleoshoreline facies.

Introductory Geology Teaching Assistant, Arizona State University, fall 2005. Supervisor: Rick Hervig (hervig@asu.edu)

I led review sessions for students, worked one on one with students during office hours, filled in as lecturer for topics related to earthquakes and seismology, graded assignments and tests, and organized online coursework communication.

Introductory Geology Lab Instructor, Arizona State University, spring 2005. Supervisor: Julia K. Johnson (Julia.Johnson@asu.edu).

I led three class sections with short lectures and one on one interaction as students worked through an introductory geology curriculum designed by ASU faculty. Organized online coursework communication and graded all lab work.

Guest Lectures or Colloquia

- Mesa Community College “Faults and Earthquake Hazards.” Fall 2008.
- University of Granada, Spain, Dept. de Geodinámica colloquium: “Earthquake history of the central San Andreas Fault: paleoseismology, slip budget analysis, and implications for fault zone structure and seismic hazard.” May, 2008.
- University of Potsdam, Germany: Guest lecturer for a short course led by Manfred Strecker on Active Tectonics: “Strike-Slip Tectonics: evaluating tectonic activity along the San Andreas Fault system” April, 2008
- Arizona State University, SESE Graduate Research Seminar: “Paleoseismology and Slip Rate investigations at Parkfield, CA.” November, 2007.

Workshops and Short Courses

- The Superstition Vistas: developing a sustainable city east of Phoenix, AZ, 2008.
- Interdisciplinary Teaching and Pedagogy - co-led - investigation of student and instructor perspectives, Arizona State University January 2009 – Present
- Environmental Justice in the city, Arizona State University, 2009
- Using and Developing Historical Image Archives, 2009 GSA Fall Meeting
- Preparing for an Academic Career in the Geosciences: Workshop for Graduate Students and Post-Doctoral Fellows, NAGT and Stanford University, 2010

Research Grants

2009 GSA Student Research Grant, Human modification of hydrologic structure and sedimentation in a desert city, \$2,800

2007 NEHRP Grant, co-written with JR. Arrowsmith (PI), Paleoseismic characterization of earthquakes at Parkfield, \$43,000.

2002 UVM Geology Hawley Award, Investigation of relationships between tectonics and topography: Alpine, Fault, NZ, \$1,000.