Sofia Ingersoll

/soF-AYA Ing-er-saul/

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EDUCATION

Master of Environmental Data Science| *June 2024* |Bren School of Environmental Science & Management, UCSB

Leadership: Class Co-Chair; Dean's Advisory Committee, Representative; BSLC, Representative

Bachelor of Science in Chemistry | *June 2023* | Earl Warren College, University of California, San Diego

Certification: American Chemical Society (ACS) Certification

A.S. in Mathematics, Physics, Chemistry, & Natural Sciences | *May 2021* | Moorpark College, Moorpark, CA

Leadership: Women in Engineering, Mathematics, & Science, Treasurer (2020–2021); Delta Alpha Pi International Honors Society, Member (2019-2021)

HIGHLIGHTED PROJECTS

S. Ingersoll, G. Shen, T. Simonich, N. Trux, *"*Los Angeles County Ecological Conservation: Mapping and Identifying the Health of Urban Oak Trees in Los Angeles County*." NASA DEVELOP, Analytical Mechanics Associates, NASA Jet Propulsion Laboratory, California Institute of Technology*. August 2025. Public Education Material | Presentation | Poster

S. Ingersoll, S. Derrick, S. Kannan, D. Tate. "San Bernardino Wildland Fires: Assessing the Conditions of Pre-Fire and Post-Fire Vegetation in San Bernardino California with NASA Earth Observations" *NASA DEVELOP, Analytical Mechanics Associates, NASA Jet Propulsion Laboratory, California Institute of Technology*. April 2025. Technical Report | Presentation | Public Education Material for Tabling Events

S. Ingersoll. "Investigation on the Thomas Fire Impacts in Santa Barbara County, CA (2017 - 2018)." *Bren School of Environmental Science & Management, UCSB*. November 2023. Blog | GitHub

RELEVANT SKILLS

Analytical & Technical: Quantitative and qualitative data analysis, geospatial analysis, data visualizations, machine learning, forecasting, policy evaluation, raster, vector, and tabular data, lab safety protocols, projections, data collection, accuracy and validation testing, CEQA, NEPA, database management, web applications, statistics, quantifying landscape changes, science communication, multivariate regression analysis, field sampling, GHG emission calculations, carbon accounting, unknown sample identification, spectrometry, chromatography, spectroscopy

Languages & Software: R, Python, SQL, Git/Bash, JS, HTML, CSS, SCSS, GitHub, Version Control, Microsoft Office, ESRI, ArcGIS Pro, ArcGIS Online, QGIS, ENVI, Google Earth Engine, APIs, R Shiny App, Shiny for Python, Panel, Qualtrics, Docker, Survey123, HPC, ChemDraw, MolBase

PROFESSIONAL EXPERIENCE

Project Lead & GIS Specialist (1/25–8/25)

NASA DEVELOP Analytical Mechanics Associates @ Jet Propulsion Laboratory

Projects: ***San Bernardino Wildland Fires Project; Los Angeles County Ecological Conservation Project***

Partners: *Los Angeles County Department of Internal Services; Los Angeles County Fire Department; USDA, Wildland Fire Management R&D; USDA, San Bernardino National Forest; San Bernardino Municipal Water District; SUSB, Institute for Watershed Resiliency; CSUN, Center for Geospatial Science & Technology*

- Analyzed, quantified, synthesized, and communicated findings for Earth observation satellite, LiDAR, and SAR data to inform land management decisions and evaluate previous intervention efforts. Established feasible project scope which highlighted milestones and defined QA/QC practices.

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- Acted as the primary point of contact when communicating with stakeholders. Maintained stakeholder relations, produced high quality science communication materials such as weekly reports, technical papers, posters, presentations, data archives, metadata, cartographic and statistical visualizations.
- Conducted an ordinary least squares time-series regression analysis to compare the case study wildfire and prescribed burn using composite raster images. A significant relationship (**p < 0.05) for the median enhanced vegetation index over time was found for both fire-types. Analysis provided leading insights to support the local use of prescribed fires to protect urban development from the spread of wildfires.
- Identified potential goldspotted oak borer (GSOB) infestations and supplied LA County with detailed oak extent, predictive risk, and health maps using a combination of ArcGIS Pro, Google Earth Engine (GEE), Python, and ENVI. Validated delineated predicted health metrics with Survey123 field data.
- Developed a combined linear model that considers a wide set of natural indices (normalized difference moisture index, normalized difference vegetation index, enhanced vegetation index, evaporative stress index, evaporative stress index, and solar induced fluorescence) to assist our partners in assessing current oak woodland health conditions.

Environmental Data Scientist (10/23–9/24)
The 2035 Initiative, UCSB
Projects: *California Climate Action: CA Electrification Equitable Grid Modeling Project; SEC 10-K Oil Company Disclosure Web Scraping Project; Internal SOPs for Remote Sensing Surveying Methods Project; Global Climate Adaptation Observatory Project; Climatic Conversations: On the Beliefs and Motivations of the Public and Politicians on Climate Policy, Data Science Capstone*

- Supported a myriad of projects with interdisciplinary teams, compiled and analyzed datasets, developed remote surveying methods, negotiated data collection, usage, and sharing contracts.
- Developed novel remote surveying methods, statistically interpreted qualitative and quantitative data, created interactive and informative data visualizations, conducted literature reviews, trouble-shot, and optimized workflows.

Master's Capstone Lead Data Engineer & Communications Manager (1/24–6/24)
National Center for Atmospheric Research - Climate & Global Dynamics Lab
Project: *Understanding the Influence of Parameter Value Uncertainty on Climate Model Output: Developing an Interactive Dashboard*
Blog | Data Repository | Technical Documentation

- Applied dimensional reductions; spatiotemporal manipulations; Bayesian machine learning analysis; sensitivity, accuracy, and validation testing. Developed palatable analogies to explain the science methodology to a broad audience and alleviate information gaps.
- Designed data modeling and archival workflows to visualize predictions from a 10TB database of NetCDF files using high-performance computing (HPC).

Environmental Data Analyst (12/22–6/23)
UC San Diego, Dept of Chemistry & Biochemistry, **The Slade Lab**
Project: *Measuring Airborne Toxics and Determining Oceanic Relationships (MATADOR) Project*

- Produced weekly reports using local meteorological and hydrological data to evaluate local climate impacts on public health, analyzed marine sample contaminants related to plastic, stormwater, and wastewater. Standardized various data sources and created various preliminary data visualizations.