

CURRICULUM VITAE

Konstantin Choumiline

Ph.D. Student

Department of Earth Sciences, University of California Riverside

Prof. Timothy Lyons Biogeochemistry Group (NASA Astrobiology Institute)

Date of Birth: 11/28/1987

Citizenship: Mexican

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EDUCATION

Bachelor's degree in Geology at Universidad Autónoma de Baja California Sur (La Paz, B.C.S., Mexico) with the thesis titled: "Application of multivariate statistical methods in determining sediment contribution sources. Case study of La Paz Lagoon, B.C.S., Mexico", defended on 11/17/09

Master's Degree with Honors in Marine Resource Management at Centro Interdisciplinario de Ciencias Marinas - Instituto Politécnico Nacional (La Paz, B.C.S., Mexico) with the thesis titled: "Geochemistry of settling particulate matter and recent sediments of Alfonso Basin, La Paz Bay", defended on 12/15/11

AWARDS AND GRANTS



Awards

- Special Recognition for the Quality of Bachelor's Degree Thesis (Awarded by "Unión Geofísica Mexicana"- Mexican Geophysical Union)
- Master's Degree with Honors
- Best Academic Performance as a M.S. Degree Student (Awarded by "Instituto Politécnico Nacional" - National Polytechnic Institute)
- "Presea Lázaro Cárdenas 2012" National Award (Gold medal handed by the Mexican president Felipe Calderón Hinojosa in the "Los Pinos" Official Residence, awarded by "Instituto Politécnico Nacional" - National Polytechnic Institute)

Fellowships and Travel Grants

- National Postgraduate Studies Fellow: 2010-2012 (Granted by CONACYT)
- Institutional Program for the Formation of Researchers 2010-2012 (Granted by SIP-COFAA-IPN)
- UC MEXUS - CONACYT Doctoral Fellow: 2013-present (Granted by CONACYT and the University of California Institute for Mexico and the United States)
- One of the ten scholars selected for the fully funded 8 month program at the Center of Excellence in Observational Oceanography at the Bermuda Institute of Ocean Sciences, Year 5 2012-2013 (had to decline due to Ph.D. offer)
- Selected as one of the scholars for a fully funded participation in the Urbino Summer School in Paleoclimatology 2016 held in Urbino, Italy (Granted by NSF)
- Grant for Dissertation Research 2016 (Granted by UC MEXUS)
- Several travel grants funded by the following organizations and institutions: UABCS, CICIMAR-IPN, COFAA-IPN, GSA-UCR, AGU, CERF, NSF, IAEA, USSSP/IODP

PUBLICATIONS

Choumiline K., Godínez-Orta L., Nikolayeva N., Derkachev A. and Shumilin E., 2009. Evaluation of contribution sources for terrigenous and marine sediments of the La Paz Lagoon, based on the mineralogy of their heavy fraction, surrounding lithologies and drainage basins. *Boletín de la Sociedad Geológica Mexicana*, 61: 97-109.

Choumiline K., Herguera J.C., Shumilin E. and Sapozhnikov D., 2009. Authigenic uranium in the sediments in the La Paz Bay and La Paz Basin, southwestern Gulf of California. 10th International Conference on the Biogeochemistry of Trace Elements Proceedings, Reviewed Extended Abstract.

Choumiline K., Rodríguez-Castañeda A.P., Silverberg N., Shumilin E., Aguirre-Bahena F., Sapozhnikov D. and Pérez-Cruz L., 2010. Arsenic and uranium in the settling particulate matter and sediments of Alfonso Basin, La Paz Bay. Proceedings of the 13th International Conference on Water-Rock Interaction. Reviewed Extended Abstract.

Shumilin E., Gordeev V., Rodríguez-Figueroa G., Demina L. and Choumiline K., 2011. Assessment of geochemical mobility of metals in surface sediments of the Santa Rosalia mining region, western Gulf of California. *Archives of Envir. Contam. Toxic.*, 60: 8-25.

Choumiline K., Aguirre-Bahena F., Shumilin E., Silverberg N. and Sapozhnikov D., 2011. Composition of Settling Particulate Matter and Element Fluxes into Alfonso Basin, La Paz Bay, Gulf of California: 2002-2008 Sediment Trap Time Series. 11th International Conference on the Biogeochemistry of Trace Elements Proceedings, Reviewed Extended Abstract.


Shumilin E., Rodríguez-Figueroa G., Sapozhnikov D., Sapozhnikov Yu. and Choumiline K., 2012. Anthropogenic and authigenic uranium in marine sediments of the central Gulf of California adjacent to the Santa Rosalía mining region. *Archives of Environmental Contamination and Toxicology*, 63: 309-322.

Shumilin E., Mirlean N., and Choumiline K., and Ostrooumov M., 2015. Increasing arsenic mobility in the fine fraction of the dry stream sediments of the semi-arid San Antonio gold mining district (Baja California peninsula, Mexico). *Environmental Earth Sciences*, 73: 4689-4700.

Perez-Cruz L., Urrutia-Fucugauchi J., Gómez-Lizárraga L., Choumiline K., Lyons T., Roy P.D., Rodríguez-Ramírez A. and Velasco V. Holocene climate variability of the southern Gulf of California and the adjacent Pacific Ocean: A multi-proxy approach from La Paz Basin. Submitted to *Quaternary Science Reviews*.

