

# Curriculum Vitae

## JOHN WAKABAYASHI

**Associate Professor of Geology, California State University, Fresno, Department of Earth and Environmental Sciences, 2576 E. San Ramon Ave., Mail Stop ST-24, Fresno, CA 93740-8039  
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### EDUCATION

A.B. Geology, University of California, Berkeley, 1980; Ph.D. Geology, University of California, Davis, 1989

### REGISTRATION

California Professional Geologist No. 5890

### PROFESSIONAL SOCIETY MEMBERSHIP

American Geophysical Union; Geological Society of America, Chair of 2013 Cordilleran Section Meeting; Association of Engineering Geologists (member, continuing education committee); Northern California Geological Society.

### EMPLOYMENT

8/2010 to present: Associate Professor, California State University, Fresno

8/2005 to 8/2010: Assistant Professor, California State University, Fresno

1993 to 2005: Independent geological consultant: engineering and environmental geology, neotectonics/seismic hazard, independent research.

2005: Lecturer, University of California, Berkeley: taught field course with theme of geologic transect of California

1998-1999: Lecturer, California State University, Hayward: taught structural geology winter quarter in both years

1998: Lecturer, University of California, Berkeley: taught structural geology spring semester

1996: Lecturer, California State University, Hayward: taught graduate seminar on evolution of the San Andreas fault system

1989 to 1992 Geologist, Earth Sciences Associates, Inc., Palo Alto, CA; Seismotectonic analysis and neotectonics; probabilistic seismic hazard analysis; petrographic analysis; slope stability; project work included investigations for water resources (dams, pipelines, tunnels, conjunctive use), hydroelectric and environmental projects

1983 to 1988: Teaching assistant, UC Davis Geology Department; Courses T.A.'d include field geology, structural geology, tectonics, mineralogy, optical mineralogy, metamorphic petrology and igneous petrology

1981 to 1982: Geologist, Geotechnical Consultants Inc., San Francisco, CA. Performed geologic mapping, core logging, petrographic analysis of Franciscan Complex rocks in San Francisco as part of geotechnical study for a cross-town sewer tunnel.

1980: Geologist, Union Carbide Corporation, Grand Junction, CO and Missoula, MT. Performed geochemical, geophysical studies and geologic prospecting for hard rock uranium deposits in Colorado and Montana.

### GRADUATE STUDENT AND SENIOR THESIS SUPERVISION

M.S. thesis advisor of Chris Smart (M.S. 2008), Emily Davis (M.S. 2010), Chris Kemp, Andy Shriver, Nobuaki Masutubo, Maya Garcia, Jennifer Jackson, Yvan Mendoza, Dennis Eck, Jennifer Ratliff, Shannon Mark, and Paul Troop. I am serving on the thesis committee of Chad Carlson, Robert Koons, and Anna Brody, and I have served on the master's thesis committee of Anna Brody, (M.S. 2011), Doug DeFlicht (M.S. 2010), Jorge Baca (M.S. 2009), Rohit Sharma (M.S., 2008), Sana Alsaoudi (M.S. 2008), and Marlon Jean (M.S. 2007). I served on the PhD thesis committee of David Shimabukuro (UC Berkeley, 2011). I am serving as senior thesis advisor for Steffany Aguilar, and have served as senior thesis advisor for Miguel Cisneros, Brian Hitz, Yvan Mendoza, Rachel Prohoroff, Chad Carlson, Jared Long, Joey Luce, Wayne Nick, Gary Smith, Barbara Jessup, Nick Smaira, Jerrod Lessel, Dillon Kass, Evalin Herleman and Donna Parkansky. Served on thesis committee of David Shimabukuro, Ph.D. 2011, Dept. Earth and Planetary Science, Univ. California Berkeley, Scott Dickerman, M.S., 1999, Department of Geology, California State University, Hayward; and Ron Rubin, M.S., 2002, Department of Geology, San Jose State University.

### AWARDS/HONORS

Recognized as Outstanding Reviewer (October 2006) by the Geological Society of America. Keynote speaker, International Conference on tectonics of strike-slip restraining and releasing bends in continental & oceanic settings (Geological Society of London, London, UK, Sept. 28-30, 2005), invited as keynote speaker, Geological Society of America Penrose Conference on the Central Asian Orogenic Belt, Urumqi, China, September 2011.

## SCIENTIFIC EDITORSHIP

Currently Associate Editor for Geological Society of America Bulletin, serving my third consecutive 3-year term that began in 2010. Edited book "Melanges: Processes of formation and societal significance": Geological Special Paper 480; this includes 13 separate peer-reviewed papers. Currently guest editor of special issue of Lithosphere on subduction initiation and termination and guest editor of Lithosphere volume of papers on the Central Asian Orogenic Belt and comparison to Circum Pacific orogens.

## SCIENTIFIC PEER REVIEW

Reviewed manuscripts for American Journal of Science, Bulletin of the Seismological Society of America, California of Division of Mines and Geology Special Publications, Canadian Journal of Earth Sciences, Contributions to Mineralogy and Petrology, *Eclogae Geologicae Helveticae*, *G-Cubed*, *Geology*, Geological Society of America Bulletin, Geological Society of America Special Papers, *Gondwana Research*, *The Island Arc* (journal of the Geological Society of Japan), *Journal of the Geological Society of London*, Geological Society of London Special Publication, *Journal of Geology*, *Journal of Geophysical Research*; *Journal of Metamorphic Geology*, *Journal of Structural Geology*, *Lithos*, *Lithosphere*, *Revista Geologica de Chile*, *Tectonics*, *Tectonophysics*, and a book on Western Pacific Subduction Complexes published by Springer. Reviewed grant proposals for the British Council, three different National Science Foundation programs (*Structure & Tectonics*, *Petrology and Geochemistry*, and *ODP*), the Petroleum Research Fund, and National Earthquake Hazard Reduction Program. Reviewed lay persons' geology book for University of California Press.

