

## Sushil Kumar Himanshu, Ph.D.

Assistant Professor, Department of Food, Agriculture, and Bioresources

School of Environment, Resources, and Development

Asian Institute of Technology (AIT) Bangkok, Thailand

Phone: +(66) 2524-5480 (Off.); +(66) 097-295-6188 (Mob.)

Email: [sushil-kumar@ait.ac.th](mailto:sushil-kumar@ait.ac.th); [sushilkumarhimanhsu@gmail.com](mailto:sushilkumarhimanhsu@gmail.com)

### EDUCATION

---

**Ph.D. (Water Resources Development & Management)** July 2013 – December 2017

Indian Institute of Technology (<https://www.iitr.ac.in/>), Roorkee, India

Dissertation: Evaluation of Satellite-Based Precipitation Estimates for Hydrological Modelling

**M. Tech. (Hydrology)** July 2010 – June 2012

Indian Institute of Technology (<https://www.iitr.ac.in/>), Roorkee, India

Overall Grade: First Class, CGPA 8.15/10.00

Thesis: Hydrological Reappraisal for Vishnugad-Pipalkoti Hydro-Electric Project

**B. Tech. (Agricultural Engineering)** July 2006 – June 2010

Sam Higginbottom University of Agriculture, Technology and Sciences (<https://shuats.edu.in/>), Prayagraj, India

Overall Grade: First Class, CGPA 9.60/10.00

Thesis: Development of Software for Heat Load Calculations in Cold Storage Using Visual Basics

### POSITIONS HELD

---

**Assistant Professor** September 2021–Present

Asian Institute of Technology, Thailand

Teach graduate-level courses at Agricultural Systems and Engineering Academic Program; supervise Master and Doctoral students as a Chair/Co-Chair/Committee Member; conduct research and outreach activities

**Post-Doctoral Research Associate** September 2018–August 2021

Texas A&M AgriLife Research, Texas A&M University System

(<https://vernon.tamu.edu/>), Vernon, Texas, USA

Conducted research on evaluation and development of strategies for enhancing irrigation water-use efficiency and crop water productivity using ground- and UAV-based measurement platforms and modeling; provided mentorship and hands-on training on crop simulation modeling to Master and Doctoral students

**Research Scientist** December 2017–August 2018

National Remote Sensing Center, Indian Space Research Organization

(<https://www.isro.gov.in/>), Hyderabad, India

Conducted research on the operationalization of national-level hydrological modeling framework for in-season hydrological water balance components at daily/weekly/fortnightly time steps

**Assistant Professor** July 2012–July 2013

Graphic Era University (<https://www.geu.ac.in/>), Dehradun, India

Taught undergraduate-level courses at the Department of Civil Engineering; supervised undergraduate students as a Chair/Co-Chair/Committee Member; conducted research and outreach activities

## SPECIAL HONORS AND AWARDS

---

- Distinguished Alumni** April 2022  
Invited as 'Distinguished Alumni' to deliver a talk on 'Career Planning for Post-graduate Researchers' organized by the Department of Water Resources Development & Management, Indian Institute of Technology Roorkee, India [13 April 2022]
- Outstanding Reviewer Award** June 2020  
American Society of Agricultural and Biological Engineers (ASABE) for the year 2019-2020
- Best Water Resources Student Award-2018** March 2019  
For outstanding Ph.D. research work, jointly by the Indian Water Resources Society (IWRS) and Indian Institute of Technology Roorkee, India
- Recognized Reviewer** 2018  
Agricultural Water Management, Elsevier B.V., Amsterdam, The Netherlands
- International Scholar** July 2018  
For a research proposal on 'Planning and Development of Climate Resilient Water Sensitive Urban Designs: A Case Study of Hyderabad Metropolitan City' under 'Scheme for Promotion of Academic and Research Collaboration (SPARC), Govt. of India'
- International Travel Award** June 2017  
For presenting my Ph.D. research work at EWRI, ASCE Conference-2017, Sacramento, USA by 'Science and Engineering Research Board, Govt. of India'
- Bergen Summer Research School-2016 Award** June 2016  
For attending the course on 'Modelling the complexities of water, climate, and society' at the University of Bergen, Norway, under the campaign 'Water, Climate and Society'
- Alumni Funded: Foreign Travel Grant** June 2015  
For presenting research work at the International Conference on Structural, Architectural and Civil Engineering, Dubai, UAE by 'The Alumni Association, Indian Institute of Technology Roorkee, India'
- Ministry of Human Resource Development (MHRD) Fellowship** 2013-2017  
To pursue a Ph.D. at the Department of Water Resources Development & Management, Indian Institute of Technology Roorkee, India
- Councillor and Member, Student Affairs Council, Indian Institute of Technology Roorkee, India** 2011-2012 & 2014-2015  
Elected and represented the Coordinating Committee of Hostels and Student Affairs Council
- Ministry of Human Resource Development (MHRD) Fellowship** 2010-2012  
To pursue M. Tech. at the Department of Hydrology, Indian Institute of Technology Roorkee, India
- National Talent Scholarship** 2006-2010  
For pursuing B. Tech. (Agricultural Engineering) at the SHUATS, Prayagraj, by the 'Indian Council of Agricultural Research (ICAR)'
- Vice Chancellor's Certificate of Merit** 2010  
For securing 6<sup>th</sup> rank in the undergraduate course at SHUATS, Prayagraj, India

