

CURRICULUM VITAE

Annaliese Meyer

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EDUCATION

BSc 2015-2019, Microbiology, University of Victoria, Victoria, BC. (GPA 8.76/9)

FIELD EXPERIENCE

Geobiology

July 2020 Taupo Volcanic Zone Hot Spring Fields: Fluids sampling, hydrology characteristics, sampling for ESEM, total nucleic acids, downstream culturing.

Oceanography

Aug. 2019 Bermuda Atlantic Time Series (BATS): High resolution glider calibration: Oxygen/Nitrogen/Argon (ONAr) sample collection, chlorophyll, flow cytometry measurements. Rare earth element (REE)/methanotrophy project: bacterial enrichment and metabolic flux measurements, CH₄ sampling

June 2019 BATS: See Aug. 2019

May 2019 BATS: See Aug. 2019

Nov. 2018 BATS: Trace metal and REE sample collection, CH₄ and N₂O sample collection, chlorophyll and biogenic silica sample collection, primary productivity incubations, bacterial methanotroph functional gene sample collection

Oct. 2018 Oceanic Flux Program Cruise: Recovery and maintenance of deep-sea mooring, multiple opening/closing net and environmental sensing system (MOCNESS) deployment, BATS Nov. 2018 sampling

Oct. 2018 BATS: See Nov. 2018

Sept. 2018 BATS Validation Cruise (BVAL53): See Nov. 2018

Aug. 2017 Line P Time Series: Trace metal sample collection, ONAr sample collection, Department of Fisheries and Oceans/Institute of Ocean Sciences standard biogeochemical sampling programme (dO₂, DIC, chlorophyll, nutrients, pH, temperature, salinity)

July 2017 Distributed Biological Observatory (DBO) Arctic Time-series: Cesium sample collection for Fukushima InFORM, DBO standard biogeochemical sampling (see DFO/IOS sampling)

EMPLOYMENT AND RESEARCH EXPERIENCE

Van Krandonck Lab/Handley Lab, University of New South Wales/University of Auckland

Dr. Martin Van Krandonck/Dr. Kim Handley

June 2020 – October 2020

Visiting Researcher: Completed initial field campaign of New Zealand hot spring fields. Created Javascript resource for graphical access to hot spring metadata for 1000+ springs. Conducted literature review and began preparing molecular dynamics model for silica microbialite formation.

Grundle Lab, Bermuda Institute of Ocean Sciences

Dr. Damian Grundle

September 2018 – November 2018, May 2019 – December 2019

CABIOS Intern: Led project investigating the role of rare earth elements in marine aerobic bacterial methanotrophy, involving six oceanographic cruises and various sampling and analysis types (see *Field Experience*). Utilized Picarro-VSP for N₂O analysis, ICP-MS and seaFAST-pico autosampler for REE analysis, and performed culturing, genomic DNA extraction, PCR and 16s sequence analysis of marine microorganisms. Coordinated high resolution glider calibration project on three oceanographic cruises.

Cullen Lab, University of Victoria

Dr. Jay Cullen

May 2018 – December 2019

Research Assistant: Trace metal analysis of Line P time-series seawater samples and Saanich Inlet redox species samples. Used ICP-MS and seaFAST-pico autosampler in a Class 100 and 1000 clean room.

Fukushima InFORM Project, Cullen Lab, University of Victoria

Dr. Jay Cullen

May 2017 – April 2018

Co-op Student, Research Assistant: Performed sampling for radiocesium originating from the Fukushima Dai-Ichi accident onboard the CCGS Sir Wilfrid Laurier in the Bering Sea using KNIFC-PAN resin for use in a Compton-suppressed gamma spectrometer.

University of Victoria, UVic Rocketry Team

October 2015 – July 2019

Payload Science Lead: Researched and designed a scientific payload to be launched to 30 000 ft. in a student-built sounding rocket, and flown on a parabolic flight aircraft for study of microgravity. Directed a specialized team of approximately 10 undergraduate students, worked with a larger team of approximately 50 students from various faculties and liaised with school and governmental agencies. Became proficient at new techniques, such as performing wet lay-ups of carbon fiber, basic circuitry and drafting iterative payload designs. Currently investigating the genetic basis for spacecraft sterilization using the *S. cerevisiae* Knockout Collection, and performed RNAseq sample preparation for *S. cerevisiae* on a modelled microgravity parabolic flight.

TD Canada Trust, New Westminster, B.C.

May – August 2016

Customer Service Representative: Fulfilled customer requests in a fast paced work environment and provided financial advice while completing transactions. Operated S3, C3 and Admin Apps systems

simultaneously to protect customers' accounts on the front line.

Next Level Fundraising, Vancouver, B.C.

June – August 2015

Street Fundraiser: Secured long term donors for the Canadian Red Cross by conversing with a wide variety of passers-by and inciting interest in the cause and securely arranging their donor accounts.

PUBLICATIONS

(in review) **Meyer ACS**, Grundle D, Cullen JT (2020) Selective Uptake of Rare Earth Elements in Marine Systems as an Indicator of and Control on Aerobic Bacterial Methanotrophy. *Earth and Planetary Science Letters*.