## PUBLICATIONS: \* indicates student advisee

- Wakabayashi, J., in press, Subducted sedimentary serpentinite mélanges: Record of multiple burial-exhumation cycles and subduction erosion: *Tectonophysics*. doi: 10.1016/j.tecto.2011.11.006
- Osozawa, S., Shinjo, R., Armid, A., Watanabe, Y., Horiguchi, T., and Wakabayashi, J., in press, Paleogeographic reconstruction of the 1.55 Ma synchronous isolation of the Ryukyu Islands, Japan, and Taiwan and the inflow of the Kuroshio warm current: *International Geology Review*.
- Ghatak, A., Basu, A.R., and Wakabayashi, J., 2011, Element mobility in subduction metamorphism: Insight from metamorphic rocks of the Franciscan Complex and Feather River ultramafic belt, California: *International Geology Review*, doi:10.1080/00206814.2011.567087
- Wakabayashi, J., and Dilek, Y., 2011, Editors, *Mélanges: Processes of Formation and Societal Significance*, Geological Society of America Special Paper 480, doi : 10.1130/2011.2480, 277 pp.
- Wakabayashi, J., 2011, *Mélanges of the Franciscan Complex, California: Diverse structural settings, evidence for sedimentary mixing, and their connection to subduction processes*: in Wakabayashi, J., and Dilek, Y. eds. *Mélanges: Processes of Formation and Societal Significance*, Geological Society of America Special Paper 480, p. 117-141. doi: 10.1130/2011.2480(05)
- Wakabayashi, J., and Dilek, Y., 2011, Introduction: Characteristics and tectonic settings of mélanges, and their significance for societal and engineering problems: in Wakabayashi, J., and Dilek, Y. eds. *Mélanges: Processes of Formation and Societal Significance*, Geological Society of America Special Paper 480, p.v-x. doi: 10.1130/2011.2480(00)
- Dumitru, T.A., Wakabayashi, J., Wright, J.E., and Wooden, J.L., 2010, Early Cretaceous (ca. 123 Ma) transition from nonaccretion to voluminous sediment accretion within the Franciscan subduction complex: *Tectonics*, v. 29, TC5001, doi: 10.1029/2009TC882542
- Wakabayashi, J., Ghatak, A., and Basu, A.R., 2010, Tectonic setting of supra subduction zone ophiolite generation and subduction initiation as revealed through geochemistry and regional field relationships: *Geological Society of America Bulletin*, v. 122, p. 1548-1568 doi: 10.1130/B30017.1
- Snow, C.A., Wakabayashi, J., Ernst, W.G., and Wooden, J.L., 2010, SHRIMP-based depositional ages of Franciscan metagraywackes, west-central California: *Geological Society of America*, v. 122, p. 282-291; doi:10.1130/B26399.1
- Smart\*, C.M., and Wakabayashi, J., 2009, Hot and deep: Rock record of subduction initiation and exhumation of high-temperature, high-pressure metamorphic rocks, Feather River ultramafic belt, California: *Lithos*, v. 113, p. 292-305, doi:10.1016/j.lithos.2009.06.012
- Wakabayashi, J., 2008, Franciscan Complex, California: Problems in recognition of melanges, and the gap between research knowledge and professional practice: *Proceedings of the 2008 Conference of the American Rock Mechanics Association*, San Francisco (published online).
- Wakabayashi, J., and Dumitru, T.A., 2007, <sup>40</sup>Ar/<sup>39</sup>Ar ages from coherent high-pressure metamorphic rocks of the Franciscan Complex, California: Revisiting the timing of metamorphism of the world's type subduction complex: *International Geology Review*, v. 49, p. 873-906.
- Wakabayashi, J., 2007, Step-overs that migrate with respect to affected deposits: Field characteristics and speculation on some details of their evolution: in Cunningham, W.D., and Mann, P., eds. *Tectonics of strike-slip releasing and restraining bends in continental and oceanic settings*. Geological Society of London Special Publication 290, p. 169-188

