Job Posting: Ocean Data Management Summer Jobs

Job Title: Various, including Data Management Specialist, Web Developer / Programmer, etc.	
Pay: $17.00/hr	Location: Various
Start date: May 25, 2015 (flexible)	End date: August 28, 2015

The Ocean is a critical part of the Earth System. Sound knowledge and understanding of the oceans is of increasing importance for mitigating human impacts on the global environment and for promoting sustainable economic use of the marine environment. Knowledge and understanding, in turn, depends on access to information and observations from our oceans and coastal zones. Recognizing the importance and complexity of ocean data management, MEOPAR (the Marine Environmental Observation Protection & Response Network; www.meopar.ca) is helping ocean data centres across Canada to work together as a Community of Practice, including training of a new generation of ocean data managers. The vision of the Community of Practice for Ocean Data Management is "making Canada's ocean data & information universally accessible and useful in order to turn data into knowledge".

As a first step, MEOPAR is seeking applicants for summer co-op or internship positions at four ocean data centres across Canada (additional positions may be posted). Broadly the role of successful candidates will be to support, inform, and further this Community of Practice through the creation, maintenance, and management of data-related tools and infrastructure; the identification and establishment of best practices for ocean data management; and collaboratively identifying potential challenges and barriers to effective data management.

Each of the successful candidates will work with one of the data centres participating in the Community of Practice. The organization will be responsible for day-to-day supervision; specific job descriptions for each organization are attached. These organizations have identified specific roles that will contribute to their mandate as well as to the Community of Practice and the general advancement of ocean data management. All candidates will also participate in a monthly video conference to discuss cross-cutting opportunities and challenges, and an end-of-summer wrap-up symposium.

Positions Available
Ocean Data Management Specialist (St. John's, NL)
Data Management Developer (Halifax, NS)
Programmeur Analyste Web (Rimouski, QC)
Web Developer / Programmer (Waterloo, ON)
Community Seismic Display Developer (Victoria, BC)

Qualifications
Each position has specific qualifications.

Responsibilities
In addition to the day-to-day tasks specified by the organization with which you are placed, and detailed in the job descriptions appended, you will be contributing more generally to a Community of Practice on Ocean Data Management; other summer students will be placed at other organizations working with ocean data, and collectively you will be asked to share and reflect on best practices, challenges, and opportunities with the Community of Practice. This portion of your job will involve record-keeping of

your activities, assessment of opportunities, reflection on your experience, and monthly conference calls, and will culminate in an end-of-term symposium that brings together all the participating co-op employees and other stakeholders to discuss their experiences.

Your Experience, Contributions, and Benefits

- Opportunity to learn and gain experience with data management in applied environments; the oceans technology sector is worth about $3 trillion annually, worldwide.
- The goal of this project is to train the next generation of ocean data managers, a role in demand around the world; the skills are also highly transferable to other disciplines and data-rich domains.
- Opportunity to work in leading research centres
- Opportunity to apply your expertise to identify and resolve real-world problems
- Opportunity to improve your comfort and familiarity with data-related skills
- Experience working with people from diverse backgrounds (including scientists and computer scientists).
- Additional experience and benefits are specific to each position

Eligibility

- Must have completed at least one year of academic study at a post-secondary institution
- Must be eligible to work in Canada
- Specific positions may have more specific eligibility requirements

Wages and Benefits

- $17/hour plus 4% vacation pay
- For exceptional candidates, some relocation expenses may be eligible for reimbursement; these will be communicated in your job offer letter.
- This is a grant-paid job opportunity; payroll services and other support is provided by Dalhousie University, Halifax, Nova Scotia.

To Apply

Please send a resume, unofficial transcript, and cover letter via email to:
Mike.Smit@dal.ca
Dr. Mike Smit
School of Information Management
Faculty of Management
Dalhousie University

Applications will be reviewed starting May 20th, and continuing until filled.
Identify in the email for which position(s) you would like to be considered.
If you wish to tailor your cover letter differently for each position, please send one email per position.

