



GSA 2019

22-25 September
Phoenix, Arizona, USA



Annual Meeting & Exposition Program

NO.	SESSION TITLE	DAY	TIME	LOCATION
29	T146. Field Tracer Studies for Aquifer Characterization (Posters)	Sunday	9 a.m.–5:30 p.m.	Hall AB, North Building
30	T148. Coastal Hydrogeology in an Age of Rising Seas (Posters)	Sunday	9 a.m.–5:30 p.m.	Hall AB, North Building
31	T149. Arsenic in Global Groundwater-Based Drinking Water Systems—Source-Water Characteristics, Safe Limits, Human-Health Impacts, Innovative Treatment Systems, and Policy Instruments (Posters)	Sunday	9 a.m.–5:30 p.m.	Hall AB, North Building
32	T150. Advances in Understanding Processes at or Near the Groundwater–Surface Water Interface (Posters)	Sunday	9 a.m.–5:30 p.m.	Hall AB, North Building
33	T152. A Showcase of Undergraduate Research in Hydrogeology (Posters)	Sunday	9 a.m.–5:30 p.m.	Hall AB, North Building
69	T140. Mountain Groundwater	Sunday	1:30–5:30 p.m.	Room 104AB, West Building
70	T146. Field Tracer Studies for Aquifer Characterization	Sunday	1:30–5:30 p.m.	Room 105BC, West Building
91	T139. Regional Groundwater Availability and Sustainability Studies: Advances in Methods and Approaches	Monday	8 a.m.–noon	Room 104AB, West Building
92	T147. Evolution of Paleo to Modern Fluid Flow Systems in the Colorado Plateau and Other Sedimentary Environments	Monday	8 a.m.–noon	Room 105BC, West Building
111	T138. Remote Sensing Applications in Hydrology (Posters)	Monday	9 a.m.–6:30 p.m.	Hall AB, North Building
112	T139. Regional Groundwater Availability and Sustainability Studies: Advances in Methods and Approaches (Posters)	Monday	9 a.m.–6:30 p.m.	Hall AB, North Building
113	T140. Mountain Groundwater (Posters)	Monday	9 a.m.–6:30 p.m.	Hall AB, North Building
149	T141. Modeling the Hydrosphere: From Aquifers to Atmosphere	Monday	1:30–5:30 p.m.	Room 104AB, West Building
156	GSA Hydrogeology Division: Henry Darcy Distinguished Lecture	Monday	4–5 p.m.	Room 105BC, West Building
174	T142. Innovations in Research of Springs and Other Features at the Groundwater–Surface Water Interface	Tuesday	8–11:25 a.m.	Room 104AB, West Building
175	T145. Hydrogeology and Energy	Tuesday	8 a.m.–noon	Room 105BC, West Building
233	GSA Hydrogeology Division: Birdsall-Dreiss Distinguished Lecture	Tuesday	4:30–5:30 p.m.	Room 105BC, West Building
249	T143. Improving Scientific Literacy and Dispelling Misconceptions about Wicked Water Resource Problems	Wednesday	8–11:30 a.m.	Room 104AB, West Building
250	T148. Coastal Hydrogeology in An Age of Rising Seas	Wednesday	8 a.m.–noon	Room 102AB, West Building
251	T149. Arsenic in Global Groundwater-Based Drinking Water Systems—Source-Water Characteristics, Safe Limits, Human-Health Impacts, Innovative Treatment Systems, and Policy Instruments	Wednesday	8 a.m.–noon	Room 105BC, West Building
266	D12. Recent Advances in Hydrogeology (Poster)	Wednesday	9 a.m.–6:30 p.m.	Hall AB, North Building
267	T142. Innovations in Research of Springs and Other Features at the Groundwater–Surface Water Interface (Posters)	Wednesday	9 a.m.–6:30 p.m.	Hall AB, North Building
268	T145. Hydrogeology and Energy (Posters)	Wednesday	9 a.m.–6:30 p.m.	Hall AB, North Building

28-11 100 Tomlinson, Jaime L.*; Ramsey, Kelvin W.: **GEOLOGIC MAP OF THE CECILTON AND MIDDLETOWN QUADRANGLES, DELAWARE**