- Tsujimori, T., Matsumoto, K., Wakabayashi, J., and Liou, J.G., 2006, Franciscan eclogite revisited: Reevaluation of P-T evolution of tectonic blocks from Tiburon Peninsula, California, USA: *Mineralogy and Petrology*, v. 88, p. 243-267.
- Moores, E.M., Wakabayashi, J., Unruh, J.R., and Waechter, S., 2006, A transect spanning 500 million years of active plate margin history: Outline and field trip guide: in Prentice, C.S., Scotchmoor, J.G., Moores, E.M., and Kiland, J.P., eds., 1906 San Francisco Earthquake Centennial Field Trip Guides: Field trips associated with the 100th Anniversary Conference, 18-23 April 2006, San Francisco, CA: Geological Society of America Field Trip Guide 7, p.373-413; doi: 10.1130/2006.1906SF(20).
- Saha, A., Basu, A.R., Wakabayashi, J., and Wortman, G.L., 2005, Geochemical evidence for subducted nascent arc from Franciscan high-grade tectonic blocks: *Geological Society of America Bulletin*, v. 117, p. 1318-1335.
- Wakabayashi, J., 2005, Franciscan Complex and Coast Range Ophiolite, eastern margin of San Francisco Bay, California: Major components of the former convergent plate boundary: in Stevens, C., and Cooper, J., eds. *Mesozoic tectonic assembly of California Pacific Section, SEPM, Book 96*, p. 1-20.
- Wakabayashi, J., 2004a, Contrasting settings of serpentinite bodies, San Francisco Bay area, California: Derivation from the subducting plate vs. mantle hanging wall: *International Geology Review*, v. 46, p. 1103-1118.
- Wakabayashi, J., and Medley, E.W., 2004, Geological characterization of melanges for practitioners: *Felsbau* v. 22, no. 5, p. 10-18.
- Wakabayashi, J., 2004b, Tectonic mechanisms associated with P-T paths of regional metamorphism: alternatives to single-cycle thrusting and heating: *Tectonophysics*, v. 392, p. 193-218.
- Wakabayashi, J., Hengesh, J.V., and Sawyer, T.L., 2004, Four-dimensional transform fault processes: progressive evolution of step-overs and bends: *Tectonophysics*, v. 392, p. 279-301.
- Anczkiewicz, R., Platt, J.P., Thirlwall, M.F., and Wakabayashi, J., 2004, Franciscan subduction off to slow start: Evidence from high-precision Lu-Hf garnet ages on high-grade blocks: *Earth and Planetary Science Letters*, v. 225, p. 147-161.
- Harrison, S., Safford, H., and Wakabayashi, J., 2004, Does age of exposure of serpentine explain variation in endemic plant diversity in California? *International Geology Review*, v. 46, p. 235-242.
- Wakabayashi, J., and Dilek, Y., 2003, What constitutes "emplacement" of an ophiolite?: mechanisms and relationship to subduction initiation and formation of metamorphic soles: in Dilek, Y., and Robinson, P.T., eds., *Ophiolites in Earth history*, Geological Society of London Special Publication 218, p. 427-447.
- Moores, E.M., Wakabayashi, J., and Unruh, J.R., 2002, Crustal scale cross-section of the US Cordillera, California and beyond, its tectonic significance, and speculations on the Andean orogeny: *International Geology Review*, v. 44, p. 479-500.
- Wakabayashi, J., and Sawyer, T.L., 2001, Stream incision, tectonics, uplift, and evolution of topography of the Sierra Nevada, California: *Journal of Geology*, v. 109, p. 539-562.
- Wakabayashi, J., and Dilek, Y., 2000, Spatial and temporal relations between ophiolites and their subophiolitic soles: A test of models of forearc ophiolite genesis: in Dilek, Y., Moores, E.M., Elthon, D., and Nicolas, A., eds., *Ophiolites and oceanic crust: New insights from field studies and ocean drilling*, Geological Society of America Special Paper 349, p. 53-64.
- Wakabayashi, J., and Sawyer, T.L., 2000, Neotectonics of the Sierra Nevada and the Sierra Nevada-Basin and Range Transition, California, with field trip stop descriptions for the northeastern Sierra Nevada: in Brooks, E.R., and Dida, L.T., eds., *Field guide to the geology and tectonics of the northern Sierra Nevada*, California Division of Mines and Geology Special Publication 122, p. 173-212.
- Wakabayashi, J., 1999a, Distribution of displacement on, and evolution of, a young transform fault system: the northern San Andreas fault system, California: *Tectonics*, v. 18, p. 1245-1274
- Wakabayashi, J., 1999b, The Franciscan Complex, San Francisco Bay area: A record of subduction processes: in Wagner, D.L., and Graham, S. A., eds. *Geologic field trips in northern California*, California Division of Mines and Geology Special Publication 119, p. 1-21.
- Wakabayashi, J., 1999c, Subduction and the rock record: Concepts developed in the Franciscan Complex, California: in Sloan, D., Moores, E.M., and Stout, D. eds., *Classic Cordilleran Concepts: A View From California*, Geological Society of America Special Paper 338, p. 123-133.
- Moores, E.M., Dilek, Y., and Wakabayashi, J., 1999, California terranes: in Sloan, D., Moores, E.M., and Stout, D. eds., *Classic Cordilleran Concepts: A View From California*, Geological Society of America Special Paper 338, p. 227-234.
- Wakabayashi, J., and Sawyer, T.L., 1998, Paleoseismic investigation of the Miller Creek fault, eastern San Francisco Bay area, California: Final Technical Report, U.S. Geological Survey National Earthquake Hazards Reduction Program Fiscal Year 1997, Award No. 1434-HQ-97-GR-03141.
- Wakabayashi, J., 1996, Tectono-metamorphic impact of a subduction-transform transition and implications for interpretation of orogenic belts: *International Geology Review*, v.38, p. 979-994.
- Working Group on Northern California Earthquake Potential (Wakabayashi is one of 29 members), 1996, Database of potential sources for earthquakes larger than magnitude 6 in northern California: U.S. Geological Survey Open File Report 96-705, 53pp.

