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Opportunity Title: USDA-ARS Multi-Sensor Remote Sensing of Evapotranspiration
Opportunity Reference Code: USDA-ARS-NEA-2025-0012

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-NEA-2025-0012

How to Apply ***To submit your application, scroll to the bottom of this opportunity and click APPLY.***

A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Click here for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations

All documents must be in English or include an official English translation.

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Application Deadline 3/14/2025 3:00:00 PM Eastern Time Zone

Description ***Applications are reviewed on a rolling-basis.**

ARS Office/Lab and Location: A research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), at the Hydrology and Remote Sensing Laboratory (HRSL). The participant will be located in Davis, California, but may travel to Beltsville, Maryland for group meetings.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision of the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: The Hydrology and Remote Sensing Laboratory (HRSL) at the USDA Agricultural Research Service (ARS) in Beltsville, Maryland is seeking a post-doctoral fellow to investigate agricultural remote sensing applications using high spatiotemporal resolution thermal infrared imagery acquired by the recently launched Hydrosat constellation. This project involves integrating Hydrosat land-surface temperature products into an existing surface energy balance modeling system to retrieve

evapotranspiration (ET). Additionally, the potential for integrating Hydrosat and Landsat ET timeseries will be evaluated over flux sites in California's Central Valley and other agricultural regions. The goal is to assess the utility of Hydrosat's increased temporal sampling for a variety of agricultural applications, including water management and accounting in croplands, yield prediction, and drought impact assessment.

Learning Objectives: Under guidance of a mentor the fellow will learn to utilize software packages developed by ARS scientists to generate biophysical remote sensing timeseries using Google Earth Engine (GEE) and other analysis toolkits. They will gain experience with the new OpenET platform (etdata.org) on GEE and explore machine learning techniques. Additionally, the fellow will have the opportunity to interact and collaborate with a broad group of national and international experts, engage in field research, and publish research findings with USDA-ARS scientists. Given the project's focus on remote sensing applications over flux sites in California, the selected candidate will be stationed at the USDA-ARS Sustainable Agricultural Water Systems (SAWS) Unit in Davis, California.

Mentor(s): The mentors for this opportunity are Martha Anderson (martha.anderson@usda.gov), Kyle Knipper (Kyle.Knipper@usda.gov), and William Kustas (bill.kustas@usda.gov). If you have questions about the nature of the research, please contact the mentors.

Anticipated Appointment Start Date: April 1, 2025. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for two years, but may be renewed upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience.

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the Guidelines for Non-U.S. Citizens Details page of the program website for information about the valid immigration statuses that are acceptable for program participation. Foreign national candidates may have a mandatory in-person requirement depending on visa status.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained

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through ORISE.

Questions: Please visit our Program Website. After reading, if you have additional questions about the application process, please email ORISE.ARS.Northeast@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should be currently pursuing or have received a doctoral degree in the one of the relevant fields, degree anticipated to be received by appointment start date.

Preferred skills:

- A robust educational background related to remote sensing
- Strong mathematical and computing skills
- Knowledge of soils, vegetation water use and crop development
- Strong programming expertise analyzing large images using Python, C, Fortran, R, IDL/Matlab or similar computing language
- Familiarity with the Google Earth Engine programming environment

Point of Contact

Janeen

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (3 👁)
  - **Earth and Geosciences** (3 👁)
  - **Engineering** (1 👁)
  - **Environmental and Marine Sciences** (4 👁)
  - **Life Health and Medical Sciences** (7 👁)
  - **Mathematics and Statistics** (1 👁)

Affirmation

I affirm that:

I am a US Citizen, OR;
I am a non-US citizen currently living in the United States