**PARTICIPATION IN WORKSHOPS, SHORT COURSES, ETC.**

---

1-2 August 2022 Duration: 2 Day  
**Workshop on ‘Implementation of Participative Teaching Methods and Digital Tools in Higher Education Teaching’**

Organized under the INCREASE project (Erasmus Plus- EU funded) by AIT, Thailand

18 February 2022 Duration: 1 Day  
**Natural Farming & Water Conservation**

35th Water Talk, organized by the Dept. of Water Resources, River Development and Ganga Rejuvenation, Govt. of India

10-18 July 2021 Duration: 9 Days  
**Workshop on ‘Python’**

Organized by the Society of Young Agriculture and Hydrology Scholars of India (SYAHI)

15 January 2021 Duration: 1 Day  
**Efficient Use of Water in Agriculture for Water Security**

21st Water Talk, organized by the Dept. of Water Resources, River Development and Ganga Rejuvenation, Govt. of India

1 February 2019 Duration: 1 Day  
**Workshop on ‘Flood Management under Changing climate’**

Organized by the Indian Water Resources Society, India

26-27 November 2016 Duration: 2 Days  
**Workshop on ‘Challenges in Irrigation Management for Food Security’**

Organized by the Indian Water Resources Society, India

13-24 June 2016 Duration: 2 Weeks  
**Summer School on ‘Water, Climate and Society’**

Organized by the University of Bergen, Norway

27 February 2015 Duration: 1 Day  
**Workshop on ‘Use of Web of Science for research’**

Organized by the Indian Institute of Technology Roorkee, India

9 December 2013 Duration: 1 Day  
**Workshop on ‘Water Use Efficiency’**

Organized by the Indian Water Resources Society, India

29 October 2012- 2 November 2012 Duration: 5 Days  
**Workshop on ‘Advanced soft computing techniques in Hydrology and its applications’**

Organized by the National Institute of Hydrology and Indian Association of Hydrologists

7-8 September 2009 Duration: 2 Days  
**Workshop on ‘Water Quality Research to evaluate the effects of Agricultural Practices utilized in the United States and India’**

Organized by the SHUATS, Prayagraj in association with the United States Department of Agriculture (USDA)

## RESEARCH INTERESTS

---

- Precision Farming
- Climate Resilient Agriculture Systems
- Regenerative Agricultural Practices
- On-farm Irrigation Water Management
- Remote Sensing and GIS Applications in Agriculture
- Applications of Unmanned Aerial Systems (UAS) and IoT in Agriculture
- Big Data Analysis and Applications
- Machine Learning Applications in Agriculture
- Hydrologic/Cropping System Modelling

## RESEARCH PUBLICATIONS

---

([Google Scholar citations](#): 1119; h-index: 19; i10-index: 21 as of October 2, 2023)

([Scopus citations](#): 671; total documents: 50; h-index: 13 as of October 2, 2023)

### I. Books and Monographs

- 1) Gupta PK, Yadav B, **Himanshu SK**. (2021). *Advances in Remediation Techniques for Polluted Soils and Groundwater*. Elsevier, Amsterdam, Netherlands. ISBN: 9780128238448. (<https://doi.org/10.1016/C2020-0-00651-1>)
- 2) Gupta S, **Himanshu SK**, Gupta PK. (2023). *Advances in Agri-Tech Approaches for Nutrients and Irrigation Water Management*. CRC Press, Taylor and Francis Group, Boca Raton, FL. In Press.

### II. Refereed Journal Articles

#### **Published**

#### **2023**

- 1) **Himanshu SK**, Ale S, Bell J, Fan Y, Samanta S, Bordovsky J, Gitz D, Brauer D. (2023). Evaluation of growth-stage-based variable deficit irrigation strategies for cotton production in the Texas High Plains. *Agricultural Water Management*, 280, 108222. Publisher: Elsevier [[Impact Factor: 6.7](#)]
- 2) **Himanshu SK\***, Pandey A, Madolli M, Palmate S, Kumar A, Patidar N, Yadav B. (2023). An ensemble hydrologic modeling system for runoff and evapotranspiration evaluation over an agricultural watershed. *Journal of the Indian Society of Remote Sensing*, 51(1), 177-196. Publisher: Springer [[Impact Factor: 2.5](#)]
- 3) **Himanshu SK\***, Pandey, A, Karki K, