CALL FOR A POSTDOCTORAL RESEARCHER

The research team of the Anillo project “Semi-arid coastal basins as indicators of climate crisis adaptation (SACBAD)” (ATE220055) seeks an exceptional and highly motivated candidate for a full-time one-year renewable postdoctoral position. This postdoctoral researcher will work toward the specific objective of **quantifying water flow, sediment delivery and changes to solute transport in the above and below ground coastal interface of semi-arid basins resulting from anthropogenic and climate forcings and their implications.**

The SACBAD project brings together Chilean researchers from the School of Engineering, the School of Agriculture and Forestry, and the Department of Ecology-Faculty of Biological Sciences-, from Pontificia Universidad Católica de Chile (PUC), Universidad de Chile and Universidad Técnica Federico Santa Maria, in collaboration with an international core of leader researchers in the field.

Project description:
Understanding the adaptive capacity and measuring progress in adaptation (or maladaptation) is an important key research question for understanding the consequences of the climate crisis and options for coping with it. In this sense, semi-arid basins systems are especially affected by the intensification of the drought in conjunction with the location of water-intensive activities such as agricultural demand. Increasing stress on water availability in semi-arid basins has led to what is known as basin closure. The closure of basins affects the resulting physical and ecological conditions at the mouths of coastal basins where critical aquatic ecosystems exist. These aquatic ecosystems (estuaries, lagoons or coastal wetlands) could be considered in this sense as “late sentinels”, or indicators of climate crisis and adaptation response. In this context, the coastal basins located in the semi-arid region of Chile (transition zone between the Valparaíso and Coquimbo regions) emerge with special interest. Addressing this research questions brings together Chilean researchers from the School of Engineering, the School of Agriculture and Forestry and the Department of Ecology - Faculty of Biological Sciences-, from Pontificia Universidad Católica de Chile (PUC), Universidad de Chile and Universidad Técnica Federico Santa Maria, in collaboration with an international core of leader researchers in the field.

The working hypothesis of this project is that coastal basins in semiarid regions are complex socio-ecological systems where hydrologic processes are tightly driven by climate changes and derived adaptation responses. To answer this hypothesis, we propose to work on three complementary research objectives associated with the understanding of the ecohydrological and sociohydrological processes that are crucial to understand the connection between coastal basins and the ocean in the Chilean semiarid region. These processes occur at different locations in these basins: at basin headwaters where the role of vegetation in capturing available water (precipitation/fog/moisture) is crucial; at basin valley floors where the role of agriculture related water (surface and groundwater) extractions is important; at basin outlet where a large fraction of the population in these basins and crucial aquatic ecosystems are located. The fourth research objective in this proposal connects these processes through the implementation of numerical simulation tools. This research project will generate outcomes that are relevant for the development of climate change adaptation strategies that take into account water and food security and ecosystem integrity avoiding the outcomes of maladaptation.

Within this project we offer a postdoctoral position related to the study of subsurface and surface water processes in the coastal zone of semi-arid basins - working with Dr. Sarah Leray and Dr. Megan Williams. The main objective of the research is to quantify water flow, sediment delivery and changes to solute transport in the above and below ground coastal interface resulting from anthropogenic and climate-induced processes such as sea level change, continental entry of salinity (salinity breaches), soil accretion and coastal erosion processes, water level variation in dikes and lagoons. Research in the coastal zone includes field measurements to quantify surface and subsurface water dynamics and linkages, and considers data incorporation within a prospective modeling study of groundwater-surface water interaction.

Candidates must have:
i) A PhD in engineering/geology/earth sciences or related disciplines
ii) Experience using numerical models for groundwater or surface water processes OR demonstrated expertise in observational estuarine or coastal surface or groundwater studies. Experience both in numerical models and field measurements is desired.
iii) Demonstrate a strong record of high–quality scientific publications relevant to the research objectives
iv) Excellent communication skills in English. Communication in Spanish (if not the native language) is highly desirable.
v) Availability to start working at the latest in the second semester of 2023.
vi) A drivers license. Rural driving experience is desirable.
vii) The ability to legally work in Chile or obtain a work visa before the start of the position.
viii) Candidates must not have any standing issue with ANID (Agencia Nacional de Investigación y Desarrollo de Chile) or with former agency Conicyt.

Applications will be received until December 20th with an ideal starting date in April 2024. We reserve the right to extend the application deadline.

Salary. The selected candidate will have a monthly gross salary equivalent of $ 24,240,000 per year (approximately 26,000 USD/year).

Note for foreign applicants: Due to the provisions of the Chilean tax office - Article 60 of the Income Tax Law - contained in Article 1 of Decree Law No. 824/74, of the Ministry of Finance, foreigners must pay 20% of the income received during the first 6 months.

The employing institution will be P. Universidad Católica de Chile. Position is granted for one year with an annual renewal process subject to a prior approval from the project´s Director and PIs or subject to modification in accordance with the project PIs and the funding agency.

The postdoctoral scholar will be based in the Department of Hydraulic and Environmental Engineering at the School of Engineering at Pontificia Universidad Católica de Chile, San Joaquín campus. Nonetheless, the applicant is expected to work with all researchers of the project.

Evaluation criteria:
Applicants will be evaluated and selected by the Project PIs following the criteria below:

- Thematic affinity with the project goals and requirements: 30%

- Number and quality of scientific publications in the last five years (since 2017): 30%
  An extra year will be considered per child for all candidates with children born during this time frame. Please include proof of birth in the application.
- Letters of interest and recommendation: 15%
- Personal interview: 25%

An evaluation rubric including a Likert scale from 1 to 5 will be used for each criterion

Content	**Classification**	**Score**
The applicant fulfills all the requirements in an outstanding way	Excellent	5
The applicant complies very well although minimal improvements are required	Very good	4
The applicant meet a good standard but some improvements are required	Good	3
The applicant generally meets the requirements, but there are significant deficiencies	Regular	2
The applicant does not adequately fulfills the Requirements	Deficient	1

Specification notes:

1. Project PIs reserve the right to declare the competition void if applicants do not meet the Project's thematic affinity criteria.
2. Project PIs will prepare a cut-off score, from which applicants will be selected to move on to the interview stage.
3. Project PIs will establish a hierarchical list of applicants and will identify the person selected as first choice, and a waiting list of those who meet the "affinity with the project goals and requirements" according to the score obtained. In the event that the first selected applicant does not accept the offer, the waiting list will run towards the following applicant in the list.

Postdoctoral responsibilities:

i. Full-time dedication to the project
ii. Coordination of undergraduate and graduate students
iii. Design, development, and management of field/lab experiments and fieldwork within rural Chile
iv. Data analysis and manuscript preparation.
v. Publish scientific publications with the project PIs, acknowledging “Proyecto Anillo ATE220055”
vi. Strict confidentiality of unpublished results from the project
vii. Participation in national and international scientific meetings
viii. Participation in outreach activities

ix. Presentation of an annual report of activities

Important dates:

1. Application deadline is December 20th, 2023, 18:00 h (Chilean continental time)
2. Notification of interview for suitable candidates: after January 10th, 2024
3. Online interviews are expected to be January 15-16th
4. Results will be notified after the approval and ratification of the funding agency (Departamento de Iniciativas de Focalización Estratégica ANID) (approximately January 30th, 2024)

To apply please send an email to saleray@uc.cl and mwilliams@bio.puc.cl including:

1) A letter of interest
2) Two recommendation letters, one of the letters should be from the Ph.D. supervisor.
3) Curriculum Vitae and a short description of maximum five papers, explaining how these are relevant to the development of this project
4) Copy of the PhD diploma or certificate
5) Copy of the passport or DNI.

Please use the subject "anillo-SACBAD-application" in your email. Applications must be in English. For more information and for any questions, do not hesitate to contact us at mwilliams@bio.puc.cl or saleray@uc.cl.