MEOPAR
MARINE ENVIRONMENTAL OBSERVATION PREDICTION & RESPONSE NETWORK

Marine Institute, Memorial University
(St. John's, NL)

As Newfoundland and Labrador's only university, Memorial has a special obligation to the people of this province. Established as a memorial to the Newfoundlanders who lost their lives on active service during the First and Second World Wars, Memorial University draws inspiration from these shattering sacrifices of the past as we help to build a better future for our province, our country and our world.

We are a multi-campus, multi-disciplinary, public, teaching/research university committed to excellence in everything we do. We strive to have national and global impact, while fulfilling our social mandate to provide access to university education for the people of the province and to contribute to the social, cultural, scientific and economic development of Newfoundland and Labrador and beyond.

Memorial has more than 18,500 students spread across four campuses, including the Marine Institute, and nearly 85,000 alumni active throughout the world. From local endeavors to research projects of national concern, Memorial's impact is felt far and wide.

Position Overview
In addition to the responsibilities outlined on the cover sheet, you will work closely with Dr. Brad DeYoung, Department of Physics at Memorial University and, Mr. Randy Gillespie, Director, Centre for Applied Ocean Technology at the Marine Institute to contribute to their goal of building a coastal and ocean data warehouse for Newfoundland and Labrador.

Data is the raw material of the information age. Once collected it may be mined and used to craft any number of valuable, purpose-built information and knowledge products. Collecting data in the marine environment is ridiculously expensive. Furthermore, the density of data points, relative to most other terrestrial environments, is very low. This makes it doubly important to preserve and protect the integrity of every single piece of data. It also makes it imperative to share data as much as possible. To do this requires a simple shift in the way we, as a community of practice, united by a desire to safely and sustainably exploit ocean resources for socio-economic benefit, think about data. Instead of 'collect and protect', those who collect data in Newfoundland and Labrador waters should adopt the principles of: collect data once; maintain it closest to source, and; use it many times. Sharing data enhances its value many times, enables the development of new value-added data products not otherwise anticipated, and does not in any way jeopardize the security or competitiveness of the entity that collected it. This new operating paradigm is also easily implemented. All that is required is for the owners of the data to maintain and publish metadata (data about their data) so that it may be discovered and accessed by others. From this point, information and communications technologies are widely available to convert this raw material into a host of information products, to make those products accessible to end users, and to protect the integrity and security of all participants via a functional architecture that is open, extensible and independent of technology.

The first step in the process to build a coastal and ocean data warehouse for Newfoundland and Labrador is to conduct an inventory of what data already exists, including the characteristics of each data set (ownership, size, format, metadata, etc.). Your work will begin with an inventory of coastal/ocean data holdings at Memorial University and the Marine Institute. Should time permit, consideration will also be given to coastal and ocean data held by local offices of federal agencies (DFO, CHS, Environment Canada, etc.), provincial agencies (Departments of Environment, Natural Resources, Fisheries and Aquaculture, etc.) as well as local ocean industry (fisheries, oil and gas, marine transportation).

You may also perform other tasks as required within your skillset and relevant to your education and to a coastal and ocean data warehouse for Newfoundland and Labrador. As a starting point, you will review data that have been compiled as part of the NL Seabed Atlas (www.seabed-atlas-nl.ca).

Qualifications

If many of the following statements describe you, we encourage you to apply for this job. Some on-job training is available:

- You are capable of working with both technical and non-technical colleagues, and communicating with both.
- You have some experience with or knowledge of working with data at various scales.
- You are a creative thinker, problem-solver, and debugger, capable of identifying and resolving problems while also knowing when to seek help.
- You are interested in constructive feedback and learning from others; but, independent from that, you are also capable of directing your own learning.
- You are interested in learning more about spatial data management in scientific environments.
- You have the ability to communicate your ideas with clarity and succinctness, especially to those who don't share your field of expertise. You can easily understand where other people are coming from when they tell you their ideas.
- You are reliable, have a strong work ethic, pay attention to detail, bring a positive attitude to your work and are a collaborative team player.

Ocean Tracking Network
(Halifax, NS)

The Ocean Tracking Network (http://oceantrackingnetwork.org) focuses on tagging and tracking the movements of a wide range of commercial and endangered marine species in the context of changing ocean climate. OTN data managers at Dalhousie University and around the world are working to make the world's ocean tracking data and related information freely accessible without charge to the broader scientific community while respecting the intellectual property rights of its individual providers. One of OTN's principal values is its standards-based data warehouse, where traditionally siloed data from varied projects can be brought into a wider context without sacrificing individual intellectual property rights, with an eye to eventually being made open and public data in fulfilment of the funding agencies' policy on open data. Data and metadata generated from OTN Canada projects are stored in the OTN Global data warehouse, making them an integral part of this collaborative effort.

