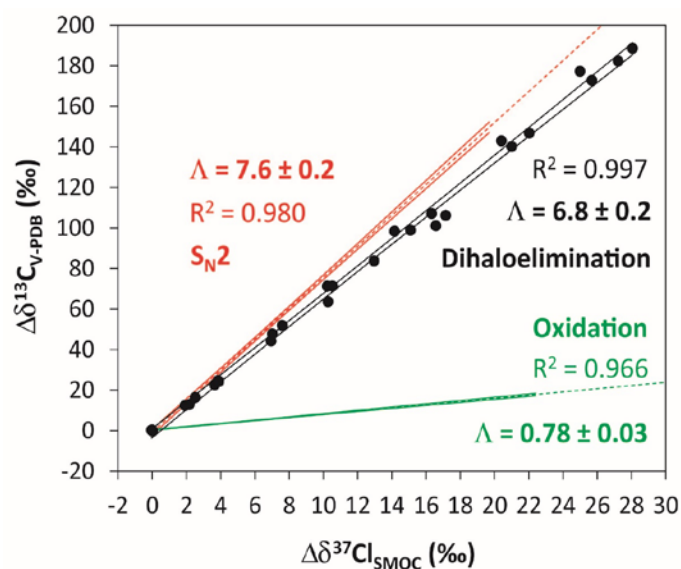


Dr. Orfan Shouakar-Stash

- Director, Isotope Tracer Technologies Inc.
- Adjunct Professor, School of Engineering, University of Guelph.
- Adjunct Professor, Department of Earth and Environmental Sciences, University of Waterloo.
- Secretary of the International Association of Geochemistry and Cosmochemistry (IAGC).



Dr. Shouakar-Stash is an Isotope Hydrogeochemist with over 20 years of experience. He is an Adjunct Professor at the School of Engineering, University of Guelph. He is also an Adjunct Professor at the Department of Earth and Environmental Sciences, University of Waterloo. His research interest relates to the development and implementation of isotopic tools in organic and inorganic contaminant investigations and water resource as well as water quality studies. He developed numerous isotopic technical methodologies and initiated and participated in a number of international and domestic collaboration research projects with researchers from various universities, government agencies and industries across the globe.



He authored and co-authored an extensive number of scientific papers in international journals. He trained and supervised a large number of undergraduate and graduate students as well as visiting scientists. He serves as a peer reviewer in several international Journals. He currently serves as the secretary of the International Association of Geochemistry and Cosmochemistry (IAGC).

Dr. Shouakar-Stash is the CEO of Isotope Tracer Technologies Inc. (IT²), the only commercial Isotope Laboratory in Canada. IT² is a state-of-the-art facility that offers a large variety of isotopic analyses on different materials.

Selected Papers and Theses

Selected Publications

Marchesia, M., Albertia, L., Shouakar-Stash, O., Pietrinia, I., de Ferrad, F., Carpanid, G., Aravena, R., Franzettie, A., and Stellae, T. (2017). ^{37}Cl -compound specific isotope analysis and assessment of functional genes for monitoring monochlorobenzene (MCB) biodegradation under aerobic conditions. *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2017.11.150>.

Palau, J., Shouakar-Stash, O., Mortan, S. H., Yu, R., Rosell, M., Marco-Urrea, E., Freedman, D. L., Aravena, R., Soler, A., and Hunkeler, D. (2017). Hydrogen isotope fractionation during biodegradation of 1,2-dichloroethane: potential for pathway identification using a multi-element (C, Cl and H) isotope approach. *Environmental Science and Technology*. 51(18). DOI. 10.1021/acs.est.7b02906.

Kashir, M., McGregor, R., Gusti, W., and Shouakar-Stash, O. (2017) Chemical oxidation using stabilized hydrogen peroxide in high temperature, saline groundwater impacted with hydrocarbons and MTBE. *Remediation Journal* 27(4):19-28. DOI.10.1002/rem.21526.

