

BIOGRAPHICAL AND BIBLIOGRAPHIC INFORMATION

ADINA PAYTAN

EDUCATION

- 1996 Ph.D. Oceanography, Scripps Institution of Oceanography
- 1989 M.S. Earth Sciences Oceanography, Hebrew University, Jerusalem
- 1987 M.S. Science Education, Weizmann Institute of Science, Rehovot
- 1985 B.S. Geology and Biology, Hebrew University, Jerusalem

PROFESSIONAL EXPERIENCE

- 2009-present Research Scientist, Institute of Marine Sciences, UCSC
- 2007-2009 Associate Research Scientist, Institute of Marine Sciences, UCSC
- 2007-present Adjunct Scientist, Monterey Bay Aquarium Research Institute
- 1999-2007 Assistant Professor, Department of Geological and Environmental Sciences, Stanford University
- 1996-1999 Post Graduate Researcher, Scripps Inst. of Oceanography, UCSD
- 1991-1996 Science Research Assistant, Scripps Inst. of Oceanography, UCSD
- 1993-1994 Teaching Assistant, University of California - San Diego
- 1987-1989 Teaching Assistant, Hebrew University, Jerusalem
- 1980-1988 Tour Guide, Geographical Society and Jewish Agency
- 1986-1987 Education Coordinator of Instruction, Ministry of Education Israel
- 1984-1986 Research Assistant, Hebrew University
- 1983-1984 Science Teacher, Ophek Elementary School, Israel

HONORS AND AWARDS

- 2008 Mildred Mathias Award as the outstanding proposal in the natural sciences
- 2008 Consortium for Ocean Leadership Distinguished Lecturer
- 2007 Ellen Weaver Award
- 2006 Aldo Leopold Leadership Fellow
- 2006 Ocean Science Meeting - Plenary Session Speaker
- 2005 NSF CAREER Award
- 2005 GSA Ingerson Lecture
- 2004 AGU Oceanography Section Early Career Award
- 2003 Two research projects recognized in ODP Greatest Hits
- 2002 NASA New Investigator Program in Earth Science Award
- 2001 Terman Fellowship, Stanford University
- 2000 Terman Fellowship, Stanford University
- 1994 Dissertation Symposium in Chemical Oceanography
- 1993 Chemical Oceanography Gordon conference, Best Student Presentation
- 1990 Gerson Meerbaum Foundation for Oceanography Award
- 1989 M.S. Graduation Honors, Rectors list, Hebrew University, Jerusalem
- 1987 Golda Meir Fellowship Recipient
- 1985 B.Sc. Graduation Honors, Hebrew University Jerusalem
- 1983-85 Dean List, Hebrew University, Jerusalem

MEMBERSHIPS IN PROFESSIONAL AND SCHOLARLY ORGANIZATIONS

Geological Society of America
American Geophysical Union
Geochemical Society
American Society of Limnology and Oceanography
American Association of Advancements in Science
American Chemical Society
American Women in Science
Association for Women Geoscientists
Sigma Xi, The Scientific Research Society

UNIVERSITY SERVICE

2008 Women in Science and Engineering (WiSE) Dual Career Discussion Panel
2008 Department of Ocean Sciences UCSC Admissions Committee
2008 NSF-AGEP (Alliance for Graduate Education and the Professoriate, UCSC
Getting Your Research Published Workshop
2006-2007 I-Earth curriculum development
2006-2007 SES Environmental Earth Science Major Curriculum Development
2005-2007 Stanford Institute of the Environment - Education Committee
2005-2007 Stanford Institute of the Environment - Outreach Committee
2005-2007 Teachers of a New Era - Science Discussion Group
2005-2007 Panelist - Advice for New Faculty Members Workshop
2004-2007 Hass Center Advisory Board
2004-2007 Institute for Research on Women and Gender Faculty Committee
2004-2007 Academic Advisor for 7 Undergraduate Students in G&ES and ES
2003-2007 Ph.D. Committees of 19 Graduate Students
2001-2007 Sophomore and Freshmen Adviser (12 advisees)
2000-2007 Earth Systems Advisory Board
2005 Dean of Admissions Search Committee, Stanford University
2005 School of Earth Science Outreach Coordinator Search Committee
2005 Panelists - Science for Students in Humanities or Social Science
2004-2005 Inter Disciplinary Program in Earth Sciences Committee
2003-2005 Provost Committee for Outreach, Stanford University
2004 Natural Sciences IPER Curriculum Development Committee
2004 Graduate Student Funding and Space Committee
1999-2004 Ocean Margin Curriculum Development
1999-2003 Science/Engineering Teaching Discussion Group
2002 Diversity and Mentoring Committee
2001-2002 G&ES Undergraduate Program Committee
2000 G&ES Infrastructure Committee

PROFESSIONAL ACTIVITIES

- 2006-present Associate Editor – Limnology and Oceanography Methods
- 2003-present Associate Editor - Marine Chemistry
- 2007-present California COSEE – Advisory Board Chair
- 2009-2010 American Society Limnology & Oceanography – Program Committee
- 2009 Colorado School of Mines – *Marine barite a recorder of ocean chemistry and productivity* (invited)
- 2009 University of South Dakota – *Marine barite a recorder of ocean chemistry and productivity* (invited)
- 2009 “Unknown knowns and known unknowns: Chemical oceanography in a changing world” – Oceanography Symposium, Savannah, GA, *Atmospheric Aerosol Impacts on Marine Ecosystems* (Keynote Speaker, Invited)
- 2008 COSEE CA Collaborative and Advisory Meeting
- 2008 GEOTRACES – Pacific Sector Planning (participant)
- 2008 AGU Meeting Invited Speaker – *Subterranean Groundwater Discharge - A Transport Mechanism Linking Land and Water – What do we Know and What Should we Strive to Know* - (invited)
- 2008 AGU Meeting Session Convener - *Ocean Acidification: Impacts From the Coast to Open Ocean Based on Laboratory Studies, Proxy Data, and Instrumental Records*
- 2008 Oregon State University - *Aerosol impacts on the ocean* (invited)
- 2008 UC Santa Barbara – *Groundwater discharge in Tahiti* (invited)
- 2008 Mills College - *Groundwater discharge and coastal health* (invited)
- 2008 University of University of Missouri-Kansas City – *Marine barite a recorder of ocean chemistry and productivity* (invited)
- 2008 University of Minnesota – *Marine barite a recorder of ocean chemistry and productivity* (invited)
- 2008 Duke University – *Marine barite a recorder of ocean chemistry and productivity* (invited)
- 2008 Iowa State University – *Marine barite a recorder of ocean chemistry and productivity* (invited)
- 2008 Purdue University – *Marine barite a recorder of ocean chemistry and productivity* (invited)
- 2008 Summer research experience for Undergrads - Bodega Bay
- 2008 Ocean Literacy Workshop – UCS
- 2008 Lecturer - California State Summer School for Mathematics and Science
- 2008 Featured on “Pulse of the Planet” (KQED) – www.pulseplanet.com
- 2008 Southern California Coastal Water Research Project – *Aerosol impacts on the ocean* (invited).
- 2004-2007 Associate Editor - Geology
- 2003-2007 Mentoring Co-Chair American Women in Science Association
- 2007 Communicating Ocean Sciences Workshop - WHOI
- 2007 Invited Participant - Workshop on Ocean Acidification
- 2007 CSUMB - Speaker - *Groundwater discharge and coastal health* (invited)
- 2007 Distinguished Lecture Series University of Wyoming (invited)
- 2007 University of Wisconsin - *Groundwater discharge and coastal health*

