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Job Description for Professional Posts

Reference: NA2025/03

Position and Grade:	Associate Data Scientist/Programmer (Radiometrics), P2
Organizational Unit:	Radiometrics Laboratory Division of IAEA Marine Environment Laboratories
Duty Station:	Monaco
Type/Duration of Appointment:	FT – JPO, 1 year

Organizational Setting

The Department of Nuclear Sciences and Applications implements the IAEA's Major Programme 2, "Nuclear Techniques for Development and Environmental Protection". This Major Programme comprises individual programmes on food and agriculture, human health, water resources, environment, and radiation technologies. These programmes are supported by laboratories in Seibersdorf, Monaco and Vienna. The Major Programme's objective is to enhance the capacity of Member States to meet basic human needs and to assess and manage the marine and terrestrial environments through the use of nuclear and isotopic techniques in sustainable development programmes.

The IAEA Marine Environment Laboratories consists of three laboratories, which are located in Monaco. The Division supports Member States in enhancing their capacity to use nuclear and isotopic techniques to understand marine and atmospheric environmental processes and dynamics, and to identify and address environmental problems caused by radioactive and non-radioactive pollutants and climate change.

The Radiometrics Laboratory has expertise in the fields of marine radioactivity measurements, development of radioanalytical methods, low-level counting, modelling of dispersion, environmental and radiological assessments, marine database management, and radiotracer applications in oceanographic, pollution and climate studies. It collaborates with Member States to assist them in their development and to implement capacity building technical cooperation projects. It also helps them to prepare for emergency situations, carries out missions at sea, supports analytical quality in Member States laboratories and provides training.

Main Purpose

To contribute to the development of data and information systems supporting research and other activities across the Radiometrics Laboratory's (RML) work programme including MARIS, LIMS; software for statistically evaluating measurement data for reference material characterisation, proficiency tests and interlaboratory comparisons; numerical tools for research applications, including tools using Artificial Intelligence.

Role

Under supervision of the Head of the Radiometrics Laboratory, the Associate Data Scientist/Programmer (Radiometrics) is: (i) a technical specialist providing technical insight and gathering and analysing requirements to substantially progress the development of key aspects RML's data and information systems, and (ii) an analyst developing code for data analysis and visualisation.

Partnerships

The Associate Data Scientist/Programmer (Radiometrics) builds and maintains collaborations with colleagues in RML. He/she builds relationships with colleagues working in other sections of the Division of Marine Environment Laboratories and divisions of the Department of Nuclear Sciences and Applications, and other departments. The incumbent also networks with scientists and data curators from Member State laboratories facilitating information exchange on relevant data and information systems.

Functions / Key Results Expected

- Gather and analyse requirements for the development of data and information systems through liaison with relevant RML staff and with external experts. These systems include:
    - IAEA Marine Radioactivity Information System (MARIS)
    - Senaite LIMS, an open-source laboratory information management system
    - Other software and processes used for the management of Interlaboratory Comparisons and Proficiency Testing and for acquiring and analysing laboratory measurements.
- Design, develop, test and deploy software based on these requirements.
- Provide expertise in maintaining existing codebases and contribute to the development of a strategy to ensure effective and sustainable long-term support of these information systems.
- Develop innovative data visualisations and analytics to enhance the effectiveness and understanding of these information systems
- Research and prototype Artificial Intelligence and Machine Learning applications based on these information systems to answer specific questions.

Competencies and Expertise (do not revise or edit)

Core Competencies		
Competence	**Occupational Role**	**Behavioural Indicator**
Communication	Individual Contributor	Communicates orally and in writing in a clear, concise and impartial manner. Takes time to listen and understand the perspective of others and proposes solutions.
Achieving Results	Individual Contributor	Takes initiative in defining realistic outputs and clarifying roles, responsibilities and expected results in the context of the Department/Division's programme. Evaluates his/her results realistically, drawing conclusions from lessons learned.
Teamwork	Individual Contributor	Actively contributes to achieving team results. Supports team decisions.
Planning and Organizing	Individual Contributor	Plans and organizes his/her own work in support of achieving the team or Section's priorities. Takes into account potential changes and proposes contingency plans.

Functional Competencies		
Competence	**Occupational Role**	**Behavioural Indicator**
Analytical thinking	Associate	Gathers and analyses information, identifying critical relationships and patterns among data and proposes workable solutions.
Knowledge sharing and learning	Associate	Actively seeks opportunities to learn by formal and informal means; learns from others, adopting and sharing best practice.
Technical/scientific credibility	Associate	Acquires and applies new skills to remain up to date in his/her area of expertise. Reliably applies knowledge of basic technical/scientific methods and concepts.
Commitment to continuous process improvement;	Associate	Identifies opportunities for process, system and structural improvement as well as improving current practices, increasing effectiveness and achieving efficiency gains. Actively supports the application of sound quality management standards and process improvement.

Expertise	
Expertise	**Description**
Computer Programming	Experience and knowledge of coding and scripting using common technologies such as Python
Data Analysis	Broad data science skills including statistical methods, scientific programming and visualisation of data
Geographic Information System	Proficiency in developing and verifying spatial data sets and in preparing digital maps
Environmental radioactivity	Knowledge of measurement techniques

Education, Experience and Language Skills

- University degree in computer science, physics, maths or a related field.

- Minimum of two years' experience in development of scientific software and/or data science.

- Knowledge of environmental radioactivity, radioactivity measurement techniques, software development, computer modelling highly desirable.

- Good project management, organisational and oral/written communication skills.

- Experience of any of the following is also highly desirable: LIMS (Laboratory Information Management Systems); the ISO/IEC 17025 standard for Testing and calibration laboratories; Python; JavaScript; Observable. Plot and D3; netCDF; Github; Docker; QGIS; fastai.

- Excellent oral and written command of English. Knowledge of other official IAEA languages (Arabic, Chinese, French, Russian and Spanish) is an asset.