

Curriculum Vitae: **Olivier Sulpis**

Postdoctoral researcher

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Education

- 2015 – 2019 McGill University, Canada
 Ph.D. Earth and Planetary Sciences
 Dissertation: Calcium carbonate mineral dissolution kinetics at the sediment-water interface in an acidifying ocean. Advisor: Pr. Alfonso Mucci
- 2011 – 2014 ENS de Lyon and Université Lyon 1, France
 BSc. Earth Sciences
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Research positions

- 2019 – present Utrecht University, The Netherlands.
 Postdoctoral researcher. Advisor: Prof. Jack Middelburg
 → Modelled fluxes of marine snow and biology mediated carbonate dissolution / in situ analyses of deep-sea sediment porewaters in the equatorial Pacific
- 2015 – 2019 McGill University, Canada.
 Research assistant. Advisor: Prof. Alfonso Mucci
 → Performed research on Ph.D thesis. Participated to several research cruises studying marine biogeochemistry and surface exchange of climate active gases in a changing Arctic System.
- 2018 – 2019 California Institute of Technology, USA.
 Visiting student researcher. Advisor: Prof. Jess Adkins and Dr. Monica Martinez Wilhelmus
 → Developed a 1-D sediment/porewater model for the MIT ECCO-Darwin Project.
- 2015 Centre de Recherche et d'Enseignement de Géosciences de l'Environnement (CEREGE), France.
 Research assistant. Advisors: Drs. Bruno Hamelin, Abel Guihou and Pierre Deschamps
 → Extracted seawater Pb and analyzed its isotopic composition.
- 2014 Laboratoire des Sciences du Climat et de l'Environnement (LSCE), France.
 Research assistant. Advisors: Drs. Olivier Cattani and Amaelle Landais
 → Analyzed with continuous flow technique H and O isotopes from ice cores
- 2014 Ecole normale supérieure (ENS) de Lyon, France.
 Research assistant. Advisor: Dr. Sylvain Pichat
 → Analyzed Pb isotopes from Pacific sediments to reconstruct atmospheric dust sources during the last glacial termination
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Teaching positions

- 2015 – 2019 Earth and Planetary Sciences Department, McGill University, Canada

Teaching assistant: The Earth System [[description](#)] | Winter 2016, Winter 2019 ; Earth and Life History [[description](#)] | Fall 2018 ; Chemical Oceanography [[description](#)] | Winter 2018 ; Crystal Chemistry [[description](#)] | Fall 2017 ; Earth System Processes [[description](#)] | Winter 2017 ; Principles of Geochemistry [[description](#)] | Fall 2015, Fall 2016

2018 Atmospheric and Oceanic Sciences Department, McGill University, Canada

Guest instructor: Introduction to Oceanic Sciences [[description](#)] | Winter 2018

2017-2018 Teaching and Learning Services, McGill University, Canada

Student Life and Learning assistant: organized and run science communication workshops for graduate students, organized science communication competitions.

Publications

peer-reviewed

7. **Sulpis, O.**, Jeansson, E., Dinauer, A., Lauvset, S. K., & Middelburg, J. J. Calcium carbonate dissolution patterns in the ocean. *Nature Geoscience*, *in press*.
6. **Sulpis, O.**, Lauvset, S. K. & Hagens, M. 2020. Current estimates of K_1^* and K_2^* appear inconsistent with measured CO_2 system parameters in cold oceanic regions. *Ocean Science*, 16: 847-862. [doi:10.5194/os-16-847-2020](#).
5. Boudreau, B. P., **Sulpis, O.** & Mucci, A. 2020. Control of CaCO_3 dissolution at the deep seafloor and its consequences. *Geochimica et Cosmochimica Acta*, 268: 90-106. [doi:10.1016/j.gca.2019.09.037](#).
Blogs: [OCB Science Highlights](#)
4. **Sulpis, O.**, Dufour, C. O., Trossman, D. S., Fassbender, A. J., Arbic, B. K., Boudreau, B. P., Dunne, J. P. & Mucci, A. 2019. Reduced CaCO_3 flux to the seafloor and weaker bottom current speeds curtail benthic CaCO_3 dissolution over the 21st century. *Global Biogeochemical Cycles*, 33(12): 1654-1673. [doi:10.1029/2019GB006230](#).
Blogs: [Skeptical Science](#)
3. **Sulpis, O.**, Mucci, A., Boudreau, B. P., Barry, M. & Johnson, B. 2019. Controlling the thickness of the diffusive boundary layer above the sediment-water interface with a thermostatic rotating disk reactor. *Limnology and Oceanography: Methods*, 17 (4): 241-253. [doi:10.1002/lom3.10309](#).
2. **Sulpis, O.**, Boudreau, B. P., Mucci, A., Jenkins, C., Trossman, D. S., Arbic, B. K & Key, R. M. 2018. Current CaCO_3 dissolution at the seafloor caused by anthropogenic CO_2 . *Proceedings of the National Academy of Science of the USA*, 115 (45): 11700-11705. [doi:10.1073/pnas.1811488115](#).
Press: [Smithsonian Mag](#) | [Vice - Motherboard](#) | [Popular Science](#) | [Gizmodo - Earthar](#) | [The Weather Channel](#) | [NBC News](#) | [Care 2](#) | [Frontiers in Ecology and the Environment](#) | [Daily Mail](#) | [Le Devoir](#) | [La Presse](#) | [ABC](#) | [20 minutos](#) | [La Vanguardia](#) | [Sputnik International](#) | [The Syria Times](#) | + ~170 press articles from 38 countries. **Blogs:** [The Science Breaker](#) | [The YEARS Project](#) | + 15 others. **Videos:** [World Economic Forum](#) | [The Weather Channel](#) | [La Presse](#) | [Seeker](#).
1. **Sulpis, O.**, Lix, C., Mucci, A. & Boudreau, B. P. 2017. Calcite dissolution kinetics at the sediment-water interface in natural seawater. *Marine Chemistry* **195**, 70-83, [doi:10.1016/j.marchem.2017.06.005](#).

