

Research fellowship - Analysis of air quality and water resources in mountain environments (in the framework of the activities of Spoke 1 of the PNRR iNEST Project, Interconnected North-East Innovation Ecosystem).
PNRR Project no.: ECS_00000043 Title of the project: iNEST - Interconnected Nord-Est Innovation Ecosystem Area: Digital, Industry, Aerospace Actuating Subject: University of Padua CUP: H43C22000540006. Call issued by Ca' Foscari University of Venice (Italian law 30 December 2010, n.240, art. 22)

The present document in English is to be considered as a mere summary of the main provisions of the notice of competition which is available in Italian at the following ([link](#)) The text in Italian is the official text of the notice of competition for all legal intents and purposes and, in the event of non-conformity with the present document, it shall prevail.

Description

The CESA Center at Università Ca' Foscari Venezia, in charge of the administrative management of the above mentioned project, invites applications for a fellowship in:

Title: Analysis of air quality and water resources in mountain environments

SSD and/or sector: GEO/08

Scientific coordinators and tutors: prof. Mauro Masiol and prof. Barbara Stenni

Duration: 12 months

Abstract: *This research project develops along two lines of research, which are treated in parallel, namely the study of air quality in the Alpine area and the study of water resources in mountain environments. The project will focus more on the first topic of research.*

Air quality in Europe has generally improved in recent decades following increasingly rigorous community policies and the implementation of increasingly effective technologies for emission control. Despite this, some European air quality standards are still breached in some areas. Exceeding the standards will become even more problematic in the future, as more stringent limit values are currently under discussion. Urban areas in mountain environments are generally located on valley floors surrounded by slopes or in semi-closed valleys, an orography that causes peculiar meteorological and atmospheric circulation, such as persistent thermal inversion events that might influence air quality. In addition to meteorology, natural and anthropogenic emission sources from mountain areas may also differ from those from other urban areas. For example, biomass combustion often represents an important source of energy for domestic heating in Alpine valleys.

In recent decades, the study of the isotopic composition of water in hydrology and agricultural sciences has seen significant progresses, improving the understanding of transport, mixing and phase changes of water. These studies are extremely important considering recent climate changes, which are modifying the water cycle and its distribution. For example, increasing temperatures change the rate of evaporation and precipitation and change water flows. Furthermore, a warmer atmosphere, containing more water vapor, is potentially affected by more intense weather events, which may cause serious damage to people, buildings, property and agriculture. These changes in hydrology are particularly important in a changing climate system and in mountainous regions, which typically have more water but more vulnerable aquifers.

The research fellow position is part of the National Recovery and Resilience Plan (PNRR) project "Interconnected Nord-Est Innovation Ecosystem" (iNEST) funded by the European Union - NextGenerationEU. The objective of the project is to create an innovation ecosystem whose characterizing dimension is the synergy between territories and digital technology as a common theme to overcome its fragmentation. The research fellow will contribute in particular to the Research Topic RT1 "Safety and quality of life in mountain environments" of Spoke 1 (Ecosystems for innovation in mountain contexts) of the iNEST project, carrying out research activities mainly on the following topics in mountain contexts : a) analysis of the chemical speciation of the aerosol and source apportionment; b) analysis of time series and multi-year trends of air pollutants in relation to meteorological variables and the dispersive potential of the atmosphere; c) analysis of the isotopic composition of liquid and solid precipitations in various aqueous matrices collected in mountain environments and d) ecohydrological analysis of the isotopic composition of water in various matrices, such as soil and xylem sap. Furthermore, you will actively participate and/or contribute to the project's cross-cutting topics and other activities (current or future) of Spoke 1 and the entire I-NEST ecosystem (e.g., technology transfer, networking, citizen engagement, and reporting). The results of the proposed research activities include the characterization of air pollution and the hydrological cycle in mountain environments.

The research may be carried out in English.

The fellowship is intended to provide the successful candidate with the opportunity to pursue his/her own research while benefiting from the range of expertise at Università Ca' Foscari Venezia.

Who can apply

Prospective candidates are expected to hold a Master's degree in Environmental and Land Sciences and Technology (LM-75), Geological Sciences and Technology (LM-74), Geophysical Sciences (LM-79) or related disciplines, or an equivalent degree obtained abroad, and a curriculum suitable for carrying out research activities.