2007 Environmental Toxicology, UCSC – *Aerosol impacts on the ocean* (invited)
 2007 UC Santa Cruz, E&PS - *Groundwater discharge and coastal health* (invited)
 2007 USGS Santa Cruz - *Groundwater discharge and coastal health* (invited)
 2007 Speaker – AWIS Palo Alto Section - *Groundwater discharge and corals*
 2007 Invited session leader in the Marine Chemistry Gordon Conference
 2007 Moderator - Getting Results: The Next Generation of Women Scientists
 2007 Panelist – Strategies for Ecology Education, Development and Sustainability
 2007 UC Santa Barbara - *High productivity during Cretaceous OAEs* (invited)
 2007 Univ. of Southern California - *Groundwater discharge and corals* (invited)
 2007 Jasper Ridge Seminar - - *Groundwater discharge and corals* (invited)
 2006 Aldo Leopold Leadership Fellow
 2006 NATO – Science for Peace Program – Invited speaker
 2006 UCSC Ocean Sciences - *The marine phosphorous cycle* (invited)
 2006 University of Hawaii, School of Oceanography – *Barite a proxy for ocean chemistry and productivity* (invited)
 2006 Invited speaker and session leader Gordon Conference Permeable Sediments
 2006 Ocean Science Meeting – Plenary Speaker
 2006 MIT - *High productivity during Cretaceous OAEs* (invited)
 2006 USGS – Florida - *Groundwater discharge and corals* (invited)
 2006 USF – Florida St. Petersburg - *High productivity during OAEs* (invited)
 2006 Sarasota - Community Lecture Series - *Groundwater and Red Tides* (invited)
 2006 New College, Florida - *Groundwater and Red Tides* (invited)
 2006 Northwestern University - *High productivity during OAEs* (invited)
 2006 University of California Davis - *Groundwater discharge and corals* (invited)
 2000-2005 Coordinator Summer High School Internship Program at Stanford
 2005 NSF COSEE Review Panel
 2005 Invited Speaker - Women who Turn the Tides: Setting New Benchmarks in
 Marine Sciences - Seymour Center Lectures
 2005 Invited NSF- Sponsored Workshop on Outreach and Education
 2005 USGS Menlo Park - *Barite and ocean productivity* (invited)
 2005 University of New Mexico - *Barite as a paleo-proxy* (invited)
 2005 Ingerson Keynote Lecture GSA – *The marine phosphorous cycle*
 2005 Coring in Tahoe - Invited Participant
 2005 Goldschmidt Conference Invited Session Leader
 2005 Chapman Conference Invited Speaker
 2004 University of Colorado, *Phosphorus cycling in the ocean* (invited)
 2004 Old Dominion University - Phosphorus cycling in the ocean (invited)
 2004 EPA Washington DC - *Coastal groundwater and beach pollution* (invited)
 2004 San Francisco State - *Groundwater discharge and coral reefs* (invited)
 2004 Yale University - *High productivity during Cretaceous OAEs* (invited)
 2004 Florida State University - *Seawater sulfur isotopes in the Cretaceous* (invited)
 2004 University of Florida - *Groundwater discharge and coastal pollution* (invited)
 2004 Harvard University - *Phosphorus cycling in the ocean* (invited)
 2004 AGU Student Presentation Judge
 2004 AGU Session Convener
 2004 Caltech - *High productivity during Cretaceous OAEs* (invited)

2004 San Jose State Univ., *High productivity during Cretaceous OAEs* (invited)
 2004 Scripps Inst. of Oceanography, *Phosphorus cycling in the ocean* (invited)
 2004 Inter Univ. Institute, Eilat - *Nutrient dynamics in the Gulf of Aqaba* (invited)
 2004 U.C. Riverside, *High productivity during Cretaceous OAEs* (invited)
 2004 Session Convener - The Truth About Paleo-proxies - AGU Oceans
 2004 GEOTRACERS - Marine Geochemical Tracers Workshop
 2004 CHRONOS - Geochemical Cycles - NSF Workshop, Invited Participant
 2004 Linking Information Systems - JOI NSF Workshop, Invited Participant
 2004 QUEST Workshop *The Role of Natural Wetlands in the CH₄ Cycle*
 2004 Excite - Science Camp for Middle School Girls - Workshop Coordinator
 2001-2004 Elected Geochemical Society Program Committee Representative
 2003 U.C. Santa Cruz, *High productivity during Cretaceous OAEs* (invited)
 2003 Oregon State, *Corvallis, High productivity during Cretaceous OAEs* (invited)
 2003 MBARI, *High productivity during Cretaceous OAEs* (invited)
 2003 U.C. Berkeley, *High productivity during Cretaceous OAEs* (invited)
 2003 Santa Clara High School GAINS, The Success of Women in Science
 2003 Invited Session Convener, AGU-EUG meeting, Nice, France
 2003 Invited to serve on the NSF review panel for Earth System History
 2003 Session Chair GSA meeting
 2003 Invited Speaker AGU meeting
 2003 USC, *High productivity during Cretaceous ocean anoxic events* (invited)
 2003 Robinson House Seminar - *Groundwater discharge and coral reefs* (invited)
 2003 U. C. San Francisco, Tiburon, *Phosphorus cycling in the ocean* (invited)
 2003 Session Organizer *Ocean chemistry through the Mesozoic and Cenozoic*
 2003 Workshop Coordinator - Sally Ride Science Festival
 2002 Hebrew University, Israel, *Nutrient dynamics and ecosystem structure in the Gulf of Aqaba* (invited)
 2002 Session Convener, Ocean Science Meeting-AGU-ASLO, Hawaii
 2002 NSF Center on Polymer Interfaces and Macromolecular Assemblies
 2002 Program Committee, Spring AGU, Washington DC.
 2002 Quest Summer Program, Introduction to Paleoceanography.
 2001 Quest Summer Program, Introduction to Paleoceanography
 2001 Scripps Inst. of Oceanography, *P cycling in the ocean* (invited)
 2001 CINVESTAV, Mexico - *Methane fluxes from mangrove ecosystems* (invited)
 2001 Environmental Engineering and Science Seminar Series Seminar
 2001 Invited session leader in the Marine Chemistry Gordon Conference
 2001 Invited to Organize and Chair a Session in Fall AGU Paleoceanography
 2001 Invited to Represent the GSA in the Program Committee for Spring AGU
 2001 Invited Session Chair ASLO Meeting
 2000 IU.C. Davis, *Sulfur isotope ratio fluctuations in seawater* (invited)
 2000 IUSGS Menlo Park, *Sulfur isotope ratio fluctuations in seawater* (invited)
 2000 Univ. of Washington, *Sulfur isotope ratio fluctuations in seawater* (invited)
 2000 Sequence Stratigraphy seminar, *Using isotopes in sequence stratigraphy*
 2000 Quest Summer Program, Introduction to Paleoceanography
 2000 Earth System Seminar, Paleoclimatology
 2000 Biochemistry Seminar, Dr. A. Kornberg, P cycling in aquatic systems

2000	School of Earth Science, Stanford University, Brown Bag Seminar
2000	Organized and lead a session on phosphorus cycling in the marine and terrestrial environment in the Fall AGU meeting
2000	Chair Discussion Group on the future of geochemistry in post 2003 drilling
2000	Invited Session Leader in the Marine Chemistry Gordon Conference
2000	DOE Review Panel for Carbon Sequestration Proposals
1999	U.C. Santa Cruz, <i>Sulfur isotopic composition in marine barite</i> (invited)
1999	Invited Keynote Speaker Gordon Conference, <i>Marine Barite a Proxy for Oceanic New Production</i>
1999	Krauskopf Symposium, <i>The sulfur isotopic composition of Cenozoic seawater sulfate: Implications for pyrite burial and atmospheric oxygen</i>
1999	Conference on Multi Platform Exploration (COMPLEX) to define the intellectual challenges of the post 2003 scientific ocean drilling program
1999	Invited to convey a session on paleoceanography and paleoclimatology in the Fall American Geophysical Union (AGU) meeting
1998	MBARI, <i>Marine Barite a Recorder of oceanic Productivity</i> (invited)
1997	Hebrew University, <i>Marine Barite a Recorder of Oceanic Chemistry and Productivity</i> (invited)

COURSES TAUGHT

- Communicating Science (Fall 2008-09 UCSC)
- Environmental Geology (Winter 2008 UCSC)
- Communicating Ocean Science (Fall)
- The Ocean Around Us (Fall)
- How to Critically Read and Interpret Scientific Literature (Winter)
- Isotopes in Geological and Environmental Science Research (Winter every other year)
- Paleoceanography and Paleoclimatology (Winter every other year)
- Marine Chemistry (Spring)
- Gas Hydrates in Environment – Seminar (Winter every 3 years)
- Secrets in the Mud (Fall, 2000-2004)
- Geosphere (Fall, 1999-2001)
- Isotopes and Biogeochemical Tracers in Hydrological Cycle
- The Glacial World
- Seminar in Oceanography (all year)

ADVISEES RECEIVING DEGREES

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| 2008 | Elizabeth Griffith, Ph.D., <i>Seawater Calcium Isotopes and the Cenozoic Carbonate Depositional History of the Oceans.</i> |
| 2007 | Tzvetie Erohina, Ph.D., <i>Aspects of the late quaternary paleoenvironmental and paleoceanographic history of Santa Monica basin, southern California borderland.</i> |
| 2007 | Ellen Gray, M.S., <i>Ocean productivity and seawater sulfur isotopic reconstruction over the PETM using marine barite.</i> |