SESSION NO. 29 

T146. Field Tracer Studies for Aquifer Characterization (Posters) (GSA Hydrogeology Division; GSA Karst Division)

9:00 AM, Phoenix Convention Center, Hall AB, North Building

Authors will be present from 3:30 to 5:30 PM

- | Booth # | Author(s) | Title |
|----------|--|--|
| 29-1 101 | Kirkendall, Alyssa Blaise*; Schindel, Geary M.; Gao, Yongli: | INVESTIGATION OF METHODS IN FLUORESCENT DYE EXTRACTION FROM ACTIVATED CHARCOAL FOR USE IN DYE TRACING |
| 29-2 102 | Li, Xiao*; Tao, Guangbin: | GEOCHEMICAL GENESIS OF THE RUBU HOT SPRING IN DAOCHENG, THE WESTERN SICHUAN PLATEAU |
| 29-3 103 | Oromeng, Kopo*; Atekwana, Eliot; Ramatlapeng, Goabaone; Molwalefhe, Loago N.: | SOLUTE TRANSPORT IN A SEMI-ARID ENDORHEIC BASIN, OKAVANGO DELTA, BOTSWANA: A TIME SERIES INVESTIGATION |
| 29-4 104 | DiVincenzo, Ashley*; Peterson, Eric; Hackley, Keith C.: | USING SEASONAL GROUNDWATER SHIFTS IN NITRATE ISOTOPES TO EXAMINE THE TRANSPORT AND FATE OF NITRATE WITHIN A SATURATED BUFFER ZONE |
| 29-5 105 | Bosompemaa, Patience*; Peterson, Eric; Perry, Bill; Seyoum, Wondwosen Mekonnen: | NITRATE TRANSPORT IN THE UNSATURATED ZONE |
| 29-6 106 | Marić, Nenad*; Nikić, Zoran; Slavković Beškoski, Latinka; Avdalović, Jelena; Bledsoe, Lee Anne; Lješević, Marija; Joksimović, Kristina; Žerađanin, Aleksandra; Beškoski, Vladimir: | STUDY OF JET FUEL NATURAL ATTENUATION - BIODEGRADATION EFFECTS IN GROUNDWATER (VITANOVAC, SERBIA) |

SESSION NO. 30  

T148. Coastal Hydrogeology in An Age of Rising Seas (Posters) (GSA Hydrogeology Division; GSA Environmental & Engineering Geology Division; GSA Karst Division; American Geophysical Union; American Geosciences Institute; Consortium of Universities for the Advancement of Hydrologic Science Inc.; National Ground Water Association; International Association of Hydrogeologists; Soil Science Society of America; GSA Soils and Soil Processes Division)

9:00 AM, Phoenix Convention Center, Hall AB, North Building

Authors will be present from 3:30 to 5:30 PM

- | Booth # | Author(s) | Title |
|----------|---|---|
| 30-1 107 | Curran, Katherine L.*; Kelly, Jacque L.: | COMPARISON OF SUBMARINE GROUNDWATER DISCHARGE FLUXES IN GEORGIA TIDAL CREEKS USING RADON |
| 30-2 108 | Fregoso-Sanchez, Diana Carolina*; Compton, Kalyn; Germaine Corine, Ngameni Youaleu; Charles, Njilah; Ramatlapeng, Goabaone; Ella, Kahnyuy; Bikuu, Victorine A.; Counts, Nicholas T.; Njilah, Isaac Knofor; Atekwana, Eliot; Ali, Hendratta: | INVESTIGATING THE INFLUENCE OF TIDAL FLUCTUATIONS ON SHALLOW GROUNDWATER CONDITIONS IN A COASTAL NEIGHBORHOOD IN THE WOURI ESTUARY, CAMEROON |
| 30-3 109 | Atwood, Shannon*; Jackson, Abigail; Rossi, Leanne; Lupino, Ann; Galvin, Robert: | THE EFFECTS OF TIDAL RESTRICTIONS ON THE HEALTH OF A SALT MARSH |
| 30-4 110 | Pantheni, Jeeban*; Boving, Thomas B.; Pradhanang, Soni M.; Ismail, Mamoon: | COUPLING GPR AND ERT TECHNIQUES FOR DELINEATING SALTWATER-FRESHWATER INTERFACE IN A COASTAL AQUIFER |
| 30-5 111 | Ramatlapeng, Goabaone*; Counts, Nicholas T.; Bikuu, Victorine A.; Ella, Kahnyuy; Fregoso-Sanchez, Diana Carolina; Compton, Kalyn; Germaine Corine, Ngameni Youaleu; | |

