

Opportunity Title: USDA-ARS Postdoctoral Fellowship in Crop Modeling for Climate Resiliency for Rice

Opportunity Reference Code: USDA-ARS-2022-0285

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2022-0285

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

Application Deadline 10/17/2022 3:00:00 PM Eastern Time Zone

Description *Applications may be reviewed on a rolling-basis.



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ARS Office/Lab and Location: A research opportunity is available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS) in the Adaptive Cropping Systems Laboratory (ACSL) at USDA-ARS Beltsville Agricultural Research Center (BARC), located in Beltsville, Maryland.

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 Adaptive Cropping Systems Laboratory (ACSL) at USDA-ARS Beltsville Agricultural Research Center (BARC), Beltsville, Maryland conducts modeling and experimental research focused on quantifying response of crops and soils to abiotic factors including climate and management inputs. We develop, validate, and apply mathematical models to study topics ranging from climate impacts and adaptation strategies on crop production, land suitability, food security, on-farm resource management, and other agricultural system challenges. We are seeking a crop modeler to contribute research on the development, improvement, and application of an existing rice crop model for studies involving identification of climate resiliency strategies, water management,

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and ideal phenotypic trait assessments for U.S. production systems. The participant will collaborate with a research team to identify current knowledge gaps and collect and analyze existing data sources, modify model computer source code to integrate with an existing soils model and more accurately simulate water and heat stress effects on rice, and conduct model application studies to identify and evaluate climate adaptation strategies for rice management under current and future climate conditions in the U.S. and other rice growing regions using geospatial methods. Novel modeling approaches, including gene-based approaches for predicting plant growth and development, can also be explored.

Learning Objectives: The participant will be integrated with an established multi-disciplinary team with international expertise in crop and soil modeling, and learn about climate change impacts on agriculture, crop and soil responses to genetic, environment, and management inputs, and how to model and study such responses. The participant will develop new skills in areas of computer programming, model development and application, geospatial studies and a broader understanding of agricultural systems challenges.

<u>Mentor(s)</u>: The mentor for this opportunity is David Fleisher (<u>david.fleisher@usda.gov</u>). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: October 3, 2022. Start date is flexible and will depend on a variety of factors.

<u>Appointment Length</u>: 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.

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

<u>citizenship Requirements</u>: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the <u>Guidelines for Non-U.S. Citizens Details</u> page of the program website for information about the valid immigration statuses that are acceptable for program participation.

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 through ORISE.

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

Qualifications The qualified candidate should be currently pursuing or have received a doctoral degree in one of



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the relevant fields.

Preferred Skills:

- Proficiency with high level programming languages such as FORTRAN, C++, PYTHON, or R
- Demonstrated experience in crop or mathematical model development and application
- Familiarity with principles of agronomy, crop science, soil science, or related field is beneficial
- Working knowledge of geographic information systems (GIS) is also beneficial
- Eligibility Degree: Doctoral Degree.
- Requirements
 - Overall GPA: 3.00Discipline(s):

 - Earth and Geosciences (<u>1</u>
 - Engineering (1_))

 - Life Health and Medical Sciences (8.)