Dr. J. Jotautas Baronas

Postdoctoral Research Associate
University of Cambridge, Department of Earth Sciences
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RESEARCH

UNIVERSITY OF CAMBRIDGE | Postdoctoral
Ongoing project on quantifying and understanding weathering and carbon fluxes in large Southeast Asian rivers. Several extensive extensive field campaigns in Myanmar, China, Laos, and Cambodia, sampling the Mekong, Irrawaddy, and Salween Rivers.

UNIVERSITY OF SOUTHERN CALIFORNIA | Graduate
Made the first measurements of germanium (Ge) isotopic composition in seawater, rivers, and marine sediment pore waters. Established the global ocean Ge isotope budget, enabling the interpretation of Ge isotope and Ge/Si paleorecords. Showed how the coupled Ge-Si isotope system can be used to investigate silicate weathering processes in diverse environments and on a global scale. Described the first-order controls of Ge removal during sediment authigenesis and the associated effects on Ge isotope composition.

JACOBS UNIVERSITY BREMEN | Undergraduate
Developed a method to resolve complex lipid mixtures and identify individual phospholipid species in marine microalgae, using several different HPLC-MS techniques.

FRAUNHOFER UMSICHT INSTITUTE | Internship
Developed several reactive polymer additives to improve properties of wood-plastic-composite materials (patent filed).

EDUCATION

PHD IN EARTH SCIENCES | University of Southern California
2017 | Los Angeles, USA
•Advisors: Dr. Douglas E. Hammond & Dr. A. Joshua West • Thesis: "Germanium and silicon isotope geochemistry in terrestrial and marine low-temperature environments"

MS IN EARTH SCIENCES | University of Southern California
2014 | Los Angeles, USA
•Advisor: Dr. Douglas E. Hammond • Thesis: "Germanium-silicon fractionation in a continental shelf environment: Insights from the Northern Gulf of Mexico"

BS IN CHEMISTRY | Jacobs University
2011 | Bremen, Germany
•Advisor: Dr. Nikolai Kuhnert • Thesis: "Identification of phospholipids by reversed-phase liquid chromatography-electrospray-mass spectrometry, and application of developed method in the analysis of Nannochloropsis sp. microalgae lipids"

EXPERIENCE

ANALYTICAL
Cleanlab • MC-ICP-MS • ICP-MS • MP/ICP-AES • CRDS • HPLC-ESI/TOF-MS • IC • SEM-EDS • XRF • XRD • UV-Vis • Sample prep. incl. fusion, HF digestion, ion exchange chromatography, hydride generation

CODING
MATLAB • Python • HTML/CSS • LaTeX

FIELDWORK

Terrestrial
Work in remote locations of South America and Asia • Depth sampling of large rivers • ADCP • Trace metal sampling and ultra-filtration • Small-scale rock drilling • Soil and pore-water sampling

Marine
Research cruises in the Gulf of Mexico and Southern California Bight • Multi-corer • CTD • Sediment processing • Core incubation • Pore-water sampling

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PUBLICATIONS

PUBLISHED

Baronas, J.J., M. Torres, K. Clark, A. J. West. (2017) Mixing as a driver of temporal variations in river hydrochemistry. Part 2: Major and trace element concentration dynamics in the Andes-Amazon. Water Resources Research. [DOI]

Torres, J. J. Baronas, K. Clark, S. Feakins, A. J. West. (2017) Mixing as a driver of temporal variations in river hydrochemistry. Part 1: insights from conservative tracers in the Andes-Amazon. Water Resources Research. [DOI]

Baronas, J.J., D.E. Hammond, J. McManus, C. Siebert, G. Wheat. (2017) A global Ge isotope budget. Geochimica et Cosmochimica Acta. [DOI]

Baronas, J.J., D.E. Hammond, W.M. Berelson, J. McManus, S. Severmann. (2016) Germanium-silicon fractionation in a river-influenced continental margin: The Northern Gulf of Mexico. Geochimica et Cosmochimica Acta. [DOI]