- Buising, A.V., and Wakabayashi, J., 1996, Late Cenozoic structures between San Leandro Reservoir and Dublin Canyon, eastern San Francisco Bay area, California: in Jayko, A.S., and Lewis, S.D., compilers, *Toward Assessing the Seismic Risk Associated with Blind Thrust Faults: U.S. Geological Survey Open File Report 96-267*, p. 119-126.
- Hengesh, J.V., Wakabayashi, J., and Nolan, J.M., 1996, Paleoseismic investigation of the Serra fault, San Francisco peninsula, California: Final Technical Report, U.S. Geological Survey National Earthquake Hazards Reduction Program Fiscal Year 1995, Award No. 1434-95-G-2549
- Wakabayashi, J., and Hengesh, J.V., 1995, Distribution of late Cenozoic displacement on the San Andreas fault system, northern California: in Sangines, E.M., Andersen, D.W., and Buising, A.W., eds., *Recent geologic studies in the San Francisco Bay Area, Pacific Section, SEPM (Society for Sedimentary Geology)*, Book. 76, p.19-30
- Hengesh, J.V., and Wakabayashi, J., 1995, Dextral translation and progressive emergence of the Pleistocene Merced basin and implications for timing of initiation of the San Francisco Peninsula segment of the San Andreas fault: in Sangines, E.M., Andersen, D.W., and Buising, A.W., eds., *Recent geologic studies in the San Francisco Bay Area, Pacific Section, SEPM (Society for Sedimentary Geology)*, Book 76, p.47-54
- Wakabayashi, J., and Unruh, J.R., 1995, Tectonic wedging, blueschist metamorphism, and exposure of blueschist: are they compatible?: *Geology*, v. 23, p. 85-88
- Hengesh, J.V., and Wakabayashi, J., 1995, Quaternary deformation between Coyote Point and Lake Merced on the San Francisco peninsula: Implications for evolution of the San Andreas fault: Final Technical Report, U.S. Geological Survey National Earthquake Hazards Reduction Program Fiscal Year 1994, Award No. 1434-94-G-2426
- Wakabayashi, J., and Smith, D.L., 1994, Evaluation of recurrence intervals, characteristic earthquakes and slip rates associated with thrusting along the Coast Range-Central Valley geomorphic boundary, California: *Bulletin of the Seismological Society of America*, v. 84, p.1960-1970
- Wakabayashi, J., Smith, D. L., and Hamilton, D. H., 1992, The Miller Creek Fault and related structures: Neogene kinematics of a potentially active thrust system in the East Bay Hills, California: in Borchardt, G., ed., *Proceedings of the 2nd Conference on Earthquake Hazards in the eastern San Francisco Bay Area, Calif. Div. Mines and Geology Special Publication 113*, p. 345-354.
- Volpe, R. L., Kissick, C. M., and Wakabayashi, J., 1992, Seismic hazard in the Sacramento-San Joaquin Delta Region, California: insight from probabilistic seismic risk analyses: in Borchardt, G., ed., *Proceedings of the 2nd Conference on Earthquake Hazards in the eastern San Francisco Bay Area, Calif. Div. Mines and Geology Special Publication 113*, p. 525-534.
- Wakabayashi, J., 1992, Metamorphism and tectonic origin of Franciscan metabasites and a field trip guide to three localities in the San Francisco Bay area: in Schiffman, P., and Wagner, D. L., eds., *Field Guide to the Geology and Metamorphism of the Franciscan Complex and Western Metamorphic Belt of Northern California, Calif. Div. Mines and Geology Special Publication 114*, p. 1-11.
- Wakabayashi, J., 1992, Nappes, tectonics of oblique plate convergence, and metamorphic evolution related to 140 million years of continuous subduction, Franciscan Complex, California: *Journal of Geology*, v. 100, p. 19-40
- Wakabayashi, J., 1990, Counterclockwise P-T-t paths from amphibolites, Franciscan Complex, California: relics from the early stages of subduction zone metamorphism: *Journal of Geology*, v. 98, p. 657-680.
- Harper, G. D., Grady, K., and Wakabayashi, J., 1990, A structural study of a metamorphic sole beneath the Josephine ophiolite, western Klamath terrane, California-Oregon: *Geol. Soc. Amer. Special Paper 255*, p. 379-396.
- Wahrhaftig, C. and Wakabayashi, J., 1989, The Franciscan Complex: introduction & The Franciscan Complex: tectonostratigraphic terranes & The Franciscan Complex: Basalts: in Wahrhaftig, C. and Sloan, D., eds. *Geology of San Francisco and vicinity: Int. Geol. Congress Field Trip Guide T105*, p. 5-6 & p. 6-9
- Wakabayashi, J., 1989, Baker Beach amphibolite & Ring Mtn. amphibolites: Counterclockwise P-T paths in Franciscan amphibolites: in Wahrhaftig, C. and Sloan, D., eds. *Geology of San Francisco and vicinity: Int. Geol. Congress Field Trip Guide T105*, p. 42-44 & p. 45-46.
- Wakabayashi, J., and Moores, E. M., 1988, Evidence for the collision of the Salinian Block with the Franciscan subduction zone: *Journal of Geology*, v. 96, p. 245-253.

### **In review, revision, or acceptance pending:**

- Hitz\*, B., and Wakabayashi, J., High-pressure metamorphic rocks in otherwise unmetamorphosed mélangé in a basal forearc basin setting: Implications for sedimentation and metamorphic rock exhumation along a long-lived subduction zone: revised and resubmitted, *Tectonophysics*
- Prohoroff\*, R.E., and Wakabayashi, J., Sandstone-matrix olistostrome deposited on intra-subduction complex serpentinite, Franciscan Complex, western Marin County, California: in revision for *Tectonophysics*
- Osozawa, S., Shinjo, R., Lo, C-H., Jahn, B-m., Hoang, N., Sasaki, M., Ishikawa, K., Kano, H., Hoshi, H., Xenophontos, C., and Wakabayashi, J., Geochemistry and geochronology of the Troodos ophiolite lavas: Revisiting the Izu-Bonin arc analog, and a model for forming both by subduction initiation beneath a mid-ocean ridge. In review *Geological Society of America Bulletin*
- Osozawa, S., and Wakabayashi, J., Exhumation of Triassic HP-LT rocks by upright extrusional domes and overlying detachment faults, Ishigaki-jima, Ryukyu Islands: In review, *Journal of Asian Earth Sciences*

- Shinjo, R., Osozawa, S., Sasaki, M., Ishikawa, K., Ito, Y., Watanabe, Y., and Wakabayashi, J., Supra subduction zone chemistry of intrusions into a Miocene accretionary prism, southwest Japan: A consequence of ridge subduction? In review, *Journal of Asian Earth Sciences*
- Osozawa, S., Tsai, C-H., and Wakabayashi, J., Folded granite with axial planar foliation, Cretaceous Kitakami-type granite, northeast Japan: in review, *Journal of Asian Earth Sciences*.

### **In preparation:**

- Shimabukuro, D. H.\*, Wakabayashi, J., and Alvarez, W., Possible cold subduction initiation beneath a continental margin in Calabria, southern Italy. to be submitted to *Geology*
- Ghatak, A., Basu, A.R., and Wakabayashi, J., Trace element and isotopic geochemistry of Franciscan graywackes: Implications sediment distribution patterns, rapid burial exhumation cycles and interaction of continental sediments with metabasites during subduction.
- Wakabayashi, J., Ghatak, A., Basu, A.R., and Smart, C. M.\*, Supra subduction zone ophiolite generation and emplacement: Insight from the geochemistry of metamorphic soles and regional geologic relations.
- Wakabayashi, J., Evolution of topography, Sierra Nevada, California: Landscape response to late Cenozoic uplift, its timing, along-strike variation, and an alternative explanation of isotopic and botanical paleoaltimetry: in prep. for *Geosphere* special volume on Origin and Uplift of the Sierra Nevada.
- Wakabayashi, J., Whither the megathrust? Implications of mélangé geology for large-scale slip-accommodation at subduction zones.

