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Andrew Meigs

Year hired: 1998

Specialty: [Active tectonics](#), [tectonic geomorphology](#), structural geology

Research interests: Crustal deformation and feedbacks between exhumation and patterns of deformation in convergent orogens, fold-and-thrust belt structural analysis, tectonics and topography.

Recent Publications: Scarberry, K., Meigs, A., and Grunder, A., in press, [Inception and style of faulting at the edge of a propagating continental rift system: Insight from the structural development of the Abert Rim fault, southern Oregon](#): Tectonophysics.

Meigs, A., Johnston, S., Garver, J., and Spotila, J., 2008, [Crustal-scale structural architecture, shortening, and exhumation of an active, eroding orogenic wedge \(the Chugach/St Elias Range, southern AK\)](#): Tectonics, v. 27.

Meigs, A., Cooke, M.L., and Marshall, S., 2008, [Using vertical rock uplift patterns to infer and validate of three-dimensional fault configuration in the Los Angeles basin](#): Bulletin of the Seismological Society of America, v. 98, p. 106-123.

Meigs, A., Krugh, W. C., Schiffman, C., Vergés, J., and Ramos, V. A., in press, [Evidence for refolding of thin-skinned thrust sheets by active thick-skinned thrust faults in the eastern Precordillera of San Juan Province, Argentina](#), Revista de la Asociación Geológica

Argentina.: Revista de la Asociación Geológica Argentina.

Vergés, J., Ramos, V. A., Meigs, A., Cristallini, E. O., and Cortes, J. M., in press, Crustal wedging triggering recent deformation in the andean thrust front between 31°S and 33°S: Sierras Pampeanas-Precordillera interaction: Journal of Geophysical Research.

VanLaningham, S., Meigs, A., and Goldfinger, C., 2006, [The effects of rock uplift and rock resistance on river morphology in a subduction zone forearc, Oregon, USA](#): Earth Surface Processes and Landforms, v. 31, no. 10, p. 1257-1279.

Meigs, A., Krugh, W. C., Davis, K. and Bank, G., 2006, [Ultra-rapid landscape response and sediment yield following glacier retreat, Icy Bay, southern Alaska](#): Geomorphology, v. 78, no. 3-4, p. 207-221.

Arsenault, A. M., and Meigs, A., 2005, [Contribution of deep-seated bedrock landslides to erosion of a glaciated basin in southern Alaska](#): Earth Surface Processes and Landforms, v.30, p. 1111-1125.



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Spotila, J. A., Buscher, J. T., Meigs, A., and Reiners, P. W., 2004, [Long-term Glacial Erosion of Active Mountain Belts: The Chugach/St. Elias Range, Alaska](#): *Geology*, v. 32, no. 6, p. 501-505.

Meigs, A., Yule, D., Blythe, A., and Burbank, D., 2003, [Implications of distributed crustal deformation for exhumation in a portion of a transpressional plate boundary, Western Transverse Ranges, southern California](#): *Quaternary International*, v. 101-102, p. 169-177.

Meigs, A. J., and Oskin, M. E., 2002, [Convergence, block rotation, and structural interference across the Peninsular-Transverse Ranges boundary, eastern Santa Monica Mountains, California](#), in Barth, A., ed., *Contributions to Crustal Evolution of the Southwestern United States*: Geological Society of America Special Paper: Boulder, Geological Society of America, p. 279-293.

Meigs, A., and Sauber, J., 2000, [Southern Alaska as an example of the long-term consequences of mountain building under the influence of glaciers](#): *Quaternary Science Reviews*, v. 19, p. 1543-1562.

Meigs, A. J., Brozovic, N., and Johnson, M. L., 1999, [Steady, balanced rates of uplift and erosion of the Santa Monica mountains, California](#): *Basin Research*, v. 11, p. 59-73.

Brozovic, N., Burbank, D. W., and Meigs, A. J., 1997, [Climatic limits on landscape development in the northwestern Himalaya](#): *Science*, v. 276, p. 571-574.

Meigs, A. J., 1997, *Sequential development of selected Pyrenean thrusts*: *Journal of Structural Geology*, v. 19, p. 481-502.

Burbank, D. W., Meigs, A. J., and Brozovic, N., 1996, [Interactions of growing folds and coeval depositional systems](#): *Basin Research*, v. 8, p. 199-224.

