# Vacancy Announcement

**Vacancy Number 3/2011**

**Job Title: Scientist (Tactical Autonomous Systems)**

**NATO Grade A4**

**NATO Undersea Research Centre, La Spezia, Italy**

**Closing date: 17 February 2012**

Applications are invited from qualified candidates for the position of Scientist available in the Systems Technology Department at NURC. This post is offered at the NATO grade A4 level.

## A. General

NURC conducts a basic and applied research program that is dedicated to fulfilling NATO's Operational Requirements in the maritime environment and undersea domain. Unique in its international makeup, NURC maintains a strong reputation for bringing the best and brightest scientists in undersea disciplines together to solve future problems. NURC has been an international leader in underwater research for over fifty years. The Centre has an interdisciplinary scientific complement of more than 40 scientists drawn from NATO member nations on a rotational basis. Technical support is provided by a permanent staff, trained in the related engineering disciplines. The Centre operates two of the finest research vessels in the world, the Alliance and the Leonardo. NURC is one of three research and technology organizations in NATO.

The Systems Technology Department conducts studies relating to anti-submarine warfare and mine countermeasures involving the use of autonomous sensor platforms for detection, classification, localization, and mine neutralization. In addition, the department conducts studies in areas of technology directly and peripherally related to the general ASW and MCM problems as they relate to the maritime environment.

## B. Description of the post

One of the emerging themes in undersea warfare is the use of autonomous systems. The successful utilization of autonomous systems can minimize the exposure of expensive and vulnerable manned platforms in threat areas, and provide tactical flexibility in order to achieve missions in shorter times and at lower cost. Two of the Programmes managed within the Systems Technology Department at NURC are Autonomous Naval Mine Countermeasures (ANMCM) and Cooperative Anti-Submarine Warfare (CASW). Both projects are performing research with autonomous sensor platforms in collaborative scenarios in order to bring increased maritime capabilities to NATO forces.

The successful candidate will be responsible, under the guidance of the Programme Managers and Department Head, for conducting research in the following areas:

- Anti-submarine warfare (ASW) and naval mine countermeasures (MCM)
- Autonomous vehicle behaviours
- Sensor data processing and management in multiple platform scenarios
- Navigation and communication strategies for collaborating autonomous vehicles

Responsibilities include:

- Developing and testing adaptive autonomous vehicle behaviours, optimized to the operating environment and processed sensor data
- Developing sensor data processing strategies that provide information for vehicle behaviour determination in order to close the platform/sensor interaction loop
- Leading at-sea evaluation and validation activities
- Analyzing data to quantify statistical performance measures
- Documenting all research activity in reports and publications
- Supervising team scientists and scientific assistants

This work will be performed in close cooperation with other team members, projects, and organizations, and with the nations via joint research projects or other partnerships.

**C. Qualifications:**

**Essential qualifications**

1. *Professional experience*
    a. A minimum of 5 years experience as a senior scientist or engineer in basic or applied research.
    b. Demonstrated knowledge of autonomous vehicles and robotics.
    c. Proven ability to plan and conduct experimentation efforts.
    d. Strong numerical modelling and data analysis skills, including scientific programming capabilities in high-level programming languages (e.g., C/C++, Java, etc.) and/or analytical/prototyping environments (e.g., MATLAB).
    e. Strong research record as evidenced by peer-reviewed publications and well-written technical reports.

2. *Education/training:* Master's degree in math, science, or engineering.

3. *Language :*English Good SLP 3333 (listening, speaking, reading and writing). Note: the work in this post and organization is conducted mainly in English, both written and oral.

4. *Security clearance:* Any contract offered will be subject to the successful candidate obtaining NATO SECRET clearance. Prior to appointment, the NATO body must have received a security clearance certificate from the government of the country of which the candidate is a national.

**Desirable qualifications**

1. *Professional experience*
    a. Naval MCM and/or ASW systems and techniques
    b. Statistical signal and/or image processing
    c. Information theory
    d. Game theory
    e. Open architecture software and publish/subscribe middleware paradigm
    f. Prior experience working in an international environment

2. *Education/training:* Ph.D. in math, science, or engineering

**Personal attributes:** Ability to conduct applied scientific research. Good communication skills, both oral and written. Ability to work harmoniously with colleagues and other staff, both civilian and military, from NATO nations, as well as staff from private scientific/industrial organisations. Creativity, adaptability and self-motivation required.