### **ABSTRACTS \* indicates student advisee**

- Masutsubo, N.\*, and Wakabayashi, J., 2011, Complex temporal-spatial relationships, Feather River ultramafic belt, northern Sierra Nevada. *EOS Fall Meeting Supplement Abstracts*
- Jackson, J.L.\*, Wakabayashi, J., and Jackson, B.A., 2011, Southern continuation of high-grade metamorphic rocks of the Feather River ultramafic belt, California: Preliminary reconnaissance. *EOS Fall Meeting Supplement Abstracts*
- Ghatak, A., Basu, A.R., and Wakabayashi, J., 2011, Trace element and isotopic geochemistry of Franciscan graywackes with implications for short time of recycling of detritus and interaction of continental sediments with metabasites during subduction. *EOS Fall Meeting Supplement Abstracts*
- Dumitru, T.A., Ernst, W.G., and Wakabayashi, J., 2011, Episodic vs. continuous accretion in the Franciscan accretionary prism and direct plate motion controls vs. more local tectonic controls on prism evolution. *EOS Fall Meeting Supplement Abstracts*
- Prohoroff, R.E.\*, Wakabayashi, J., and Dumitru, T., 2011, Sandstone matrix olistostrome deposited on intra-subduction complex serpentinite, trench slope basin deposits, and nappe and fold architecture and chronology, Franciscan Complex, Marin County, California. *EOS Fall Meeting Supplement Abstracts*
- Wakabayashi, J., 2011, Sedimentary Origins of the Block-in-Matrix Fabric of a Mélangé Between Coherent Nappes of a Subduction Complex: Localization of the Paleosubduction Megathrust Along the Upper Mélangé Contact. *EOS Fall Meeting Supplement Abstracts*
- Masutsubo, N.\*, and Wakabayashi, J. 2010, Amphibolite and blueschist facies metamorphism, Feather River ultramafic belt, Yuba River drainage: A record of subduction initiation, ridge subduction, and continued subduction? *Geological Society of America Abstracts with Programs*, v. 42, no. 5, p. 479
- Mendoza, Y.\*, and Wakabayashi, J., 2010, Collisional metamorphic signature in the Sierra Nevada, California? High-grade metamorphism of the Shoo Fly Complex: *Geological Society of America Abstracts with Programs*, v. 42, no. 5, p. 479
- Shimabukuro, D.H.\*, Wakabayashi, J., Alvarez, W., and Chang, S.-c., 2010, Possible cold subduction initiation beneath a continental margin in Calabria, southern Italy: *Geological Society of America Abstracts with Programs*, v. 42, no. 5, p. 678.
- Prohoroff, R.E.\*, and Wakabayashi, J., 2010, Order within the chaotic: Franciscan Complex field relations show km-scale overturned folds, an olistostrom deposited on intra-Franciscan serpentinite, and more: *Geological Society of America Abstracts with Programs*, v. 42, no. 5, p. 35.
- Ghatak, A., Basu, A.R., and Wakabayashi, J., 2010, Element mobility in Subduction metamorphism: Insight from metamorphic rocks of the Franciscan Complex and Feather River ultramafic belt, California: *Geological Society of America Abstracts with Programs*, v. 42, no. 5, p. 576.
- Wakabayashi, J., Ghatak, A., and Basu, A.R., 2010, Supra-subduction zone protolith signatures in metamorphic soles, initiation of subduction, and models of ophiolite generation and emplacement: *Geological Society of America Abstracts with Programs*, v. 42, no. 5, p. 575-576.
- Wakabayashi, J., 2009, Tectonic inversion: Regional versus local, and association with migrating strike-slip step-overs: *Geological Society of America Abstracts with Programs*, v. 41, no. 7, p. 51
- Wakabayashi, J., 2009, Mesozoic Cordilleran tectonics: Pre-Franciscan subduction initiation and termination events, and episodic processes during continuous Franciscan subduction: *Geological Society of America Abstracts with Programs*, v. 41, no.7, p. 589