(in prep) **Meyer ACS**, Grundle D, Cullen JT (2020) Nitrous Oxide in the Oxic and Oligotrophic Waters of the Northern Subtropical Atlantic Ocean. *Atmosphere-Ocean*.

PRESENTATIONS AND INVITED TALKS

Presenting author where underlined

International Astronautical Congress (October 2020) Virtual. Presentation: *All for one and one for all: Recommendations for Sustainable International Lunar Base Utilisation and Exploration Approaches* **Batcha A, Raj CG, Hume S, Kowalski A, Meszaros A, Meyer ACS, Pino P, Poliaček M, Salmeri A, Shah J**

Astrobiology Australasia Meeting (September 2020) Virtual. Presentation: *Reframing Planetary Protection Recommendations in the Age of Private Space Start-Ups: An Extended Report from the Space Generation Congress 2019 Space Exploration Working Group* **Meyer ACS, Poliaček M, Piggott B**

Ocean Sciences Meeting (February 2020) San Diego, California, USA. Poster: *Lanthanide Distribution is an Important Driver on Aerobic Methylophilic Community Composition and Distribution in the Sargasso Sea* **Meyer ACS, Cullen JT, Grundle D**

International Astronautical Congress (October 2019) Washington, DC, USA. Presentation: *Selective Uptake of Rare Earth Elements in Marine Systems as an Indication of and Control on Aerobic Bacterial Methanotrophy* **Meyer ACS, Cullen JT, Grundle D**

Bermuda Institute of Ocean Sciences (August 2019) St. George, BM. Invited Seminar: *From Sea Below to Sky Above: Astrobiology Using Earth-based Analog Techniques* **Meyer ACS**

Astrobiology Science Conference (June 2019) Seattle, Washington, USA. Presentation: *Rare Earth Element Distributions in an Oligotrophic Gyre Influence Aerobic Bacterial Methanotrophy* **Meyer ACS, Cullen JT, Grundle D**

Graduate Student Seminar Series, University of Victoria School of Earth and Ocean Sciences (November 2018) Victoria, Canada. Invited Seminar: *From Sun to Sea to Sleet: Early Career Field-based Research* **Meyer ACS**

Bermuda Institute of Ocean Sciences Intern Symposium (November 2018) St. George, BM.
Presentation: *Rare Earth Element Distribution in an Oligotrophic Gyre Influences Aerobic Bacterial Methanotrophy* **Meyer ACS, Cullen JT, Grundle D**

Astrobiology Australasia Meeting (June 2018) Rotorua, NZ. Poster: *Dual Stress Planetary Protection: UV Sterilization During Rocket Launch Disrupts RecA Ortholog-mediated DNA Repair in Saccharomyces cerevisiae* **Meyer ACS, Ebert SN, Waugh S, Farley S, Martinez A, Charlton T, Premathilaka S**

CERTIFICATIONS AND SKILLS

Workplace Hazardous Materials Information System Training
UVIC Biosafety
UVIC Lab Safety for Lab Workers
Skills: SOLIDWORKS, R, Excel, MATLAB, Ocean Data Viewer

ORGANIZATIONS/VOLUNTEER EXPERIENCE

EcoMatters Environmental Trust, Event Management Intern, September 2020-present
Space Generation Advisory Council, Ethics and Human Rights Committee, January 2020-present
UpRNA, StartUp Sandbox (Santa Cruz, CA), Visiting Researcher, July 2019
Volunteer at the Deamer/Damer UpRNA lab investigating wet-dry cycling and polymerization of nucleotides on mineral surfaces within the context of hot springs as prebiotic polymerization factories. Collaboration with the Van Kranendonk UNSW lab group.
UVic Astronomy Open House, Science Communicator, 2015-2019
Institute of Electrical and Electronics Engineers (IEEE), 2018-2019
Canadian Rocketry Consortium, 2017-present
ecoFEST Canada, Founder/Director, 2012-2015

AWARDS AND SCHOLARSHIPS

UNSW Scientia PhD Scholarship, 2020 (*declined*)
UVic Graduating Students Dean's List, 2020
Canadian Microgravity Experimental Design Challenge (CAN-RGX), 2019
Canadian Associates of the Bermuda Institute of Ocean Sciences Grant, 2018, 2019
UVic President's Scholarship, 2016, 2018 (*declined*)
Jessica Wallace Munroe Scholarship, 2018 (*declined*)
Edward J. Savannah Memorial Scholarship, 2018 (*declined*)
John and Myrtle Tilley Undergraduate Award, 2017 (*declined*)
Honourable Mention, Space Dynamics Laboratory Scientific Payload Challenge, SA Cup 2018
1st Place for Space Dynamics Laboratory Scientific Payload Challenge, SA Cup 2017
3rd Place, ESRA Intercollegiate Rocket Engineering Competition, 2016
Junior Citizen of the Year, New Westminster Chamber of Commerce, 2015
TD Scholarship for Community Leadership, 2015
Dr. M. Wosk Award for Environmental Leadership, 2014