- 2007 Jessica Luo, M.S., *Carbon and nitrogen isotopes and trace metal concentrations of zooplankton tows from the Gulf of Aqaba, Red Sea.*
- 2007 Kate Elsbury, M.S., *Identifying phosphate and nitrate sources to Lake Erie using a multiple isotope approach.*
- 2006 Scott Wankel, Ph.D., *Nitrogen sources and cycling in coastal ecosystems: Insights from a stable isotope approach.*
- 2005 Karen McLaughlin, Ph.D., *The Oxygen Isotopic Composition of Phosphate in Marine and Estuarine Systems: A Tracer for Phosphate Sources and Cycling.*
- 2005 Lynn Asbeck, M.S., *²²⁶Ra Activity in Bivalve Shells as a Tracer for Groundwater Input to Elkhorn Slough, California.*
- 2005 Michael Calhoun, M.S., *Carbonate and Marine Barite Accumulation Rates from Sediment Cores.*
- 2005 Nick Handler, M.S., *Time Series Investigation of Chemical and Human Health Indicators in California Coastal Watersheds.*
- 2005 Megan Young, Ph.D., *Methane Cycling and Groundwater Sources in Mangrove-Dominated Coastal Lagoons Yucatan Peninsula, Mexico.*
- 2005 Kristen Averyt, Ph.D., *Strontium and Calcium in Marine Barite: Implications for Marine Barite Formation and Seawater Chemistry.*
- 2004 Ashley Ivy, M.S., *Ocean Productivity at the C/T Boundary.*
- 2004 Gaurav Misra, M.S., *Hydrogeology of Elkhorn Slough.*
- 2003 Gregory Shellenbarger, M.S., *Radium isotopes and the Reynolds Transport Theorem.*
- 2003 David Nicholson, M.S., *P-status of Marine Phytoplankton Communities in Monterey Bay and San Francisco Bay.*
- 2002 Meagan Eagle, M.S., *Tracing Organic Matter Sources in Mangrove Estuaries Utilizing $\delta^{13}C$, $\delta^{15}N$ and C/N Ratios.*
- 2001 Sarah A. Mearon, M.S., *Cretaceous Strontium Isotope Stratigraphy Using Marine Barite.*

FORMER POST DOCTORAL FELLOWS

- 2007 Ying Chen, Ph.D., *Mineral dust components in aerosols and their effect on ocean productivity.*
- 2006 John Breier, Ph.D., *Groundwater Discharge at Elkhorn Slough.*
- 2006 Robert Feranec, Ph.D., *Determining landscape use of Holocene mammals using strontium isotopes.*
- 2004 Kathrine Hoppe, Ph.D., *$\delta^{13}C$ and $\delta^{18}O$ of bison bones and teeth.*
- 2003 Kristina Faul, Ph.D., *Constructing a high resolution S isotope and P accumulation curves at the Late Paleocene thermal Maximum (LPTM).*

CURRENT ADVISEES

Current Graduate Student Advisees: Katherine Rose Marie Mackey, Karen Knee, Andrea Erhardt, Joseph Street, Nadine Quintana Krupinski, Elizabeth Derse, Tim Lambert,.

Undergraduate Research Supervision: Christopher Danford, Devon Orme, Denise Wong, Collin Lee, Tatiana Klass, Stacy Cushman, Jessica Howard, Chris Taylor, Spencer Davis.

Post Doctoral Fellows: Cecile Mioni, Clifton Buck, Elizabeth Griffith

Research Associates: Ellen Gray

RESEARCH SUPPORT

- *Reconstructing climate variability and aridity in the Sierra Nevada, CA, based on isotopic evidence in sediments from Swamp Lake, Yosemite.* NSF- P2C2, 04/2009-03-2011, \$201,053
- *Environmental controls on the distribution of Microcystis in San Francisco Bay, California,* Sacramento Regional County Sanitation District, 05/2009-07/2009, \$23,211.
- *Atmospheric Deposition Impacts on Marine Ecosystems.* NSF- Biological Oceanography, 03/2009-02-2012, \$453,968
- *A Paleotemperature Proxy Record Across the End-Permian Extinction Horizon and Through the Triassic Recovery Interval from Oxygen Isotopes in Conodont Apatite,* American Chemical Society PRF, 03/2009-02/2011, \$100,000
- *Source Identification of Nitrate and Phosphate and Fine Sediments from Highway Runoff.* (with M. Kayhanian). State of California, Department of Transportation (CalTrans), 02/2009-04/2011, \$118,303
- *Submarine groundwater discharge in South and Central San Francisco Bay: Implications for nutrient and trace metal cycling and associated ecological significance.* (with M. Stacy and B. Esser) UC Lab Fees Research Program, 01/2009-12/2010, \$470,000
- *Reconstructing climate variability, acidity and water availability in the Sacramento-San Joaquin watershed based on isotopic evidence in sediments from Swamp Lake Yosemite.* CA Bay-Delta Authority/Sea Grant, 01/2009-12/2010, \$95,351
- *Consequences of Acidification of Californian Coastal Waters: impacts of anthropogenic CO₂ increase and pH decline on nearshore organisms.* (with D. Potts) UCSC IGPP Mini Grant, 01/2008-12/2009, \$7,000
- *Environmental controls on the distribution of harmful algae and their toxins in San Francisco Bay, California,* Bay-Delta Authority/Sea Grant, 09/2008-08/2010, \$164,620
- *GEOTRACES: Intercalibration for Aerosol Preservation and Analysis.* NSF-OCE, 09/2008-08/2010, \$83,575
- *Acidification of California coastal waters: The geological record of natural and anthropogenic pH variability.* (with UCD and UCSB), Coastal Environmental Quality Initiative, 07/2008-2010, \$498,337
- *Subterranean groundwater discharge and coral reef sustainability along the Yucatan Peninsula, Mexico.* 2008 UC MEXUS-CONACYT Collaborative Research Grants. 07/2008-2009, \$25,000
- *Climate variability, drought, and environmental change in the Yucatan Peninsula: A late-Holocene stable isotope record from the Celestun Estuary, Yucatan, Mexico.* 2008 UC MEXUS faculty grants. 07/2008-2009, \$17,500
- *Groundwater Discharge of Mercury to California Coastal Waters.* California Sea Grant, 03/2008-2009, \$29,044
- *Strain specific response of coccolithophors to ocean acidification.* VPUE Faculty Grant for Undergraduate Students Support, 07/2007-09/2008, \$6,750
- *Where Air and Water Meet – Atmospheric Deposition to Pacific Coast Estuaries.* California Sea Grant, 03/2008-2009, \$29,044

- *Oxygen Isotopes in Authigenic Phosphate a Potential Archive for Deep Seawater Temperatures*. NSF-OCE, 08/2007-2008, \$20,000
- *The Fate of Sewage (effluents and biosolids) P in soils – Speciation, Movement, Accumulation, and Fundamental Processes Required for Sustainable Agriculture* (with M. Shenker and P. R. Bloom). Binational Agriculture Research and Development Fund, 09/2007-2010, \$335,000
- *Methodology to Identify the Sources of Nitrogen and Phosphorus in Highway Runoff* (with M. Kayhanian). State of California, Department of Transportation (CalTrans), 09/2006-2008, \$248,911
- *Monitoring natural and anthropogenic-induced pollution in the Gulf of Aqaba*. NATO – Science for Peace 2006-2009, (With Post, Karniely and AlNajjar) Euros. 290,000
- *Characterizing the Oxygen Isotopic Composition of P Sources to Aquatic Ecosystems*. UPS, 10/2006-09/2007, \$30,000
- *Collaborative Research: Se/S in marine barite, a tracer of upper ocean nitrate concentration* (with G. Cutter). NSF 01/2006-2010, \$121,643
- *Determining subterranean groundwater nutrient input to Kaloko Honokohau National Historical Park's coastal ocean ecosystem* (with E. Grossman). National Parks Service 10/2005-2007, \$49,795
- *Organic matter composition, recycling susceptibility, and the effectiveness of the biological pump - An evaluation using NMR spectra of marine plankton*. DOE 10/2005-2008, \$130,010
- *Land use practices, subterranean groundwater pollution and coral reef sustainability* (with A. Boehm). Mead Foundation. 10/2005-2009, \$102,500
- *Understanding submarine groundwater discharge and its influence on coastal water quality* (with A. Boehm). Sea Grant CA, 09/2005-2008, \$183,693
- *A watershed approach to pollution mitigation in Hanalei Bay* (with C. Berg and C. Field). National Fish and Wildlife Foundation, 09/2005-2007, \$529,134
- *Mineral dust components in aerosols and their effect on ocean productivity* (with M. Jacobson, S. Fendorf, S. Webb and R. Shavelson). EIIP. 07/2005-2007, \$133,380
- *CAREER – A research and education plan in global biogeochemical cycles: Seawater calcium isotopes and carbonate deposition history*. NSF, 05/2005-2010, \$747,286
- *IDEA: Land/ocean biogeochemical observatory of nutrient and carbon cycling* (with S. Monismith and K. Johnson). NSF, 01/2003-12/2008, \$1,770,700
- *Mapping the origin of terrestrial faunal assemblages using strontium isotopes* (with E. Hadly). NSF-EAR, 07/2003-06/2007, \$250,006
- *Novel methods for identifying and quantifying nutrient inputs and cycling in Lake Erie*. NOAA-GLERL, 04/2005-03/2006, \$38,000
- *US Mexico Cooperative Research: Methane fluxes and cycling in mangrove ecosystems*. NSF-INT, 04/2002-02/2006, \$77,090
- *The oxygen isotope ratio of organic phosphorus compounds*. NSF, 11/2003-10/2005, \$78,351

