

Jason R. Patton, Ph.D.

+1 707.498.4290 | quakejay@gmail.com

P.O. Box 4567, Arcata, CA 95518
earthjay.com | twitter.com/patton_cascadia

Curriculum Vitae

Education

Ph.D. Oregon State University, Corvallis, OR March 2014
College of Earth, Ocean, and Atmospheric Sciences (CEOAS)
Oceanography, Marine Geology and Geophysics

- Thesis: *A Sedimentary and Geophysical Investigation Offshore of Sumatra: Subduction Zone Earthquakes, Ground Motions, and Submarine Landslides*
- Advisor: Dr. Chris Goldfinger
- Committee: Drs. Kenneth R. Aalto, Robert Harris, Robert S. Witter, and Peter Ruggiero

M.S. Humboldt State University, Arcata, CA May 2004
Department of Geology
Environmental Systems, with an emphasis in Geology

- Thesis: *Late Holocene Coseismic Subsidence and Coincident Tsunamis, Southern Cascadia Subduction Zone, Hookton Slough, Wigi (Humboldt Bay), California*
- Advisor: Dr. Harvey M. Kelsey
- Committee: Drs. Kenneth R. Aalto, Mark Hemphill-Haley, and Mr. Robert McPherson

B.A. Humboldt State University, Arcata, CA May 1999
Department of Anthropology
Anthropology, with minor in Geology, plus Certificate in GIS and Remote Sensing

- Emphasis: online GIS, field archaeology, digital photography, digital graphic and web design
- Advisor: Dr. Todd Young

Professional Experience

Jason R. Patton Geological Consulting, Arcata, CA Apr 2004 – Present
Geological Consulting (0 – 40 hours per week)

I have provided a variety of services including the geological interpretation of sediment stratigraphy, geoarcheological interpretations, sedimentation and erosion analyses, tsunami hazard evaluation, and Environmental Impact Report and California Environmental Quality Act analyses. I apply my skills using geological and remote sensing techniques in the field and the office. By writing reports, I use my skills to communicate with scientists, engineers, non-scientists, stakeholders, and the general public.

CV Continued

Research Geologist (0 – 40 hours per week)

I have been conducting field work, applying lab techniques, and conducting training for and collaborating with other researchers in the field of paleoseismology in the USA and abroad (Geological Society of America short course Dec. '17; Lesser Antilles ('16) and Hikurangi ('16) submarine paleoseismology research cruises).

My current research includes an evaluation of the tectonic contribution to sea level rise and characterizing the ongoing strain accumulation (crustal deformation) across active crustal faults in northern California. I calculate a decadal scale geodetic estimate of vertical separation rates for active faults by using offsets in vertical land motion rates compared across these faults. I communicate these results and the hazard ramifications at science workshops (NSF, USGS), science meetings (AGU, SSA), and public venues (Rotary Club, Friends of the Arcata Marsh).

I formed an education and outreach program that includes my interpretations of the seismotectonics related to significant earthquakes worldwide. These earthquake reports at earthjay.com incorporate recent geologic research about tectonics on a global and local scale. I also develop timely educational material for Ross Stein and his temblor website where I communicate research results and interpretations regarding natural hazards events to colleagues, non-scientists, and the general public (e.g. I prepared a report for the 2018.09.06 M 6.6 Hokkaido, Japan earthquake and landslides the day following the earthquake).

Humboldt State University, Arcata, CA

Lecturer in the Department of Geology (40 hours per week)

Aug 2015 – May 2017

Adjunct Professor in the Department of Geology

Aug 2014 – Present

Supervisor: **Mark Hemphill-Haley**, Dept. Chair 1+ 707.826.3933 markhh@humboldt.edu

As a lecturer, for two years I developed comprehensive student centered curricula for 2 lower division, 6 upper division, and 1 graduate level classes by “inverting the classroom.” These courses incorporated field trips and lab exercises designed to help people learn the fundamentals of earth science with subjects including active tectonics, earthquakes, paleoseismology, tectonic geomorphology, Alquist-Priolo fault zone mapping, remote sensing, and geochronology.

In several of my courses, I reviewed the fundamentals behind what we know about the San Andreas fault, its history and prehistory, and how subsidiary “sister” faults relate to this fault system. We learned about how uncertainty in geochronology allows us to link paleoseismic site evidence between sites, leading to knowledge about rupture length history, recurrence patterns, and probability of future rupture (e.g. stringing pearls). We used remote sensing data (LiDAR) to map active faults as they cut across glacial moraines.

