

GREGORY E. RAVIZZA, Paleoceanographer/Geochemist
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Education

Ph.D. Geology, Yale University, Rhenium and Osmium Geochemistry of Modern and Ancient Organic-rich Sediments (May 1991), Advisor: Karl K. Turekian
B.A. Chemistry with specialization in Earth Science, Mathematics Minor, UCSD (June 1984)

Professional Experience

Associate Professor, G&G, UH Manoa	June 2006 to Present
Assistant Professor, G&G, UH Manoa	Aug. 2002 to June 2006
Associate Scientist WHOI, Woods Hole MA	Oct 1996 to July 2002
Assistant Scientist WHOI, Woods Hole MA	Oct. 1992 to Oct. 1996
Postdoctoral Investigator, WHOI, Woods Hole MA	Oct. 1991 to Oct. 1992
Supervisor: Stan Hart	
Postdoctoral Fellowship, WHOI, Woods Hole, MA	Oct. 1990 to Sept. 1991
Co-sponsors: Mike Bacon, Stan Hart and Nobu Shimizu	

Research Interests

- Trace element and isotope geochemistry of modern and ancient sediments, with emphasis on osmium isotopes and platinum group elements.
- Catastrophic events in Earth History, in particular extraterrestrial impact events.
- Chemical evolution of the atmosphere and ocean.

Teaching Activities UH Manoa (Note Course designations have recently shifted from GG (Geology & Geophysics) to EARTH (Earth Sciences) to better reflect our new department name.

Past Courses: Physical Geology (GG101); Geochemistry (GG325); Environmental Geochemistry (GG425); Energy & Mineral Resources (GG407).

Current Courses: Quantifying Environmental Change **FQ** (ERTH102/SUST113) Fall 19; Geologic Inquiry **W focus** (ERTH200) Sp20; Undergraduate Seminar **E and O focus** (ERTH410) F19; Accelerated Intro to Geology (ERTH 611) F19- team taught.

Publications – last 10 years (* indicates student or post-doctoral investigator who worked in my lab.) See also Google Scholar Profile:

https://scholar.google.com/citations?hl=en&user=8n-idRwAAAAJ&view_op=list_works

Hull, P. M., Bornemann, A. and 34 others including G. Ravizza (2020) Disentangling Impact and Volcanism in Marine Extinctions across the Cretaceous-Paleogene Boundary. *Science*, 367: 266-272.

Choi, S.H., Mukasa, S.B., Ravizza, G., Fleming, T.H., Marsh, B.D. and Bédard, J.H., (2019) Fossil subduction zone origin for magmas in the Ferrar Large Igneous Province, Antarctica: Evidence from PGE and Os isotope systematics in the Basement Sill of the McMurdo Dry Valleys. *Earth and Planetary Science Letters*, 506:507-519.

