Sep. 2010

Curriculum Vitae

SEAN PATRICK BEMIS

U.S. Geological Survey
345 Middlefield Rd, MS 973
Menlo Park, CA 94025

Email: spbemis@usgs.gov

EMPLOYMENT

2010 **Mendenhall Postdoctoral Fellow**
Geology and Geophysics Science Center, U.S. Geological Survey

Project Title: *Linking the Yakima Fold Belt to its Forearc Analogs through the Cascade Arc: Constraints on Active Fold Belt Deformation between the Puget Lowland and Portland, Oregon*

Research Mentor: Ray Wells

EDUCATION

2010 **Ph.D.,** Geological Sciences, University of Oregon
Dissertation: *Moletrack Scarps to Mountains: Quaternary Tectonics of the Central Alaska Range*
Committee: Ray Weldon (Chair), Joshua Roering, David Schmidt, Douglas Kennett

2004 **M.S.,** Geology, University of Alaska Fairbanks

2001 **B.S.,** Geology, University of Alaska Fairbanks (University Honors)

RESEARCH AND TEACHING INTERESTS

- Neotectonics and paleoseismology
- Structural geology
- Geomorphology
- Social impacts of seismic hazard assessment
- Near-surface expression of active thrust faults
- Tectonics of convergent and transpressional plate boundaries

GRANTS AND AWARDS

2009 American Geophysical Union Fall Meeting Outstanding Student Paper Award

2008-09 Age Control for Slip Rate and Paleoearthquakes on Active Thrust Faults in the Northern Foothills Fold-Thrust Belt, Alaska Range (PI Ray Weldon) – NEHRP/USGS, $75,426

2006-07 Paleoseismic and Structural Characterization of Active Thrust Faults in the Northern Foothills Fold-Thrust Belt, Alaska Range, Alaska (PI Ray Weldon) – NEHRP/USGS, $84,619

2006	Geological Society of America Research Grant - $2000
2005	Thayer Scholarship - $750
2003-04	Arco Alaska Scholarship - $2000
2003	Geophysical Institute Student Travel Grant - $400
2003	University of Alaska Fairbanks Graduate School Travel Grant - $600
2003	Alaska Geological Society Student Research Grant - $1200
2002-03	Brian R. Zelenka Memorial Scholarship - $1000
2002	BP-Amoco Scholarship - $6000
2002	Alaska Geological Society Student Research Grant - $500
2002	Geological Society of America Research Grant - $2000
1997-98	Chancellor's Scholarship, University of Alaska Fairbanks – Full tuition waiver

PUBLICATIONS

Peer-Reviewed Manuscripts

2010 Carver, G.A., **Bemis, S.P.**, Solie, D.N., Castonguay, S., and Obermiller, K.E., Active and potentially active faults in or near the Alaska Highway corridor, Dot Lake to Tetlin Junction, Alaska: Alaska Division of Geological & Geophysical Surveys Preliminary Interpretive Report 2010-1, 42 p.

2010 Personius, S.F., Crone, A.J., Burns, P.A., Beget, J.E., Seitz, G.G., and **Bemis, S.P.**, Logs and geologic data from a paleoseismic investigation of the Susitna Glacier fault, central Alaska Range, Alaska: U.S. Geological Survey Scientific Investigations Map 3114, 2 sheets. http://pubs.usgs.gov/sim/3114/.

2009 Philibosian, B., Fumal, T.E., Weldon, R.J., Kendrick, K.J., Scharer, K.M., **Bemis, S.P.**, Burgette, R.J., and Wisely, B.A., Photomosaics and Logs of Trenches on the San Andreas Fault near Coachella, California: U.S. Geological Survey, 2 sheets.

2008 Carver, G.A., **Bemis, S.P**., Solie, D.N., and Obermiller, K.E., Active and potentially active faults in or near the Alaska Highway corridor, Delta Junction to Dot Lake, Alaska: Alaska Division of Geological & Geophysical Surveys Preliminary Interpretive Report 2008-3D, 32 p.