datasets

Bakker, D. C. E., Lauvset, S. K., Wanninkhof, R., ..., **Sulpis, O.**, ... 2018. Surface Ocean CO_2 Atlas (SOCAT) V6. PANGAEA, [doi:10.1594/PANGAEA.890974](#).

Sulpis, O., Boudreau, B. P., Mucci, A., Jenkins, C., Trossman, D. S., Arbic, B. K & Key, R. M. 2018. Current calcite (CaCO_3) dissolution at the seafloor caused by anthropogenic CO_2 . (NCEI Accession 0176672). Version 1.1. NOAA National Centers for Environmental Information Dataset. [doi: 10.25921/kbqy-4v05](#)

Oral presentations

* invited

conferences and seminars

- 2021** Aragonite is calcite's best friend at the seafloor. Presentation at the **EGU General Assembly** (online).
- 2021** Carbonate dissolution patterns in the ocean. Oral presentation at the **NAC Congress** (online).
- * **2020** Dissolution des carbonates de calcium dans l'océan de l'Anthropocène. Invited seminar presentation at the *CEREGE*, Aix-en-Provence, France.
- 2020** Current estimates of carbonic acid dissociation constants appear inconsistent with measured CO₂ system parameters in cold oceanic regions. Oral presentation at the **NAC Congress**, Utrecht, Netherlands <cancelled due to coronavirus crisis>
- * **2020** The journey of biogenic carbonate particles from the surface ocean to the seafloor. Invited oral presentation at the **NESSC days**, Utrecht, Netherlands.
- 2020** Carbonating the ocean: a threat to marine life? Oral presentation at the *Symposium Oceans of the Future*, Utrecht, Netherlands.
- * **2019** The consequences of ocean acidification and changing bottom currents at the seafloor. Invited oral presentation at the *Royal Netherlands Institute for Sea Research*, Texel, Netherlands.
- * **2019** Carbonate compensation in the Anthropocene. Invited oral presentation at the **Goldschmidt conference**, Barcelona, Spain.
- * **2019** Current CaCO₃ dissolution at the seafloor caused by anthropogenic CO₂. Keynote presentation at **OCB Summer Workshop**, Woods Hole Oceanographic Institution, Woods Hole MA, USA.
- * **2018** Seafloor CaCO₃ dissolution in the Anthropocene: insights from models and laboratory experiments. Invited oral presentation for the AOPE seminar series, *Woods Hole Oceanographic Institution*, Woods Hole MA, USA.
- 2018** Controls on the dissolution rates of natural and synthetic calcites under seafloor-like conditions. Oral presentation at the **AGU Fall meeting**, Washington DC, USA.
- 2018** Bottom-Water Acidification and CaCO₃ Dissolution at the Seafloor Caused by Anthropogenic CO₂. Oral presentation at the **Goldschmidt conference**, Boston MA, USA.
- * **2017** Transport-Controlled, Linear Calcite Dissolution Kinetics at the Sediment-Seawater Interface. Invited oral presentation at the **Goldschmidt conference**, Paris, France.

relevant informal presentations

- 2019** Calcite dissolution kinetics at the sediment-water interface in an acidifying ocean. Presentation in front of the geochemistry group of the Department of Earth Sciences, *Utrecht University*, Utrecht, Netherlands.
- 2018** Mechanisms and quantification of seafloor CaCO₃ dissolution in the Anthropocene. Presentation in front of the marine biogeochemistry group of the Division of Geological and Planetary Sciences, *California Institute of Technology*, Pasadena CA, USA.
- 2016** Arctic Survival in the North-West Passage. Oral presentation for the Oleg student seminars series at the Earth and Planetary Sciences Department, *McGill University*, Montreal QC, Canada.
- 2016** Ocean acidification and the carbonate system. Oral presentation for the *Schools on Board* program, *CCGS Amundsen ice-breaker*, Canadian Arctic.
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Competitive funding and honors

