Alex Crespillo López

Predoctoral researcher specialized in meteorology / hydrology and IA techniques applied to drought prediction

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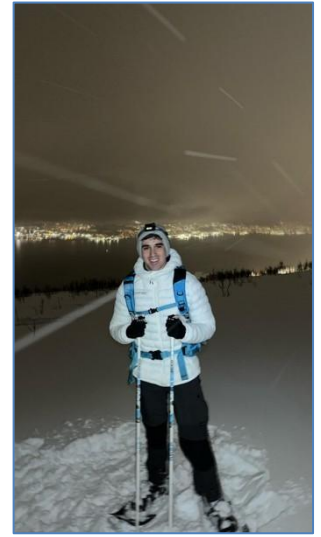E-mail: alexcrespillo12@gmail.com
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Professional profile
Predoctoral researcher focused on the analysis of droughts and climate extremes using artificial intelligence and Big Data techniques. Experience in programming (Python, R), climate modeling, and geospatial data analysis. International training, teamwork skills and multidisciplinary approach.

WORK EXPERIENCE

- **Predoctoral researcher**
  - IPE-CSIC, Zaragoza, Spain. (01/2025 – present)
    - Thesis: Researcher in meteorological and hydrological droughts and heat waves, as well as their interactions, characteristics and propagations, using AI and Big Data techniques

- **Master's Internship**
  - AR + I (Andorra Research + Innovation), Andorra la Vella, Andorra. (09/2023 – 02/2024)
    - Meteorological and climate data analyst, support in decision-making regarding environmental and pollution measures and researcher on atmospheric dynamics in orographically complex areas.

ACADEMIC HISTORY

- **Master's degree in mathematical engineering and HPC (High Performance Computing)**
  - UNIR – Universidad Internacional de la Rioja, Remote. (11/2025 – present)
- **Master's degree in meteorology**
  - University of Barcelona, Barcelona, Spain. (09/2022 – 02/2024)
    - TFM: "Analysis of episodes of thermal inversion in the central Andorran valley and its relationship with meteorological variables and pollutants"
      - Grade: 8.5
- **Bachelor's degree in Geology**
  - Autonomous University of Barcelona, Barcelona, Spain. (09/2018 – 06/2022)
  - Speciality in Environmental Geology
    - TFG: "Characterization of native H2 reservoirs in the Iberian Peninsula.

SKILLS

- **Techniques**
  - Programming: Python, R
  - Design libraires: Streamlit, plotly, gradio
  - Spatial analysis: ArcGIS, AutoCAD
  - Office Suite, LaTeX
- **Transverse**
  - Climate Data Analysis
  - Multi-scale atmospheric and meteorological modelling
  - Research project management
  - Scientific communication and dissemination

LANGUAGES AND CERTIFICATES

- **Languages**
  - Spanish: native
  - Catalan: native
  - English: professional (Cambridge first, B2)
  - French: conversational (DELF, B2)
- **Certificates**
  - **Language certificates:**
    - B2 level of English (Cambridge)
    - B2 level of French (DELF)
  - **Technical certificates:**
    - "The complete Python developer" – Udemy
    - "Complete R Course for Data Science and Machine Learning" – Udemy
    - "Introduction to R and RStudio for Data Analysis in Scientific Research" – Society of Friends of the National Museum of Natural Sciences
    - "17th Machine Learning and Advanced Statistics Summer School" – Polytechnic University of Madrid
    - "IV Extremadura Congress of Climatology" – University of Badajoz
    - "Data analytics and IA Bootcamp" – Upgrade Hub

PUBLICATIONS AND PAPERS

- **Vicente-Serrano, Sergio M., Beguería, S., Reig, F. et al. "Developing science-informed maps and climate service for extreme rainfall in Spain." Nat hazards (2025).** (coauthor)

- **Halifa Marin, A., et al. "Spatial Assessment of Dry-Spell Hazards in Spain: Toward an Operational Climate Service." Water Scarcity and Drought 2025, 1 (1), 4.** (coauthor)

- **Vicente-Serrano, Sergio M., et al. "An optimal and flexible approach for drought quantification based on standardised indices." International Journal of Climatology (2025): e8906.** (coauthor)

- **"Thermal inversion analysis in Andorra Central Valley and its relationship with pollutants and meteorological variables." European Meteorological Society Annual Meeting (2024).**

  - Paper of my master's Thesis. (author of the master's Thesis and co-author of the paper)

HOBBIES / INTERESTS

- **Fond of sports, nature, cooking and travel; Motivated by constant learning**

ADDITIONAL INFORMATION

- **Extra work experience:** as customer service in a family business, monitor on campus where various sports are practiced, also moving boxes in the family business, waiter in restaurants, kitchen assistant, referee and carpenter. All this during my student years to be able to pay for my studies.

- **Stays abroad:**

  - Tromso, Norway. (03/2024 – 06/2024)

  - France (several years)

    - Short stays of one week for several years to complement my French studies (Carcassonne, Toulouse, Narbonne, Bordeaux, Dijon, Paris...