**Managerial responsibilities:** Ability to supervise the work of other scientists and research assistants as required.

## D. Work environment

This work is normally performed in a typical office environment. Note: it may be required to perform duties at sea, on any of the centre ships or other ships or platforms that may be involved.

## E. Contract

The attention of candidates is drawn to the fact that this is a research post in a scientific establishment. Successful candidates will be offered a definite duration contract not exceeding three years' duration which, subject to satisfactory performance and organizational requirements, may be renewed by mutual consent for further periods of up to two years.

NURC offers a comprehensive benefits package including tax-free remuneration, 6 weeks annual vacation, life and medical insurance, a retirement plan, educational allowance for dependent children and paid travel to the home country for the member and family every two years.

## F. Application procedures

Qualified candidates must submit the official NURC application form (available at http://www.nurc.nato.int/employment/app-form.rtf) indicating vacancy number and job title. Post Requirements Form and a cover letter explaining how their experience and qualifications fit them to the specified requirements should also be included. Applications must be submitted electronically to: recruitment@nurc.nato.int (any supporting documents must be sent with the application as a single Word or PDF document).

Applications will be accepted until 17 February 2012.

**Notes for candidates**: the candidature of NATO redundant staff will be considered and evaluated before any other candidature.

Applicants who are not successful in this competition may be offered an appointment to another post of a similar nature, albeit at the same or a lower grade, provided they meet the necessary requirements.

Appointment will be subject to the deliverance of a NATO Secret security clearance by the national Authorities of the selected candidate and approval of the candidate's medical file by the NATO Medical Adviser and the Organization's insurers.

**Notes for NATO Civilian Human Resources Managers**: if you have any qualified redundant staff of same grade, please advise NURC either by message or e-mail (recruitment@nurc.nato.int) no later than 10 February 2012.

**Remarks**: Only nationals of the 28 NATO member countries can apply for vacancies at NURC. The NATO member countries are: Albania, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxembourg, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, the Netherlands, Turkey, United Kingdom, United States.

**POC**: Human Resources Branch (recruitment@nurc.nato.int)

Attachment: NATO JOB DESCRIPTION, Post Number TRC RRX 0060

## NATO JOB DESCRIPTION

## PART I - JOB IDENTIFICATION

**Job Title** Scientist ***Date*** *15 Jan 2009*

| | | | |
|---|---|---|---|
| **PE Post Number** | TRC RRX 0060 | **Command** | Allied Command Transformation |
| **Rank/Grade** | A-4 | **HQ** | NATO Undersea Research Centre ISPE |
| **Nationality** | | **Division** | Research Division |
| **Service** | | **Branch** | System Technology Department |
| **Job Code** | 520A/525K | | |
| | | **Duty Location** | La Spezia (ITA) |

## PART II - PE DETAILS

### A. POST CONTEXT

- The NATO Undersea Research Centre (NURC) develops technology that will facilitate the transformation of NATO military capabilities and is a focus for partnering in maritime innovation for NATO Commands and the NATO Nations. The Research Division is comprised of the Applied Research and Sytems Technology Departments and supported by Programme Management. The Centre's Programme of Work is conducted in

these two scientific departments oriented respectively toward systems research and physical processes research. -

## B. REPORTS TO

Scientist, TRC RRX 0010.

## C. PRINCIPAL DUTIES

The incumbent's duties are:

Principal Scientists may be assigned as Programme Managers, Team Leaders and/or perform individual research. The incumbent's duties are:

1. Programme Manager.

a. Develop, articulate and defend the Centre's Master Plan for the Thrust Area.

b. The oversight and management of Thrust Area programme and project planning including supervision and mentoring of assigned staff.

c. The overall execution of the Thrust Area Plans including:

(1) Trade-offs among performance, schedules and costs.

(2) Tracking, managing and reporting risks (technical, resource, other).

(3) Timely delivery of outputs.

(4) Documentation and reporting on activities and outputs.

d. Conduct market surveys to identify new business opportunities and propose project to exploit the Centre's technology base.

e. Survey national research, technology, and development programmes for indications of future R&T directions in order to anticipate national acquisition trends and developments of interest to the Centre.

f. Develop and implement strategies to actively engage other NATO bodies, agencies, and commands in the Centre's programme.