As Adjunct Professor, I provide academic support from outside the university. I also serve as a reader on student thesis committees.

CV Continued

College of the Redwoods, Eureka, CA

Associate Faculty in Geology (40 hours per week)

Aug 2018 – Present

Associate Faculty in Geology (40 hours per week)

Jan 2016 – May 2016

Associate Faculty in Geology, Environmental Science, and Forestry and Natural Resources

(40 hours per week)

Aug 2013 – Dec 2014

Supervisor: **David Bazard**, Dean 1+ 707.476.4224 dave-bazard@redwoods.edu

I taught 7 lower division general education classes and developed a comprehensive curriculum for each course, involving lectures, field trips, and lab exercises. I utilized various types of formative assessment so that I could improve these lesson plans in the future. Being an education facilitator at College of the Redwoods I gained a big-picture view of the learning process. Guiding others to learn requires not only an understanding of the material, but learning to present that material in a way that helps others learn and retain that material. Presenting research results and interpretations at science meetings helps one become familiar with talking in public. However, spending considerable time in a classroom is where one can extensively develop their stage presence and skills for distilling complicated details in a way that non-experts could understand.

Cascadia GeoSciences 501(c)3, Bayside, CA

Mar 2007 – Present

Director and Secretary (formerly President, Vice President, and CFO) (0 – 40 hours per week)

I was a cofounder of this non-profit designed to promote earth science based education, outreach, restoration, and research. I co-wrote and updated the Bylaws and other organizational documents. I am the Web Master and design, develop, and maintain the web site and its derivatives (e.g. Friends of the Pleistocene). We provide support for Humboldt State University by providing field camp scholarships to students attending the geology program.

I conduct extensive education and outreach work on behalf of Cascadia GeoSciences. The majority of volunteer work I have done regarding tsunami hazards in coastal northern California has been on behalf of this non-profit (e.g. the CA Geological Survey tsunami hazard maps).

Chemeketa Community College, Salem, OR

Jan 2015 – Jun 2015

Adjunct Faculty in Geology (40 hours per week)

Supervisor: **Elias Villegas**, Dean 1+ 503.316.3259 elias.villegas@chemeketa.edu

During two terms, I taught 3 lower division general education classes. For each course, I developed a comprehensive curriculum involving lecture, field trips, and lab exercises. I utilized formative assessment to improve student retention. I converted 2 of these classes to include 50% online education. It takes particular skill to convert material to be digested by a student while they are sitting home alone. For example, I prepared educational videos that helped students apply chronologic modeling as a graded activity. This work is evidence of my ability to communicate to non-scientists and the general public as the general education students who are typically taking these science courses are not science majors.

CV Continued

College of the Redwoods, Fort Bragg, CA

Aug 2012 – Dec 2012

Associate Faculty in Oceanography and Meteorology (40 hours per week)

Supervisor: **David Bazard**, Dean 1+ 707.476.4224 dave-bazard@redwoods.edu

I taught 3 lower division general education classes. For each course, I developed a comprehensive curriculum involving lecture, field trips, and lab exercises. I handled a variety of personalities and irrational behaviors. This experience helped me learn how to interact with stakeholders and politicians.

Oregon State University, Corvallis, OR

Mar 2007 – Mar 2014

Graduate Research Assistant (40 hours per week)

Supervisor: **Chris Goldfinger** 1+ 541.737.9622 gold@ceos.oregonstate.edu

While a GRA at the College of Earth, Ocean, and Atmospheric Sciences, I planned research cruises with goals to conduct sediment coring campaigns, acquire multibeam bathymetric mapping data, collect seismic reflection survey data, conduct laboratory analyses, and develop technical writing skills. I used the tectonic geomorphology of the seafloor to help locate coring sites. I prepared ground motion models for the seafloor offshore of Sumatra and then applied those results as a forcing factor to analyze for the potential for earthquake triggered submarine landslides.

I conducted a wide variety of lab analytical methods (core scanning (MSCL), CT scanning, age sampling). I prepared ^{210}Pb and radiocarbon samples at Oregon State University and the University of California Irvine Keck Radiocarbon Facility, respectively. I developed chronologic models to evaluate the record of past earthquakes along the Cascadia and Sunda subduction zones.