Haskell, W.Z.II, M.G. Prokopenko, D.E. Hammond, R.H.R. Stanley, W.M. Berelson, J. J. Baronas, J.C. Fleming, L. Aluwihare. (2016) An organic carbon budget for coastal Southern California determined by estimates of upwelled nutrients, net production, and export. Deep Sea Research Part I: Oceanographic Research Papers [DOI]

IN REVISION OR PREPARATION

Baronas, J.J., D. Hammond, A. J. West, O. Rouxel, B. Georg, M. Torres, J. Bouchez, J. Gaillardet. Ge and Si isotope geochemistry in global rivers: element-specific response to weathering intensity. In preparation.

Baronas, J.J., D.E. Hammond, O. Rouxel, D. Monteverde. Contrasting Ge and Si isotope dynamics in marine sediments. In preparation.

Baronas, J.J., D. Hammond, A. J. West, O. Rouxel, S. Opfergelt, K. Burton, P. Pogge von Strandmann, R. James. Ge and Si behavior during tropical weathering: La Selva, Costa Rica. In preparation.

TEACHING

TEACHING ASSISTANT / DEMONSTRATOR

- Introductory Geology (Part 1A Earth Sciences) | 1st-year undergraduate course | University of Cambridge
- Field Geology (2-week field course in Peru) | 3rd/4th-year undergraduate course | University of Southern California
- Geochemistry (GEOL460) | Graduate / 4th-year undergraduate course | University of Southern California
- Climate Change (GEOL150) | GE undergraduate course | University of Southern California
- Earth History (GEOL125) | GE undergraduate course | University of Southern California
- Crises of a Planet (GEOL108) | GE undergraduate course | University of Southern California
- Oceanography (GEOL107) | GE undergraduate course | University of Southern California
- Organic Chemistry | 1st-year undergraduate course | Jacobs University Bremen

RESEARCH SUPERVISOR

- Linshu Feng | undergraduate research | University of Cambridge
- Charlie Eardley | undergraduate research | University of Cambridge
- Yi Hou | undergraduate research | University of Southern California
- Renee Wang | undergraduate research | University of Southern California
- Hasana Johnson | high-school summer student | University of Southern California

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AWARDS

FUNDING

- Pathfinder Graduate Student Fellowship | Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) | 2016
- Student and Postdoctoral Research Fellowship | International Cooperation in Ridge-crest Studies (InterRidge) | 2015
- Graduate Student Research Grant | Geological Society of America (GSA) | 2015
- Elsevier PhD Student Research Grant | International Association of Geochemistry (IAGC) | 2015
- Gold Family Graduate Fellowship | University of Southern California | 2015
- Graduate Student Research Fellowship | University of Southern California | 2014, 2015

HONORS

- Order of the Torch (outstanding leadership and community service) | University of Southern California | 2017
- Outstanding Student Paper Award (OSPA) in Biogeosciences | AGU Fall Meeting | 2016
- John Montagne Graduate Student Research Award for Best Quaternary Geology proposal | Geological Society of America (GSA) | 2015
- Outstanding Teaching Assistant Award | University of Southern California | 2012
- Merit-based scholarship | Jacobs University Bremen | 2008-2011

SERVICE

ACADEMIA

- Invited reviewer for: Geochimica et Cosmochimica Acta • Water Resources Research • Geobiology • Biogeochemistry • Journal of Geochemical Exploration
- Invited speaker at: Institut de Physique du Globe de Paris (IPGP) • GFZ Potsdam • University of Southern California
- Founder and President of USC Science Policy Group | University of Southern California | 2015-2017
- Co-organizer of the Southern California Geobiology Symposium (50+ presenters, 100+ attendees) | 2014

OUTREACH

- Author of science outreach blog SoSciety | 2012-2015
- Member of USC Water Conservation task force, co-author of Water Conservation Recommendations Letter solicited by USC administration | 2015
- Student mentor at Young Researchers Program | 2014
- Co-author of an advisory letter solicited by US Congress Rep. H. A. Waxman regarding climate change impact on California | 2013