- Peucker-Ehrenbrink, B., Ravizza, G. and Winckler G. (2016) Geochemical tracers of extraterrestrial matter in sediments. *Elements* 12.3: 191-196.
- Paquay*, F. S., Ravizza, G. and Coccione, R. (2014) The influence of extraterrestrial material on the late Eocene marine Os isotope record." *Geochimica et Cosmochimica Acta* 144: 238-257.
- Schmitz, B., Huss, G.R. , Meier, M.M.M. , Peucker-Ehrenbrink, B., Cronholm, A. , Davies, M.B., Heck, P.R., Johansen, A., Keil, K., Kristiansson, P., Ravizza, G., Tassinari, M., and Terfelt, F. (2014) A fossil winonaite-like meteorite in Ordovician limestone: A piece of the impactor that broke up the L-chondrite parent body? *Earth and Planetary Science Letters*. 400, 145-152.
- Zaiss*, J., Ravizza, G., Goderis, S., Sauvage, J., Claeys, P. and Johnson, K. (2014). "A complete Os excursion across a terrestrial Cretaceous–Paleogene boundary at the West Bijou Site, Colorado, with evidence for recent open system behavior." *Chemical Geology* 385: 7-16.
- Goderis, S., Wittmann, A., Zaiss*, J., Elburg, M., Ravizza, G, Vanhaecke, F., Deutsch, A. and Claeys, P. (2013) Testing the ureilite projectile hypothesis for the El'gygytgyn impact: Determination of siderophile element abundances and Os isotope ratios in ICDP drill core samples and melt rocks. *Meteoritics & Planetary Science*. 48, 1296-1324.
- Wieczorek*, R., Fantle, M. S., Kump L. R. and Ravizza G. (2013). Geochemical evidence for volcanic activity prior to and enhanced terrestrial weathering during the Paleocene Eocene Thermal Maximum. *Geochimica et Cosmochimica Acta* 119: 391-410.
- Ravizza G. and Vonderhaar, D. (2012) A geochemical clock in earliest Paleogene pelagic carbonates based on the impact-induced Os isotope excursion at the Cretaceous-Paleogene Boundary. *Paleoceanography*. 27 15pp PA3219 doi:10.1029/2012PA002301.
- Paquay* F. S. and Ravizza G. (2012) Heterogeneous seawater ¹⁸⁷Os/¹⁸⁸Os during late Pleistocene Glaciations. *Earth and Planetary Science Letters*. 349/350, 126-138.
- Tejada, M. Ravizza G., Suzuki, K. and Paquay F.,(2012) An extraterrestrial trigger for the Early Cretaceous massive volcanism? Evidence from the paleo-Tethys Ocean *Scientific Reports*, Volume: 2 Article Number: 268 DOI: 10.1038/srep00268.
- B. Peucker-Ehrenbrink, and G. Ravizza "The marine Osmium isotope record" chapter 8; , in *The Geologic Time Scale*, F. M. Gradstein, J. G. Ogg, M. D. Schmitz, Eds. (Cambridge Univ. Press, Cambridge, 2012), 10.1016/B978-0-444-59425-9.00008-1.
- Nozaki T.; Suzuki, K.; Ravizza, G. Kimura, J-I; Chang, Q. (2012) A Method for Rapid Determination of Re and Os Isotope Compositions Using ID-MC-ICP-MS Combined with the Sparging Method. *Geostandards And Geoanalytical Research* 36, 131-148.
- Dalai*, T. K. and Ravizza, G. (2010) Investigation of an early Pleistocene marine Os isotope record from the eastern equatorial Pacific. *Geochimica et Cosmochimica Acta* 74, 4332-4345.
- Schulte and 41 others including Ravizza (2010) The Chicxulub asteroid impact and mass extinction at the Cretaceous-Paleogene boundary. *Science* 327, 1214-1218.
- *Paquay, F. S., Goderis, S., Ravizza, G., Vanhaeck, F., Boyd, M., Surovell, T. A., Holliday, V. T., Haynes Jr., C. V., and Claeys. P. (2009) Absence of geochemical evidence for an impact event at the Bolling-Allerod/Younger Dryas transition. *PNAS* 106, 21505-21510
- *Robinson, N., Ravizza, G., Coccioni, R., Peucker-Ehrenbrink, B., and Norris, R., (2009), A high-resolution marine osmium isotope record for the late Maastrichtian:

distinguishing the chemical fingerprints of the Deccan and KT impactor. Earth Planetary Science Letters 281, 159-168.

Invited Presentations and seminars last five years

Yale University, Department of Geology & Geophysics (New Haven, CT, April 2016), Highly Siderophile Elements Conference (Durham, UK July, 2016), University of Southern California (Los Angeles, CA, March 2018)

Professional Activities and Service

Member E Board (UHM General Education Office Board for the evaluation of ethics focus proposals). 2019 to present.

Departmental Undergraduate Academic Advisor 2013-present

Marine and Environmental Geology Past Division Leader for UH G&G Dept.

Member at Large AAAS Geology and Geography Section (E)

NRC Workshop Participant in “The importance of deep time records for understanding climate change.” May 2008.

JOIDES Science Steering and Evaluation Panel - Environment (ESSEP): 2003-2006

International Program Committee for the Goldschmidt Meeting 2005

Journal Reviewer/Referee: Nature, Science, Earth and Planetary Science Letters, Geochimica et Cosmochimica Acta, Marine Chemistry, Paleoceanography.

Proposal Reviewer/Referee: NSF Ocean Sciences Division Chemical Oceanography, and Marine Geology and Geophysics; NSF Earth Sciences Division Geology and Paleontology, and Instrumentation and Facilities, NERC

Student Advising

Former UH Graduate Students: Allison Kreider (MGeo), Karl Gerstnecker (MGeo), Nicole Robinson (MS), Jess Zaiss-Bowman (MS), Francois Paquay (Ph.D.)

