MS Graduate Research Assistantship

Applications are solicited for a Graduate Research Assistant (GRA) position in the Department of Soil, Water and Climate at the University of Minnesota. The selected candidate will pursue M.S. degree in Land and Atmospheric Science (LAAS) with a focus on irrigation engineering and nitrogen management. The candidate will be advised by Dr. Vasudha Sharma and will start in this position in June 2019. The assistantship will consist of an annual stipend and will support tuition and health insurance.

Research Description:

With increasing environmental issues related to irrigated agriculture in Minnesota, there is a pressing need to develop efficient irrigation management strategies that results in reduced deep percolation, energy savings and improved crop production. With advancements in technology, such as Internet of Things (IoT), wireless communication and decreasing cost of sensors, there is a great potential that the sensor technology can be used for efficient irrigation management that will save water, time and money and at the same time improve crop production.

The objectives of this project are to: (1) evaluate the performance of different sensor technologies using their manufacturer calibrations to estimate volumetric water content; (2) develop a best management practice for managing irrigation for corn based on volumetric soil moisture sensor; (3) evaluate the impact of soil moisture based and climate based irrigation water management strategies on corn yield and nitrate leaching and (4) develop guidelines for selecting trigger point for irrigation initiation using electric resistance sensors (watermark sensors) in coarse-textured soils.

Qualifications:

The applicant must have B.S degrees in agriculture engineering, agronomy, soil science, crop science, environmental science, water resources or a similar field. Prior experience related to irrigation is preferred. Funding after the first year is subject to satisfactory progress. Strong technical and analytical skills are desired, along with the ability to carry out field research using advanced instrumentation. The field research will require the candidate to make frequent trips to field sites. Preference will be given to candidates with an excellent academic performance record and oral and written communication skills.

The student is encouraged to publish findings in peer-reviewed scientific journals. Opportunities exist for presenting results in professional meetings and participating in scholarly activities relevant to the training needs and career goals of the candidate. The successful candidate will be located in University of Minnesota, Twin cities campus. Additional information about Department of Soil, Water and Climate can be found at: https://www.swac.umn.edu/

Application:

If you are interested, please send your resume or CV to Vasudha Sharma (vasudha@umn.edu) and apply online at https://www.laas.umn.edu/prospective-students/grad-admissions