I published the results of my Ph.D. research in peer review journals, evidence of my ability to communicate effectively and confidently with scientists and peers.

Pacific Watershed Associates, Arcata, CA

July 2004 – Nov 2006

Field Geologist, Project Manager (40 hours per week)

Supervisor: **Bill Weaver** 1+ 707.839.5130 Billw@pacificwatershed.com

I designed and implemented field methodology, designed and conducted statistical analyses, and prepared reports. Projects included sedimentary budgets for EPA Total Maximum Daily Load studies, sedimentation and erosion prevention projects, surface drainage design for site-development and road construction projects, and the evaluation of watershed restoration projects that included road reconstruction and estuary reconstruction. I used a variety of remote sensing techniques to map landslides at a decadal time scale and a watershed spatial scale.

CV Continued

U.S. Geological Survey, Humboldt County, CA

Oct 2004

Volunteer Field Geologist (~40 hours)

Supervisor: **Mark Hemphill-Haley** 1+ 707.826.3933 markhh@humboldt.edu

I collected and interpreted field geological data for a Little Salmon fault trench Study, funded by the USGS National Earthquake Hazard Reduction Program. I prepared a photo-mosaic of the trench wall using photo editing software (this pre-dates the development of structure from motion methodology).

McBain and Trush, Arcata, CA

Sept 2002 – Nov 2003

GIS/CAD Coordinator, Field Geologist, Desktop Publisher (40 hours per week)

Supervisor: **Scott McBain** 1+ 707.826.7794 scott@mcbainassociates.com

I created digital terrain models using total station survey data that I collected. I used these terrain models to help design floodplain reconstructions along the Trinity and Tuolumne Rivers in California. I collected geomorphic, hydrologic, and engineering data as part of these river restoration efforts, which we used to evaluate the success of these and other similar projects.

I conducted geospatial analyses, prepared report maps, constructed page layout for reports and documents. Cartography, graphic design, page formatting, and desktop publishing are skills that help one communicate more effectively. Being able to prepare graphics that are easy to understand is essential when presenting technical details of research to other scientists, the media, and the general public.

Pacific Watershed Associates, Arcata, CA

Apr 2000 – Sept 2002

GIS Coordinator, Field Geologist (40 hours per week)

Supervisor: Bill Weaver 1+ 707.839.5130 Billw@pacificwatershed.com

I managed the corporate geospatial data, conducted geospatial analyses, performed basic GIS techniques, and collected field geological data. I made improvements of the workflow using a combination of my experience in the field and in the office, cutting costs and improving accuracy.

Humboldt Bay Harbor, Recreation and Conservation District, Eureka, CA Mar 2000 – Dec 2002

GIS coordinator, Online GIS Web Site Creator, Web Master (10 hours per week)

Supervisor: **Stephen Steinberg** (Humboldt State Univ., retired)

I created the database framework and first GIS program for the Humboldt Bay Harbor District. I then managed the Harbor District geospatial data, designed and developed the online GIS web site, and served as web master for their website.

CV Continued

U.S. Geological Survey, Inyo County, CA

June 2002

Volunteer Field Geologist (~40 hours)

Supervisor: **Steven N. Bacon**

I helped collect and interpret field geological data for an Owens Valley fault trench Study, funded by the USGS National Earthquake Hazard Reduction Program under awards 01-HQ-GR-0013 and 02-HQGR-0003. I interpreted stratigraphic and structural relations for trenches at the Alabama Gates and Quaker paleoseismic sites.

William Lettis and Associates, Eureka, CA

July 2000 – Oct 2001

Project Geologist, volunteer (40 hours per week)

Supervisor: **Robert C. Witter** 1+ 901.786.7804 rwitter@usgs.gov

I collected and interpreted field geological data for a Little Salmon Fault Trench Study, funded by the USGS National Earthquake Hazard Reduction Program (NEHRP) under award 01-HQ-GR-0125 and Pacific Gas & Electric. I interpreted stratigraphic and structural relations for trenches at the Swiss Hall Paleoseismic Site. For this location, we characterized the chronology of past earthquakes and prepared estimates of late Holocene slip rates. I helped prepare a topographic map to evaluate the tectonic geomorphology of this low angle thrust fault. We improved our understanding of the interaction of crustal faults and plate boundary fault systems (megathrust coseismic subsidence and crustal fault uplift and fault offset). I collaborated to prepare the NEHRP final report and presented our results at science meetings.

