

Job Description for Professional Posts

Reference: NA2024/03

Position and Grade: Associate Research Scientist, Isotope Techniques for Marine Emerging Contaminants, P2

Organizational Unit: Marine Environmental Studies 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 Division of IAEA Marine Environment Laboratories (NAML) 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 Marine Environmental Studies Laboratory (MESL) is the analytical support centre for isotopic and elemental analysis of trace elements, organic contaminants and long-lived radionuclides in the marine environment. It provides reference materials, recommends procedures and carries out proficiency tests and interlaboratory comparisons for quality assurance programmes for the determination of non-nuclear contaminants. It implements marine monitoring programmes in collaboration with regional laboratories and provides training in analytical techniques and metrology in chemistry.

Main Purpose

As part of a team led by the Laboratory Head and Professional staff, the Associate Research Scientist, conducts laboratory tests related to on-going research on the development of methodologies for the identification and monitoring of marine pollution processes, using isotopic techniques. The incumbent will contribute to the development and application of analytical methods for the quantification and identification of microplastics, nanoparticles and other emerging inorganic contaminants, in view of assisting Member States laboratories implementing isotopic techniques for the identification, quantification and understanding of pollution processes in the marine environment. The Associate Research Scientist will be further involved in the procurement for and maintenance of laboratory equipment, supporting overall operations in MESL and participated in the training of fellows.

Role

The Associate Research Scientist is a technical specialist on the development of analytical methodologies for quantification and identification of emerging contaminants (microplastics, nanoparticles and other emerging inorganic contaminants in environmental samples using HR ICP-MS, TQ ICP-MS and other analytical techniques such as Field Flow Fractionation, improving/revising the existing procedures for new applications. He/she will carry out the studies on the role of microplastics and nanomaterials as a major vector for the transportation of toxic trace elements in marine system. The Analytical Chemist is also responsible for supporting laboratory activities in the area of environmental monitoring of inorganic emergent contaminants, as well as supervising fellows and trainees. He/she will also collaborate with the Technical Cooperation (TC) Department of the IAEA TC Programme on these topics.

Partnerships

The Associate Research Scientist has frequent contact with Professional and General Service staff within the section as well as throughout the other sections for day-to-day operations including on-going experimental work. He/she also has consistent contact with fellows and associates in organizing their research work, administering training material, and providing technical assistance as required. She/he has external contact with local suppliers in attaining equipment/material for the laboratory and interacts with laboratories around the world to support them in enhancing the implementation of determination of emerging pollutant in Member States Laboratories. He/she will also collaborate with the Technical Cooperation (TC) Department of the IAEA TC Programme on this topic.

Functions / Key Results Expected

- Support the development and validation of analytical methods for the quantification and identification of nanoplastics and nanomaterials in marine environmental samples e.g, seawater, marine biota, and sediments, based on the application of ICP-MS and other isotopic techniques.
- Assist in the development and validation of methodologies for sample preparation of nanoplastics and nanomaterials in marine samples prior their ICP-MS quantification.
- Application of obtained results for pollution studies in contaminated regions. Comparative studies with other analytical techniques.
- Carry out the studies on the role of microplastics and nanomaterials as a major vector for the transportation of toxic trace elements in marine system.
- Evaluation of the results, to understand pollution processes for the preparation of technical reports and scientific manuscripts for publication.
- Training of Fellows and other trainees in NAML/MESL on the determination of isotopic ratios for stable isotopes in marine environment samples.
- Drafting and revising of standard operating procedures (SOPs), reports and guidelines and collaborate in the establishment and maintenance of the laboratory's quality system.

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
Knowledge sharing and learning	Associate	Actively seeks opportunities to learn by formal and informal means; learns from others, adopting and sharing best practice.
Judgement/ decision making	Associate	Consults with supervisor/manager and makes decisions in full compliance with the Agency's regulations and rules.

Expertise	
Expertise	Description
Environmental Analytical Techniques	Good knowledge in analytical chemistry and environmental sciences.
Data analysis	Experience in marine monitoring, statistical experience and data treatments
Scientific and Technical Publishing	Good presentation skills and ability to prepare reports, publications and training materials.

Education, Experience and Language Skills

- University degree in chemistry, environmental sciences or a related scientific field.
- Minimum of two years of relevant professional experience in the field of analytical chemistry.
- Publications in this fields would be an advantage.
- Excellent oral and written command of English. Knowledge of other official IAEA languages (Arabic, Chinese, French, Russian and Spanish) is an asset. Working knowledge of French desirable.