2. Team Leader.

a. Technical leadership and direction for the Group and technical consultation for other groups and Programme Managers.

b. Management of the Group including supervision and mentoring of staff.

c. Advice and support to the multiyear Thrust Area Master Plan for the Programme of Work and the development of corresponding plans for the assigned components including resources.

d. Direction, control and coordination of activities within his / her Group in implementing the Programme of Work.

e. Monitors the activities of the group on support of Centre projects.

f. Advising the Department Head on issues related to the Group area of expertise.

3. Individual Research.

a. The investigation of maritime research problems either as an individual scientist working essentially on his / her own or as the leader of a small team.

b. Carrying out and documenting experimental or theoretical investigations as part of a team working on maritime research problems assigned to it in implementation of the Programme of Work.

c. Conception, design and development of advance equipment, demonstrators, or facilities.

The following duties are required of all members of the grade:

1. In the light of the experience expected in this grade, the provision of guidance and instruction to other members of the scientific and technical staff who may be assigned to him/her.

2. Promoting and maintaining close relations with other scientists or military staff concerned with similar or related problems within the NURC and in national or international scientific establishments and military headquarters.

3. Keeping himself/herself and the directorate informed about NATO activities in the various member countries that are relevant to the current and future activities of the NURC and to the exploitation of NURC products and knowledge.

4. Interaction with national and international scientific establishments in order to remain abreast of the latest technical and scientific principles and practices on matters pertaining to his/her component of the Programme of Work as well as potential exploratory research areas and technology watch activities.

Legal authority is held: None

Budget authority is held: None

Decision authority is held: None

There are no first line reporting responsibilities.

## D. ADDITIONAL DUTIES

1. The incumbent may be required to perform his or her duties onboard NURC's vessels and may be called upon to perform like duties elsewhere in the organisation.

2. Flexibility Clause: In order for the command to deal with emergent requirements, the incumbent may be required to perform other related duties as directed (in particular, the incumbent can expect to work as a member of Working Groups, Project Teams, etc. for defined periods of time). Additionally, the incumbent may also be reassigned as directed by the Deputy Director for up to 180 days (and where necessary in excess of 180 days with the agreement of the incumbent).

3. Annual TDY Requirement: The incumbent can expect to go on TDY both within and outside NATO's boundaries.

The employee may be required to perform a similar range of duties elsewhere within the organisation at the same grade without there being any change to the contract

The work is normally performed in a typical Office environment. Normal Working Conditions apply. The risk of injury is categorised as: No Risk

## PART III – QUALIFICATIONS

## A. ESSENTIAL QUALIFICATIONS

### 1. Professional/Experience

**Primary: 520A Engineering and engineering trades**

The study of engineering and engineering trades without specialising in any of the detailed fields. (specialisation: Engineering (broad programmes)) *[Ref: UNESCO ISCED 1997:520]*

**Primary Skill Level: Initiate or influence:** Has defined authority and responsibility for all aspects of a significant work area, including functional, financial and quality aspects. Establishes organisational objectives, delegates assignments and is accountable for actions taken by self and subordinates. Influences policy formation on contribution of specialisation to operational or transformational objectives. Executes leadership and influences and persuades subordinates, peers and external organisations, HQs and agencies. Decisions impact the functional area of the enterprise, achievement of organisational objectives and financial performance. Work involves creative application of specialist and/or management principles. Develops high level relationships with external organisations, HQs and agencies. Influences internally and externally at senior management level. Executes highly complex work activities covering, technical, financial and quality aspects and contributing to formulation of the strategy and policies of the functional area. Able to absorb complex technical information and communicate effectively at all levels to both specialist and non-specialist audiences. Responsible to assess and evaluate risks and to understand the implications of new concepts, technologies and trends. Has a broad understanding of the enterprise and deep understanding of the functional areas. Responsible to keep skills within the assigned functional area up to date and to maintain awareness of developments in the wider area of enterprise activities. *[Ref: NATO adaptation of SFIA v3 2005:Generic Level Description]*

a. 4 years post-graduate experience in research related to the maritime environment, systems or operations.

b. Demonstrated leadership ability and experience in the management of research efforts.

c. Recognized achievement in research.

d. A more specific statement of required education and training may be developed at the time of recruitment in order to address the specific needs of the Programme of Work.