Humboldt State University, Department of Geology, Arcata, CA

Apr 1999 – Sept 2002

Web Master (5 hours per week)

Supervisor: **Andre K. Lehre**

I designed, developed, and maintained the HSU Department of Geology web site. I designed the website so that potential and existing students could easily navigate the information key to their success. I learned about how to design graphical interfaces so that they were usable by the public (a.k.a. "web usability"). I learned how to collaborate with the faculty, whom had a variety of personality types.

James Roscoe and Associates, Arcata, CA

Jan 1996 – May 2001

Archaeological Field Technician (0 – 40 hours per week)

Supervisor: **James Roscoe** 1+ 707.826.5247 jmr4@humboldt.edu

I conducted Phase I archeological field investigations and prepared GIS based figures for reports.

CV Continued

Successfully Funded Research Proposals

2011 September – 2016 August: **U.S. Fish and Wildlife**, Landscape Conservation Cooperative Program: (co-author) Tectonic land level changes and their contribution to sea level rise, Humboldt Bay region, Northern California (**\$99,208**)

2010 September – 2014 August: Ocean Sciences and Earth Sciences Divisions of the **National Science Foundation** Award OCE 1030381: (co-author) Persistent Segmentation, Stress Triggering and Energy Management of the Sumatran Subduction Zone (**\$525,356**)

Science Program Workshops

NSF MARGINS – I participated in the MARGINS The Next Decade of The Seismogenic Zone Experiment workshop in 2008 and we worked to provide a report to NSF that summarized the results from ten years of support for the MARGINS program. This report was to form the basis to justify the formation of a successor program, GeoPRISMS.

NSF GeoPRISMS – At the MARGINS successor planning workshop in 2010 I helped develop the science plan for this new decadal National Science Foundation program. I also helped develop the science plans for the Alaska and Cascadia focus sites at workshops in 2011 and 2012. We identified the big questions for the program in general and for the focus sites. We formulated what the important questions to answer for the science applicable to these sites in specific and the rest of the world in general.

Cascadia Initiative (NSF) – I attended the Cascadia Initiative workshop in 2010. I helped choose the spatial extent of OBS deployments as well as appropriate region for targeted high density OBS deployments offshore of Washington and northern California. I worked on several sections of the report we prepared. As a follow up to this workshop, during a cruise on the R/V Thomas G. Thompson, I helped develop the geophysical basis for OBS sites using multibeam, sidescan sonar, and CHIRP seismic reflection data.

IODP – I participated in 2 International Ocean Discovery Program workshops. The first workshop, in 2015 at the University of Washington, was designed to develop a scientific consensus about the possible roles of using instrumented ocean boreholes as a long-term study for the Cascadia subduction zone. We recently submitted a workshop proposal to IODP to develop a proposal to evaluate the late Pleistocene stratigraphic record of earthquakes along Cascadia through deep sea coring such as the MeBo coring technology. The second workshop was in Zurich in 2015, which was designed to develop a submarine paleoseismology giant piston coring program within IODP to fill the gap in long-term records of great earthquakes.

USGS – I participated in several USGS workshops organized by Drs. Frankel and Petersen leading up to the most recent National Seismic Hazard Map. My colleagues and I participated so that we could inform others about the prehistoric record of earthquakes on the Cascadia subduction zone. I also participated in a workshop at the Santa Cruz Pacific Coastal and Marine Science Center where we defined the problems and established work priorities for the next few years of USGS research in Cascadia.

Awards and Advisory Appointments

- **Kirk Bryan Award**, Geological Society of America, Quaternary Geology and Geomorphology Division '16.
- **earthjay.com: Top Ten Paleoseismology Websites of 2015**: Paleoseismicity.org '15
- **Associate Faculty of the year**, College of the Redwoods '14
- **Graduate Research Assistant**, Oregon State University, College of Earth, Oceanic, and Atmospheric Sciences, NSF funded Ph.D. research '07-14
- **Outstanding Student Poster**, GeoPRISMS Alaska Site Planning Workshop '12
- **Ship Operations Committee**, Oregon State University, College of Earth, Oceanic, and Atmospheric Sciences '12.
- **Teaching Assistant**, Humboldt State University, Department of Geology, field camp with Drs. Mark Hemphill-Haley and Brandon Schwab '03
- **Teaching Assistant**, Humboldt State University, Department of Geology, field camp with Dr. Ken Aalto '01
- **Teaching Assistant**, Humboldt State University, Department of Geology, field camp with Dr. John Longshore '00
- **Teaching Assistant**, Humboldt State University, Native American Studies Archaeology Department, field camp '99
- **Presidential Scholar**, Humboldt State University '97-98
- **Eagle Scout**, Boy Scouts of America '88
- **California Arts Scholar, Film and Video**, State of California '87