- Wakabayashi, J., 2009, Insight into Franciscan mélangé development from sedimentary breccias, field relations, and block types: Geological Society of America Abstracts with Programs, v. 41, no.7, p.403
- Kemp, C.\*, and Wakabayashi, J., 2009, Late Cenozoic uplift and associated landscape evolution of the Sierra Nevada, California: Geological Society of America Abstracts with Programs, v. 41, no.7 p. 180
- Carlson, C.\*, Wakabayashi, J., and Pluhar, C., 2009, Field relations and age of late Cenozoic volcanic units inset within the mid-upper San Joaquin River drainage, CA: Geological Society of America Abstracts with Programs, v. 41, no.7, p. 293
- Shriver, A.\*, and Wakabayashi, J., 2009, Landscape evolution of the northern Sierra Nevada, USA: Insights from the American River drainage: Geological Society of America Abstracts with Programs, v. 41, no.7, p. 293
- Luce, J.\*, and Wakabayashi, J., Revisiting the lone Sierra Nevada eclogite locality: What IS it?: Geological Society of America Abstracts with Programs, v. 41, no. 7, p.404
- Long, J.\*, and Wakabayashi, J., 2009, High-P amphibolite blocks from mélangé, Nacimiento belt, coastal California: A first report: Geological Society of America Abstracts with Programs, v. 41, no.7, p. 403
- Masutsubo, N.\*, and Wakabayashi, J., 2009, Beyond simple models of orogenic metamorphism: HP/HT, LP/HT, and HP/LT metamorphism, Feather River ultramafic belt, North Yuba River canyon, California: Geological Society of America Abstracts with Programs, v. 41, no.7, p. 519
- Annis, D.\*, and Wakabayashi, J., 2009, HP/HT metamorphism of the Devil's Gate ophiolite, Sierra Nevada, California: Where is the upper plate?: Geological Society of America Abstracts with Programs, v. 41, no.7, p. 404
- Hitz, B.\*, and Wakabayashi, J., 2009, Franciscan shear zones between Coast Range ophiolite and Great Valley Group rocks: Evidence of mélangé diapirism? Geological Society of America Abstracts with Programs, v. 41, no.7, p.404
- Shimabukuro, D\*, Wakabayashi, J., Libera, F., Piluso, E., and Alvarez, W., 2009, Applying the Franciscan model to a non-collisional Alpine segment in the Calabrian orogen of southern Italy: Geological Society of America Abstracts with Programs, v. 41, no.7, p. 403
- Dumitru, T.A., Wakabayashi, J., and Wright, J.E., 2009, Time-varying accretion, nonaccretion, and metamorphism in the Franciscan subduction complex from the initiation of subduction until ca. 80 Ma: Geological Society of America Abstracts with Programs, v. 41, no.7, p. 404
- Dundas, R.G., Harmsen, F.J.M., and Wakabayashi, J., 2009, Mammuthus and Camelops from Pleistocene strata along the Caltrans State Route 180 West project, Fresno, California: Geological Society of America Abstracts with Programs, v. 41, no.7, p.109
- Wakabayashi, J., 2009, Quaternary faulting within the Sierra Nevada: Old views, newer views, challenges: AEG News, v. 52 Annual Meeting Program with Abstracts, p.109
- Kemp, C.\*, and Wakabayashi, J., 2009, Sierra Nevada frontal fault system: Kinematics and associated landscape evolution: Geological Society of America Abstracts with Programs, v. 41, no.5, p.31.
- Ghatak, A., Basu, A.R., and Wakabayashi, J., 2008, Trace element mobility and Nd-Sr-Pb isotopes in the high-grade metamorphic rocks of the Franciscan subduction complex: Evidence for an arc protolith: EOS (2008 AGU Fall Meeting abstracts)
- Kemp\*, C., and Wakabayashi, J., 2008, Temporal slip variation of the Sierra Nevada frontal fault system and effects on landscape evolution: EOS (2008 AGU Fall Meeting abstracts)
- Smart\*, C., and Wakabayashi, J., 2008, Hot and deep: Rock record of subduction initiation, Feather River ultramafic belt, California: Geological Society of America Abstracts with programs, v. 40, no.6, p. 514-515
- Wakabayashi, J., and Smart\*, C., 2008, The rate of SW Pacific Cenozoic tectonic transitions compared to models of North American Cordilleran tectonics: Are the latter too simplistic? Geological Society of America Abstracts with programs, v. 40, no.6, p.514.
- Wakabayashi, J., and Dilek, Y., 2007, Mélangé types and formation in contrasting settings associated with convergent margin tectonics: Geological Society of America Abstracts with programs, v. 39, no. 6, p. 453
- Snow, C.A., Wakabayashi, J., and Ernst, W.G., 2007, SHRIMP-based depositional ages of Franciscan Complex metagraywackes, San Francisco Bay area, western California: Geological Society of America Abstracts with programs, v. 39, no. 6, p. 454
- Dumitru, T.A., Wright, J.E., Wakabayashi, J., and Wooden, J.L., 2007, Geochronology of the South Fork Mountain schist in the Yolla Bolly area, northern California: Geological Society of America Abstracts with programs, v. 39, no. 4, p.81
- Wakabayashi, J., 2006, Speculation on Mendocino Triple Junction evolution: Instability and interactions with multiple San Andreas fault system strands: EOS Transactions of the American Geophysical Union, v. 87, no. 52, Fall Meeting Supplement. Abstract no. T53E-07
- Dumitru, T.A., Wright, J.E., Wakabayashi, J., Wooden, J.L., 2006, Geochronology of the Franciscan Eastern Belt in the Yolla Bolly area, northern California, and the nature of the South Fork Mountain schist: EOS, v. 87, no. 52, Fall Meeting Supplement. Abstract no. T11D-0469
- Ghatak, A., Basu, A.R., and Wakabayashi, J., 2006, Isotopic and geochemical studies of high grade blocks and coherent metamorphic rocks, Franciscan Complex: New results: Geological Society of America, Abstracts with Programs, v. 38, no. 7, p. 506.