- *A research and education plan in marine biogeochemical cycles: Nutrient dynamics and ecosystem structure in the Gulf of Aqaba-Physical forcing and external nutrient sources.* NASA-NIP, 11/2002-10/2006, \$321,280
- *Ocean carbon sequestration: Organic matter composition, recycling susceptibility, and the effectiveness of the biological pump - An evaluation using NMR spectra of marine plankton.* DOE, 09/2003-08/2005, \$196,930
- *Hydrodynamics and sedimentation in Elkhorn Slough* (with S. Monismith). SIMoN, 08/2002-07/2005, \$270,000
- *The role of hydrodynamics in determining nutrient fluxes to Conch Reef.* (with S. Monismith). NOAA, 06/2003-05/2005, \$61,403
- *Nitrogen transformations in marsh sediments of Elkhorn Slough: A multiple isotope tracer approach.* NOAA, 06/2003-05/2005, \$37,500
- *Phosphorus regeneration in the ocean: An evaluation using P and C NMR and sequential leaching of marine particulate matter.* NSF-OCE, 09/2003-02/2005, \$63,134
- *Reactive phosphorus and barite accumulation rates as paleoproductivity indicators across the Paleocene/Eocene and Eocene/Oligocene boundaries in Pacific sediments from ODP Leg 199.* Texas A&M, 12/2001-10/2004, \$18,227
- *Marine barite accumulation rates and Sr isotope stratigraphy from Shatsky Rise: Implications for paleoproductivity.* Texas A&M - NSF, 10/2001-08/2004, \$26,765
- *The seawater S isotope excursion at the late Paleocene thermal maximum.* NSF, 04/2001-03/2004, \$106,050
- *Seawater Ca isotopes and carbonate deposition history.* NSF-EAR, 09/2002-08/2003, \$23,320
- *Sr/Ca ratios in marine barite: Implications for chemical weathering rates and dissolved fluxes to the ocean.* NSF 08/1999-01/2003, \$178,122
- *Measurement and computation of residence time in shallow coastal lagoon.* UPS, 10/2001-09/2002, \$107,754
- *Hydrodynamic effects on the productivity of a reef ecosystem.* Bio-X, 10/2000-09/2002, \$147,850
- *Reconstruction of ecological habitats using strontium isotopes in bones.* OTL, 09/2001-08/2002, \$40,000
- *Seawater calcium isotopes and carbonate deposition history.* ACS-PRF, 09/2000-08/2002, \$25,000
- *Calcium isotopes in corals: Investigating a new paleo-thermometer.* OTL 09/2000-08/2002, \$25,000
- *Graduate student participation in Ocean Drilling Program, Leg 199.* Texas A&M - NSF., 09/2001-01/2002, \$10,579
- *Graduate student participation in Ocean Drilling Program, Leg 198,* Texas A&M - NSF. 8/2001-11/2001, \$10,866
- *Support for undergraduate research projects at Stanford.* VPUE, 2000-2006, \$42,500

PUBLICATIONS

Peer-Reviewed

1. Paytan, A., M. Kastner, E.E. Martin, J.D. Macdougall and T. Herbert. 1993. Marine barite as a monitor of seawater strontium isotope composition. *Nature* 366: 445-449.
2. Martin, E.E., J.D. Macdougall, T.D. Herbert, A. Paytan and M. Kastner. 1995. Strontium and neodymium isotopic analyses of marine barite separates, *Geochim. Cosmochim. Acta*, 59, 1353-1361.
3. Paytan, A. and M. Kastner. 1996. Benthic Ba fluxes in the central equatorial Pacific, implications for the oceanic Ba cycle. *Earth Planet. Sci. Lett.* 142: 439-450.
4. Paytan, A., M. Kastner, and F. Chavez. 1996. Glacial to interglacial fluctuations in productivity in the equatorial Pacific as indicated by marine barite. *Science* 274: 1355-1357.
5. Paytan, A., W.S. Moore, and M. Kastner. 1996. Sedimentation rate as determined by ²²⁶Ra activity in marine barite. *Geochim. Cosmochim. Acta* 60: 4313-4319.
6. Paytan, A., M. Kastner, D. Campbell, and M.H. Thiemens. 1998. Sulfur isotope composition of Cenozoic seawater sulfate. *Science* 282: 1459-1462.
7. Martinez-Ruiz, F., M. Kastner, A. Paytan, M. Ortega-Huertas. and S.M. Bernasconi. 2000. Geochemical evidence for enhanced productivity during S1 sapropel deposition in the eastern Mediterranean. *Paleoceanography* 15: 200-209.
8. Paytan, A. and K. Arrigo. 2000. The sulfur-isotopic composition of Cenozoic seawater sulfate: Implications for pyrite burial and atmospheric oxygen. *International Geology Review* 42: 491-498.
9. Paytan, A. 2000. Sulfate clues for the early history of atmospheric oxygen. *Science* 288: 626-627.
10. Paytan, A. 2000. Iron Uncertainty. *Nature* 406: 468-469.
11. Paytan, A, Y. Kolodny, A. Neori, and B. Luz. 2002. Rapid biologically mediated oxygen isotope exchange between water and phosphate. *Global Biogeochemical Cycles* 16: 1-7.
12. Paytan, A., S. Mearon, K. Cob and M. Kastner. 2002. Origin of marine barite deposits: Sr and S isotope characterization. *Geology* 30: 747-750.
13. Paytan, A., M. Kastner, D. Campbell and M.H. Thiemens. 2002. Seawater sulfate and climate. In *ODP Greatest Hits, Volume 2* (White, K. and E. Urquhart, Eds.). Available at <http://www.joiscience.org/greatesthits2/pdfs/paytansulfate.pdf>.
14. Paytan A. 2002. Tales of black shales. In *ODP Greatest Hits, Volume 2* (White, K. and E. Urquhart, Eds.). <http://www.joiscience.org/greatesthits2/pdfs/Paytanshales.pdf>.
15. Porder, S., A. Paytan, and E. A. Hadly. 2003. Mapping the origin of faunal assemblages using strontium isotopes. *Paleobiology* 29: 197-204.
16. Mearon, S., A. Paytan, and T.J. Bralower. 2003. Cretaceous strontium isotope stratigraphy using marine barite. *Geology* 31: 1518.
17. Averyt, K. B., A. Paytan, and G. Li. 2003. A precise, high-throughput method for determining Sr/Ca, Sr/Ba, and Ca/Ba ratios of marine barite: Implications for

- reconstructing seawater Sr and Ca concentrations. *Geochemistry, Geophysics, Geosystems*, 4: 1039.
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Peer-Reviewed Invited Publications

1. De La Rocha, C.L. and A. Paytan. 2005. Directions in the study of ocean chemistry over the Phanerozoic and its links to geological processes. *Marine Geology* 217: 193-197.

