

# NOAH P. FAY

156 E. LIMBERLOST DR. | UNIT #102 | TUCSON, AZ 85705  
(520) 293-2474 | NFAY@EMAIL.ARIZONA.EDU

## EDUCATION

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- 2006 **Doctor of Philosophy, Geological Sciences**  
Department of Geological Sciences, University of Oregon, Eugene, OR
  - Dissertation Title: “Kinematics and Geodynamics of the Pacific-North American Plate Boundary in the Western United States”
  - Principal Advisor: Eugene D. Humphreys
- 2001 **Bachelor of Science, Physics (Summa Cum Laude)**  
Department of Physics and Astronomy, Eastern Michigan University, Ypsilanti, MI

## TEACHING AND RESEARCH EXPERIENCE

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- 2006 – Present **Post-Doctoral Research Associate**  
Department of Geosciences, The University of Arizona, Tucson, AZ
  - Design and carry out multiple original academic research projects
  - Submit grant proposals to the National Science Foundation and other agencies
  - Collaborate with colleagues and students
- 2008 **Guest Lecturer**  
Department of Geosciences, The University of Arizona, Tucson, AZ
  - Developed and delivered multiple guest (substitute) lectures for Natural Sciences (NATS) 101: A Geological Perspective
- 2001 – 2006 **Graduate Teaching Fellow and Research Assistant**  
Department of Geological Sciences, University of Oregon, Eugene, OR
  - Taught lab sections, graded assignments, assisted struggling students and held office hours for the following courses: Earth Physics, Earth’s Dynamic Interior, The Evolving Earth, Geology of the National Parks, Geodynamics (2x), Geophysics, Introduction to Hydrogeology, Oceanography, Seismology
  - Guest lectured for the following courses: Crustal Deformation, Earth Physics, Geodynamics, Geophysics, Oceanography
  - Mentored new graduate students
  - Conducted dissertation research on western U. S. tectonics
- 2005 **Graduate Research Assistant**  
Los Alamos National Lab, Los Alamos, NM
  - Performed geoscience research in conjunction with lab personnel
- 2002 **Software Developer**  
Pacific Northwest Geodetic Array, Central Washington University, Ellensburg, WA
  - Developed geodetic data processing algorithms and software
- 2001 **Geology Field Course Instructional Assistant**  
Yellowstone National Park, Mount St. Helens
  - Assisted with logistics and instruction on introductory geology field courses

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- 1998 – 2001 **Physics Lab Instructor and Tutor**  
Department of Physics and Astronomy, Eastern Michigan University, Ypsilanti, MI
  - Taught and graded lab sections for the course Physics for Elementary Education Teachers
  - Tutored individuals and groups for a variety of physics courses
- 1998 – 1999 **Math Tutor**  
Math Tutoring Center, Eastern Michigan University, Ypsilanti, MI
  - Tutored individuals and groups for a variety of mathematics subjects

## TEACHING AND COMMUNICATIONS SKILLS AND EXPERIENCE

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- Thoughtful teaching style emphasizing the development of critical thinking skills
- Appreciation for a diversity of learning styles and ability to explain basic concepts in multiple ways
- Relaxed classroom presence encouraging student participation and inquiry
- Excellent written and verbal communication with students, collaborators and administrators
- Practiced public speaking skills utilizing both verbal and non-verbal techniques
- Organized and efficient in both electronic and paper record keeping
- Basic Spanish reading, writing and speaking
- Demonstrated record of publication in high-profile scientific journals
- Multiple lectures at U.S. universities, and national and international scientific conferences
- Peer reviewer for numerous grant proposals and papers in scientific journals

## COMPUTER SKILLS

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- Operating Systems: MS Windows, Mac OSX, Unix/Linux
- Software: Word, PowerPoint, Excel, Adobe Illustrator, numerous scientific applications
- Programming Languages: MATLAB, some C/C++, some Fortran, bash