**Secondary: 525K Motor vehicles, ships and aircraft**

The study of designing, developing, producing, maintaining, diagnosing faults in, repairing and servicing motor vehicles, including earth moving equipment and agriculture machines. Typical is the combining of studies in both metal structures and motors. (specialisation: Maritime engineering) *[Ref: UNESCO ISCED 1997:525]*

**Secondary Skill Level: Initiate or influence:** Has defined authority and responsibility for all aspects of a significant work area, including functional, financial and quality aspects. Establishes organisational objectives, delegates assignments and is accountable for actions taken by self and subordinates. Influences policy formation on contribution of specialisation to operational or transformational objectives. Executes leadership and influences and persuades subordinates, peers and external organisations, HQs and agencies. Decisions impact the functional area of the enterprise, achievement of organisational objectives and financial performance. Work involves creative application of specialist and/or management principles. Develops high level relationships with external organisations, HQs and agencies. Influences internally and externally at senior management level. Executes highly complex work activities covering, technical, financial and quality aspects and contributing to formulation of the strategy and policies of the functional area. Able to absorb complex technical information and communicate effectively at all levels to

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None

### 2. Education/Training

Masters Degree or equivalent in maritime, marine, mechanical engineering, or naval engineering, engineering or related discipline and 4 years post related experience

### 3. Security Clearance

NATO SECRET

### 4. Language

English SLP 3333 (Listening, Speaking, Reading and Writing)

NOTE: The work both oral and written in this post and in this Headquarters as a whole is conducted mainly in English.

### 5. Standard Automatic Data Processing Knowledge

| | |
|---|---|
| Word Processing: | Working Knowledge |
| Spreadsheet: | Working Knowledge |
| Graphics Presentation: | Working Knowledge |
| Database: | Working Knowledge |
| eMail Clients/Web Browsers: | Working Knowledge |
| Web Content Management: | Basic Knowledge |

## B. DESIRABLE QUALIFICATIONS

### 1. Professional/Experience

Specific Experience: a. Capability to maintain professional qualifications through continued education to remain abreast of the latest technical and scientific principles and practices.

b. Experience with the ISO 9000 or similar Quality Management System.

c. Experience in an international organisation.

### 2. Education/Training

Doctorate (PhD)

### 3. Language

English 4444

## C. CIVILIAN POSTS

## 1. Personal Attributes

The incumbent must be highly articulate and persuasive possessing tact and diplomacy. He/She must have a proven ability to work with no supervision and is expected to be a proactive self-starter. Must possess keen perception and apply sound judgement. Frequent requirement for original thought. The incumbent must be capable of working in a demanding environment, be clear, concise, and convincing in written and oral presentations, and flexible in response to changing requirements. He/She must also have:

- Proven ability to work successfully with military staff.
- Demonstrated leadership and management capabilities.
- Personal qualities of tact, judgement and adaptability.
- Ability to tactfully and effectively interface with senior management personnel, peers, and subordinates.
- Good political awareness and motivational and listening skills.
- A sense of diplomacy and propriety in order to work harmoniously with colleagues and other staff, both civilian and military, as well as with staff from private scientific/industrial organisations.

## 2. Managerial Responsibilities

Supervision of a Group. Heads a unit, which involves the direction, planning and coordination of diverse subjects. This work involves projects and programmes which engage multiple parts of the organisation and often involves interaction with external organisations.

## 3. Professional Contacts

Often involved in significant discussions at senior committee level with representatives of NATO nations or other NATO bodies on behalf of the NURC. Has a regular professional contact typically at senior management level inside and outside the Centre. Develops policy and processes which requiring explanation, discussion, persuasion and approval of actions. Requires good negotiating skill, tact and persuasion.

## 4. Contribution to the Objectives

Provides leadership in several key aspects of the performance of the Programme of Work. Acts as a group leader for a group of scientists organised by disciplines and as a senior researcher.

## 5. Work Environment

The work is normally performed in a typical Office environment. Normal Working Conditions apply.

The risk of injury is categorised as: No Risk