Doğan-Subaşı, E., Elsner, M., Qiu, S., Cretnik, S., Atashgahi, S., Shouakar-Stash, O., Boon, N., Dejonghe, W., and Bastiaens, L. (2017) Contrasting dual (C, Cl) isotope fractionation offers potential to distinguish reductive chloroethene transformation from breakdown by permanganate. *Science of the Total Environment* 596-597: 169-77, <https://doi.org/10.1016/j.scitotenv.2017.03.292>.

Palau, J., Yu, R., Hatijah Mortan, S., Shouakar-Stash, O., Rosell, M., Freedman, D.L., Sbarbati, C., Fiorenza, S., Aravena, R., Marco-Urrea, E., Elsner, M., Soler, A., and Hunkeler, D. (2017) Distinct dual C-Cl isotope fractionation patterns during anaerobic biodegradation of 1,2-dichloroethane: potential to characterize microbial degradation in the field. *Environmental Science & Technology*, DOI:10.1021/acs.est.6b04998.

Owen, D. D. R., Shouakar-Stash, O. and Aravena, R. (2016). Thermodynamic and hydrochemical controls on CH_4 in a coal seam gas and overlying alluvial aquifer: New insights into CH_4 origins. *Scientific Reports*. 6:32407.

Eissa, M.A., Shouakar-Stash, O., Mahmoud, H.H., El-Shiekh, A., Parker, B. (2016). Geophysical and geochemical studies to delineate seawater intrusion in Bagoush area, Northwestern coast, Egypt. *Journal of African Earth Sciences* · June 2016 DOI: 10.1016/j.jafrearsci.2016.05.031.

Eissa, M.A., Thomas, J., Pohll, G., Hershey, R., Shouakar-Stash, O., Dawoud, M. (2016) Groundwater Recharge and Salinization in the Arid Coastal Plain Aquifer of the Wadi Watir Delta, Sinai, Egypt. Accepted in *Applied Geochemistry Journal*.

Isawi, H., El-Sayed, M., Eissa, M., Shouakar-Stash, O., Shawky, H., Abdel Mottaleb, M. (2016) Integrated geochemistry, isotopes, and geostatistical techniques to investigate groundwater sources and salinization origin in the Sharm EL-Shiekh area, South Sinia, Egypt. *Water, Soil and Air Journal* DOI: 10.1007/s11270-016-2848-5.

Audí-Miró, C., Cretnik, S., Torrentó, C., Rosell, M., Shouakar-Stash, O., Otero, N., Palau, J., Elsner, M. and Soler, A. (2015). C, Cl and H compound-specific isotope analysis to assess natural versus Fe(o) barrier-induced degradation of chlorinated ethenes at a contaminated site. *Journal of Hazardous Materials*, 299, 747-754.

Miska, M.E., Shouakar-Stash, O. and Holmstrand, H. (2015). Stable chlorine analysis of chlorinated acetic acids using gas chromatography/quadrupole mass spectrometry. *Rapid Communication in Mass Spectrometry*. 29 (24), 2341-2348.

Palau, J., Shouakar-Stash, O., Hunkeler, D. (2014) Carbon and Chlorine Isotope Analysis to Identify Abiotic Degradation Pathways of 1,1,1-Trichloroethane. *Environmental Science & Technology*, 48, 14400-14408.

Renpenning, J., Keller, S., Cretnik, S., Shouakar-Stash, O., Elsner, M., Schubert, T and Nijenhuis, I. (2014). Combined C and Cl isotope effects indicate differences between corrinoids and enzyme (Sulfurospirillum multivorans PceA) in reductive dehalogenation of tetrachloroethene, but not trichloroethene. *Environmental Science & Technology*, 48, 11837-11845. DOI: 10.1021/es503306g.

Recent Theses (2017-2018)

Waleed Gusti (MSc Thesis) The Effectiveness of Persulfate and Hydrogen peroxide in the Oxidation of Hydrocarbon Contaminants At 300C: A Study with Focus on the Performance of Compound Specific Isotope Analysis.

Fatemeh Vakili (PhD Thesis) Stable isotope fractionation of chlorinated ethenes associated with physical processes.

Ahmad Abuharara (MSc Thesis) Using Isotopes to Understand the Origin of Water and the Effect of Reinjection in the Los Azufers Geothermal Field in Mexico.