## SCIENTIFIC PUBLICATIONS

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- **Fay, N. P.**, E. D. Humphreys (2008), Forces acting on the Sierra Nevada Block and Implications for the Strength of the San Andreas Fault System and the Dynamics of Continental Deformation in the Western U.S., *J. Geophys. Res.*, 113, B12415, doi:10.1029/2008JB005809.
- **Fay, N. P.**, R. A. Bennett and S. Hreinsdóttir, Contemporary Vertical Velocity of the Central Basin and Range and Uplift of the Southern Sierra Nevada (2008), *Geophys. Res. Lett.*, 35, L20309, doi:10.1029/2008GL034949.
- **Fay, N. P.**, R. A. Bennett, J. C. Spinler and E. D. Humphreys (2008), Small-scale Upper Mantle Convection and Crustal Dynamics in Southern California, *Geochem. Geophys. Geosyst.*, 9, Q08006, doi:10.1029/2008GC001988.
- R. A. Bennett, S. Hreinsdóttir, M. S. Velasco and **N. P. Fay** (2007), GPS Constraints on Vertical Crustal Motion in the Northern Basin and Range, *Geophys. Res. Lett.*, 34, L22319, doi:10.1029/2007GL031515.
- **Fay, N. P.**, and E. D. Humphreys (2006), Dynamics of the Salton Block: Absolute Fault Strength and Crust-Mantle Coupling in Southern California, *Geology*, 34(4), 261-264, doi:10.1130/G22172.1.
- **Fay, N. P.**, and E. D. Humphreys (2005), Fault Slip Rates, Effects of Elastic Heterogeneity on Geodetic Data and the Strength of the Lower Crust in the Salton Trough Region, Southern California, *J. Geophys. Res.*, 110, B09401, doi:10.1029/2004JB003548.

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## SELECTED CONFERENCE ABSTRACTS

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- **Fay, N.**, T. Becker and G. Humphreys, SMOG3D: Southern California Modeling of Geodynamics in 3D, SCEC Annual Meeting, Palm Springs, CA, August, 2008.
- **Fay, N.**, R. A. Bennett, J. Spinler and G. Humphreys, Observing small-scale upper mantle convection in real time, Workshop for Advancing Numerical Modeling of Mantle Convection and Lithospheric Dynamics, Davis, CA, July, 2008.
- **\*Fay, N.**, R. Bennett, J. Spinler, T. Becker, B. Kaus and G. Humphreys, Southern California Modeling of Geodynamics in 3D (SMOG3D), SCEC Working Group (Lithospheric Architecture and Dynamics) Workshop, Los Angeles, CA, March, 2008.
- **Fay, N.**, R. A. Bennett and J. Spinler, Active Mantle Flow and Crustal Dynamics in Southern California, American Geophysical Union Fall meeting, San Francisco, CA, December, 2007.
- **Fay, N.**, and E. Humphreys, Variable Fault Strength and Crustal Block Interactions in the Western United States: Insights from Dynamic Modeling of the Sierra Nevada Block, EarthScope National Meeting, Monterey, CA, May, 2007.
- **Fay, N.**, E. Humphreys and D. Coblenz, Dynamics of the Sierra Nevada Block and Implications for Western U.S. Tectonics, GSA Backbone of the Americas Meeting, Mendoza, Argentina, April, 2006.
- **Fay, N.**, and E. Humphreys, Weak Faults in a Strong Crust: Geodynamic Constraints on Fault Strength, Stress in the Crust and the Vertical Distribution of Strength in the Lithosphere, American Geophysical Union Fall Meeting, San Francisco, CA, December 2005.
- **†Fay, N.**, and E. Humphreys, Kinematics and Dynamics of the Southern San Andreas Fault System, Southern California, American Geophysical Union Joint Assembly, New Orleans, LA, May, 2005.
- **\*Fay, N.**, Humphreys, E., Coblenz, D., and T.C. Hales, North America Dynamics and Pacific Northwest Tectonics, PANGA Annual Meeting, Vancouver, WA, January, 2005.
- **\*Fay, N.P.**, Weldon, R.J., Miller, M. M., and R.J., Burgette, Comparing Tidal, Vertical GPS and Leveling Records Along the U.S. Cascadia Margin, IRIS/UNAVCO Joint Workshop, Yosemite, CA, June, 2003.
- **Fay, N.P.**, Humphreys, E.D., and R. J. Weldon, A Fault Slip Rate Based Kinematic Model for Southern California, American Geophysical Union Fall Meeting, San Francisco, CA, December, 2002.
- **Fay, N.P.**, and M. M. Miller, TSFIT, A GPS Timeseries Analysis Tool, Pacific Northwest Geodetic Array Annual Meeting, Ellensburg, WA, November, 2002.