- Tsujimori, T., Matsumoto, K., Wakabayashi, J., and Liou, J.G., 2005 Franciscan eclogite revisited: Reevaluation of P-T evolution of tectonic blocks from Tiburon Peninsula, California, EOS, v. 86, no. 52, Fall Meeting Supplement. Abstract no. V13E-0592.
- Wakabayashi, J., 2005, Commonly neglected factors in orogenic belt evolution invite further study: Geological Society of America Abstracts with programs, v. 37, no. 4, p.81
- Basu, A.R., and Wakabayashi, J., 2005, Arc origin of Franciscan high-grade metamorphic rocks consistent with the tectonic model of Moores (1970): Geological Society of America Abstracts with programs, v. 37, no. 4, p.63.
- Platt, J.P., Anczkiewicz, R., and Wakabayashi, J., 2005, Conditions of initiation of the Franciscan subduction from Lu-Hf ages on high-grade blocks: Geological Society of America Abstracts with programs, v. 37, no. 4, p. 84-85.
- Saha, A., Basu, A.R., Wakabayashi, J., and Wortman, G.L., 2004, Subducted infant arc in the protoliths of high-grade tectonics blocks of the Franciscan: EOS (Transactions of the American Geophysical Union), v. 85, no. 17, Joint Assembly Supplement, p. JA472.
- Wakabayashi, J., 2003, Tectonic Mechanisms Associated with Metamorphic P-T Paths: Alternatives to Thrusting-Thermal Relaxation Cycles: EOS v, 84, no. 46, p. F1348
- Wakabayashi, J., Hengesh, J.V., and Sawyer, T.L., 2002, Four-dimensional transform fault processes: Evolution of step-overs and bends at different scales: EOS, v. 83, no.47, p. F1313
- Platt, J., Anczkiewicz, R., Dumitru, T., Wakabayashi, J., and Thirlwall, R., 2002, Timing of HP metamorphism and rates of exhumation in the Franciscan Complex, California: Evidence from Lu-Hf and Sm/Nd garnet dating: EOS, v.83, no. 47, p. F1304-1405.
- Wakabayashi, J., 2002, Recognition and mapping of melanges: Implications for engineering projects: Geological Society of America, Abstracts with Programs, v. 34, no.6, p. 255
- Wakabayashi, J. and Dilek, Y., 2001, What constitutes emplacement of an ophiolite? Geological Society of America Abstracts with Programs, v. 33, no. 6, p. A226-A227.
- Tagami, T., and Wakabayashi, J., 2000, Temporal correlation of the Mesozoic orogenic events recorded in Sierra Nevada batholiths, Great Valley Group, and Franciscan belts: EOS, v. 81, no.48, p. 1071
- Saha, A., Basu, A., Wortman, G.L., and Wakabayashi, J., 2000, REE, Nb-Ta, and Nd-isotope geochemistry of Franciscan eclogites and blueschists-role of fluid mobility and sphene stability in subducting ocean-crust protolith: EOS, v. 81, no.48, p.1355-1356.
- Wakabayashi, J., and Sawyer, T.L., 2000, Stream incision, tectonics, uplift, and evolution of topography of The Sierra Nevada, California: Geological Society of America Abstracts with Programs, v. 32, no. 7, p. A165
- Wakabayashi, J., and Sawyer, T.L., 2000, Distribution of late Cenozoic faults in the Sierra Nevada, California: AEG News v. 43, no. 4 (Annual Meeting, Program and Abstracts), p.119
- Wakabayashi, J., and Sawyer, T.L., 1999, Slip transfer from the northern Calaveras fault: A critical unresolved seismic hazard issue in the eastern San Francisco Bay region: EOS, v. 80, no. 46, p. F735.
- Wakabayashi, J., 1999, The first and the last: the impact of initiation and termination of subduction on the Franciscan and other subduction complexes: Geological Society of America, Abstracts with Programs, v. 31, no. 6, p.A105.
- Wakabayashi, J., 1998, The blueschist sandwich: a clue to mechanisms of forearc high development and exhumation of the Franciscan Complex, California: EOS, v. 79, no. 45, p.F913.
- Wakabayashi, J., and Sawyer, T.L., 1998, Holocene (?) oblique slip along the Miller Creek fault, eastern San Francisco Bay Area, California: EOS, v. 79, no. 45, p.F613.
- Wakabayashi, J., and Hengesh, J.V., 1998, 4-D processes in transform fault systems: progressive development of step-overs and bends: Geological Society of America, Abstracts with Programs, v. 30, no.7, p. A74-A75.
- Wakabayashi, J., 1997, Rationale for limited post-Eocene slip on the Pilarcitos fault and a working model for slip distribution and evolution of the northern San Andreas fault system: EOS, v. 78, no. 46, p. F703
- Wakabayashi, J., 1996, Back to the future: California Coast Ranges at depth and implications for the interpretation of orogenic belts: EOS, v. 77, no. 46, p. 743
- Hengesh, J.V., Nolan, J.M., and Wakabayashi, J., 1996, Holocene displacement along the Serra fault, San Francisco Peninsula, California: EOS, v. 77, no. 46, p. 744.
- Sawyer, T.L., Hitchcock, C.S., Knudsen, K.L., Sowers, J.M., Crampton, T., Sawyer, J.E., Wakabayashi, J., Lettis, W.R., and Caskey, S.J., 1996, Middle to late Quaternary strike-slip faulting on the Muleshoe Mine fault, Butt Valley Fault Zone (BVFZ), NE California: Geological Society of America, Abstracts with Programs, v. 28, no.5, p.108-109.
- Marcum, D., Wakabayashi, J., and Page, W.D., 1995, Potential slope instability areas at the Caribou Penstocks, North Fork Feather River, northeast California: Annual Meeting, Association of Engineering Geologists, v. 38, abstract volume, p. 70.
- Wakabayashi, J., 1994, Deformation along the Coast Range-Central Valley Geomorphic boundary, California and the shortening budget for the Coast Ranges: EOS, Trans. Amer. Geophys. Union, v.75, no. 44, p.684
- Wakabayashi, J., and Hengesh, J.V., 1994, The influence of basement structural grain on Holocene faulting, San Francisco Bay, California: EOS, Trans. Amer. Geophys. Union, v.75, no.44, p.681
- Hengesh, J.V., and Wakabayashi, J., 1994, Quaternary deformation along the onshore projection of the Coyote Point fault zone: EOS, Trans. Amer. Geophys. Union, v.75, no.44, p.681