Meigs, A. J., and Burbank, D. W., 1997, [Growth of the south Pyrenean orogenic wedge](#): *Tectonics*, v. 16, p. 239-258.

Meigs, A. J., Vergés, J., and Burbank, D. W., 1996, [Ten-million-year history of a thrust sheet](#): *Geological Society of America Bulletin*, v. 108, p. 1608-1625.

Vergés, J., Burbank, D. W., and Meigs, A. J., 1996, [Unfolding: An inverse approach to fold kinematics](#): *Geology*, v. 24, p. 175-178.

Meigs, A. J., Burbank, D. W., and Beck, R. A., 1995, [Middle-late Miocene \(>10 Ma\) formation of the Main Boundary Thrust in the western Himalaya](#): *Geology*, v. 23, p. 423-426.

Meigs, A. J., and Imm, T. A., 1995, *Geometry and deformation of a duplex and its roof layer: Observations from the Echooka anticlinorium, northeastern Brooks Range, Alaska*, in Combellick, R. A., and Tannian, F., eds., *Professional Report 117: Short Notes on Alaskan Geology 1995*: Fairbanks, Alaska Division of Geological and Geophysical Surveys, p. 19-31.

Recent Graduate *Completed*
Student Titles:

- 2005, MS, Johnston, S., Thesis: "Geologic structure and exhumation accompanying Yakutat terrane collision, southern Alaska", 49 p.

- 2005, PhD, Punke, M. L., Thesis: "Paleoenvironmental reconstruction of an active margin coast from the Pleistocene to the present: examples from southwestern Oregon", 171 p.
- 2005, MS, Blair, Meghan, Sediment Storage and Delivery on Holocene Glacial Timescales, Southern Alaska.
- 2004, MS, Arsenault, Ann, Geosciences, Thesis: "Contribution of Deep-Seated Bedrock Landslides to Denudation of a Glaciated Basin in Southern Alaska", 91 p.
- 2003, MS, Essman, James, Geosciences, Thesis: "The Case for NE-SW Extension in Northeast Oregon", 65 p.
- 2003, MS, Kaye, Grant, Geosciences (with C. Goldfinger, COAS), Thesis: "Spatial Correlation of Subduction Interplate Coupling and Forearc Morpho-tectonics", 125 p.
- 2003, MS, Krugh, William, Geosciences, Thesis: "Fold Growth Due to Kink-band Migration in Repeated Earthquakes, Sierra de Villicum, San Juan, Argentina", 64 p.
- 2003, BS, Novak, Rachel, International Studies (with D. Kingston, Anthropology)*, Thesis: "Contributions of Oral Traditions from the Pacific Northwest to the Cascadia Subduction Zone in Alignment with Geoscientific Knowledge", 56 p.
- 2003, MS, Vanlaningham, Samuel, Geosciences, Thesis: "The Role of Rock Resistance and Rock Uplift on Topographic Relief and River Longitudinal Profiles in the Coastal Mountains of Oregon and a Landscape-scale Test for Steady State Conditions", 159 p.

In Progress

- 2008, MS, Trench, David, Structural development of the Brothers fault zone and northwestern Basin and Range
- 2007, BS, Fawcett, Della, Static stress change and stress triggering in the 1977 Cauçete, Argentina earthquake sequence.
- 2006, MS, Schultz, Emily, Paleoseismic Record of Fold Growth, Sierra de Villicum, Argentina.
- 2005, MS, Schiffman, Celia, Seismologic and Structural Model for the 1944 San Juan Earthquake, Argentina.

Courses taught: Geo 340 Structural Geology (4 cr)
 Geo 380 Earthquakes in the Pacific Northwest (3 cr)
 Geo 461/561 Geology of Earthquakes (3 cr)
 Geo 495/595 Field Geology (9 cr)
 Geo 536 Structural and Neotectonic Field Methods (3 cr)
 Geo 537 Tectonic Geomorphology (3 cr)
 Geo 695 Topics in Tectonics (2 cr)

Degrees: PhD in Earth Sciences, University of Southern California, 1995
 M.S. in Geology, University of Alaska, 1990
 B.A. in Geology, Macalester College, 1985

Office: 246 Wilkinson Hall / phone (541) 737-1214

Email: meigsa@geo.oregonstate.edu

Dept. of Geosciences, 104 Wilkinson Hall
 Oregon State University - Corvallis - 97331-5506

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Phone (541) 737-1201 | Fax (541) 737-1200

geo-info@science.oregonstate.edu

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