

Alana K. Ayasse

Carbon Mapper
University of Arizona

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Education

- 2021 University of California, Santa Barbara (UCSB)
PhD Geography
Dissertation title: "Sensitivity Analysis for Methane Mapping with Airborne and Satellite Imaging Spectrometers"
- 2013 University of California, Los Angeles (UCLA)
BA Geography/Environmental Studies and GIS

Publications

- 2023 Gorchov Negron AM, Kort EA, Chen Y, Brandt AR, Smith ML, Plant G, **Ayasse AK**, Schwietzke S, Zavala-Araiza D, Hausman C, Adames-Corraliza ÁF. Excess methane emissions from shallow water platforms elevate the carbon intensity of US Gulf of Mexico oil and gas production. *Proceedings of the National Academy of Sciences*. 120(15), p.e2215275120.
- 2023 Thorpe AK, Kort EA, Cusworth DH, **Ayasse AK**, Bue B, Yadav V, Thompson D, Frankenberg C, Herner J, Falk M. Methane emissions decline from reduced oil, natural gas, and refinery production during COVID-19. *Environmental Research Communications*.
- 2022 **Ayasse AK**, Thorpe A, Cusworth D, Kort EA, Gorchov Negron A, Heckler J, Asner G, Duren R. 2022. Methane remote sensing and emission quantification of offshore shallow water oil and gas platforms in the Gulf of Mexico. *Environmental Research Letters*.
- 2022 Cusworth D, Thorpe A, **Ayasse AK**, Stepp D, Heckler J, Asner G, Miller CE, Chapman J, Eastwood M, Green RO, Hmiel B, Lyon D, Duren R. 2022 Strong methane point sources contribute a disproportionate fraction of total emissions across multiple basins in the US. *Proceedings of the National Academy of Sciences*.
- 2020 Kumar S, Torres C, **Ayasse AK**, Roberts DA, Manjunath BS. 2020. Deep Learning Remote Sensing Methods for Methane Detection in Overhead Hyperspectral Imagery. *IEEE Winter Conference on Applications of Computer Vision*. pp. 1776-1785.
- 2019 **Ayasse AK**, Dennison PE, Foote M, Thorpe AK, Roberts DA, Green RO, Thompson D. 2019. Remote Sensing of Point Source Methane Emissions with Future Satellite Sensors. *Remote Sensing*. 11(24), 3054.

- 2018 **Ayasse AK**, Thorpe AK, Roberts DA, Funk CC, Dennison PE, Frankenberg C, Steffke A, Aubrey AD. 2018. Evaluating the effects of surface properties on methane retrievals using a synthetic airborne visible/infrared imaging spectrometer next generation (AVIRIS-NG) image. *Remote Sensing of Environment*. 215: 386-397.

Invited Talks

- 2022 **Ayasse AK**, Methane Plume Mapping Over Shallow Water Offshore Oil and Natural Gas Platforms in the Gulf of Mexico, AGU Fall meeting
- 2022 **Ayasse AK**, Methane Plume Mapping Over Shallow Water Offshore Oil and Natural Gas Platforms in the Gulf of Mexico, Northern Arizona University

Research Experience

- 2021– 2023 **Research Scientist, University of Arizona**
Analyzed carbon (CH₄ and CO₂) emission with airborne imaging spectrometer. Developed and implemented glint mode for offshore mapping of carbon emissions. Lead carbon mapping performance analysis for the Carbon Mapper mission.
- 2015 – 2020 **Graduate Student Researcher, UCSB**
Received a JPL Subcontract to test the sensitivity of methane detection with AVIRIS-NG and to explore the potential for satellite mapping of methane with future space borne imaging spectrometers.
- 2015 – 2019 **Field Assistant, UCSB**
Identified plant species at Coal Oil Point and Sedgwick Ranch Reserves, measured the temperature of plants using a FLIR thermal camera, recorded plant spectra with an ASD handheld Spectrometer.
- Fall 2013 **Research Assistant/Field Observer, UCLA**
Conducted field-testing in major intersections in Los Angeles to measure the effects of urban form and traffic on pedestrian exposure to air pollution.
- Summer 2013 **Field Assistant, UCLA/Botswana**
Constructed and installed meteorological towers and equipment in the Southern Kalahari Desert to measure climate and dust emissions.

Professional Experience

- 2021– current **Research Scientist, Carbon Mapper**
Supported mission operations, Research, and data system design and implementation for the Carbon Mapper mission.

2017- 2019 **Graduate Student Board Member, UCSB Coastal Fund**
 Review and award grants (\$1000- \$30,000) to local non-profits, students, and faculty who work to protect, enhance, understand, and restore the UCSB coastal environment.

Teaching Experience

Winter 2020 **Teaching Associate, UCSB**
 Geography: Remote Sensing of the Environment 2

2017-2020 **Teaching Assistant, UCSB**
 Geography: Remote Sensing of the Environment 1
 Geography: Remote Sensing of the Environment 2
 Geography: Environmental Optics
 Geography: Physical Oceanography

Summer 2018 **Mentor, NASA Student Airborne Research Program (SARP)**
 Terrestrial Remote Sensing Group

Achievements and Awards

2014 Eugene Cota-Robles Fellowship

Service

2017-2020 Faculty Search Committee Graduate Student Representative
 2015 – 2020 Women in Geographical Science
 2016 – 2018 Graduate Student Faculty Representative
 Fall 2015 Graduate Student Curriculum Committee

Professional Membership

2013- Present American Geophysical Union

Technical Skills

Programming IDL, MATLAB, R, Python

Software ENVI, ArcGIS, QGIS, MODTRAN 6