2007 **Bemis, S.P.,** and Wallace, W.K., Neotectonic framework of the north-central Alaska Range foothills, *in* Ridgway, K., Trop, J., Glen, J., and Fisher, M. eds., Tectonic Growth of a Collisional Continental Margin: Crustal Evolution of Southern Alaska, Geological Society of America Special Paper 431, p. 549-572.

Unpublished Reports

2008 Carver, G.A., and **Bemis, S.P.**, Reconnaissance of active and potentially active faults in

the Parks Highway corridor between Cantwell and Rex, Alaska: Technical report for Michael Baker Jr., Inc., 40 p.

Work In Progress

Bemis, S.P., Weldon, R.J., Progressively deformed geomorphic surfaces constrain the balance between thrust wedge thickening and foreland propagation in a basement-involved fold-thrust belt [in preparation for submission to *Lithosphere*].

Bemis, S.P., Carver, G.A., and Weldon, R.J., Strain-partitioning on the Denali fault and Quaternary growth of the Alaska Range: Transpressive deformation along a curved fault [submitted to *Tectonics*].

Bemis, S.P., Weldon, R.J., Thoms, E.E., and Burns, P., Quaternary geology and neotectonics of the Japan Hills - Gold King Creek area, central Alaska: Identification of active thrust faults and related late Cenozoic deformation [in preparation for Alaska Division of Geological & Geophysical Surveys Preliminary Interpretive Report]

Bemis, S.P., Carver, G.A., and Weldon, R.J., Influence of the mechanical stratigraphy of surficial deposits on the character of reverse fault surface ruptures.

Bemis, S.P., and Weldon, R.J., Paleoearthquake and slip rate constraints for faults of the Nenana River valley, central Alaska.

Bemis, S.P., Roering, J.J., Weldon, R.J., and Carver, G.A., Factors allowing enhanced preservation of Pleistocene landforms in the central Alaska Range.

ABSTRACTS AND CONFERENCE PROCEEDINGS

2009 **Bemis, S.P.**, and Weldon, R.J., Progressively deformed geomorphic surfaces constrain the balance between thrust wedge thickening and foreland propagation: Geological Society of America Abstracts with Programs, v. 41, n. 7, p. 184.

2009 **Bemis, S.P.**, and Weldon, R.J., Transpressive deformation along a continuous curve: Slip-partitioning on the Denali Fault and Quaternary growth of the Alaska Range: Eos (Transactions of the American Geophysical Union), v. 90, n. 52, Abstract T12C-06.

2008 Carver, G.A., **Bemis, S.P.**, Solie, D.N., Obermiller, K.E., and Weldon, R.J., Active faults in or near the proposed Trans-Alaska gas pipeline corridor, east-central Alaska (poster): Seismological Research Letters, v. 79, n. 2.

2006 **Bemis, S.P.**, Weldon, R.J., and Benowitz, J.A., Does hinterland height affect thrust belt width?: Eos Transactions American Geophysical Union v. 87, n. 52, Fall Meeting Supplement, Abstract T44A-03.

2006 **Bemis, S.P**., Wallace, W.K., and Weldon, R.J., Overview of the Quaternary structure and deformation of the Northern Foothills Fold and Thrust Belt, central Alaska Range, Alaska: AGU Chapman Conference: Active Tectonics and Seismic Potential of Alaska, Girdwood, Alaska, May. (Invited)

2005 **Bemis, S.P.**, Weldon, R., and Burns, P., Progress in characterizing faults along the northern flank of the central Alaska Range: Geological Society of America Abstracts

with Programs, v. 37, no. 7, p. 78.

2005 Schwartz, D.P., Haeussler, P.J., Matmon, A., Dawson, T.E., Seitz, G., Stenner, H., **Bemis, S.**, Molhoek, E., Sherrod, B., Crone, A.J., Personius, S., Craw, P., and Beget, J., Earthquake geology of the Denali Fault System, Alaska: Proceedings of the 5th U.S.-Japan Natural Resources Meeting and Parkfield, California Fieldtrip, USGS Open-File Report 2005-1131, 82 p.