Ca' Foscari encourages applications from researchers with positive evaluation in all the criteria in individual proposals such as Marie Skłodowska Curie Actions - Individual Fellowships/ERC Starting Grants/FIRB (Italian Fund for basic research investments)/SIR (Scientific Young Independence Research) or similar.

Researchers having successfully completed Marie Skłodowska Curie Actions - Individual Fellowships/ERC Starting Grants/FIRB (Italian Fund for basic research investments)/SIR (Scientific Young Independence Research) or similar funded projects are warmly encouraged to apply.

The following are considered preferential qualifications:

- PhD in environmental or geological sciences (or similar);
- specialization diplomas and certificates of attendance of postgraduate courses, both in Italy and abroad;
- the conduct of documented research activities in public and private subjects with contracts, scholarships or assignments both in Italy and abroad related to the proposed research topics;
- scientific titles such as publications and original works relating to the topics of the proposed research;
- participation in conferences, workshops and seminars on the topics covered by the project;
- documented experience in the analysis of environmental matrices with geochemical methodologies.

Duration of contract: twelve months (approximately starting: February 2024)

Stipend: The research fellowship amounts to 19,367.00 Euros per year, including taxes and social charges.

Deadline for submission of applications: January 14th, 2024, 12.00 noon CET.

How to apply:

Candidates must submit:

1. The application form;
2. A motivation letter (max 1 page) along with their CV in European format, duly dated and signed, both documents are to be enclosed as a one single.pdf file. ([link](#))
3. A copy of a valid identity document (either Identity Card or Passport);
4. (If available) Evaluation Summary Reports of Marie Skłodowska Curie Actions - Individual Fellowships/ERC Starting Grants/FIRB (Italian Fund for basic research investments)/SIR (Scientific Young Independence Research) individual proposals having passed all the evaluation thresholds;
5. (If available) Details of Marie Skłodowska Curie Actions - Individual Fellowships, ERC Starting Grants, FIRB (Italian Fund for basic research investments)/ SIR Scientific Young Independence Research funded projects;
6. Declaration of availability to hold the interview online ([LINK](#)), which must be emailed to: inest_pnrr@unive.it;
7. All documents, qualifications and publications relevant for the selection procedure (please, see the notice at this [link](#));

All the templates of the above mentioned documentation are available on the website ([link](#)).

How to submit your application

Applications must be submitted online, exclusively through the procedure that can be entered at the following link: <https://apps.unive.it/domandeconcorso-en/accesso/inest20122023studiorisorse>

After submitting the application, the candidate will receive a submission number and an email acknowledging receipt of his/her application.

The candidate can, if necessary, access the procedures and update uploaded data and materials via the link provided by the e-mail. Updates are only accepted before the deadline of **January 14th, 2024, 12.00 noon CET**.

Please note that the candidate can contact the University for any support needs until 24 hours prior to the deadline.

In case of a high number of applications and / or weight of the materials uploaded by the candidates the system might become slower, therefore it is suggested not to start the application process close to the deadline.

NB: The University does not take on responsibility for wrong or late communication of addresses, nor for any communication problem not depending on the University.

Evaluation

Up to 100 points, specifically:

For qualifications and publications: from 0 up to 60 points (42 points is the minimum score for admission to the interview)

For the interview: from 0 up to 40 points (28 point is the minimum score for passing the interview)

Selection procedure

Interviews will take place online on January 26th, 2024, at 4.00 pm CET.

The list of candidates admitted to the interview together with notice of any postponements, or changes in the time of the interview, will be announced on **January 19th, 2024** by means of a notice that will be published at the following ([link](#)).

The interview may ascertain knowledge of the following topics:

- The aerosol system and air pollution,
- Analytical methods for the analysis of the chemical speciation of atmospheric particulates,
- Techniques of source apportionment and receptor models,
- Geochemical methodologies applied to the study of environmental processes in the atmosphere, hydrosphere, cryosphere,
- The water cycle and variability of the isotopic composition of precipitation,
- Knowledge of analytical techniques used in environmental geochemistry and isotopic geochemistry.

Information and contacts

Candidates may find further details about the application process and the research project in the official call published at the following ([link](#))

For further information please contact CESA, email: inest_pnrr@unive.it