

Forest Science and Technology Centre of Catalonia (CTFC) is a research centre affiliated with the Generalitat de Catalunya (the Catalan government), and it reports to the Ministry responsible for forest issues.

CTFC is a CERCA centre and a government accredited TECNIO agent (developer of public technology).

It was granted a 'Human Resources Excellence in Research' award by the European Commission, recognizing CTFC as a European research institution that fosters an attractive and motivating work environment

Post-doctoral / Senior researcher offer in computational mathematics

Reference: 23-08-00001

The Landscape Dynamics and Biodiversity program is looking to recruit a **post-doctoral or senior researcher** to contribute to the applied research of the working team with skills and knowledge on:

- Numerical analysis and methods
- Heuristic optimization
- AI algorithms implementation

The Forest Science and Technology Centre of Catalonia (CTFC), located in Solsona (Pre-Pyrenees, 120 km from Barcelona), Spain, employs app. 150 staff, produces >100 scientific articles annually and has a turnover of app. 6 Mil. €/year. CTFC's research activity is organised around three programs: Multifunctional Forest Management, Landscape Dynamics and Biodiversity, and Bioeconomy and Governance. Further institutional information is available at: www.ctfc.cat/en.

As part of the **Landscape Dynamics and Biodiversity program**, CTFC undertakes research on the ecology of landscapes and biodiversity in a global change context, innovation in multi-purpose forest planning at different scales targeting multiple ecosystem services, development of cutting-edge decision support systems for forest and agroforest planning, as well as fire ecology and other natural disturbances.

The candidate will be part of the **Precision Forestry (PrecFOR) group** and will be involved in the execution of competitive as well as knowledge transfer projects related to designing resilient agroforest landscapes and the estimation of future provisioning of ecosystem services. This research position at CTFC offers an excellent opportunity to develop a scientific career in applied forest research in a stimulating work environment.

TERMS OF THE APPOINTMENT

1. The contract may start on October 2023 (start could be delayed to November if necessary).
2. It is a full-time position with a scientific-technical activities contract.
3. Based on CTFC labour categories, annual gross salary will be adjusted to the foreseen role and will be commensurated with the specific profile of the selected candidate (qualifications and experience), ranging between 33.000 – 48.000 €/year.
4. The candidate will be based at CTFC in Solsona (NE Spain), with remote working options according to the institution norms (max. 20 h/week).
5. Working time: 37.5 hours per week.
6. 23+6 days of holidays per year. Good family-work balance conditions.

7. Travelling abroad to collaborate with European or American researchers.

KEY RESPONSABILITIES

Key tasks and responsibilities will include:

1. Use of spatial interpolation methods and database management skills to compile and generate climatic, soil, and forest data used as inputs of forest dynamics and soil plant water balance models. See more at <https://ctfc.cat/en/formes.php> and <https://emf-creaf.github.io/medfate/>.
2. Application of AI methods (pattern recognition, clustering, k nearest neighbour) to develop a Catalan Forest Map based on national forest inventory and LiDAR data.
3. Use of heuristic optimization technics to develop and adapt spatial optimization tools for forest planning.
4. Spatial and temporal downscaling and interpolation of global climatic projections to derive regional projections to be used in the forest landscape modelling environments.
5. Adapt the forest projection system FORMES to the spatially continuous forest, soil and climatic data and further incorporate new spatially explicit functionalities such as fire spreading and tree seed dispersal.

BASIC REQUIREMENTS

1. A PhD in computer science, bioinformatics and biostatistics, mathematical modelling, data science, or related suitable discipline for the main topic of this call.
2. Advanced expertise in numerical methods, heuristic optimization, and AI algorithms
3. Advanced expertise in programming and using advanced statistical techniques.
4. Demonstrated computer skills in the use of GIS for spatial data management.
5. Knowledge of spatial optimisation algorithms is an asset.
6. Proven fluency in spoken and written English.

DESIRABLE REQUIREMENTS

1. Applicants should have a good expertise in forest ecosystems.
2. Previous experience in application for competitive international research calls.
3. Demonstrated experience in R+D projects and leading capacities.
4. Ability to disseminate scientific results.
5. Readiness to work in multi-disciplinary teams.
6. Excellent organizational skills and capacity to deliver tasks in a timely manner to deadlines.
7. Fluency in Spanish would be an asset.

SOFT COMPETENCES

1. Good communication skills. Capacity to write technical reports.
2. Result oriented.
3. Flexibility and adaptation.
4. Availability to travel locally and internationally.
5. Initiative and pro activity.

CONTACT

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CTFC guarantees an open, transparent, and merit-based recruitment process (OTM-R) to all registered candidacies avoiding thus any bias on gender, origin, age, ideology, or other circumstances that could be discriminatory.

Integration policy: reservation of a place for staff with a certificate of recognized disability.

SELECTION PROCESS AND CRITERIA

The selection process is led by the Human Resources Area of CTFC. This process consists of:

1. **Admission of candidates:** applicants must submit a curriculum vitae and letter of intent addressed to borsa.treball@ctfc.cat, until **September 30th, 2023**, indicating the reference code of the offer.
2. **Pre-selection:** verification of compliance with the minimum requirements of the offer.
3. **Selection (from October 1st to October 15th, 2023):** assessment of the preselected candidates by scoring based on objective criteria and interview.
4. **Final decision:** in case of finding the suitable person, the election will be formally communicated to him/her, and the identification of the chosen person will be published on CTFC job openings section.

Further information: borsa.treball@ctfc.cat