\*Invited

†Outstanding Student Paper Award

## INVITED SEMINARS

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- Arizona State University
- Jet Propulsion Laboratory
- Los Alamos National Laboratory
- Southern California Earthquake Center
- University of Arizona
- University of Oregon
- University of Texas

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## SUPPORT

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- 2009 Continued Modeling of Southern California Geodynamics in 3-D: Visco-plastic Models of Fault Loading and Crustal Stress<sup>\*,1,5,6</sup> (SCEC, \$43k)
- 2008 Geodynamic Modeling of Syn-Convergent Extension in the Northern Apennines, Italy<sup>1,7</sup> (U. Washington, \$18k)
- 2008 Assessing Southern California Strain Rates<sup>1,3</sup> (SCEC, \$26k)
- 2008 Continued Modeling of Southern California Geodynamics in 3-D: Visco-plastic Models of Fault Loading and Crustal Stress<sup>1,5,6</sup> (SCEC, \$26k)
- 2007 A 3-D viscoplastic model of instantaneous lithospheric deformation in southern California<sup>1,5,6</sup> (SCEC, \$30k)
- 2006 Travel Award (GSA)
- 2005 Travel Award (AGU)
- 2005 Studies in Western U.S. Geodynamics<sup>2</sup> (NSF-Geophysics, \$160k)
- 2005 Crust-Mantle Dynamics, Southern California<sup>2</sup> (SCEC, \$15k)
- 2004 Driving Forces of Crustal Deformation<sup>2</sup> (SCEC, \$20k)
- 2003 Southern California Fault Slip Rates and Crustal Deformation<sup>2</sup> (SCEC, \$15k)
- 2003 Travel Award (AGU)
- 2003 Travel Award (IRIS)
- 2003 Student Research Award (GSA)

<sup>1</sup>PI: N. Fay, <sup>2</sup>PI: E. Humphreys, <sup>3</sup>Co-PI: R. Bennett, <sup>4</sup>Co-PI: G. Zandt, <sup>5</sup>Co-PI: E. Humphreys, <sup>6</sup>Co-PI: T. Becker, <sup>7</sup>Co-PI: D. Cowan

\*Pending

## RECENT COLLABORATORS

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Thorsten Becker (University of Southern California), Rick Bennett (University of Arizona), Mark Brandon (Yale), David Coblenz (Los Alamos National Lab.), Sigrún Hreinsdóttir (University of Arizona), Gene Humphreys (University of Oregon), M. Meghan Miller (Central Washington University), Joshua Spinler (University of Arizona), Ray Weldon (University of Oregon), Sean Willet (ETH-Zurich), George Zandt (University of Arizona)

## AFFILIATIONS

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- 2001 – Present Geological Society of America
- 2000 – Present American Geophysical Union
- 2001 – 2006 American Federation of Teachers

## COMMUNITY SERVICE AND SYNERGISTIC ACTIVITIES

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- AGU Special Session Chair: Spring 2005, Fall 2007
- Institutional Representative: Computational Infrastructure for Geodynamics (CIG)
- Long-term Tectonics Working Group Member: CIG
- Paper reviewer: *EPSL*, *Geology*, *GJI*, *PEPI*, *GRL*
- Book reviewer: *Cambridge University Press*
- Proposal reviewer: NSF-Geophysics, NSF-Margins, NSF-EarthScope