

Isabelle Lao

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EDUCATION

University of British Columbia

Vancouver, BC

Bachelor of Science in Chemistry and Oceanography

Aug. 2016 - May 2021

- Relevant Coursework: Computer Methods for Earth Science, Time Series Analysis and Inverse Theory for Earth Science, Waves/Currents/Ocean Mixing, Instrumental Analytical Chemistry
- 2019 Dean's Honour List, UBC Science Co-op Certification

PUBLICATIONS

Lao, I., C. Abraham, E. Wiebe, and A.H. Monahan: Temporal and Spatial Structure of Nocturnal Warming Events in a Midlatitude Coastal City. *J. Appl. Clim. Met.*, *under review*.

Lao, I., and N. Borduas-Dedekind: Seasonal Variability of Atmospheric Selenium in the United States. *Environ. Sci. Technol.*, *in preparation*.

AWARDS

Research Laboratory Experience Excellence Award (May 2021, \$550): For demonstrating excellence based on oral presentation about research, among two recipients in graduating class

Outstanding International Student Award (August 2016, \$6000): For showcasing leadership and academic achievement

SKILLS

Languages: MATLAB and Python (Keras, NumPy, Pandas, SciKit-Learn, Seaborn, TensorFlow)

Chemical Techniques: Multi-Step Synthesis, TOF/ICP/GC-MS, XRD, NMR, UV-Vis and IR Spectroscopy, Electrochemical Characterization, Glovebox Experiments, Karl-Fischer Titration

Other: Bilingual fluency in English and Tagalog, Professional proficiency in Mandarin, PADI Advanced Open Water Diver

RESEARCH EXPERIENCE

Atmospheric Selenium Variability in North America

Jan. 2021 - Present

Undergraduate Research Award | Supervisor: Prof. Nadine Borduas-Dedekind

UBC

- Statistical analyses of selenium time series from the Interagency Monitoring of Protected Visual Environments aerosol data set
- Investigated selenium source apportionment and mechanisms that drive variability
- Mentored undergraduate thesis student in analyses of Canadian Selenium aerosol data set

Nocturnal Warming Events in the Greater Victoria Region

May 2020 - Sep. 2021

Research Assistant | Supervisor: Prof. Adam Monahan, Dr. Carsten Abraham

University of Victoria

- Developed an algorithm to detect nocturnal warming events from the University of Victoria School-Based Weather Station Network
- Determined if such events were spatially or temporally coherent and related these events to the large-scale meteorological setting

Endocrine-Disruptive Chemicals in the Strait of Georgia

Jan. 2021 - May 2021

Directed Studies | Supervisor: Prof. Roger Francois

UBC

- Designed a methodology to measure natural and artificial estrogens in the Strait of Georgia
- Investigated the source, fate, transport, and impact of endocrine-disruptors in coastal waters

WORK EXPERIENCE

- Consultant** Jun. 2017 - May 2021
60Hertz Energy Anchorage, Alaska
- Constructed a scoring matrix to assess rural communities on their potential for an energy infrastructure overhaul
 - Informed the development of a software platform to help remote Power Plant Operators accomplish day to day tasks
 - Interfaced with and onboarded new clients to the software platform
- Research Assistant** Jan. 2018 - Jul. 2020
The Arctic Institute Washington, DC
- Primary contributor for the Arctic Institute's weekly publication, Take Five
 - Presented at a clean energy symposium in Whitehorse, YK about Diesel Divestment in the Canadian Arctic
 - Funded to attend the High North Dialogue in Bodø, Norway (rescinded due to COVID-19)
- Electrochemistry Co-op Student** Jan. 2019 - Aug. 2019
SWITCH Materials Burnaby, BC
- Performed daily electrochemical characterization of prototype chromophore test devices
 - Managed electrical hold stations for over 100 test devices including maintaining electrical wiring for station upkeep
 - Conducted a project on reagent purity and resulting effect on device performance

VOLUNTEER EXPERIENCE

- Research Volunteer** | UBC | Prof. Rich Pawlowicz Jan. 2020 - May 2020
- Tested model validity for the calculation of the liquid junction potential in seawater pH measurements using different buffers
 - Worked in a Unix/Linux environment
- Scientific Collaborator** | UBC | Prof. Tara Ivanochko Aug. 2019 - Dec. 2019
- Collected and processed environmental time series to be sonified for the Earth Symphony 2020
 - Managed a blog for the dissemination of data sets
- Research Volunteer** | UBC | Prof. Allan Bertram May 2018 - Dec. 2019
- Independently conducted experiments in identifying the properties of ice-nucleating particles
 - Employed MATLAB to analyze data and make informed decisions on future experiments
- Director** | Common Energy Mar. 2018 - Sep. 2019
- Led logistical planning for UBC's largest student-led sustainability organization
 - Developed strong time management and organizational skills through handling finances for the organization
 - Built a thriving team environment
- Director** | Student Energy Sep. 2017 - May 2018
- Liaised with Student Energy global to start the founding chapter at UBC
 - Organized "Powering Our Future," an event to learn about a just transition from fossil fuels to sustainable energy
 - Led an initiative to encourage UBC to adopt an all-electric vehicle fleet