Non-Reviewed

1. Paytan, A. 2004. Biogeochemistry of Marine Systems, (Ed. Kenneth D. Black and Graham B. Shimmield) Blackwell Publishing, book review, *Oceanography*, 17, 213-214.
2. Paytan A. 2006. Ocean Paleoproductivity. In *Encyclopedia of Paleoclimatology and Ancient Environments* (V. Gornitz, Ed). Encyclopedia of Earth Science Series. Kluwer Academic Publishers.
3. Paytan, A. and M-L Zoback (2007) Crossing boundaries, hitting barriers. *Nature* 445, 950.
4. Paytan, A (2007) A palaeoceanographer worries not about corals, but about coral reefs. *Nature – Journal Club*. 446, 587, doi:10.1038/446586a

Pending Peer-Reviewed (at various stages of revision prior to publication)

1. Cade-Menun, B.J., A. Paytan, J.F. Stebbins and J. Baldock. 2008. Temporal and depth variability of particulate organic carbon compounds in marine samples from two regions in California: a solid-state CP/MAS ¹³C-NMR study. *Marine Chemistry*. (submitted).
2. McLaughlin, K., M.B. Young, and A. Paytan. 2008. The Oxygen Isotopic Composition of Phosphate: a Tracer for Phosphate Sources and Cycling. *IAEA*. (submitted).
3. Cade-Menun, B.J., A. Paytan, J. D. Ortiz, R. Crane, and L. Polyak. 2008. Variability of phosphorus forms in plankton tows and bottom sediments in the western Arctic Ocean off Alaska. *Marine Chemistry*. (submitted).
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6. Danford, C., Mackey, K.R.M and A. Paytan. 2009. Strain specific response of coccolithophors to ocean acidification. *Global Change Biology* (submitted).
7. Griffith, E.M., A. Paytan, A. Eisenhauer, T. D. Bullen and E. Thomas. 2009. Seawater calcium isotopic ratios across the Eocene-Oligocene Transition. *Nature Geoscience*. (submitted).
8. Paytan A and E. Gray. 2009. Sulfur isotope stratigraphy. *A Geological Time Scale 2010* Susan Francis (Ed.). Cambridge University Press. (submitted).
9. Zohar, I, A. Paytan and A. Shaviv. 2009. A Method for the Analysis of Oxygen Isotopic Composition of Various Soil Phosphate Fractions. *Pedosphere*. (submitted).
10. McLaughlin, K., J. Sohm, G. Cutter, M. Lomas and A. Paytan. 2009. Insights into the sources and cycling of phosphate in the Sargasso Sea using the oxygen isotopic composition of phosphate. *Nature Geosciences*. (submitted).

11. Payne, J.L., A. V. Turchyn, A. Paytan, D. J. DePaolo, D. J. Lehrmann, Y. Yu, J. Wei. 2009. A calcium isotope excursion in marine carbonates across the end-Permian extinction horizon. *Science* (submitted).

Manuscripts in Preparation

1. Calhoun, M., E. M. Griffith, E. Thomas, T. Bralower, and A. Paytan. (in preparation). Marine barite and carbonate accumulation rates spanning the Eocene/Oligocene boundary across the Pacific basin. To be submitted to *Paleoceanography*.
2. Paytan, A., Y. Chen, S. Wankel, J. Street, R. Labiosa, R. Foster, A. Genin, T. Rivlin, and A. Post. (in preparation). New Nitrogen Sources in the Gulf of Aqaba, Red Sea; Estimates from DINex. To be submitted to *Global Biogeochemical Cycles*.
3. Cade-Menun, B.J., A. Paytan, F. Chavez and K. McLaughlin. (in preparation). Temporal and depth trends of phosphorus cycling in marine particulates from Monterey Bay, California. To be submitted to *Limnol. Oceanogr.*
4. Cade-Menun, B.J., A. Paytan and R. Thunell. (in preparation). Annual variations in particulate phosphorus in Santa Barbara Basin, California. To be submitted to *Org. Geochem.*
5. Paytan, A., K., Yan, and A. Ivy. (in preparation). High productivity during Cretaceous ocean anoxic events. To be submitted to *Geology*.
6. Mackey, K.R.M, M. Young, C.J. Danford, K. McLaughlin, and A. Paytan. (in preparation). Controls on the biologically mediated oxygen isotope exchange between water and phosphate. To be submitted to *Geochemica Cosmochemica Acta*.
7. Chen, Y., and A. Paytan. (in preparation). Validation of MODIS aerosol data Retrieval in the Gulf of Aqaba. To be submitted to *Geophysical Research Letters*.
8. Gray, E. A. Paytan, E. Thomas and K. Faul. (in preparation). Fluctuations in Export Productivity over the PETM. To be submitted to *Geology*.
9. Paytan, A. and B.J. Cade-Menun. (in preparation). Organic matter composition, recycling susceptibility, and the effectiveness of the biological pump. To be submitted to *Science*.
10. Erohina, T.V., C.K. Paull, W. Ussler III, and A. Paytan. (in preparation). Foraminiferal faunal assemblages as proxies for recent canyon activity - evidence from three submarine canyons, Santa Monica Basin, California. To be submitted to *Marine Geology*.
11. Young, M., L. Miller, M.E. Gonnee, J. Herrera-Silveira, and A. Paytan (in preparation). Methane distribution and methanogenic substrates in sediments from mangrove dominated coastal lagoons. To be submitted to: *JGR Biogeosciences*.
12. Young, M., L.G. Miller, J. Herrera-Silveira, A. Paytan. (in preparation). Methane flux from mangrove dominated tropical coastal lagoons, Yucatán, Mexico. To be submitted. *Biogeochemistry*.
13. Knee K. L. and A. Paytan (in preparation - invited) Submarine groundwater discharge: A source of nutrients, metals and pollutants to the coastal ocean. To be submitted. *Treatise on Estuarine and Coastal Science*.

Selected Abstracts Since 1999

1. Paytan, A., R.B. Dunbar, and G.M. Wellington. 1999. Calcium isotopes in corals: Investigating a new paleo-thermometer, *AGU meeting*.
2. McLaughlin, K., A. Paytan, C. Kendall, S. Silva, and C. Chang, 2000. Towards a proxy for phosphate recycling in marine ecosystems. *AGU meeting*.
3. Young, B.M, A. Paytan, T. Lorenson, and L. Miller. 2000. Methane concentrations in surface water and sediment profiles from two tropical coastal lagoons, Yucatan, Mexico. *AGU meeting*.
4. Averyt, K.B., A. Paytan, and G. Li. 2000. A new method for determination of Sr/Ca ratios in marine barite. *AGU meeting*.
5. Paytan, A., B. Cade-Manun and K. McLaughlin. 2000. Phosphorus cycling and regeneration in the ocean– An evaluation using ^{31}P -NMR. *AGU meeting*.
6. Mearon, S. and A. Paytan. 2000. Cretaceous Strontium isotope stratigraphy using marine barite as a proxy for changes in oceanic $^{87}\text{Sr}/^{86}\text{Sr}$ ration. *AGU meeting*.
7. Hadly, E. and A. Paytan. 2000. Spatial and temporal mapping of raptor foraging territory in Yellowstone National Park using Sr isotopes. *AGU meeting*.
8. Martinez-Ruiz, F., A. Paytan, M. Kastner, and M. Comas. 2000. S1 sapropel deposition record in the Western Mediterranean: Geochemical evidence for preservation and paleoceanographic reconstruction. *AGU meeting*.
9. Paytan, P. and E. Hadly. 2000. Spatial and temporal mapping of raptor foraging territory in Yellowstone National Park using Sr isotopes. *AIG*.
10. McLaughlin, K., A. Paytan, and C. Kendall. 2001. Regional variations in the oxygen isotopic composition of dissolved inorganic phosphate in seawater. *AGU meeting*.
11. Young, B.M., A. Paytan, L. Miller, and J. Herrera-Silveira. 2001. Methane cycling and flux in mangrove ecosystems: a comparison of natural and impacted coastal lagoons on the Yucatan Peninsula, Mexico. *AGU meeting*.
12. Averyt, K.B., B. Bostick, and A. Paytan. 2001. Raman spectra investigation of Sr and Ca substitution in marine barite. *AGU meeting*.
13. Martinez-Ruiz, F., A. Paytan, M. Kastner and M. Comas. 2001. Mineralogical and geochemical evidence for sapropel deposition in the Western Mediterranean: late Pleistocene-Holocene record. *AGU meeting*.
14. Eagle, M. and A. Paytan 2001. Excess barium as a paleoproductivity proxy: A reevaluation. *AGU meeting*.
15. Forano, G., K. Arrigo, and A. Paytan. 2001. Going beyond the lecture class - is it worth it? How collaborative problem solving and technology transformed university students into classroom scientists. *AGU meeting*.
16. Averyt, K.B., B.C. Bostick, and A. Paytan. 2001. A raman spectra investigation of strontium and calcium substitution in marine barite. *AGU meeting*.
17. Mearon, S. and A. Paytan. 2001. High productivity during Cretaceous ocean anoxic event. *AGU meeting*.