Charles, Njilah; Ali, Hendratta; Njilah, Isaac Knofor; Atekwana, Eliot: **INVESTIGATING THE EFFECTS OF ESTUARINE WATER ON GROUNDWATER QUALITY IN A POPULATED NEIGHBORHOOD IN THE WOURI ESTUARY, CAMEROON**

30-6 112 Behera, Ajit Kumar*: **SEAWATER INTRUSION IN A COASTAL AQUIFER OF THE MAHANADI DELTA NEAR BAY OF BENGAL, INDIA: A CASE STUDY**

SESSION NO. 31 

T149. Arsenic in Global Groundwater-Based Drinking Water Systems—Source-Water Characteristics, Safe Limits, Human-Health Impacts, Innovative Treatment Systems, and Policy Instruments (Posters) (GSA Hydrogeology Division; GSA International; GSA Geology and Health Division; International Society of Groundwater for Sustainable Development (ISGSD); IWA Specialist Group Metals and Related Substances in Drinking Water (METRELS); GSA Karst Division)

9:00 AM, Phoenix Convention Center, Hall AB, North Building

Authors will be present from 3:30 to 5:30 PM

- | Booth # | Author(s) | Title |
|----------|--|--|
| 31-1 113 | Vega, Michael; Datta, Saugata*; Kulkarni, Harshad Vijay; Taylor, Robert: | MOBILIZATION OF CO-OCCURRING TRACE ELEMENTS UNDER IRON-REDUCING CONDITIONS IN WEST BENGAL GROUNDWATER |
| 31-2 114 | Rezaie Boroon, Mohammad Hassan*; Seemayer-Chainey, Jessica; Bowers, Bradley: | THE SOURCE OF ARSENIC AND NITRATE IN BORREGO VALLEY GROUNDWATER AQUIFER |
| 31-3 115 | Rahman, Md Mahfujur*; Lee, Ming-Kuo; Uddin, Ashraf: | GEOCHEMISTRY OF GROUNDWATER AND NATURALLY OCCURRING PYRITE IN UPHAPEE CREEK, MACON CO., ALABAMA, AND A COMPARISON WITH BIOMINERALIZED PYRITE IN AN INDUSTRIAL SITE, FLORIDA |
| 31-4 116 | Fischer, Alicia*; Lee, Ming-Kuo; Saunders, James; Gilley, Sara; Marks, Justin; Redwine, Jim: | FIELD AND LABORATORY INVESTIGATIONS OF GROUNDWATER ARSENIC SEQUESTRATION IN BIOGENIC PYRITE AT AN INDUSTRIAL SITE IN FLORIDA |
| 31-5 117 | Watson, D.S. Monty*; Root, Tara L.: | AN INVESTIGATION INTO CONTROLS ON ARSENIC CONCENTRATIONS IN GROUNDWATER AT A FORMER GOLF COURSE IN BOCA RATON, FLORIDA |
| 31-6 118 | Brikowski, Tom H.*; Peiris, Inoka: | SAVING LIVES WITH A PIPER DIAGRAM IN SRI LANKA |
| 31-7 119 | Qadir, Anwar*; Ali, Aamir; Shahzad, Khurram; Ahmad, Zulfiqar; Khan, Tahseenullah; Zafar, Muhammad: | DETERMINATION OF GROUNDWATER ARSENIC SOURCE AND FATE USING HYDROGEOCHEMICAL EVALUATION, PARTICLE TRACKING AND 3-D TRANSPORT SIMULATION IN DERA ISMAIL KHAN AREA, PAKISTAN |