Duties
In addition to the responsibilities outlined on the cover sheet, the successful candidate will:

Discover, diagnose, and handle scientific data management issues, while assisting in improving OTN Data Centre (OTNDC) processes for data loading, quality control, as well as the creation and formatting of resulting data products.

Assist with the general activities of the OTN Data Warehouse team, including:

- acceptance and quality control of raw data
- loading, processing and formatting of accepted data
- web content generation
- database system administration

All work term activities including suggested improvements arising from the work term will be documented in the form of a 'Data Workflow Document'.

Additional opportunities may include:

- using geospatial data analysis techniques (i.e. QGIS, Python, R …) to conduct year over year comparisons of deployment efforts, detections, species diversity, …;
- using Google Analytics services to explore OTN web site user behaviour patterns and improve data dissemination.
- other tools as possibly suggested by the candidate

Supervisor: Dr. Kes Morton, Senior Project Manager, Ocean Tracking Network

Education Level: This opportunity is available to students in at least their 3rd year of study towards a degree/certificate in Computer Science/Informatics.

Required competencies:
Applicant will need to have:

- introductory knowledge of computer programming (any language and/or theory) and data/database management
- a strong, outgoing personality, and work well in a group atmosphere.
- good communication skills, both oral and written

- punctuality and reliability
- creativity and problem solving ability

Work term outcomes

The successful applicant will:

1) Work in an real operational data processing environment with state-of-the-art scientific data
2) Apply open-source solutions to challenging technical problems. ie: PostgreSQL, PostGIS, GeoServer, R, QGIS, Python.
3) Improve internal workings of the OTN data warehouse
4) Improve/add to data products and tools being developed by OTN
5) Interact with OTN partners and the public regarding OTN data products

Observatoire global du Saint-Laurent
(Rimouski, Québec)

L'**Observatoire global du Saint-Laurent** est une organisation visant à offrir un accès intégré aux données et aux informations issues d'un réseau d'organismes gouvernementaux, universitaires et communautaires en soutien à la gestion durable de l'écosystème global du Saint-Laurent.

Note : Le genre masculin est utilisé comme générique, dans le seul but d'alléger le texte

TÂCHES ET RESPONSBILITÉS

En plus des responsabilités décrites ci-dessus, sous la responsabilité de l'informaticien principal, le programmeur analyste Web participe :

- À l'analyse et au développement de systèmes et d'applications Web pour la diffusion de données scientifiques.
- À la gestion des projets de développement informatique et à la documentation.
- Participer aux tâches relatives au support technique.
- Assurer une veille technologique continue.

QUALIFICATIONS ESSENTIELLES

Compétences techniques indispensables

- Langage de programmation orientée objet JAVA : le candidat doit maîtriser les principales bibliothèques.
- JavaServer Pages (JSP)
- Langages Web HTML, CSS et Javascript
- Bases de données MySQL et persistance d'objet sous Hibernate

Exigences

- Bonnes communication écrite et verbale, compétences en français et compréhension de l'anglais.
- Capacité d'analyse, rigueur.
- Doit faire preuve d'initiative à l'aise de travailler dans un environnement très dynamique.
- Excellentes compétences en résolution de problèmes.
- Dynamique, le souci du détail, la capacité d'apprentissage rapide.
- Connaissance du français essentielle : compréhension et expression orale et écrite

Expérience

- Deux ans d'expérience dans le développement d'applications Web en JAVA (comprenant analyse, programmation et entretien)

Qualités personnelles

- Initiative, jugement et sens des responsabilités
- Aptitude pour le travail d'équipe
- Respect et bonnes relations interpersonnelles

QUALIFICATIONS CONSTITUANT UN ATOUT

- Connaissance des techniques de modélisation de données et des systèmes de gestion de bases de données relationnelles (SGBDR).
- Connaissances en géomatique.
- IDE Eclipse