18. Young, M., and A. Paytan. 2001. Variability in methane concentrations in surface waters and sediment profiles from two tropical coastal lagoons, Yucatan, Mexico. *International Symposium on Mangroves, Tokyo, Japan*.
19. Deyhle, D., D. Macdougall, C. Macisaac and A. Paytan. 2001. Temperature dependence of Ca isotope fractionation in marine carbonates. *Goldschmidt*.
20. McLaughlin, K., A. Paytan, C. Kendall, and S. Silva. 2002. Spatial variations in the oxygen isotopic composition of dissolved inorganic phosphate in seawater. *Ocean Science Meeting*.
21. Nicholson, D.P., A. Paytan, and B. Cade-Menun. 2002. Alkaline phosphatase activity in Monterey Bay. *Ocean Science Meeting*.
22. Paytan, A., B. Cade-Menun, and K. McLaughlin. 2002. Phosphorus cycling and regeneration in the ocean – an evaluation using ^{31}P -NMR. *Ocean Science Meeting*.
23. Young, B.M, A. Paytan, M. Eagle, W. Moore, and J. Herrera-Silveira. 2002. Evaluation of ground water input to a tropical coastal lagoon using radium 223 and radium 224. *Ocean Science Meeting*.
24. Shellenbarger, G., A. Genin, W. Moore, S. Monismith, and A. Paytan. 2002. Near shore nutrient enrichment: Using radium isotopes to determine the source. *Ocean Science Meeting*.
25. Faul, K.L., A. Paytan, and M.L. Delaney 2002. Phosphorus distribution (or association?) in oceanic particulate matter. *Ocean Science Meeting*.
26. Eagle, M., A. Paytan, M. Young, and J. Herrera-Silveira. 2002. Carbon cycling in mangrove ecosystems. *Ocean Science Meeting*.
27. Wankel, S.D. and A. Paytan. 2002. Exploring nitrogen sources in an oligotrophic shallow water carbonate marine system using $\delta^{15}\text{N}$ of marine plants, San Salvador, Bahamas. *Ocean Science Meeting*.
28. Averyt, K.B. and A. Paytan. 2002. A Cenozoic seawater Sr/Ca ratio curve from marine barite: A preliminary investigation. *Ocean Science Meeting*.
29. Young, B., A. Paytan, L. Miller, and J. Herrera-Silveira. 2002. Methane in sediments from three tropical, coastal lagoons on the Yucatan Peninsula, Mexico. *AGU meeting*.
30. Paytan, A., E. Morris, C.A. Ravello, T. Bullen. 2002. Calcium isotopes in foraminifera shells: Evaluation for paleo-temperature reconstruction. *AGU meeting*.
31. Misra, G. and A. Paytan. 2002. Radium isotopes as tracers for groundwater input in Elkhorn Slough, California. *AGU meeting*.
32. Nicholson, N. and A. Paytan. 2002. Alkaline phosphatase activity in Monterey and San Francisco Bays. *AGU meeting*.
33. Averyt, K.B. and A. Paytan. 2002. An inter-comparison of Ba-based paleoproductivity proxies: Results from the Equatorial Pacific. *AGU meeting*.
34. Porder, P., P. Vitousek, and A. Paytan. 2002. The impacts of erosion on biogeochemistry: preliminary results from the Hawaiian Islands. *ESA*.
35. Martínez-Ruiz, F. and A. Paytan. 2002. Export production fluxes in Mediterranean basins: coupling barium and carbon cycles. *EUG*.

36. Paytan, A. and J. Street. 2003. Subterranean groundwater nutrient input to coastal oceans and coral reef sustainability. *AGU meeting*.
37. McLaughlin, K., A. Paytan, C. Kendall, S. Silva, F. Chavez, and J.T. Pennington. 2003. A time series investigation of the oxygen isotopic composition of dissolved inorganic phosphate in Monterey Bay seawater. *AGU meeting*.
38. Young, M., A. Paytan, and J. Herrera-Silveira. 2003. Methane emissions for tropical coastal lagoons, Yucatan, Mexico. *AGU meeting*.
39. Wankel, C.A., SD, A. Paytan, C. Kendall. 2003. New stable isotopic techniques of nitrate applied to investigation of estuarine nitrate sources in Elkhorn Slough. *AGU meeting*.
40. Eagle, M., A. Paytan, and R.T. Ramessur. 2003. Submarine groundwater discharge and associated N-flux in coral reef lagoons of Mauritius. *AGU meeting*.
41. Averyt, K.B. and A. Paytan. 2003. Seawater Sr and Ca concentrations from marine barite, *AGU meeting*.
42. Paytan, A. and C. De La Rocha. 2003. Ocean chemistry through the Mesozoic and Cenozoic. *GSA annual meeting*.
43. Morris E.J. A. Paytan, and T.D. Bullen. 2003. Marine barite: A potential recorder of seawater calcium isotope composition. *GSA annual meeting*.
44. Cade-Menun, B.J., A. Paytan, and K. McLaughlin. 2003. Organic P forms in settling ocean particulate matter: a ^{31}P -NMR study. *Organic P Conference, Switzerland*.
45. Cade-Menun, B.J. and A. Paytan. 2003. Phosphorus forms and concentrations in soils and stream sediments under different land use near Elkhorn Slough, California. *Organic P Conference, Switzerland*.
46. Wankel, C.A., Paytan, A, C. Kendall, and G. Misra, G. 2003. New stable isotopic techniques of nitrate applied to investigation of estuarine nitrate sources in Elkhorn Slough. *Estuarine Research Federation meeting, Seattle, Washington*.
47. Young, M., A. Paytan, and J. Herrera-Silveira. 2003. Identification of sources of ground water discharge in Celestun Lagoon using radium isotopes and multiple chemical tracers. *Second International Conference on Salt Water Intrusion and Coastal Aquifers, Merida, Mexico*.
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49. Paytan, A. and T. Bralower. 2003. High productivity in the open ocean during cretaceous anoxic events. *EUG*.
50. Averyt, K.B. and A. Paytan 2003. Cenozoic seawater Sr and Ca concentrations derived from marine barite. *EUG*.
51. Kurtz, A.C., L.R. Kump, M.A. Arthur, J.C. Zachos, and A. Paytan. 2003. Paleogene decoupling of the global carbon and sulfur cycles. *EUG*.
52. Chase, Z., A. Paytan, J. Street, K. Johnson, A.Genin, and A. Post. 2004. A High iron, low chlorophyll coastal ecosystem: the Gulf of Aqaba, Red Sea. *AGU meeting*.

53. Street, J.H., A. Paytan, D. Golan, A. Post, J. Resing, and R. Labiosa. 2004. Atmospheric dust deposition as a source of nutrients and trace metals to the Northern Gulf of Aqaba. *AGU meeting*.
54. Vengosh, A., N. Pery, A. Paytan, G. Haquin, S. Elhanany, and I. Pankratov. 2004. Tracing the origin of radioactivity in groundwater from the Negev, Israel. *AGU Fall meeting*.
55. Young, M. and A. Paytan. 2004. Carbon and nitrogen flux in a coastal area- lagoons and groundwater. *AGU meeting*.
56. Wankel, S. and A. Paytan. 2004. Nitrogen cycling in Monterey Bay: A nitrate dual isotope approach. *AGU meeting*.
57. Labiosa, R.G., K.R. Arrigo, J. Street, A. Paytan, Z. Chase, A. Genin and A.F. Post. 2004. The role of iron and nutrients in supporting summer phytoplankton communities in the Gulf of Aqaba, Red Sea. *AGU meeting*.
58. Cutter G., L. Cutter, A. Paytan. 2004. Finding a paleoproxy for upper ocean nitrate concentrations: Se/S in marine barite? *AGU meeting*.
59. Gallego-Torres, D., F. Martinez-Ruiz, A. Paytan and M. Kastner. 2004. Evaluation of geochemical proxies preserved in the sapropel record from the Eastern Mediterranean within the Pliocene-Holocene time interval. *AGU meeting*.
60. Paytan, A. 2004. Marine barite formation - Pathways, processes and product. *AGU meeting* (Invited talk).
61. Paytan, A. 2004. Barium barite and export production - Lessons in the development of a new proxy. *AGU meeting*.
62. Averyt, K.B. and A. Paytan. 2004. Glacial-interglacial export production in the Equatorial Pacific: Investigating differences among multiple paleoproxies. *AGU meeting*.
63. Street, J., A. Paytan, and G. Shellenbarger. 2004. Subterranean groundwater nutrient input to coral reefs, Eilat, Israel. *Ocean Science meeting*.
64. Labiosa, R.G., K.R. Arrigo, J. Street, A. Paytan, Z. Chase, A. Genin, and A.F. Post. 2004. The role of iron and nutrients in supporting summer phytoplankton communities in the Gulf of Aqaba, Red Sea. *Ocean Science meeting*.
65. Calhoun, M., J. Street, and A. Paytan. 2004. Investigation of phosphate limitation of summer phytoplankton communities in the Gulf of Aqaba, Red Sea. *Ocean Science meeting*.
66. Davis, K., A. Boehm, A. Paytan, and G. Shellenbarger. 2004. Subterranean groundwater discharge: A possible source of microbial pollution at Huntington Beach, CA, a radium isotope study. *Ocean Science meeting*.
67. Cade-Menun, B.J. and A. Paytan. 2004. Temporal trends in organic phosphorus forms in settling ocean particulate matter from Monterey Bay and Santa Barbara Basin, California, *Ocean Science meeting*.
68. Vengosh, A., S. Hening, J. Ganor, T.D. Bullen, C.E. Weyhenmeyer, N.C. Sturchio, and A. Paytan. 2004. The origin and age of groundwater in the Nubian Sandstone aquifer in the Negev, Israel. In *Water Rock Interaction* (Wanty, R.B., and Seal, R.R., II, Eds.).