- 2020 NWO Open Competition Domain Science – XS Grant – PI: 50,000 €
Funded project: “[Calcium carbonate dissolution at the seafloor: physics, chemistry or biology?](#)”
- 2020 UU-NIOZ funds for hiring a 2-month student intern – co-PI with Matthew Humphreys: 4,500 €
- 2019 McGill Doctoral Internship Program: 1,000 CA\$
- 2018 McGill Graduate Research Enhancement and Travel Award: 500 CA\$
- 2018 Alexander A. McGregor Fellowship, rewarding outstanding students: 14,700 CA\$
- 2018 McGill International Graduate Mobility Award: 5,000 CA\$
- 2017 3 Minute Thesis 1st prize: 400 CA\$. **Press:** [Radio-Canada](#) | [CHOQ.ca](#) | [McGill Reporter](#) | [ACFAS](#)
- 2017 McGill J. B. Lynch Fellowship, rewarding outstanding students: 15,000 CA\$
- 2016 Best Departmental Teaching Assistant: 1,000 CA\$
- 2016 McGill J. B. Lynch Fellowship, rewarding outstanding students: 2,000 CA\$
- 2016 McGill Graduate Research Enhancement and Travel Award: 650 CA\$
- 2016 CSPG Regional Graduate Student Scholarship, Atlantic and Quebec Region: 2,500 CA\$

Sea going experience

78 days at sea

- 2019 CCGS Amundsen icebreaker / 15 days / St Lawrence Estuary and Gulf
My role: Spectrophotometric pH analysis and total alkalinity titration, seawater sampling for $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$, measurement of surface pCO_2 .
Press: [CAN] [Le Devoir 1](#) | [Le Devoir 2](#) | [Le Devoir 3](#) [FRA] [Le Monde](#)
- 2018 [RV Coriolis II](#) / 12 days / St Lawrence Gulf and Estuary
My role: Spectrophotometric silica concentration and pH analysis, seawater sampling for total alkalinity, DIC, phosphate concentration, $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$. Sampling of sediment porewater for multiple box cores.
- 2017 CCGS Amundsen icebreaker / 6 days / Canadian Arctic, St Lawrence Estuary
My role: Monitoring an automatic underway pCO_2 system for surface waters, spectrophotometric pH analysis, seawater sampling for total alkalinity $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$.
- 2017 [RV Coriolis II](#) / 10 days / St Lawrence Gulf and Estuary
My role: Spectrophotometric silica concentration and pH analysis, seawater sampling for total alkalinity, DIC, phosphate concentration, $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$. Sampling of sediment porewater for multiple box cores.
- 2016 [CCGS Amundsen icebreaker](#) / 22 days / Canadian Arctic
My role: Spectrophotometric pH analysis and total alkalinity titration, seawater sampling for $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$.
- 2016 [RV Coriolis II](#) / 12 days / St Lawrence Gulf and Estuary
My role: Spectrophotometric silica concentration and pH analysis, seawater sampling for total alkalinity, DIC, phosphate concentration, $\delta^{13}\text{C}$ et $\delta^{18}\text{O}$. Sampling of sediment porewater for multiple box cores.
Press: [Québec Science](#)
- 2014 [RV Tethys II](#) / 1 days / Mediterranean Sea
My role: Seismic refraction profiles

Workshops and training

- 2020 Microfossil Geochemistry Workshop. 1 day workshop.

- 2020 Molecular Organic Biogeochemistry. NIOZ, The Netherlands. 5 days course.
- 2020 Ocean modelling: VEROS - the Tesla of climate models. Utrecht University. 1 day workshop.
- 2019 COMSOL Multiphysics Introduction. Utrecht University. 1 day workshop.
- 2019 Ocean Carbon & Biogeochemistry Summer Workshop. [see [here](#)] WHOI, USA. 4 days.
- 2018 Transferable skills and identity as a leader. McGill University. 1 day workshop.
- 2017 Mineral-fluid reactions: from rocks to atoms. [see [here](#)] Paris, France. 2 days workshop.
- 2015 X-Ray Diffraction training. McGill University, Canada.
- 2015 Graduate teaching workshop. McGill University. 1 day workshop.
- 2015 Thermal Ionization Mass Spectrometry training. CEREGE, France.
- 2014 Picarro Cavity Ringdown Spectroscopy training. LSCE, France.
- 2014 Ion-exchange resin procedures training. ENS de Lyon, France.

Service

outreach

- 2019 Podcast in French about ocean acidification in the radio emission [L'œuf ou la poule](#)
- 2018 McGill Let's Talk Science: run classroom activities in primary schools

referee

Geochimica et Cosmochimica Acta / Biogeosciences x2 / Marine Chemistry / Continental Shelf Research / Water / Journal of Colloid and Interface Science / Desalination and Water Treatment / IPCC AR6 / Agence nationale de la recherche

community service

- 2018 Quality controller for the Surface Ocean CO₂ Atlas (SOCAT)

university service

- 2020 UU-NIOZ early career scientist symposium: co-organizer *<cancelled due to coronavirus>*
- 2019-2021 Utrecht University Geochemistry Group Seminar: co-organizer
- 2019 Congrès des étudiants du GEOTOP: co-organizer
- 2017 McGill Earth and Planetary Science Research Symposium: co-organizer