- Wakabayashi, J., and Page, W.D., 1994, Quaternary faulting and incision rates, North Fork Feather River, northeastern Sierra Nevada, California: Geological Society of America, Abstracts with Programs, v. 26, no. 7, p. A300
- Wakabayashi, J., and Page, W.D., Renne, P.R., Sharp, W.D., and Becker, T.A., 1994, Plio Pleistocene volcanic rocks and incision of the North Fork Feather River, California: tectonic implications: Abstracts for the 8th International Conference on Geochronology, Cosmochronology and Isotope Geology, U.S. Geol. Surv. Circular 1107, p.345.
- Becker, T.A., Sharp, W.D., Renne, P.R., Turrin, B.D., Page, W.D., and Wakabayashi, J., 1994,  $^{40}\text{Ar}/^{39}\text{Ar}$  dating of young low-K tholeiites: examples from northeast California, U.S.A.: Abstracts for the 8th International Conference on Geochronology, Cosmochronology and Isotope Geology, U.S. Geol. Surv. Circular 1107, p. 24
- Wakabayashi, J., and Unruh, J.R., 1994, On the compatibility of tectonic wedging with blueschist metamorphism and uplift: Geol. Soc. Amer. Abstr. w. Prog., v.26, no.2, p.101
- Sawyer, T.L., Wakabayashi, J., Page, W.D., Thompson, S.C., and Ely, R.W., 1993, Late Cenozoic internal deformation of the northern and central Sierra Nevada, California: A new perspective: EOS, Trans. Amer. Geophys. Union, v.74, no. 44, p. 609
- Wakabayashi, J., and Page, W. D., 1993, Quaternary faulting of basalt flows on the Melones and Almanor fault zones, North Fork Feather River, NE California: Geological Society of America , Abstracts with Programs v.25, no. 5, p. 159.
- Wakabayashi, J., and Smith, D. L., 1993, Recurrence intervals and maximum earthquakes associated with thrusting, Coast Range-Central Valley boundary: Geol. Soc. Amer., Abstr. w. Programs, v. 25, no.5,p. 159.
- Page, W. D., Sawyer, T. S., McLaren, M. , Savage, W. U., and Wakabayashi, J., 1993, The Quaternary Tahoe-Medicine Lake trough: the western margin of the Basin and Range transition, NE California: Geol. Soc. Amer. , Abstr. w. Programs, v. 25, no. 5, p. 131.
- Wakabayashi, J., Hamilton, D. H., and Smith, D. L., 1991, Miller Creek fault and related faults, eastern San Francisco Bay area, California: seismotectonic significance: Geol. Soc. Amer. Abstr. w. programs, v. 23, no. 5, p. A84.
- Irwin, J. J., Wakabayashi, J., and Donovan, J., 1991, Oscillatory compositional zonation in metamorphic minerals, Franciscan Complex, California: Geol. Soc. Amer. Abstr. w. programs v. 23, no. 5, p. A449
- Wakabayashi, J., and Deino, A., 1989, Laser-probe  $^{40}\text{Ar}/^{39}\text{Ar}$  ages from high grade blocks and coherent blueschists, Franciscan Complex, California: Preliminary results and implications for Franciscan tectonics: Geol. Soc. Amer. Abstr. w programs v. 21, no. 6, p. A267.
- Wakabayashi, J., and Dilek, Y., 1988, Ophiolites, subophiolitic soles and the problem of forearc ophiolites:EOS , v. 69, no.44, p. 1450.
- Wakabayashi, J., and Moores, E. M., 1988, Syn- and post-accretionary tectonics of the Franciscan Complex, California: Geol. Soc. Amer. Abstr. w. programs, v. 20, no. 7, p. A273.
- Wakabayashi, J., 1988, Counterclockwise P-T-t paths from Franciscan amphibolites:implications for metamorphic evolution in a subduction zone: Geol. Soc. Amer Abstr. w programs, v. 20, no.3, p. 240-241.
- Wakabayashi, J., 1987, Amphibolite grade metamorphism of Franciscan rocks from the San Francisco Bay Area, California: Geol. Soc. Amer. Abstr. w programs, v. 19, no. 6, p. 460
- Wakabayashi, J., and Dilek, Y., 1987, An alpine-style collision in the northern Sierra Nevada, California: structural and metamorphic evidence: EOS, v. 68, , no. 44, p.1474
- Wakabayashi, J., and Moores, E. M., 1986, Evidence for the collision of the Salinian Block with the Franciscan subduction zone: EOS, v.64, no. 44, p. 1215

## **EXTRAMURAL GRANTS**

NSF-EAR \$69,692 (Award for 2007-2009). Geochemical investigations of subduction initiation processes, Franciscan Complex, California. Pre-Fresno State extramural grants included three National Earthquake Hazard Reduction Program Grants for a total funded amount of approximately \$150,000 awarded 1994-1997.

## **INVITED SEMINARS/PRESENTATIONS**

(geology departments unless otherwise noted)

Keynote speaker, International Conference on tectonics of strike-slip restraining and releasing bends in continental & oceanic settings (Geological Society of London, London, UK, Sept. 28-30, 2005); Liou Symposium (Dec. 2005), Coleman Symposium (Dec. 2003), Association of Engineering Geologists, San Francisco Chapter (thrice); American Geophysical Union Fall Meeting 1994, 1998; Geological Society of America Annual Meeting, 2009 (twice), National Association of Geoscience Teachers 1994, Geological Society of America 1999, Northern California Geology Society (thrice), Peninsula Geological Society, San Joaquin Volcanological Society of Sacramento (twice), U.S. Geological Survey (Menlo Park, CA), University of Southern California, UC Davis (four times); UC Santa Cruz, UCLA, University of Nevada-Las Vegas; Stanford Univ. (thrice), San Francisco State (three times), Cal. State Univ. Chico (thrice), Cal. State University Fresno (thrice; prior to employment), Cal. State Univ. Sacramento, (twice) Cal. State Hayward (four times), Humboldt State, San Jose State (thrice), Sonoma State (five times), University of the Pacific, Cambridge Univ. (U.K.); Kyoto Univ. (Japan).



## **FIELD TRIPS LED**

(organizations for which trips were led; university trips exclude trips conducted while in employ of that university)  
Assoc. of Engineering Geologists (three times), Friends of the Pleistocene, International Geologic Congress, Geological Society of America Penrose Conference on Ophiolites, Geological Society of America Cordilleran Section, International Geologic Correlations Project-Metabasites, Amer. Geophysical Union Chapman Conference, Amer. Assoc. of Petroleum Geologists, Assoc. of Women Geoscientists, National Assoc. of Geoscience Teachers, Northern California Geological Society (three times), Peninsula Geologic Society/Stanford Univ., Cal. State Hayward, UC Berkeley (twice), UC Davis, Chico State, Brigham Young Univ., University of Miami (Ohio), Univ. Oslo (Norway), Indiana Geological Survey (for German participants), Univ. Mainz (Germany), Univ. Wien (Austria), Univ. Salzburg (Austria).