69. Gibbs, A., E. Grossman, J. Logan, S. Cochran-Marquez, C. Storlazzi, M. Field, A. Paytan, and J. Street. 2004. Geology in the national parks: research, mapping, and resource management in the Kona coast national parks. *GSA annual meeting*.
70. Gibbs, A., E. Grossman, J. Logan, S. Cochran-Marquez, C. Storlazzi, M. Field, A. Paytan, and J. Street. 2004. Seafloor habitat mapping and oceanographic studies in the Kona Coast National Parks. *GSA annual meeting*.
71. Morris, E.J., A. Paytan, and T.D. Bullen. 2004. Evaluation of marine barite as a recorder of seawater calcium isotope composition. *International Conference on Paleoceanography*.
72. Paytan, A., E.J. Morris, and R.C. Thunell. 2004. Ca isotopes in foraminifera from sediment traps in the Guaymas Basin. *International Conference on Paleoceanography*.
73. Averyt, K.B. and Paytan A. 2004. Evidence for glacial-interglacial changes in seawater strontium concentrations from marine barite. *International Conference on Paleoceanography*.
74. Faul, K. and A. Paytan 2004. Reactive phosphorus and barite changes across the paleocene/eocene boundary in pacific sediments from ODP Leg 199. *International Conference on Paleoceanography*.
75. Ginder-Vogel, M., J. Street, R. Labiosa, A. Paytan, S. Fendorf, D. Golan, A. Post, and J. Resing. 2004. Phase characterization of atmospheric dust input to the Northern Gulf of Aqaba. *Stanford Synchrotron Light Source (SSLS) Users Meeting*.
76. Paytan, A., J. Street, D. Golan, A. Post, J. Resing, and R. Labiosa. 2004. Atmospheric dust deposition as a source of nutrients and trace metals to the Northern Gulf of Aqaba. *NASA Earth System Conference*.
77. McLaughlin, K., C. Kendall, A. Paytan, S.R. Silva, S.D. Wankel, and B.A. Bergamaschi. 2004. Evaluating phosphorus sources and cycling in the San Francisco Bay-Delta ecosystem using isotopic techniques. *CalFed Science Conference, Sacramento, California*.
78. Cade-Menun, B.J. and A. Paytan. 2004. Temporal trends in organic phosphorus forms in settling ocean particulate matter from Monterey Bay and Santa Barbara Basin, California. *American Society of Limnology and Oceanography, Savannah, Georgia*.
79. Hoppe, K.A., A. Paytan, and P. Chamberlain. 2004. The potential of using carbon isotope analyses of bison tooth enamel carbonate and bone collagen as a paleodietary and paleoenvironmental proxy. *Vertebrate Paleobiology 2004*.
80. Kendall, C., S. Silva, B. Bemis, D. Doctor, S. Wankel, B. Bergamaschi, C. Kratzer, M. Fram, K. McLaughlin, A. Paytan, R. Dahlgren, and B. Fleenor. 2004. Tracing sources of organic matter and nitrate in the San Francisco Bay-Delta-River ecosystem using stable isotope techniques. *CalFed Science Conference, Sacramento, California*.
81. Averyt, K. and A. Paytan, 2004. Cenozoic seawater Sr and Ca concentrations derived from marine barite, *EUG*.

82. Wei, Z., M.J. Moldowan, and A. Paytan. 2005. Catalytic deneration of nanometer-sized diamondoids from thermal decomposition of organic matter in modern sediments. *AGU meeting*.
83. Wankel, S.D., K. Carol, F.A. Chris, and A. Paytan. 2005. Nitrogen sources and cycling in the San Francisco Bay Estuary: A nitrate dual isotopic composition approach. *AGU meeting*.
84. Chen, Y., J. Street, and A. Paytan. 2005. Estimate of atmospheric fluxes of bioavailable nutrients to the Gulf of Aqaba. *AGU meeting*.
85. Mackey, K.R., R.G. Labiosa, J. Street, and A. Paytan. 2005. N and P co-limit growth and control community composition and taxon specific nutrient status in the Gulf of Aqaba, Red Sea. *AGU meeting*.
86. Cade-Menun, B.J. and A. Paytan. 2005. Temporal and depth trends in phosphorus and carbon forms in ocean particulates from Monterey Bay, California. *AGU meeting*.
87. Paytan, P. and B. Cade-Menun. 2005. Organic matter composition, recycling susceptibility and the effectiveness of the biological pump - An evaluation using NMR spectra of marine plankton. *AGU meeting*.
88. McLaughlin, K. and A. Paytan. 2005. Insights into phosphate turnover in the Sargasso Sea from the oxygen isotopic composition of dissolved inorganic phosphate. *AGU meeting*.
89. Knee, K., A. Santoro, J. Street, A. Boehm, C. Berg, and A. Paytan. 2005. Nutrient subsidies to Hanalei Bay, Kauai, HI from submarine groundwater discharge. *AGU meeting*.
90. Faul, K., K.J. Sayo, A. Paytan, and E. Gray. 2005. Changes in nutrient burial, export production, and the sulfur isotopic composition of seawater during the Paleocene Eocene thermal maximum. *AGU meeting*.
91. Street, J.H., L. Asbeck, W.S. Moore, and A. Paytan, 2005. 226-Radium activity in bivalve shells as a tracer of paleo-groundwater input to Elkhorn Slough, California, *AGU meeting*.
92. Luo, J.Y., T. Erohina, and A. Paytan. 2005. Carbon and nitrogen stable isotopes of sedimentary organic matter from the Santa Monica Basin. *AGU meeting*.
93. Morris, E.J., A. Paytan, and T.D. Bullen 2005. Seawater calcium isotopes variations over the past 24 million years from marine barite. *AGU meeting*.
94. Gray, E., K. Faul, and A. Paytan. 2005. Analysis of sulfur isotopes in Oceanic Barite during the PETM. *AGU meeting*.
95. Yan, K.K. and A. Paytan. 2005. Mapping ocean biological productivity during mid-Cretaceous ocean anoxic events. *AGU meeting*.
96. Hoppe, K.A., A. Paytan, and P. Chamberlain. 2005. Using the carbon isotope ratios of bison tooth enamel and bone collagen as a quantitative proxy for reconstructing grassland vegetation and paleotemperatures. *AGU meeting*.
97. Paytan, A. 2005. A new look into the oceanic phosphorus cycle. *GSA meeting* (Ingerson Lecture of the Geochemical Society).

