## 1. Position Identification

<table>
<thead>
<tr>
<th>Position Number</th>
<th>992227, 992701, 994383; 994306; 993457</th>
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<tbody>
<tr>
<td>Position Title:</td>
<td>Scientific Data Specialist</td>
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<tr>
<td>Department:</td>
<td>Ocean Networks Canada</td>
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<tr>
<td>Reports to:</td>
<td>Data Manager</td>
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<tr>
<td>Number of Direct/Indirect Reports</td>
<td>Direct____0___ Indirect____1____</td>
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<tr>
<td>Classification Level</td>
<td>SG12</td>
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<tr>
<td>Current Incumbent</td>
<td>(if applicable)</td>
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## 2. Position Summary

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

The Scientific Data Specialist is responsible for the development of sophisticated data products, including verification and quality assessment of real-time and archived data. These data products enable scientific and non-scientific users to understand, interpret and analyze the information collected via the instruments on the network operated by ONC.

## 3. Key Responsibilities and Expectations

<table>
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<tr>
<th>Key Responsibilities</th>
<th>% of time</th>
<th>Expectations:</th>
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<tbody>
<tr>
<td>Data Quality Assurance/Quality Control (40%)</td>
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<td>• Assesses and maximizes the quality of scientific data collected via the ONC cabled networks.</td>
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<td>• Ensures that instrument data acquisition configurations are appropriate and properly recorded, that collected data are reliable and placed in context, and that instrument calibrations are current.</td>
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<td>• Member of a data assessment team that works in close collaboration with Digital Infrastructure, Science, and Engineering staff in order to diagnose problems and develop calibration protocols.</td>
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<td>• Contributes to development of a data</td>
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assessment indication system in association with ONC data delivery processes.

• Contribute to the quality assurance/quality control procedural documents.

• Develops data products in consultation with Science staff and external data users, which leverage the power of the network and the multi-disciplinary data archive, and extend the boundaries of standard oceanographic analysis.

• Develops prototypes (programming, putting together animations from existing data products, etc.) of data products; consults with Science staff and external users to refine the product; prepare these programs for release to production.

• Prepares data packages to showcase the potential of ONC’s data. Promotes the use of the data by showing how the data can be used (growing the user base).

• Supports ONC’s Education and Public Engagement team to facilitate the use of ONC data in educational environments.

Scientific Data Product Development (25%)

Support User Community (20%)

• Provides data support to the diverse international user community, including:
  o answering questions about data, instruments, and ONC’s operations;
  o responding to data request failures and regenerating data products as quickly as possible;
  o processing special requests for data (e.g. request for data in a different format, applying some processing the data, etc.)

• Contributes to workshops and webinars, facilitating approaches to data analysis in the broader community (reports, participation, interacting with users). Support to Communications and Science teams who are responsible for running the workshops.

• Collaborates with users from co-op to graduate students and research scientists from local and international institutions by providing data quality assurance/quality control support such as cross-referencing data sets to provide a higher level of data quality control.

Cruise support (15%)

• From time to time, participates in off-shore cruises; provides on-shore support as well.

• Calibrates instruments: assists engineering and
science teams to configure, set up, and calibrate instruments to ensure data quality.

- While on offshore cruises, prepares instruments for deployment with Science and Engineering teams; cleans instruments when recovered; off-loads data from autonomous instruments.
- While onshore during a cruise, responds to on-shore team when instruments deployed to verify data and perform initial data checks to verify data streams are functioning properly.

4. Classification Factors:
   (a) Independence of action, authority and decision making:
   This position makes independent decisions regarding data quality and the delivery of data to user communities for their research and analysis. The position is fully responsible for how the quality assurance/quality control information is combined with the data products and presented. The position ensures that the completeness of the end product delivered to the user (i.e. reviews the data to ensure the metadata is included). The position is expected to raise the source of problems with data, and work with relevant groups in the Science, Engineering and Digital Infrastructure departments to rectify issues and correct data production.
   (b) Accountability – scope and impact:
   The position interacts with research and professional scientists at national and international educational institutions, government laboratories, and international partner institutions. The position requires the ability to independently prioritize data quality issues, escalate these as required, and initiate solutions. This role is pivotal as ONC continues to position itself as the leading organization in the world for this type of data management (especially with regard to automatic data quality assurance and quality control).
   (c) Supervision given and received:
   Position operates with minimal supervision from the Associate Director, User Services. The position is expected to occasionally supervise students or short term staff.
   (d) Budget, Financial & Material resources:
   This position does not have responsibility for budget or materials expenditures, but has shared responsibility for the design, implementation and maintenance of software components.
   (e) Problem-Solving
   The position functions in an intense and detail oriented work environment. The position requires strong skills in problem-solving due to the complexity of the network and database system. The Specialist must understand how data is organized, how query tools work, how data are retrieved and converted, and ultimately presented. This is a very specialized degree of problem solving. No formal steps are currently documented for quality assurance/quality control performed by the Specialist; these steps are being developed by the Specialist. Therefore, the position requires high degree of creativity and inventiveness when developing solutions.

5. Summary of qualifications:
The Scientific Data Specialist will have a Master’s degree in Earth and Ocean Sciences or related field and 2-3 years of experience working with data from oceanographic instruments, or the equivalent combination of education and experience. Essential qualifications include excellent problem solving and interpersonal skills as well as a
strong quantitative and technical background in relevant fields.

The following knowledge and experience is required:
• experience developing data products using computational and data analysis/visualization packages such as Matlab, R, IDL and Mathematica or their public domain equivalents
• experience with time series and spatial analysis
• excellent skills in quantitative data validation
• knowledge of scientific data formats/standards such as netCDF, HDF, SensorML or other XML-based formats used in Earth and Ocean Sciences
• proven ability to take projects from conception to completion
• experience with relational databases, modelling and simulation, and using query tools such as SQL

Moreover, the following characteristics would be desirable:
• practical experience in R, C/C++ or Java, XML or HTML and scripting languages
• some experience with handling or maintaining oceanographic instruments

Date of Submission: ________________________________

Signature of Responsible Manager: ________________________________