Scientific and Professional Specialization

Geological Field Techniques:

- Conduct paleoseismic and paleotsunami investigations using lithostratigraphy and biostratigraphy and the geologic method (McCalpin, 1996)
- Describe and interpret core and outcrop based sediment stratigraphy
- Survey for elevation control for sea level and geodetic research using high precision laser levels
- Survey cross sections and topography with an auto-level and a total-station (and integrate into a GIS with temporal variation)
- Design and implement sedimentation and erosion studies
- Conduct EPA Total Maximum Daily Load (TMDL) sediment budgets using combined air photo interpretation, GIS analysis, and field mapping of historic landslides and erosion in the Upper Eel, North Fork Eel, and Middle Main Stem Eel River watersheds
- Modify fluvial channel and floodplains along the Trinity and San Joaquin Rivers, while optimizing for goals including: sedimentation and erosion, habitat change, and geomorphic change

CV Continued

Geophysics and Sediment Coring:

- Select sediment core site locations by integrating bathymetric/geomorphologic, backscatter (seafloor composition), and seismic-reflection/geophysical data.
- Recover piston-, gravity-, Kasten-, and multi-cores at depths ranging from 500 m to 6,500 m in the Indian, Pacific, and Atlantic Oceans (cruise list below)
- Describe sediment core stratigraphy including visual qualities: color, texture, structure, bioturbation, lithologic contact nature, roots, etc.
- Conduct multibeam and CHIRP high resolution seismic-reflection profile surveys
- Plan ship navigation to conduct the surveys and coring operations for cruises; cruises include:
 - R/V Revelle KNOX05RR (Oregon State University Dr. Chris Goldfinger: Sumatra)
 - R/V T. G. Thompson TN0909, and TN0265 (Oregon State University Dr. Chris Goldfinger: Cascadia and San Andreas faults)
 - N/O Pourquoi Pas? CASEIS16 (Institut de Physique du Globe de Paris Dr. Nathalie Feuillet: Lesser Antilles)
 - R/V Tangaroa TAN 1613 (National Institute of Water and Atmospheric Research Dr. Philip Barnes and Alan Orpin New Zealand)

Tsunami Hazards:

- Design and conduct paleotsunami field investigations
- Create tsunami hazard maps to be distributed in the local newspaper; distributed at County Fairs
- Help the Oregon Department of Geologic and Mineral Industries conduct their tsunami inundation analyses
- Provide expert advice to the California Geological Survey prepare their statewide tsunami hazard maps
- Help Humboldt County locate their Tsunami Hazard Zone signs and evacuation zones

Professional and Research Training:

Training for research scientists including:

- Site Selection | Coring Strategy | Correlation Methods
- Core Logging | Petrophysical Analysis
- Sampling Methods | Bayesian Age Models
- Geospatial Analyses | Database Design

Geospatial Analyses:

Conduct remote sensing, raster, and vector based analyses for a variety of fields:

- Map geomorphic units using photogrammetric based DEM
- Visualize and interpret tsunami geomorphology using coastal LiDAR data
- Visualize and interpret active fault geomorphology using LiDAR slopeshades
- Create tsunami hazard maps utilizing multiple variables using LiDAR and 10 m DEMs
- Work on an elastic model of Earth's crust to model interseismic tectonic deformation using tide gage, GPS, and benchmark level surveys for vertical control (e.g. Coulomb 3)
- Create 3-D digital terrain models using total station survey data

CV Continued

Laboratory Analytical Techniques:

Expertise in:

- Sediment Core Petrophysics (Multi-Sensor Core Logging): Loop and Point Magnetic Susceptibility, Gamma Ray Attenuation, P-wave Velocity, Resistivity
- Laser Diffraction Particle Size Analysis | 3-D X-Ray Computed Tomography (CT)
- Radiocarbon (¹⁴C) and Lead (²¹⁰Pb) Analysis and Age Modeling
- Rock Magnetometry | Electron Microprobe Analysis
- X-ray Diffraction | X-ray Fluorescence