Polar Data Catalogue (PDC) /
Canadian Cryospheric Information Network
(Waterloo, ON)

The Polar Data Catalogue (PDC) of the Canadian Cryospheric Information Network (CCIN) is an online archive for Arctic and Antarctic research data and an educational outreach project headquartered in the Department of Geography at the University of Waterloo. We are Canada's main source for data and information about snow, ice, and cold regions and are developing a master data directory through our partnerships with the ArcticNet Network of Centres of Excellence, the Northern Contaminants Program, the Nunavut General Monitoring Plan, the Canadian High Arctic Research Station, and others. Our map-based data search engine, available at https://www.polardata.ca, acts as the central portal for over 2,100 standardized metadata records, 240 datasets, and 27,000 satellite images. The CCIN outreach website, http://www.ccin.ca, has interactive data visualization and social networking tools to effectively share information about Canada's cold regions. We are currently working with Compute Ontario to enhance our dynamic visualization tools and expect them to be a part of the summer visualization team with the student and other CCIN/PDC staff.

Primary Responsibilities:
We seek a **Web Developer/Programmer** to join the PDC/CCIN web development team whose focus will be to drive technology development related to cryospheric (snow and ice) data management and web presentation. This position will be responsible for working with the current PDC/CCIN technical staff to develop new web capabilities and improve on-line delivery of data and information.

In addition to the responsibilities outlined on the cover sheet, specific tasks will include the following:

- Using selected oceanic datasets, create new interfaces and web visualization tools to improve access to cryospheric data
- Respond to user and partner requests for information and assistance related to the visualized datasets
- Manage and test new products to ensure efficient and seamless operation
- Ensure that your work integrates with other PDC and CCIN system components
- Communicate status, issues, and risk to other staff
- Document your work, in code and in formal reports

Qualifications:

- Currently enrolled in Computer Science, Mathematics, Engineering, Geography, or Science;
- Strong understanding/knowledge/interest in HTML5, Javascript, Drupal, PHP, and/or Java programming;
- Ability to learn quickly, research issues, and recommend solutions for implementation;
- Must enjoy self development and minimal management;
- Knowledge of CSS, IDL, OpenLayers, and other web and graphics technologies is a plus.

NOTE:
The CCIN is an equal opportunity employer. We encourage those who are interested but do not have all the required skills to respond to the posting. We welcome all applicants who are hard-working and have a desire to thrive in web development or data management.

Day-to-day supervisor: Julie Friddell, University of Waterloo, Faculty of Environment, Department of Geography

oceannetworks.ca

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Community Seismic Display Developer
Ocean Networks Canada, University of Victoria, BC

Background:

Ocean Networks Canada (ONC) is a world-leading organization supporting ocean discovery and technological innovation. ONC operates as a not-for-profit society on behalf of the University of Victoria, managing innovative cabled observatories that supply continuous power and Internet connectivity to various scientific instruments located in coastal, deep-ocean, and Arctic environments. ONC's cabled arrays host hundreds of sensors distributed in, on and above the seabed, along with mobile and land-based strategically located instruments that address key scientific and policy issues (subsea earthquakes, tsunamis, ocean acidification, marine biodiversity, etc.) within a wide range of environments.

Position Summary:

ONC operates a network of seismometers, both on land and subsea. The data from the seismometers are made freely available over the Internet through the Incorporated Research Institutions for Seismology (IRIS) database, and informs earthquake detections by the Canadian and the U.S. Geological Surveys and partners in emergency management. ONC would like to create a simple display which will enable members of the public, teachers, students and scientists to see when and where earthquakes were detected on the ONC observatory, or by instruments operated by other organizations in close proximity to the observatory. The Community Seismic Display Developer will work with the Ocean Networks Canada User Engagement team to create an embeddable web-based display suitable for communicating earthquake detections to community members. The project will address the challenge of incorporating multiple, high resolution data sets to create a display understandable by a broad audience.

Qualifications:

- Enrolment in a post-secondary program in computer science, computer engineering, software engineering, physics, geophysics or related field.
- Demonstrated experience in web programming.
- Experience programming in Javascript, Java and Python.
- Experience in user-centred design and user experience research.
- Knowledge of seismic data desirable.
- Applicants with equivalent education and/or experience will be considered.