SAHILA BEEGUM
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Education/Research

Program	Institution	Specialization/Details	Year
Post Doc.	University of Nebraska Lincoln	Soil-Plant Atmospheric Continuum Modeling	2022
Ph.D.	IIT Madras	Hydraulics & Water Resources Engineering	2019
Researcher	Helmholtz AGRC, Julich, Germany	DAAD-IGCS Visiting Researcher- Simulation modeling of soil processes	2018
Researcher	University of California, Riverside, USA	Fulbright Visiting Researcher- Simulation modeling of soil processes	2016-2017
M-Tech	Kerala University	Hydraulics Engineering	2013
B-Tech	CUSAT University	Civil Engineering	2011

Professional positions

Position/title	Institution	Year
Research Assistant Professor	University of Nebraska Lincoln (UNL), USA	2023-Present
Courtesy Research Assistant Professor	Department of Biological Systems Engineering, UNL, USA	2024 oct-present
Visiting Agricultural Engineer	USDA-ARS, Beltsville, MD, USA	2020-Present
Post-doctoral Research Associate	University of Nebraska Lincoln, USA	2020- 2023
Senior Research Associate	IIT Madras, India	2019-2020
DAAD-IGCS Visiting Researcher	Helmholtz AGRC, Julich, Germany	2018
Fulbright Visiting Researcher	University of California, Riverside, USA	2016-2017
Teaching Assistant	IIT Madras, India	2015-2018
Research Project Associate	IIT Madras, India	2013
Teaching Assistant	Kerala University, India	2011-2013
Project Associate	CWRDM, India	2011

Awards and honors

Award	Details	Year
Fulbright fellowship	Visiting researcher at the University of California Riverside, USA	2016-2017
DAAD-IGCS fellowship	Visiting researcher Forschungszentrum Jülich, Helmholtz Association of German Research Centres, Jülich, Germany	2018

Berkner fellowship	Funding received for travel and presentation at the American Geophysical Union's (AGU) 2014 Science, Policy Conference, Washington, DC, USA	2014
HRD scholarship	Scholarship for carrying out Ph.D. at IIT Madras, India	2014-2018
Best presentaion award	National Conference on Emerging Technologies, Kerala University, India	2013
First rank holder	M Tech, Kerala University, India	2014
MCM scholarship	Scholarship for carrying out M-Tech, KU, India	2011-2013
Second rank holder	B-Tech, CUSAT University	2013

Grants

- USGS 104b, Managing irrigated cropping systems for drought resilience and vadose zone nitrate control: Field evaluation and modeling; amount awarded: $30,000 (awarded)
- USGS 104g, Water Resources Research Act Program national competitive grants, Physics-based crop, soil, and groundwater modeling to study groundwater contamination in agricultural regions, $288,030 (awarded)
- USDA-UNL Non-assistance Cooperative Agreement Project investigator, On-farm crop and soil model application $624,000 (awarded)
- USDA-AFRI, Redefining agricultural return on investment, $561,387 (submitted)
- USDA-NIFA, Developing dynamic and spatial-temporal soil moisture maps to improve irrigation management $627,887 (submitted)

Professional societal associations

Details	Since
American Society of Agricultural and Biological Engineers (ASABE)	2017, 2023-Present
American Geophysical Union (AGU)	2014, 2021-Present
American Society of Agronomy (ASA)	Since 2021
Soil Science Society of America (SSSA)	Since 2021
AASIO: The Association of Agricultural Scientists of Indian Origin	2023-Present

Leadership and service activities

Mentor for WARI fellow	2025
Mentoring a visiting scholar, University of Nebraska Lincoln, USA	2023
Mentored a Master's student at IIT Madras, India	2015
Peer reviewer (25 manuscripts)	2017-2023
Delivered invited lectures at multiple organizations.	
Coordinated SWAT international conference, IIT Madras, India	2018
Section chair International Conference ICITES, India	2021
Technical committee member ICITES conference, CUSAT, India	2021
External member in the advisory committee for TIST, CUSAT, India	2021-2022
Volunteered for San Diego Foodbank Food for Thought, San Diego, USA	2017
Volunteered to be a mentor in the ASA-CSSA-SSSA Mentorship Program	2022
Volunteered to evaluate Gerald O. Mott Award nominee (external member)	2022
Co-developed three simulation models and made available for public use	2018, 2023

Heliyon Soil Science journal-Cell Press, Advisory board member	2024
Frontiers in Agronomy, Review editor	2023
Frontiers in Soil Science, Review editor	2023
Nature Scientific report, guest editor	2023
Nature Scientific report, Editorial board member	2023

Other recognitions

A research work I co-authored was selected as a spotlight in the Water Resource Research Journal and published in EOS research news (Modeling Mulch to Understand Agricultural Soil).