Past Students: Carrie Tuit. WHOI (1996- 2002)

Guest Graduate Students: Bernhard Peucker-Ehrenbrink, MPI Mainz (1993), Doug Reusch, University of Maine (1996), Chris Achong, Cornell University (1997), Oliver Woodhouse, University of Southampton, UK (1997/1998), Rachel Cave, University of Southampton & SOC, UK (2000)

Post Doctoral Advisor: Tarun Dalai (2004 – 2005), Bernhard Peucker-Ehrenbrink , WHOI (1994-1996)

Undergraduate Research Supervision: Chuen Wing-Lam (GES Senior Thesis 2010) Nicholas Pouchol (Summer 2008, Visiting Student ENS Nancy, France) Sherry Lippiatt (2005, UH MSURF); Anna Euser, (2000.WHOI Summer Student), Cecily Chun, (2000.WHOI Summer Student, w/ Tim Eglinton), Peter Mekhonoshin (WHOI Summer Student w/ Roger Francois).

Student Committee Service

UH Manoa Thesis Committees: Marion Westley (Ph.D. Oceanography), Joseph Schacat (M.S. Oceanography), Angelos Hannides (Ph.D. Oceanography), Laurie Menviel, Ph.D. Oceanography: 2008), Anela Choy (M.S. Oceanography), Sam Hulme (Ph, D. Geology and Geophysics). Anela Choy (Ph.D. Oceanography), Joji Uchikawa (Ph.D. Oceanography), Max Grand (Ph.D. Oceanography), Jessica Barnes (M.S. Geology & Geophysics), Katie Taladay (M.S. Geology & Geophysics), Nemanja

Kumar (M.S. Oceanography), Michelle Tigchelaar (Ph.D. Oceanography), Kate Herries (M.S. Geology & Geophysics), Caroline Kaplan (Ph.D. Geology & Geophysics)

UH Manoa G&G Exam Committees: Carrie Bugger, Sam Hulme; Jared Marske, Deb Eason, Pat Hughes, Bob Whittier, Anela Choy, Brian Boston, Christie Jilly, Tobias Tupper, Chris Shuler, Caroline Kaplan, Brytne Okuhata, David Frank, Diamond Tachera.

MIT/WHOI Thesis Committees : Tim Kenna (2001 Advisor: Fred Sayles), Sheri White (2000, Advisor: Alan Chave), Alberto Saal (1999, Advisor: Stan Hart), Javier Escartin (1996, Advisor: Jian Lin)

Outside Thesis Committees : Alison Bray, University of New Hampshire (2001, Advisor: Karen Von Damm), Doug Reusch, University of Maine (1998, Advisor: Kirk Maasch), Franco Marcantonio, LDEO (1994, Advisor: Alan Zindler).

Research Funding

- Acquisition of a multi-collector ICP-MS for Marine and Terrestrial Geochemical Research (Rubin, PI; Ravizza, Mahoney, Pyle, DeCarlo co-PIs) NSF EAR \$700,000; 03/01/06- 02/28/09.
- Collaborative Research: The marine Os isotope record of extreme Cenozoic climates. (Ravizza and Peucker-Ehrenbrink (WHOI) co-PIs) NSF OCE \$194,759 (UH portion); 08/01/05- 07/31/09.
- Collaborative Research: Intercalibrating Analytical Methods for Osmium Isotopes and Concentrations in Seawater. (Peucker-Ehrenbrink (WHOI), Sharma (Dartmouth), Ravizza (UH) co-PIs) NSF OCE \$27,902 (UH portion); 07/01/08- 06/30/10.
- A Refined Chronology of Late Eocene to Late Oligocene Coral Reefs: Implications for Coral Calcification Under a Regime of Declining Atmospheric Carbon Dioxide and Changing Ocean (Ravizza, PI) American Chemical Society Petroleum Research Fund \$150,000; 02/01/08- 08/31/12.
- Technician Support for a new multi-collector ICP-MS facility for Terrestrial and Marine Geochemical Research. (Rubin PI, Mahoney, Ravizza Co-PI NSF EAR); 04/15/09- 03/31/12. \$60,000
- The response of the marine osmium isotope record to impact events. (Ravizza, PI) NSF EAR \$199,987; 04/01/09- 03/31/13.
- Collaborative Research: He and Os isotope investigation of Miocene marine sediments: particulate extraterrestrial matter as a paleoflux tracer (Ravizza, PI, collaborative with Ken Farley at Cal Tech) NSF-OCE, \$170,890; 06/01/11 – 05/31/13.
- Additional support through donations to the UH foundation from Shell Exploration and Production. \$100,00 (2014-2017)