Computer Skills:

Expertise in:

- Geospatial: ArcGIS | Google Earth | AutoCAD | Q-GIS | Agisoft Photoscan | Slide
- Graphic Design: Photoshop | Illustrator | InDesign
- Office: Excel | Access | PowerPoint | Word
- Video/Education: Camtasia | Premiere
- Seismic Processing: Sioseis | SeiSee | Postsurvey
- Bathymetric Data Processing/Visualization: Mbsystem | Fledermaus

Education and Outreach

Online Outreach:

- WordPress as a content management and blog system to post scientific material for these web sites:
 - fop.cascadiageo.org (Friends of the Pleistocene)
 - hbv.cascadiageo.org (Humboldt Bay Vertical Reference System Working Group)
 - earthquake.cascadiageo.org (1992 Cape Mendocino Earthquake page)
 - Educational material, including earthquake reports, are posted online: earthjay.com
- Social media sites are also utilized to convey educational material to the public, including Twitter, Facebook, etc.
 - facebook.com/groups/humboldt.geology/
 - facebook.com/1964flood
 - facebook.com/groups/46125768803/ (Friends of the Pleistocene)

Public Service – Community:

- Radio Interviews: Participate in radio show interviews to discuss facts, science, and how people might learn to better evaluate information they come across (KHUM, KHSU).
- North Coast User Group: Prepare and deliver presentations at this GIS user group sharing GIS techniques and encouraging GIS students to participate locally.
- Redwood Coast Tsunami Work Group: Participate in preparing educational materials used on the website, in university and K-12 education, and at county fairs.
- Cascadia GeoSciences: Cofounder of a non-profit formed to promote multidisciplinary Earth-science based research, restoration, education, and outreach. website here: cascadiageo.org

CV Continued

Public Service – University:

- Provided guidance on numerous Humboldt State University Department of Geology student Bachelor and Master's thesis research projects from 1997 through 2017
- Incorporated HSU students into local research projects
- Served and serving on HSU Dept. of Geology senior thesis committees with the role of "reader"
- Participate in the "I've Been Admitted To College" program on the HSU campus

Public Service – Profession:

- Collaborated to present a turbidite paleoseismology workshop for the 2017 Geological Society of America Meeting in Seattle, WA
- Serve as a peer reviewer for scientific articles
- Co-convened sessions at American Geophysical Union meetings
- Serve the Humboldt County Office of Emergency Services as an Operational Area Member for earthquake and tsunami hazards
- Presented briefing to the US Northern Command (Defense Support of Civil Authorities; invited) about potential hazardous effects from a Cascadia subduction zone earthquake and tsunami
- Participated at the Humboldt County Fair Earthquake Room for over a decade

Public Lectures:

- 1992 Cape Mendocino Remembrance Event – (video here: http://earthquake.cascadiageo.org/videos/07_Jay_Patton_Cascadia.mp4)
- USGS Earthquake Science Center Seminar Menlo Park (invited)
- Friends of the Arcata Marsh | Humboldt Bay Initiative
- Wild Wines | Rotary Club | Sierra Club | Humboldt Bay symposia
- Humboldt State University | Humboldt Friends of Geology
- Student Seminars (HSU & OSU)
- Personal Enrichment Learning Series at College of the Redwoods

Field Trips:

- HSU Natural History Museum | HSU Dept. Geology visiting scholars
- Humboldt County Emergency Management
- Humboldt Friends of Geology | Pacific Cell Friends of the Pleistocene, 2006
- Cascadia EarthScope Earthquake and Tsunami Education Program

Professional Meeting Presentations:

Presented 13 Talks and 24 Posters at:

- American Geophysical Union | Geological Society of America
- Seismological Society of America | MARGINS/GeoPRISMS
- Paleoseismology, Active Tectonics and Archeoseismology (PATA Days)
- Northcoast GIS User Group | Earthquake Engineering Research Institute
- American Society for Photogrammetry and Remote Sensing

CV Continued

Online Learning Experiences:

- Conversion of face-to-face science classes into hybrid classes at Chemeketa Community College
- Development of online activities for GEOL 106, 308, 332, and 460 classes at Humboldt State University

