

Heather Groundwater
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To whom it may concern,

I recently learned of the Technician II position through the Corporate Management Group, Inc. website and I hope you will consider me a good fit for your organization.

I relocated to the Boulder, Colorado area as my husband accepted a job that he could not refuse. Prior to relocating, I was the lead research technician for WET Labs, Narragansett, RI, a company that performs ocean optics research. My position with the research department provided me ample experience in planning and preparation for field work, data collection and analysis, and final report writing. As such, I had become a very versatile member of the division.

I have participated in a wide range of projects and as a result have had to quickly learn new science and data analyses and adapt to new laboratory and field settings. I have intimate experience with image analysis and scanning electron microscopy coupled with energy dispersive spectroscopy. From this project I wrote an algorithm that analyzed images of oceanic particles in MATLAB to determine particle size distribution and subsequently published a paper for a peer reviewed journal. My work on a dye tracer study in a Superfund site gave me firsthand experience with compliance and quality assurance in regards to water sample collection and optical data analysis such as fluorescence. I was the lead person for designing and executing preliminary laboratory tests prior to heading out into the field and then was responsible for organizing and processing the large set of data primarily done within MATLAB. I assisted the Principal Investigator in the writing of the final report which was finished on time and the entire project was completed under budget. Although this job post reads as if it is for a pharmaceutical company, my experience shows that I have a solid science foundation that would allow me to succeed in this technical role. I have enjoyed performing research, been successful as a lead on a few projects, have experience with interpreting and writing reports, and have experience analyzing water samples in the laboratory. Overall, I enjoy the hands on nature of exploring science whether it is done behind a computer, in the lab, or out in the field.

I am highly motivated, self disciplined, and with my science background and set of skills, I am confident that I will prove to be an effective match for your company. I look forward to hearing from you regarding my opportunity to work as a technician II.

Thank you for your time and consideration.

Sincerely,
Heather Groundwater

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Education:

2005, M.S. in Oceanography (Chemical)

University of Rhode Island - Graduate School of Oceanography, Narragansett, RI

Thesis: Aerosol halogen chemistry in the marine boundary layer of the South Pacific

2000, B.S. in Chemistry

Iowa State University, Ames, IA

Undergraduate Research: Physical organic photochemistry

Research:

June 2006 to February 2013

Research Technician, WET Labs, Inc., Department of Research, Narragansett, RI

- Performed as principle technician and quality assurance manager in a dye tracer dispersion study within the superfund site, Berry's Creek Study Area. Designed and conducted preliminary laboratory experiments that determined environmental effects on fluorescein dye such as adsorption and photodegradation. Coordinated fluorescence, absorption, attenuation, salinity, temperature, and depth data collection and measurement from various platforms (in-situ towed body, moorings, discrete water samples). Processed and organized data and was the point person for creating figures for the final report as well as assisting in writing the final report. Responsible for ensuring compliance with health and safety regulations, quality assurance project plans, and field sampling plans. Project was completed on time and under budget.
- Developed a new image analysis method for determining particle size distributions and chemical compositions using a scanning electron microscope coupled with an energy dispersive spectrometer. An algorithm was created in MATLAB to process and analyze images. The mostly automated method presented two significant advantages in that it minimized user bias and provided an elemental distribution in the context of a particle size distribution.
- Ensured the success of several ocean optics field efforts and subsequent inherent optical properties data analysis. Adequate preparations were made for field efforts, data were successfully collected from the field and processed efficiently and accurately, and results were passed off to the Principle Investigators on time and on budget.
- Maintained field and laboratory equipment including keeping sensor calibrations up to date. Obtained personal experience with various oceanographic and chemical equipment (scattering sensors, in-situ spectrophotometer, in-situ flow through fluorometer, in-situ laser diffraction particle size analyzer, conductivity-depth-temperature sensor, incident downwelling solar irradiance sensor, bench-top spectrophotometer).
- Assisted in the initial phase of developing a wide angle scattering instrument with an automated inversion algorithm to detect oil in water. Conducted laboratory experiments that tested the accuracy and sensitivity of the technique by quantifying the size distribution and abundance of various oil emulsions in seawater.

June 2000 to August 2005

Graduate Student, University of Rhode Island - Graduate School of Oceanography, Narragansett, RI

- Investigated the chemical composition of remote South Pacific size segregated marine aerosols. Chemical analyses revealed that they were not characteristic of sea salt and were related to air mass trajectories. A bulk thermodynamic model was developed and tested halogen release mechanisms and inferred marine aerosol pH. Aerosol ion concentrations were measured using an inductively coupled plasma atomic emission spectrometer and an ion chromatograph. Thesis work was performed under the direction of Arthur J. Spivack.
- Assisted in a nutrient reagent longevity study with SubChem Systems, Inc.
- Assisted in trace metal analysis of seawater samples while utilizing ultra clean techniques to prepare and analyze water samples with Microinorganics, Inc.
- Assisted in soil, water, and tissue sample preparation for organic and metal analysis with Ceimic Corporation.

Teaching:

August 2005 to June 2009

Science Teacher, Marianapolis Preparatory School, Thompson, CT

- Served as principle chemistry teacher for a private Catholic high school. Educated all grade levels and learning abilities including English as a Second Language and Advanced Placement. Implemented inquiry based teaching particularly for laboratory exercises and group projects.
- Created Oceanography and Global Changes electives courses. Promoted the interdisciplinary nature of earth and marine sciences.
- Mentored a small group of students for the National Ocean Sciences Bowl.

Publications, Presentations, and Professional Development (Past 5 years):

Groundwater, H., M. S. Twardowski, H. M. Dierssen, A. Sciandra, and S. A. Freeman, 2012: Determining size distributions and composition of particles suspended in water: a new SEM–EDS protocol with validation and comparison to other methods. *J. Atmos. Oceanic Tech.*, **29**(3), 433-449.

Groundwater, H., M. S. Twardowski, H. M. Dierssen, A. Sciandra, and S. A. Freeman; A method for determining oceanic particle size distributions and particle composition using scanning electron microscopy coupled with energy dispersive spectroscopy. *Proc. SPIE 7729, Scanning Microscopy 2010, 77290E* (May 27, 2010); doi:10.1117/12.853455.

Hazardous Waste Operations and Emergency Response 40-Hour Certification (2010)

References:

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