98. Vengosh, A., N. Pery, A. Paytan, G. Haquin, A. Marie, S. Elhanany, and I. Pankratov. 2005. Sources, mechanisms, and implications for natural radionuclides contamination in groundwater basins in the Middle East. *GSA meeting*.
99. Krull-Davatzes, A., A. Delapaz, A. Paytan, and J. Saltzman. 2005. Building geologists for the class of 2020: A field trip for first graders at Stanford University. *GSA meeting*.
100. Paytan, A., J. Street, Y. Chen, R. Labiosa, Z. Chase, K. Faul, D. Golan, and A. Post. 2005. Atmospheric deposition, an important source of nutrients to the Gulf of Aqaba, Red Sea. *ASLO meeting*.
101. Street, J., A. Paytan, Y. Chen, R. Labiosa, M. Ginder-Vogel, S. Fendorf, Z. Chase, K. Faul, J. Resing, D. Golan, and A. Post. 2005. Temporal variability in atmospheric dust composition, source region, and deposition flux to the Gulf of Aqaba, Red Sea. *ASLO meeting*.
102. Penno, S., K. Zandbank, J. Street, A. Paytan, and A. F. Post. 2005. Cyanobacterial diversity, nitrogen acquisition and niche adaptation in the Gulf of Aqaba, Northern Red Sea. *ASLO meeting*.
103. Labiosa, R.G., A. Paytan, S.G. Monismith, D.A.Fong, A. Genin, and K.R. Arrigo. 2005. Living the fast life in a model marine environment: the Gulf of Aqaba, Red Sea. *ASLO meeting*.
104. Morris E. J., A. Paytan, and T. D. Bullen. 2005. Seawater calcium isotopes from marine barite: A potential record of carbonate deposition in the oceans. *Goldschmidt Conference*.
105. Faul, K.L., A. Paytan, and E. Gray. 2005. The sulfur isotopic composition of seawater from marine barite during the Paleocene Eocene thermal maximum (~55 Ma). *Goldschmidt Conference*.
106. Wing, B.A., D.T. Johnston, S. Ono, J. Farquhar and A. Paytan. 2005. Sulfur multiple isotope constraints on the Cenozoic-Cretaceous sulfur cycle. *Goldschmidt Conference*.
107. Higgins C., N. Handler, A. Boehm, A. Paytan, J. Field, C. Criddle, and R. Luthy. 2005. Quantitative determination of perfluorochemicals in sediments and domestic sludge. *Society of Environmental Toxicology and Chemistry North American 26th Annual Meeting*.
108. Higgins, C.P., N.B. Handler, A.B. Boehm, A. Paytan, J.A. Field, C.S. Criddle, and R.G. Luthy. 2005. Potential role of sediments in determining perfluorochemical surfactant fate. *FLUOROS - An International Symposium on Fluorinated Alkyl Organics in the Environment, Toronto, Canada*.
109. Cade-Menun, B.J. and A. Paytan. 2005. Temporal and depth trends in inositol phosphates in settling ocean particulate matter from Monterey Bay, California. *Conference on Inositol Phosphates in the Soil-Plant-Animal System, Sun Valley, Idaho*.
110. Wankel, S.D., C. Kendall, C.A. Francis, and A. Paytan. 2005. Nitrogen sources and cycling in the San Francisco Bay Estuary: A nitrate dual isotopic composition approach. *State of the Estuary Conference, Oakland, California*.
111. McLaughlin K., A. Paytan, C. Kendall, and S.R. Silva. 2005. Phosphate oxygen isotope ratios as a tracer for sources and cycling of phosphate in North San Francisco Bay. *State of the Estuary Conference, Oakland, California*.

112. Wankel, S. and A. Paytan. 2005. Tracking sources and cycling in Monterey Bay using nitrate dual isotopes. *SPOT-ON Significant Processes, Observations and Transformations of Oceanic Nitrogen meeting, Warnemunde, Germany.*
113. Morris E.J., A. Paytan, and T.D. Bullen. 2005. Marine barite: A recorder of seawater calcium isotope composition. *AIG - 6th International Symposium on Applied Isotope Geochemistry, Prague, Czech Republic.*
114. Chen, Y., J. Street, and A. Paytan. 2005. Aerosol nutrient concentrations and dry deposition fluxes in the Gulf of Aqaba. *24th Annual American Association for Aerosol Research Conference.*
115. Handler, N.B., A.E. Santoro, C.P. Higgins, R.G. Luthy, A.B. Boehm, and A. Paytan. 2005. Spatiotemporal variation of pollutant concentrations at watershed outlets in Central California, USA. *ASLO Aquatic Science Conference, Salt Lake City.*
116. Böhm, F., N. Gussone, A. Eisenhauer, S. Reynaud, and A. Paytan. 2005. Calcium isotopes in corals - Influence of temperature and calcification rate. *EUG.*
117. Paytan, A. 2006. Ocean scientists - What can we do to enhance ocean literacy? *ASLO - AGU Ocean Science meeting (Keynote Speaker).*
118. Paytan, A., C. Halversen, L. Ingram, D. Penry, C. Strang, J. Saltzman. 2006. Communicating ocean sciences: Scientists and educators working together to improve education and public outreach. *ASLO - AGU Ocean Science meeting.*
119. Boehm, A.B., A. Paytan, A.E. Santoro, G.G. Shellenbarger, and K.D. Davis. 2006. Source and flux of submarine groundwater discharge at a California beach: Effects on nutrients and fecal pollution in the surf zone. *ASLO - AGU Ocean Science meeting.*
120. Erhardt, A.M., A. Paytan, E. Erba. 2006. Marine barite as a proxy for productivity across the Cretaceous Ocean anoxic events. *ASLO - AGU Ocean Science meeting.*
121. Grossman, E., J. Logan, C. Storlazzi, A. Paytan, and J. Street. 2006. Mapping groundwater discharge and nutrient flux across the fringing reefs of South Molokai and West Hawaii, main Hawaiian Islands. *ASLO - AGU Ocean Science meeting.*
122. Street, J.H., A. Paytan, and E. Grossman. 2006. Submarine groundwater discharge and nutrient subsidies to the leeward shores of Maui, Moloka'i and Hawai'i estimated using radium isotopes. *ASLO - AGU Ocean Science meeting.*
123. Mills, S., J. Street, Y. Chen, and A. Paytan. 2006. Estimates of dust deposition in the Gulf of Aqaba, Red Sea. *ASLO - AGU Ocean Science meeting.*
124. Gray, E. and A. Paytan. 2006. Barite accumulation rates over the PETM - export production reconstruction. *ASLO - AGU Ocean Science meeting.*
125. Mackey, K., J. Street, R. Labiosa, and A. Paytan. 2006. Effects of phosphorus availability and source on phytoplankton assemblages in the Gulf of Aqaba, Red Sea. *ASLO - AGU Ocean Science meeting.*
126. Cade-Menun, B.J. and A. Paytan. 2006. Temporal and depth trends in phosphorus forms in settling ocean particulate matter from Monterey Bay, California. *ASLO - AGU Ocean Science meeting.*

127. Luo, J., T. Erohina, and A. Paytan. 2006. Carbon and nitrogen stable isotopes of sedimentary organic matter from Santa Monica Basin. *ASLO - AGU Ocean Science meeting*.
128. Derse, E., K. Knee, and A. Paytan. 2006. Identifying the sources on nitrogen to macroalgae and coral reefs in Hanalei Bay, Kauai using isotopic tracers. *ASLO - AGU Ocean Science meeting*.
129. Elsbury, K., K. McLaughlin, and A. Paytan. 2006. Using oxygen isotopes in phosphate to identify and quantify phosphorus inputs and cycling in Lake Erie. *ASLO - AGU Ocean Science meeting*.
130. Wankel, S.D., K. Roberts, C.A. Francis, and A. Paytan. 2006. Rates of denitrification as measured by isotope pairing in Elkhorn Slough. *ASLO - AGU Ocean Science meeting*
131. Erohina, T., C. Paull, W. Ussler, and A. Paytan. 2006. Foraminiferal faunal assemblages as proxies for recent canyon activity-evidence for three submarine canyons, Santa Monica Basin, California. *ASLO - AGU Ocean Science meeting*.
132. Saltzman, J. and A. Paytan. 2006. The pleasure of training students to support local science education. *ASLO - AGU Ocean Science meeting*.
133. McLaughlin, K. and A. Paytan. 2006. Insights into phosphate turnover in the Sargasso Sea from the oxygen isotopic composition of dissolved inorganic phosphate and enzyme labeled fluorescence. *ASLO - AGU Ocean Science meeting*.
134. Young, M., K., McLaughlin, and A. Paytan. 2006. The oxygen isotopic composition of phosphate of various anthropogenic phosphate sources: fertilizers, manure, detergents, and sewage treatment products. *ASLO - AGU Ocean Science meeting*.
135. Knee, K., A. Santoro, J. Street, A. Boehm, C. Berg, and A. Paytan. 2006. Estimating the importance of submarine groundwater discharge in Hanalei Bay, Kaua'i. *ASLO - AGU Ocean Science meeting*.
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