Lucas Rivero Iribarne

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EXPERIENCE

GIS Data Analyst - FONDECYT regular 1212071 **Santiago, Chile**

2021– 2022

"The catchment memory: understanding how hydrological extremes are modulated by antecedent soil moisture conditions in a warmer climate"
PI: PhD. Mauricio Zambrano Bigiarini

- Developing a methodology to assimilate leaf area index data retrieved from remote sensing into Soil Water Assesmente Tool model (SWAT+) to improve streamflow and evapotranspiration simulations and reduce equifinality of the model
- Calibration of SWAT+ model to simulate water flow and hidrological processes at catchment level
- Lead, plan and coordinate field campaigns to retrieve data from rain gauges and soil moisture sensors installed into four Chilean watersheds
- Writting scripts to process field data to useful information and visualization
- Writting webscrapping scripts to gather meteorological time series data from national systems
- Writting scripts to download evapotranspiration (PML) and soil moisture (SMAP and SMOS) products over entire Chile

Research assistant - FONDECYT regular 1210932 **Santiago, Chile**

2021

"Improving forest water yield and productivity quantification at the catchment scale by mapping root depth and eco-physiological thresholds with remote sensing and water transfer modeling"
PI: PhD. MSc. Mauricio Galleguillos Torres

- Writting scripts to pre and postprocess sap flow data recovered from in situ sensors
- Train a research assistant to continue in the incoming years of the project

Assistant - PCI CONICYT Chile, NSFC190018 **Santiago, Chile**

2021

"Management of global change impacts on hydrological extremes by coupling remote sensing data and an interdisciplinary modelling approach"
PI: PhD. Mauricio Zambrano Bigiarini

- Plan, coordinate and lead field campaigns to install rain gauges into four Chilean watersheds
- Rain gauges calibration
- Selection of best (and practical) installation site for rain gauges regarding project objectives

Research assistant - FONDECYT regular 1171560 **Santiago, Chile**

2019–2021

"Assessing spatio-temporal impacts of global change on water and biomass production processes at catchment scale: a synergistic approach based on remote sensing and coupled hydrological models to improve sustainable management of forest ecosystems"
PI: PhD. MSc. Mauricio Galleguillos Torres

- Plan, coordinate and lead field campaigns to measure variables of ecosystems and soil, plant and atmosphere continuum as soil physical samples, soil moisture, tree core samples, sap flow measurements, leaf area index, biomass and meteorological data.
- Biophysical variable as leaf area index, radiation interception, vegetation cover estimation from remote sensing data and calibration with in situ measured data.
- Computing Time Integrated NDVI (TIN) fitting curves over vegetation indices retrieved from remote sensing data to describe different ecosystems in the region as *Acacia caven* shrublands, *pinus radiata* pine trees plantations and *Nothofagus glauca* native forest.
- Project data base manager. GIS data, time series and spreadsheets.
- Calibration and field installation of scientific instrumental as rain gauges, soil moisture probes, sap flow sensors.
- Writing informatic scripts to preprocess, postprocess, visualize and do analysis over retrieved data.

Intern - Chile Oliva **Santiago, Chile**

2019

"Olive oil yield prediction model, based on easily measurable agronomic and environmental variables, to increase the competitiveness and efficiency of the industry"
Olive Oil Producers Association

- Field measuring of olive trees yield predictor variables as tree height, branch length, number of fruits per branch and tree volume.
- Writing R scripts to visualize meteorological data of meteorological stations near studied orchards.

Peer-Reviewed Journal Articles

2021

- Fassnacht, F. E., Poblete-Olivares, J., **Rivero, L.**, Lopatin, J., Ceballos-Comisso, A., Galleguillos, M. Using Sentinel-2 and canopy height models to derive a landscape-level biomass map covering multiple vegetation types. *International Journal of Applied Earth Observation and Geoinformation, 94*, 102236.

EDUCATION

Wageningen University and Research (WUR) — **Wageningen, Netherlands**
Master in Geo-information science — *September 2022 –present*

Centre d´Etudes Spatiales de la Biosphère (CESBIO) — **Online**
ONLINE Summer School — *July 2021*
Remote sensing observations for the monitoring of water and carbon cycles over eco-agro-systems
- Practical sessions on drought monitoring from space and evapotranspiration retrieval from space

Pontificia Universidad Católica de Valparaiso — **Online**
Web Mapping Course, Grade 6.9/7.0 — *December 2020*
Spatial analysis and web-mapping introduction with google earth engine and R Shiny
- R: developing an RShiny app to show Recycling points in Valparaiso showing which materials they accept
- Google Earth Engine: Time series analysis, supervised and unsupervised classifications

Universidad de Chile — **Santiago, Chile**
Agricultural engineering, Grade: 6.6/7.0 — *2014–2020*
Thesis: Mapping of crop coefficient (Kc) from remote sensing information in avocado in mediterranean Chile
- Relevant Courses: Edaphology, agroclimatology, soil physics, ecosystems ecology, remote sensing, advanced GIS, agricultural systems, soil-water-plant relations, precision farming
- Teacher assistant: Irrigation and drainage and precision farming

SKILLS

Languages: Spanish (Native), English (IELTS score: 7.0. 2022)

Software: QGIS, ArcGIS, GRASS GIS, Google Earth Engine, SNAP, RStudio, R, HYDRUS 1D, SWAT+

Other: LaTeX, Excel