A simulation model (unsaturated-saturated soil zone model) that I developed during my Ph.D. is currently being taken up by a research group at the University of California, Riverside, to extend to a large watershed scale, including hillslope processes. (software webpage)

A novel fiber quality simulation model developed (in collaboration with USDA-ARS and Mississippi State University, Mississippi State) and integrated into a process-based crop model was recognized in USDA-ARS highlights and several news media.

Research Accomplishments

Publications	**39**
Peer-reviewed journal articles	35
Book chapters	4
Presentations in conference	**30**
Volunteered presentations	27
Invited presentations	3
Academic profile (based on Google Scholar)	
Citations	**286**
h-index	10
i-10- index	11
Professional contributions	
Three Soil-Crop-Atmospheric Continuum-related software/source codes were co-developed and added to publicly available platforms	3
Invited talks	**7**

Journal publications

1. **Beegum S.,** Muhammad A.H, Reddy K.R., Assessing fiber quality variability among modern upland cotton cultivars and integrating it into the GOSSYM-based fiber quality simulation model. Journal of Cotton Research (accepted 2025)

2. Wang, Z., Timlin, D., Thapa, R., Fleisher, D., **Beegum, S**., Han, E., Schomberg, H., Mirsky, S., Sun, W., Reddy, V. and Horton, R., (2025). Process-based vegetative growth model for cereal rye winter cover crop using object-oriented programming and linked-list data structure. Computers and Electronics in Agriculture, 231, p.109964.

3. **Beegum, S.,** Reddy, K. R., Ambinakudige, S., & Reddy, V. (2024). Planting for perfection: How to maximize cotton fiber quality with the right planting dates in the face of climate change. Field Crops Research, 315, 109483. https://doi.org/10.1016/j.fcr.2024.109483

4. **Beegum, S**., Reddy, K. R., & Reddy, V. (2024). Algorithm for estimating cultivar-specific parameters in crop models for newer crop cultivars. European Journal of Agronomy, 160, 127308. https://doi.org/10.1016/j.eja.2024.127308

5. **Beegum, S.,** Hassan, M. A., Ramamoorthy, P., Bheemanahalli, R., Reddy, K. N., Reddy, V., & Reddy, K. R. (2024). Hyperspectral Reflectance-Based High Throughput Phenotyping to Assess Water-Use Efficiency in Cotton. Agriculture, 14(7), 1054.https://www.mdpi.com/2077-0472/1 4/7/1054

6. **Beegum, S.,** Hassan, M.A., Reddy, K.N., Reddy, V. and Reddy, K.R., (2024). Assessing Fiber Quality Variability Among Modern Cotton Cultivars and Integrating it into the GOSSYM-based Fiber Quality Simulation Model. https://www.researchsquare.com/article/rs-5198065/v1

7. Mitra, A., **Beegum, S**., Fleisher, D., Reddy, V. R., Sun, W., Ray, C., ... & Malakar, A. (2024). Cotton Yield Prediction: A Machine Learning Approach with Field and Synthetic Data. IEEE Access. https://ieeexplore.ieee.org/abstract/document/10568958

8. Sun, W., Fleisher, D., Timlin, D., Ray, C., Wang, Z., **Beegum, S**., & Reddy, V. (2024). Simulating climate change effects on soil carbon dynamics in a soybean–maize ecosystem: Using improved CO2 emission and transport models. European Journal of Agronomy, 159, 127226. https://www.sciencedirect.com/science/article/pii/S1161030124001473

9. Wang, Z., Timlin, D., Liu, G., Fleisher, D., Sun, W., **Beegum, S**., ... & Horton, R. (2024). Coupled heat and water transfer in heterogeneous and deformable soils: Numerical model using mixed finite element method. Journal of Hydrology, 131068.

10. Jahangeer, J., Yadav, B. K., & **Beegum, S**. (2024). Modeling of Nitrate Transport in the Vadose Zone by Considering the Mobile–Immobile Approach Using a Sand Tank Experiment. Journal of Hazardous, Toxic, and Radioactive Waste, 28(1), 04023038.

