

STATISTICAL/NUMERICAL MODELER FOR GEOSCIENCE APPLICATIONS

The **Center for Advanced Studies in Arid Zones**, located in La Serena and Coquimbo - Chile is a scientific consortium, founded in 2003, which is dedicated to studying the impact of climatic and oceanographic variability on the hydrological cycle and biological productivity in the arid zones of Northern-Central Chile.

CEAZA is searching for a full-time **STATISTICAL/NUMERICAL MODELER FOR GEOSCIENCE APPLICATIONS**.

The modeler should be able to configure, validate and optimize in conjunction with researchers, different numerical and statistical models used for operational and research purposes.

Specific tasks:

As well as other tasks to be defined, the modeler will be capable of:

1. Undertaking a validation and correction of forecasts generated by operational regional models (atmospheric model WRF and oceanic model ROMS) using data from a network of meteorological stations, in-situ oceanic data and satellite measurements. This validation will then be implemented as an automated system to enable the model to be used as a modeling tool with a known error limit.
2. Implementing and supporting the generation of statistical models to understand the future variability of climatic variables based on existing data series. For example, discharge forecasting based on snow distribution and/or rainfall, or rain forecasting based on global climate indices.

Required competencies:

- Demonstrated experience with use of atmospheric and/or oceanic regional numerical models (preferably with WRF & ROMS) and their evaluation/validation based on observations.
- Demonstrated experience with statistical tools and methods such as: forecast verification statistics, time series analysis (multivariable regressions, Markov chains), multivariate analysis (PCA, SVD), parameter estimation and hypothesis testing (confidence intervals), Monte-Carlo method.
- Advanced experience with LINUX including shell scripting and with at least one programming language (e.g. Fortran, Matlab, R, Python or other).
- HPC experience.
- Knowledge of climate data formats (e.g. NETCDF or GRIB).

Desired competencies:

- MSc in Atmospheric Sciences or Earth Sciences (e.g. climatology, meteorology, geophysics).
- Experience in scientific research.
- The generation of predictive statistical models using time series data.

- The use of a diverse range of models with different users, for example: atmospheric models, ocean models, biogeochemical models, hydrological models, glaciological models, and irrigation models.
- Experience with climate gridded and in-situ/station-based datasets.
- Use of remote sensing tools and products.
- Use of meteorological (or other) sensors and software.
- Group and project management.
- Ability to take initiatives, prioritize the tasks and work under set deadlines
- *Desirable*: Have at least a basic level of Spanish (communicative skills) at the time of taking the position.

Practical details:

- The position is available from September 15th, 2020 (or afterwards upon agreement).
- The position is permanent, subject to yearly positive evaluation.
- The application can be submitted in English or Spanish, and should contain:
 - A Curriculum Vitae.
 - A declaration of interest, including a short strategy statement for undertaking the WRF model validation.
 - Certificates and other relevant documents that confirm University qualifications and/or other relevant information.
 - Two letters of recommendation.

The successful applicant will work as part of the Geosciences group at CEAZA. More information about CEAZA and ongoing projects can be found at <http://www.ceaza.cl>. Do not hesitate to contact Dr. Katerina Goubanova (katerina.goubanova@ceaza.cl) for additional details.

Applications should be sent to Dr. Carlos Olavarría, CEAZA Executive Director to (ofertas.laborales@ceaza.cl) before **August 31st, 2020**.

Selection process

- CEAZA reserves the right to select the applicants that it deems most suitable or not select any of the candidates.
- Applicants who join this selection process agree to undertake all evaluation instruments that are deemed appropriate to verify their competencies and experience, including interviews and psychological tests.
- CEAZA will notify in writing the result of their application to all candidates, including the successful candidate, who must confirm in writing their acceptance of the offer of the position.