SESSION NO. 32  

T150. Advances in Understanding Processes at or Near the Groundwater–Surface Water Interface (Posters) (GSA Hydrogeology Division; GSA Soils and Soil Processes Division)

9:00 AM, Phoenix Convention Center, Hall AB, North Building

Authors will be present from 3:30 to 5:30 PM

- | Booth # | Author(s) | Title |
|----------|--|---|
| 32-1 120 | Zhang, Xiaoying*; Dai, Zhenxue; Ye, Kexin; Zhan, Chuanjun: | SUBMARINE GROUNDWATER DISCHARGE REVEALED BY AERIAL THERMAL INFRARED DATA ACQUIRED AT TWO DIFFERENT TIDAL HEIGHTS |
| 32-2 121 | Maharjan, Madan*: | DIVERGENCE IN BANK STORAGE METRICS: CONSTANT VERSUS TRANSIENT HYDRAULIC GRADIENT |
| 32-3 122 | Budde, Nicholas R.*: | CHARACTERIZATION OF THE HYDROLOGIC AND LANDSCAPE FACTORS CONTROLLING CALCAREOUS FEN OCCURRENCE ALONG GLACIAL LAKE AGASSIZ BEACH RIDGES, NORTHWESTERN MINNESOTA |



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GSA Annual Meeting in Phoenix, Arizona, USA - 2019

Paper No. 29-6

Presentation Time: 9:00 AM-5:30 PM

STUDY OF JET FUEL NATURAL ATTENUATION - BIODEGRADATION EFFECTS IN GROUNDWATER (VITANOVAC, SERBIA)

MARIĆ, Nenad¹, NIKIĆ, Zoran¹, SLAVKOVIĆ BEŠKOSKI, Latinka², AVDALOVIĆ, Jelena³, BLEDSOE, Lee Anne⁴, LJEŠEVIĆ, Marija⁵, JOKSIMOVIĆ, Kristina⁵, ŽERAĐANIN, Aleksandra⁵ and BEŠKOSKI, Vladimir⁵, (1)F Department of Ecological Engineering, University of Belgrade, Belgrade, 11000, Serbia, (2)Anahem Laboratory, Belgrade, 11000, Serbia, (3)Institute of Chemistry, Technology and Metallurgy, University of B 11000, Serbia, (4)Crawford Hydrology Laboratory, Department of Geography and Geology, Western Kentucky University, Bowling Green, KY 42101, (5)Faculty of Chemistry, University of Belgrade, Belgrade,

Biodegradation often plays a major role among natural attenuation processes in the reduction of groundwater contamination by petroleum hydrocarbons. The study was conducted 25 years after the accident at the site in Vitanovac in Serbia (1993-2018). During this period, natural attenuation processes were active without any anthropogenic stimulation. The traces of groundwater contamination were analyzed by MS chromatography. The microbiological analysis included measurements of total chemoorganoheterotrophs (TC), hydrocarbon degrading (HD), and anaerobic bacterial (AB) content in groundwater and following hydrochemical indicators in groundwater were measured: O₂, NO₃⁻, Mn, Fe, SO₄²⁻, HCO₃⁻. Due to the long-term hydrocarbon contamination and exposure to different biodegradation mechanisms concentrations of electron acceptors and the highest concentrations of microbial metabolic activity products overlap. Based on the analysis of redox-sensitive compounds in groundwater samples, the terminal accepting processes ranged from mixed oxic-anoxic (O₂-Fe(III)/SO₄) to oxic (O₂). The most anoxic conditions were registered in monitoring wells closest to the former source of contamination, as also confirmed by potential (Eh) *in situ* measurements. Overall, the study provides clear evidence of the activity and effects of biodegradation mechanisms under natural attenuation processes in groundwater contaminated

Session No. 29 - Booth# 106

T146. Field Tracer Studies for Aquifer Characterization (Posters)

Sunday, 22 September 2019: 9:00 AM-5:30 PM

Hall AB, North Building (Phoenix Convention Center)

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