11. Nandgude, S., **Beegum, S.,** Timlin, D., Ray, C., Sharda, V., Wang, Z., Fleisher, D., Reddy, V., Modeling Maize Crop Growth and Development in Temperate and Tropical Climates using Process-Based Model-MAIZSIM (in review)

12. Wang Z., Timlin, D., Fleisher, D., Hua, S., Kojima, Y, Lu, S., Sun, W., **Beegum, S.,**Reddy, V., Tully, K., Horton, R., Using a Transformer Network to Determine Soil Water Content along a Time Domain Reflectometry Sensor, Computers and Electronics in Agriculture (in review)

13. Wang, Z., Timlin, D., Liu, G., Fleisher, D., Sun, W., **Beegum, S**., Heitman, J., Ren, T., Chen, Y., Reddy, V.R. and Tully, K., (2024). Coupled heat and water transfer in heterogeneous and deformable soils: Numerical model using mixed finite element method. Journal of Hydrology, 634, p.131068.

14. **Beegum, S,** Walne, C. H., Reddy, K. N., Reddy, V. R., Reddy, K. R. (2023). Examining the corn seedling emergence -temperature relationship for recent hybrids: Insights from experimental studies. Plants. 12, 3699. https://doi.org/10.3390/plants12213699

15. **Beegum, S**., Reddy, V., & Reddy, K. R. (2023). Modeling Algorithms in Estimating Cultivar-

Specific Parameters in Crop Models for Newer Crop Cultivars. Computers and Electronics in Agriculture. In review, October 12, 2023.

16. **Beegum, S**., Reddy, V., & Reddy, K. R. (2023). Development of a cotton fiber quality simulation module and its incorporation into cotton crop growth and development model: GOSSYM. Computers and Electronics in Agriculture, 212, 108080. https://doi.org/10.1016/j.compag.2023.108080

17. **Beegum, S**., Sun, W., Timlin, D., Wang, Z., Fleisher, D., Reddy, V. R., & Ray, C. (2023). Incorporation of carbon dioxide production and transport module into a Soil-Plant-Atmosphere continuum model. Geoderma, 437, 116586. https://doi.org/10.1016/j.geoderma.2023.116586

18. Sun, W., Fleisher, D., Timlin, D., Ray, C., Wang, Z., **Beegum, S**, & Reddy, V. (2023). Does drought stress eliminate the benefit of elevated CO2 on soybean yield? Using an improved model to link crop and soil water relations. Agricultural and Forest Meteorology, 343, 109747. https://doi.org/10.1016/j.agrformet.2023.109747

19. **Beegum, S**., Truong, V., Bheemanahalli, R., Brand, D., Reddy, V., & Reddy, K. R. (2023). Developing functional relationships between waterlogging and cotton growth and physiology-towards waterlogging modeling. Frontiers in Plant Science, 14. https://doi.org/10.3389/fpls.2023.1174682

20. Sun, W., Fleisher, D., Timlin, D., Ray, C., Wang, Z., **Beegum, S**., & Reddy, V. (2023). Projected long-term climate trends reveal the critical role of vapor pressure deficit for soybean yields in the US Midwest. Science of The Total Environment, 878, 162960. https://doi.org/10.1016/j.scitotenv.2023.162960

21. Timlin, D., Fleisher, D., Tokay, M., Paff, K., Sun, W., **Beegum, S**., Li, S., Wang, Z., & Reddy, V. (2023). CLASSIM: A Relational Database Driven Crop Model Interface. Smart Agricultural Technology, 100281, https://doi.org/10.1016/j.atech.2023.100281

22. **Beegum, S**., Timlin, D., Reddy, K. R., Reddy, V., Sun, W., Wang, Z., ... & Ray, C. (2023). Improving the cotton simulation model, GOSSYM, for soil, photosynthesis, and transpiration processes. Scientific Reports, 13(1), 7314 https://doi.org/10.1038/s41598-023-34378-3 .