2003 **Bemis, S.P**., and Wallace, W.K., Active structures in the foothills of the north-central Alaska Range: Eos Transactions American Geophysical Union, Fall Meeting Supplement, v. 84, n. 46, Abstract S12A-0380.

2003 **Bemis, S.P**., Implications for the active tectonics of the north-central Alaska Range foothills from bedrock structure and river terraces: Alaska Geological Society Geology Symposium, Fairbanks, Alaska.

INVITED TALKS

2005 "Looking for active faults in the northern Alaska Range" presented at USGS Seismic Hazard Assessment for Alaska workshop, Fairbanks, Alaska, May 2005.

2007 "Recent and upcoming work on the neotectonics of the central Alaska Range, southern San Andreas fault, and the Tien Shan of Kyrgyzstan" presented at the Alaska Division of Geological and Geophysical Surveys, Fairbanks, Alaska, April 2007.

TEACHING EXPERIENCE

2004 – 09 **Graduate Teaching Fellow, Department of Geological Sciences, University of Oregon**

Labs taught:
Neotectonics and Quaternary Geology (twice)
Field Methods
Field Geology (six-week Summer Field Camp, Central Oregon and Montana)
Earth Resources and the Environment
Environmental Geology and Landscape Development
Earth Materials

2001-04 **Teaching Assistant, Department of Geology, University of Alaska Fairbanks**

Labs taught:
Dynamic Earth (5 sections)
Paleobiology and Paleontology
Structural Geology
Field and Computer Methods in the Geosciences
Photogeology
Field Methods in Geology (six-week Summer Field Camp, Denali National Park and Talkeetna Mountains, Alaska)

OTHER WORK EXPERIENCE

2007-09 **Engineering Geology Intern**, **Alaska Division of Geological and Geophysical Surveys**, Fairbanks, Alaska
Part of the active faulting investigations crew on the Alaska Highway proposed natural gas pipeline corridor project. Duties entailed the identification and characterization of possible active faults through standard paleoseismic and neotectonic techniques, subsequent analysis/interpretation, and report preparation.

2008-09 **Student Support Technician, Michael Baker Jr., Inc.,** Anchorage, Alaska
Geotechnical reconnaissance for potential earthquake hazards through the Alaska Range for a proposed natural gas pipeline route.

2004 **Engineering Geology Intern**, **Alaska Division of Geological and Geophysical Surveys**, Fairbanks, Alaska
Denali, Totschunda, and Susitna Glacier Thrust fault paleoseismic and slip rate investigations field crew. Collaboration with the USGS to investigate the recent paleoseismic history of the faults that ruptured in the 2002 Denali Fault earthquake. The work involved hand-excavating, preparing, logging, and radiocarbon sampling of paleoseismic trenches in remote locations throughout the east-central Alaska Range.

FIELD RESEARCH EXPERIENCE

- Extensive studies of Quaternary deformation in the eastern and central Alaska Range
- Paleoseismic investigations on the San Andreas fault in southern California
- Paleoseismic investigations on normal faults in central Oregon
- Detailed mapping of late Cenozoic deformation associated with thrust faults in the Tien Shan of Kyrgyzstan
- Geomorphology and Quaternary fault potential of northwest Oregon

TECHNICAL EXPERIENCE

- Collection and pretreatment of organic samples for radiocarbon analysis
- Collection and preparation of samples for ^{10}Be terrestrial cosmogenic nuclide analysis
- ArcGIS 9.3
- Trimble survey and mapping GPS equipment
- Leica total station and auto-level

PROFESSIONAL AFFILIATIONS

2003-present American Geophysical Union
2003-present Alaska Geological Society
2004-present Geological Society of America

2006-present Seismological Society of America

SERVICE

Departmental

2007-09 Department of Geological Sciences Steward, Graduate Teaching Fellows Federation, University of Oregon.

2006-07 Graduate Student Representative, Department of Geological Sciences, University of Oregon.

University

2007 Graduate Teaching Fellows Federation Delegate, American Federation of Teachers-Oregon Convention, Sunriver, Oregon.

Professional

2005 Co-Trip Leader, Neotectonics of the Central Alaska Range, Friends of the Pleistocene-Alaska Cell, September 3-5.