

EAS 8001A: GEOPHYSICS SEMINAR - SPRING 2007

Time and Location: Friday 9.30 - 10:50 am, ES & T, L1114

Instructor: Zhigang Peng, ES&T 2256, 404-894-0231, zhigang.peng@eas.gatech.edu.

Course Description: This seminar course focuses on introducing and discussing various research topics related to geophysics. It includes presentations of ongoing research by faculty, students, and visiting scholars, discussions of recently published papers, and any current events or activities in relevance to geophysics.

Grading: This one-unit seminar course is graded as pass or no pass. The grading is mainly based on participation during class (presentation and discussion). Each enrolled student is required to give at least one presentation about his or her current or future research topic. Reading assigned papers thoroughly beforehand is necessary for discussion in each class.

Class website: http://shadow.eas.gatech.edu/~zpeng/Teaching/EAS8801A_S07

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Tentative schedule

Week	Date	Presentation	Papers for discussion	Notes
1	01/12/2007	Kevin Chao : Temporal changes of seismic velocity in the shallow crust induced by the 10/22/1999, M6.4, Chia-Yi, Taiwan Earthquake	Sawazaki, K., H. Sato, H. Nakahara, and T. Nishimura (2006), Temporal change in site response caused by earthquake strong motion as revealed from coda spectral ratio measurement, Geophys. Res. Lett., 33, L21303, doi:10.1029/2006GL027938. PDF link . Discussion leader: Chunquan Wu	
2	01/19/2007	No seminar	No seminar	
3	01/26/2007	Chunquan Wu : Temporal Changes in Fault Zone Site Response Caused by Strong Ground Motion of the 1999 Mw7.1 Düzce, Turkey, Earthquake	O'Connell, D. R. (1999), Replication of apparent nonlinear seismic response with linear wave propagation models, Science, 283(5410), 2045-2050. PDF link . Discussion leader: Dominic Assimaki	
4	02/02/2007	Wei Li : Integrating nonlinear site effects in broadband ground motion simulations for Southern California	Ito, Y. et al. (2007), Slow Earthquakes Coincident with Episodic Tremors and Slow Slip Events, Science, 315(5811), 503-506, DOI: 10.1126/science.1134454. PDF link . Discussion leader: Zhigang Peng	
5	02/09/2007	Zhigang Peng : Overview of EarthScope	Gourmelen, N. and Amelung, F. (2005), Postseismic Mantle Relaxation in the Central Nevada Seismic Belt, Science, 310, 1473-1476. PDF link . Discussion leader: Jay Jackson	

6	02/16/2007	Andy Newman : Earthquake Risk from Strain Rates on Slipping Faults	Newman, A., Earthquake Risk from Strain Rates on Slipping Faults, EOS, Trans. Am. Geoph. Union, 88 5, 60, 2007. PDF link . Discussion leader: Andy Newman
7	02/23/2007	Abhijit Ghosh : Understanding the physical meaning of b-value -- a historical perspective	D. Schorlemmer, Wiemer, S. and Wyss, M., 2005, Variation in earthquake-size distribution across different stress regimes, Nature, v. 437(22), pp. 539-542. PDF link . Discussion leader: Abhijit Ghosh
8	03/02/2007	Jay Jackson : Using InSAR to look at the crustal uplift due to the inflation of the Socorro Magma Body Sill	Fialko, Y. and M. Simmons (2001), Evidence for on-going inflation of the Socorro magma body, New Mexico, from interferometric synthetic aperture radar imaging, Geophysical Research Letters, 28(18),3549-3552. PDF link . Discussion leader: Jay Jackson
9	03/09/2007	Michael Lewis (USC): Imaging the deep structure of the San Andreas Fault south of Hollister with joint analysis of fault-zone head and direct P arrivals Zheqiang Shi (USC): Dynamic Rupture Along a Bimaterial Interface: Its Properties and Implications	Related publications: 1. Lewis, M. A, Y. Ben-Zion and J. McGuire, Imaging the deep structure of the San Andreas Fault south of Hollister with joint analysis of fault-zone head and direct P arrivals, Geophys. J. Int., in press, 2007. PDF link . 2. McGuire, J. and Y. Ben-Zion, High-resolution imaging of the Bear Valley section of the San Andreas Fault at seismogenic depths with fault-zone head waves and relocated seismicity , Geophys. J. Int, 163, 152-164, doi: 10.1111/j.1365-246X.2005.02703.x, 2005. PDF link . 3. Shi, Z. and Ben-Zion, Y., Dynamic Rupture on a bimaterial interface governed by slip-weakening friction , Geophys. J. Int., 164, doi: 10.1111/j.1365-246X.2006.02853.x, 2006. PDF link . 4. Ben-Zion, Y. and Z. Shi, Dynamic Rupture on a Material Interface with Spontaneous Generation of Plastic Strain in the Bulk , Earth Planet. Sci. Lett., 236, 486-496, DOI: 10.1016/j.epsl.2005.03.025, 2005. PDF link .
10	03/16/2007	Peng Zhao : Seismic imaging of velocity contrast along the Calaveras fault with fault zone head waves generated by repeating earthquakes Lei Liu : Seafloor hydrothermal system	N/A
12	03/23/2007	Spring break, no class	
13	03/30/2007	EarthScope meeting, no class	
14	04/06/2007	Kate Craft (Hale) : Hydrothermal Boundary Layer Modeling for Mars and Near the Earth's Mid-Ocean Ridge Lujia Feng : Long Valley Caldera	Gulick, V. C. (1998), Magmatic intrusions and a hydrothermal origin for fluvial valleys on Mars, J. Geophys. Res., 103, 19365-19388. PDF link .
15	04/13/2007	SSA meeting, no class	
16	04/20/2007	Jaime Convers : tsunami earthquakes	Bilek, S. L., T. Lay, and L. J. Ruff (2004), Radiated seismic energy

			and earthquake source duration variations from teleseismic source time functions for shallow subduction zone thrust earthquakes, J. Geophys. Res., 109, B09308, doi:10.1029/2004JB003039. PDF link . Discussion leader: Jaime Convers	
17	04/27/2007	Grant Farmer: TBD		

Academic honesty:

General: It is expected that all students are aware of their individual responsibilities under the Georgia Tech Academic Honor Code, which will be strictly adhered to in this class. For any questions involving these or any other Academic Honor Code issues, please consult me, or visit www.honor.gatech.edu.

Last updated by [zpeng](#), 04/18/2007