Course Design and Development

Geological Society of America, 2017 Annual Meeting

- Short Course 516 – Subaqueous Paleoseismology

Humboldt State University, Department of Geology

- GEOL 106 – Earthquake Country
- GEOL 110 – Field Geology of the Western US
- GEOL 308 – Natural Hazards
- GEOL 332 – Sedimentary Geology
- GEOL 335 – Field Methods II
- GEOL 435 – Field Methods III
- GEOL 460 – Solid Earth Geophysics
- GEOL 553 – Quaternary Stratigraphy
- GEOL 700 – Geospatial Analysis in Geology

College of the Redwoods, Eureka Campus

- Geol 1 – Physical Geology
- Geol 2 – Historical Geology
- Geol 10 – Environmental Geology
- Geol 15 – Introduction to Earthquakes and Natural Hazards
- EnvSci 15 – Introduction to Energy
- FNR 65 – Introduction to GIS
- FNR 66 – Intermediate GIS: Spatial Analysis

Chemeketa Community College, Salem, OR

- Geol 142 – Geology of the Pacific Northwest: Volcanoes, Mountains and Earthquakes (Hybrid)
- Geol 143 – Geology of the Pacific Northwest: Rocks and Minerals (Hybrid)
- Geol 144 – Geology of the Pacific Northwest: Rivers, Glaciers, & Deserts

College of the Redwoods, Mendocino Campus

- Meteo 1 – Introduction to Meteorology
- Ocean 10 – Introduction to Oceanography
- Ocean 11 – Lab in Oceanography

Professional Affiliations

- Friends of the Pleistocene
- Geological Society of America
- Seismological Society of America
- American Geophysical Union

Journal Publications

Patton, J. R., Goldfinger, C., Morey, A. E., Ikehara, K., Romsos, C., Stoner, J., Djadjadihardja, Y., Udrekh, Ardhyastuti, S., Gaffar, E.Z., and Viscaino, A., 2015. A 6600 year earthquake history in the region of the 2004 Sumatra-Andaman subduction zone Earthquake, *Geosphere*, vol. 11, no. 6, p. 1-62, <https://doi.org/10.1130/GES01066.1>

Patton, J. R., Goldfinger, C., Morey, A. E., Romsos, C., Black, B., Djadjadihardja, Y., Udrekh, 2013. Seismoturbidite Record as Preserved at Core Sites at the Cascadia and Sumatra-Andaman Subduction Zones: The Offshore Search of Large Holocene Earthquakes: Obergurgl, Austria, *Natural Hazards and Earth System Sciences*, 13, 833-867 <https://doi.org/10.5194/nhess-13-833-2013>

Mountjoy, J.J., Howarth, J., Orpin, A., Barnes, P.M., Bowden, D., Rowden, A., Schimel, A.C.G., Holden, C., Horgan, H., Nodder, S.D., **Patton**, J. R., Lamarche, G., Gerstenberger, M., Micallef, A., Pallentin, A., Kane, T., 2018. Earthquakes drive large-scale submarine canyon development and sediment supply to deep ocean basins in *Science Advances*, v. 4, no. 3, eaar3748 DOI: 10.1126/sciadv.aar3748 <http://advances.sciencemag.org/content/4/3/eaar3748>

Goldfinger, C., Galer, S., Beeson, J., Hamilton, T., Black, B., Romsos, C., **Patton, J.R.**, Nelson, C. H., Hausmann, R., Morey, A., 2017. The importance of site selection, sediment supply, and hydrodynamics: A case study of submarine paleoseismology on the northern Cascadia margin, Washington USA, in *Marine Geology*, <http://dx.doi.org/10.1016/j.margeo.2016.06.008>

Goldfinger, C., **Patton**, J.R., Van Daele, M., Moernaut, J., Nelson, C.H., and Morey, A.E., 2014. Can turbidites be used to reconstruct a paleoearthquake record for the central Sumatran margin? *COMMENT, Geology*, v. 42, e344

Goldfinger, C., Morey, A., Black, B., and **Patton**, J., 2013. Spatially Limited Mud Turbidites on the Cascadia Margin: Segmented Earthquake Ruptures?, in Pantosti, D., Gràcia, E., Lamarche, G., Nelson, C.H., and Tinti, S., eds., *Research Conference Submarine Paleoseismology: The Offshore Search of Large Holocene Earthquakes: Obergurgl, Austria, Natural Hazards and Earth System Sciences*, 13, 2109-2146.

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