23. **Beegum, S.,** Malakar, A., Ray, C., & Snow, D. D. (2023). Importance of snowmelt on soil nitrate leaching to groundwater–A model study. Journal of Contaminant Hydrology, 255, 104163. https://doi.org/10.1016/j.jconhyd.2023.104163

24. Sun, W., Fleisher, D., Timlin, D., Li, S., Wang, Z., **Beegum**, S., & Reddy, V. (2022). Evaluation of models for simulating soybean growth and climate sensitivity in the US Mississippi Delta. European Journal of Agronomy, 140, 126610. https://doi.org/10.1016/j.eja.2022.126610

25. Wang, Z., Timlin, D., Fleisher, D., Sun, W., **Beegum**, S., Li, S., Chen, Y., Reddy, V. R., Tully, K., & Horton, R. (2022). Modeling vapor transfer in soil water and heat simulations: A modularized, partially-coupled approach. Journal of Hydrology, 608, 127541. https://doi.org/10.1016/j.jhydrol.2022.127541

26. Jahangeer, J., Yadav, B. K., **Beegum**, S., (2023) Modeling of nitrate transport in the vadose

zone by considering the mobile-immobile approach using sand tank experiment, Journal of Hazardous, Toxic, and Radioactive Waste (manuscpirt accepted and in production)

27. Mwabumba, M., Jahangeer, J., **Beegum**, S., Yadav, B. K., & Rwiza, M. J. (2022). Assessment of Groundwater Quality under Changing Climate in Ngorongoro Conservation Area, Tanzania. Journal of Irrigation and Drainage Engineering, 148(10), 04022032. https://doi.org/10.1061/(ASCE)IR.1943-4774.0001702

28. **Beegum**, S., Jainet, P. J., Emil, D., Sudheer, K. P., & Das, S. (2022). Integrated Simulation Modeling Approach for Investigating Pore Water Pressure Induced Landslides. Preprint (Version 1) available at Research Square https://dx.doi.org/10.21203/rs.3.rs-1186263/v1 (submitted)

29. Jeyalakshmi, S., & **Beegum**, S. (2022). Climate change impacts on agriculture-dominated Canadian watersheds. Sustainability, Agri, Food and Environmental Research, 10.

30. Jeyalakshmi, S., & **Beegum**, S. (2022). Scenario analysis of fluoride contamination in the groundwater in Kerala. Sustainability, Agri, Food and Environmental Research, 10(1).

31. Wang, Z., Thapa, R., Timlin, D., Li, S., Sun, W., **Beegum**, S., Fleisher, D., Mirsky, S., Cabrera, M., & Sauer, T. (2021). Simulations of Water and Thermal Dynamics for Soil Surfaces With Residue Mulch and Surface Runoff. Water Resources Research, 57(11), e2021WR030431. https://doi.org/10.1029/2021WR030431

32. **Beegum**, S., Vanderborght, J., Šimůnek, J., Herbst, M., Sudheer, K. P., & Nambi, I. M. (2020). Investigating atrazine concentrations in the Zwischenscholle aquifer using MODFLOW with the HYDRUS-1D package and MT3DMS. Water, 12(4), 1019. https://doi.org/10.3390/w12041019

33. **Beegum**, S., Šimůnek, J., Szymkiewicz, A., Sudheer, K. P., & Nambi, I. M. (2019). Implementation of Solute Transport in the Vadose Zone into the "HYDRUS Package for MODFLOW." Groundwater, 57(3), 392–408. https://doi.org/10.1111/gwat.12815

34. **Beegum**, S., Šimůnek, J., Szymkiewicz, A., Sudheer, K. P., & Nambi, I. M. (2018). Updating the Coupling Algorithm between HYDRUS and MODFLOW in the HYDRUS Package for MODFLOW. Vadose Zone Journal, 17(1), 1–8. https://doi.org/10.2136/vzj2018.02.0034

35. Szymkiewicz, A., Gumuła-Kawęcka, A., Šimůnek, J., Leterme, B., **Beegum**, S., Jaworska-Szulc, B., Pruszkowska-Caceres, M., Gorczewska-Langner, W., Angulo-Jaramillo, R., & Jacques, D. (2018). Simulations of freshwater lens recharge and salt/freshwater interfaces using the HYDRUS and SWI2 packages for MODFLOW. Journal of Hydrology and Hydromechanics, 66(2), 246–256. https://doi.org/10.2478/johh-2018-0005

Book chapters

36. Fleisher, D., Wang, Z., Timlin, D., Sun, W., **Beegum, S**., Mitra, A., Li, S., & Reddy, V. USDA_ARS ACSL crop models, a book chapter for a Francis Dodd published book (2024, in review)