PARTICIPATION IN SCIENTIFIC EVENTS

Conferences, workshops and summer schools:

- 21 as presenter (15 oral, 6 posters), 7 as co-author, 2 “Best Student Presentation” awards 
- Session chair at “Water-rock interactions in karst and pore water chemistry in sedimentary rocks” during the 13th Water-Rock Interaction International Symposium (2010)
- GEOTRACES Latin America Workshop (2012)
- IODP Guaymas Basin Workshop: “Exploring deep subsurface life, sedimentation and tectonics in a young ocean: Workshop to synthesize site survey cruise data and develop new strategies for a scientific ocean drilling proposal in the Guaymas Basin” (2015)
- Urbino Summer School in Paleoclimatology in Urbino, Italy (2016)

- Session chair at “Session 19e: General Session Low Temperature and Session 19e: General Session Biogeochemistry” at Goldschmidt 2016 conference

Selected presentations:

- Arsenic and uranium in the settling particulate matter and sediments of Alfonso Basin, La Paz Bay (13th Water-Rock Interaction International Symposium, Guanajuato, Mexico; August 2010)
- Role of extraordinary events on the composition of settling particles in Alfonso Basin, La Paz Bay, Gulf of California: 2002-2008 sediment trap time series (11th International Estuarine Biogeochemistry Symposium, Atlantic Beach, North Carolina, USA; May 2011)
- Composition of Settling Particulate Matter and Element Fluxes into Alfonso Basin, La Paz Bay, Gulf of California: 2002-2008 Sediment Trap Time Series (11th International Conference on the Biogeochemistry of Trace Elements, Florence, Italy; July 2011)
- Shale-normalized lanthanide signatures of the settling particulate matter and recent sediments of Alfonso Basin, La Paz Bay, Gulf of California (GEOTRACES Latin American Workshop, Rio de Janeiro, Brazil; November 2012)
- Downstream increase of arsenic mobility in the arroyo sediments of a desertic arid sedimentary basin affected by remnants of gold mining near San Antonio, southern Baja California (Biennial Conference of the CERF, San Diego, California; November 2013)
- Lanthanide behavior in hypersaline evaporation ponds at Guerrero Negro, Baja California, Mexico - an environment with halophiles (American Geophysical Union Fall Meeting 2013, San Francisco, California; December 2013).
- Reconstructing hypoxia of the southeastern Gulf of California over the last 18,000 years: sediments of Pescadero Basin (American Geophysical Union Fall Meeting 2014, San Francisco, California; December 2014)
- Historical trends in hypoxia of the southeastern Gulf of California: 18,000 year record (3rd International Symposium on the Effects of Climate Change on the World's Oceans, Santos, Brazil; March 2015)
- Drivers of redox changes in diverse basins of the Gulf of California: Alfonso, La Paz, and Pescadero (Goldschmidt 2016, Yokohama, Japan; June-July 2016)

RESEARCH STAYS AND TRAINING COURSES

- Research stay as visiting student at the Institute for Chemistry and Biology of the Marine Environment, University of Oldenburg (Oldenburg, Germany), to get acquainted with several analytical techniques at the Microbiogeochemistry Group led by Prof. Dr. Hans-Jürgen Brumsack (April 2011).

TEACHING EXPERIENCE

Teaching Assistant (University of California Riverside):

- GEO 003 - Headlines in the History of Life (Spring 2016)
- GEO 157 - Introduction to Geographical Information Science (Fall 2016)

VOLUNTEERING SERVICE

- Volunteered at organization committees of several conferences: Goldschmidt, Coastal and Estuarine Research Federation, Annual Southern California Geobiology Symposium, among others.
- Earth Science Department "Hewett Club" Seminar Series (Representative and Organizer: 2015-2016)
- Earth Science Mini-GSA, University of California Riverside (President: 2016-present)

SKILLS AND TECHNIQUES

Field Experience:

- Participation in 13 oceanographic expeditions aboard mid-sized Research Vessels. Some of them:
 - Oceanographic Campaign WAG-02 to Wagner and Consag Basins, Gulf of California, with the main goal of assessing hydrothermal activity of nascent spreading centers (July-August 2010, aboard R/V El Puma and featured in: Prol-Ledesma et al., 2013. Nature Communications)
 - Oceanographic Campaign PALEOMAR-I to Alfonso and La Paz basins, Gulf of California (November, 2014, aboard R/V El Puma)
 - Oceanographic Campaign PALEOMAR-II to Pescadero, Carmen and Alfonso basins, Gulf of California (February, 2016, aboard R/V El Puma)
- Sampling of seawater, settling particulate matter, plankton, marine and beach sediments, soils, dry streams and rocks.
- Deployment and retrieval of various types of samplers, as well as sediment trap moorings with autonomous sensors.
- Extraction of pore waters from marine sediments using Rhizon samplers under inert conditions (typically N₂).

Selected Analytical Skills:

- Determination of total, inorganic and organic carbon, as well as sulfur
- Detailed Fe and S chemical determinations (highly reactive iron, pyrite, among others)
- Various sequential extraction (leaching) and total digestion procedures
- Sample preparation and analysis of major and trace elements with the X-Ray Fluorescence technique using a Philips PW2400 XRF spectrometer.
- Analytical determination of trace elements in pore waters and acid-digested sediment and rock samples using inductively coupled plasma mass spectrometry, more specifically on the Agilent 7500 and Agilent 7900 ICP-MS.
- Sample preparation for various isotopic determinations (including metal isotopes)

Selected Software Expertise:

- ArcGIS 10.4 (ESRI)
- Surfer (Golden Software)
- Ocean Data View
- LogPlot 7 (RockWare)
- Global Mapper (Global Mapper Software LLC)
- MatLab R2014a (MathWorks)
- STATISTICA (StatSoft)