37. **Beegum**, S., & Das, S. (2022). 17—Nanosensors in agriculture. In S. Ghosh, S. Thongmee,

& A. Kumar, (Eds.), Agricultural Nanobiotechnology (pp. 465–478). Woodhead Publishing. https://doi.org/10.1016/B978-0-323-91908-1.00012-2

38. Das, S., & **Beegum**, S. (2022). 13—Nanofertilizers for sustainable agriculture. In S. Ghosh, S. Thongmee, &A. Kumar (Eds.), Agricultural Nanobiotechnology (pp. 355–370). Woodhead Publishing. https://doi.org/10.1016/B978-0-323-91908-1.00005-5

39. Sudheer, K. P., Thomas, J., Jainet, P.J., Nizar, S., **Beegum, S.,** Emil, D., Jesna., Pai, D. S. (2022) From science to policy- towards an approach linking extreme rainfall events to climate resilience and policy development, accepted for publication in the Elsevier book series: Modeling and Mitigation Measures for Managing Extreme Hydrometeorological Events Under a Warming Climate https://doi.org/10.1016/B978-0-443-18640-0.00015-8

Presentations at conferences

1. **Beegum, S**., Reddy K.R., Reddy V.R., Ambinakudige S., Timlin, D., Fleisher, D., Yeşilköy, S. (2024). Planting for perfection: How to maximize cotton fiber quality with the right planting dates in the face of climate change. AGU Meeting, Dec. 9 to 13, Washington, DC

2. **Beegum, S**., Nandgude S., Timlin, D., Ray, C., Sharda V., Wang, Z., Fleisher, D., Reddy, V. R. (2024). Modeling maize crop growth and development in temperate and tropical climates using process-based model - MAIZSIM: A comparative analysis with emphasis on drought and excess precipitation, AGU Meeting, Dec. 9 to 13, Washington, DC

3. Fleisher, D., Yeşilköy, S., B**eegum, S**., Wang, Z., Timlin, D. (2024). Simulating Climate Adaptation and Water Saving Potential with Alternate Wetting and Drying Cycles for U.S. Rice Production. AGU Meeting, Dec. 9 to 13, Washington, DC

4. Timlin, D., **Beegum, S**., Kathimbo A., Wang, Z., Rudnick D., Proctor C., Nakbuye H.N., Fleisher, D., Ray, C., Malakar A., Reddy, V. R. (2024). The Use of a Crop Simulation Model to Explore Water and Nitrogen Use Scenarios to Minimize Nitrogen Transport in Irrigated Maize in Nebraska. AGU Meeting, Dec. 9 to 13, Washington, DC

5. Rahman A T M, Šimůnek J., Bradford S.A., Ajami H, Meles M. B., Chen L., Adam Szymkiewicz A., Pawlowicz M., Casillas A., and **Beegum S,** (2024). An Innovative Multi-Model Coupling Strategy for Simulating Watershed-Scale Surface and Subsurface Flow Interactions. AGU Meeting, Dec. 9 to 13, Washington, DC

6. **Beegum, S**., Timlin, D., Kathimbo A., Wang, Z., Rudnick D., Proctor C., Nakbuye H.N., Fleisher, D., Ray, C., Malakar A., Reddy, V. R. (2024), Process-Based Crop Models Have a Useful Role in Agricultural Field Trials, CANVAS, Nov. 10 to 13, San Antonio, Texas

7. **Beegum, S**., Reddy K.R., Reddy V.R., Ambinakudige S., (2024), Planting for Perfection: How to Maximize Cotton Quality with the Right Planting Dates in the Face of Climate Change, CANVAS, Nov. 10 to 13, San Antonio, Texas

8. Fleisher, D., Yeşilköy S., Timlin D., **Beegum S.,** Mitra A, Wang Z., Malakar A., Bethi S.K., Han E., Reddy V.R., Ndayishimiye E., Ray C., Dushimeyesu J., and Ukwishaka Y., (2024) Integrating on-farm Crop Production Data with In-Season Risk Management Decision Support Software, AGU Meeting, Nov. 9 to 13, Washington, DC

9. **Beegum, S**., Sun, W., Timlin, D., Wang, Z., Fleisher, D., Reddy, V. R., & Ray, C. (2023). Incorporation of Carbon Dioxide Production and Transport Module into a Soil-Plant Atmospheric Continuum Model. ASA, CSSA, SSSA International Annual Meeting, Oct 29 to Nov 1, St. Louis, MO

10. Timlin, D., **Beegum, S.,** Sun, W., Wang, Z., Fleisher, D. H., Fleisher, D. H., Reddy, V., & Ray, C. (2023) Simulation of Carbon Dioxide Production and Transport Module with a Soil-Plant-Atmosphere Continuum Model [Abstract]. ASA, CSSA, SSSA International Annual Meeting, St. Louis, MO. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/152260

11. Nandgude, S., Shelar, R., Ray, C., **Beegum, S.,** & Malakar, A. (2023) Influence of Conservation Measures on Soil and Carbon Sequestration in Watershed [Abstract]. ASA, CSSA, SSSA International Annual Meeting, St. Louis, MO. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/151327

12. Wang, Z., Timlin, D., Thapa, R., Fleisher, D. H., Sun, W., **Beegum, S**., Lu, Y., Mirsky, S. B., Reberg-Horton, C., Zhang, X., Reddy, V., Horton, R., Tully, K., & Tully, K. (2023) Modeling the Dynamics of the Cover Crop Growth and Residue Decomposition in a Cereal Rye-Residue Mulch Management Strategy during Winter Fallow Periods. [Abstract]. ASA, CSSA, SSSA International Annual Meeting, St. Louis, MO. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/152278

13. **Beegum, S.,** Timlin, D., Reddy, K. R., Reddy, V., Fleisher, D. H., & Ray, C. (2023) Advancing the Gossym Model for Improved Simulation of Soil, Photosynthesis, and Transpiration Processes in Cotton [Abstract]. ASA, CSSA, SSSA International Annual Meeting, St. Louis, MO. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/148876

14. Brand, D., **Beegum, S.,** Truong, V., Bheemanahalli, R., Reddy, V., & Reddy, K. R. (2023) Establishing Functional Relationships between Waterlogging and Cotton Growth and Physiology: Advancing Waterlogging Modeling [Abstract]. ASA, CSSA, SSSA International Annual Meeting, St. Louis, MO. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/150909

15. **Beegum, S.,** Reddy, V. R., & Reddy, K. R. (2023) Estimating Cultivar-Specific Parameters in Crop Models for Newer Crop Cultivars [Abstract]. ASA, CSSA, SSSA International Annual Meeting, St. Louis, MO. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/155430

16. **Beegum, S.,** Reddy, K. R., & Reddy, V. (2023) Improving Cotton Crop Management through a Novel Fiber Quality Module Integrated into Cotton Simulation Model, Gossym. [Abstract]. ASA, CSSA, SSSA International Annual Meeting, St. Louis, MO. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/148874

17. Sun, W., Fleisher, D. H., Timlin, D., Ray, C., **Beegum, S.,** Wang, Z., & Reddy, V. (2023) Simulating Climate Change Effects on Soil Carbon Dynamics in a Soybean–Maize Ecosystem: Using Improved CO2 Emission and Transport Models [Abstract]. ASA, CSSA, SSSA International Annual Meeting, St. Louis, MO. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/151634

18. **Beegum, S.,** Timlin, D., Ray, C., Reddy, V. R. (2023). Model Development for Simulating Soil Carbon Dioxide Production, Transport, and Soil Respiration in Agricultural Regions, AGU Meeting, Dec. 9 to 15, SanFransisco, CA

19. Nandgude S., Shelar R., Mane S., **Beegum, S.,** Ray, C., (2023). Harnessing Soil and Water Conservation for Carbon Sequestration: Insights from a Rainfed Watershed in India, AGU Meeting, Dec. 9 to 15, SanFransisco, CA

20. Mitra A., **Beegum S.,** Fleisher D., Reddy VR, Sun W., Ray C., Timlin D., and Malakar A., (2023) A Novel Machine Learning Approach for Cotton Yield Prediction. AGU Meeting, Dec. 9 to 15, SanFransisco, CA

21. **Beegum, S.,** Ray, C., Timlin, D., Reddy, V. R., (2023) Model Development for Simulating Soil Carbon Dioxide Production, Transport, and Soil Respiration in Agricultural Regions. AGU Meeting, Dec. 9 to 15, SanFransisco, CA

22. **Beegum**, S., Timlin, D., Fleisher, D. H., & Reddy, V. (2021). Integration of a Farquhar Photosynthesis Model, a Leaf Level Energy Balance Model, and 2DSOIL, a Finite Element Model for Soil Processes, into the Cotton Simulation Model Gossym. ASA, CSSA, SSSA International Annual Meeting, Nov. 7 to 10, Salt Lake City, Utah

23. Sun, W., Fleisher, D. H., Timlin, D., Li, S., Wang, Z., **Beegum**, S., Reddy, V. R., & Ray, C. (2021). Inter-Comparison of Different Crop Models for Simulating Soybean Growth and Yield in the US Mississippi Delta. ASA, CSSA, SSSA International Annual Meeting, Nov. 7 to 10, Salt Lake City, Utah

24. **Beegum**, S., Vanderborght, J., Herbst, M., & Šimůnek, J. (2019). Simulation of the long-term evolution of pesticide concentrations in the Zwischenscholle aquifer using the coupled soil-groundwater model MODFLOW-HYDRUS-MT3DMS, XVI Symposium on Pesticide Chemistry.Advances in Risk Assessment and Management", Sept. 3, Piacenza, Italy.

25. **Beegum**, S., Sudheer K. P, Nambi, I. M., & Berlin M. (2018). Investigating Strategies for Safe Reuse of Treated Textile Wastewater for Irrigation: A Comprehensive Study. Global Water Security Conference for Agriculture and Natural Resources, ASABE Global Initiative Conference, Indian Society of Agricultural Engineers (ISAE), October 3-6, Hyderabad, India.

26. **Beegum**, S., Sudheer K. P., & Nambi, I. M. (2018). Implementation of Solute Transport in the Vadose Zone into the 'HYDRUS Package for MODFLOW.' International Soil and Water Assessment Tool Conference, January 10-12, Chennai, India.

27. Šimůnek, J., **Beegum**, S., Sudheer, K. P., Szymkiewicz, A., & Nambi, I. M. (2017). Implementation of Solute Transport in the Vadose Zone into the 'HYDRUS Package for MODFLOW' 2017 AGU Fall Meeting, Dec. 13, New Orleans, USA.

28. **Beegum**, S., Sudheer, K. P., Šimůnek, J., Szymkiewicz, A., & Nambi, I. M. (2017). Integration of Solute Transport and Water Flow Model for Unsaturated and Saturated Soil Zone. Proceedings of the Annual International Meeting of ASABE, July 16-19, Spokane, Washington, USA.

29. **Beegum**, S., Sudheer, K.P, Nambi, I. M., Šimůnek, J., & Szymkiewicz, A. (2017). Integration of Solute Transport and Water Flow Models for Unsaturated and Saturated Soil Zones using

the HYDRUS Package for MODFLOW and MT3DMS. Proceedings of the MODFLOW and More 2017 Conference, May 21 - 24, Integrated Groundwater Modelling Centre, Colorado School of Mines, Colorado, USA.

30. **Beegum**, S., & Suja, R. (2014). Urban stormwater flood mitigation-A requirement in India. American Geophysical Union's (AGU), Science Policy Conference, Jun. 16-Jun. 18, Washington, DC, USA.

Invited talks

1. **Sahila Beegum**. 2018. Integrated water flow and solute transport modeling in unsaturated and saturated soil zones, Faculty and Staff, and students, Gdansk University of Technology, Gdansk, Poland.

2. **Sahila Beegum.** 2018. Updates in HYDRUS package for MODFLOW, Faculty and Staffs, The Katholieke Universiteit Leuven, Belgium.

3. **Sahila Beegum**. 2018. Water smart cities-challenges and opportunities in Kerala. International conference by Translational Research and Professional Leadership Centre, TPLC, in association with IIT Madras, India.

4. **Sahila Beegum** 2024. Advancing Sustainable Agriculture through Process-Based Crop Modeling in the Era of Climate Change, ICAR-National Rice Research Institute, Odisha, India

5. **Sahila Beegum** 2024. Advancing Sustainable Agriculture through Process-Based Crop Modeling in the Era of Climate Change, 6th International Conference on Agriculture for Sustainable Development, ICAR-National Rice Research Institute, Odisha, India

6. **Sahila Beegum** 2024, Measuring and Modeling of Evapotranspiration, invited lecture to Master's and PhD students at Mississippi State University for the Agricultural Climatology Course

7. **Sahila Beegum** 2024, Evapotranspiration: concepts, applications, and modeling in relation to agricultural Irrigation water requirements. Asian Institute of Technology, Thailand.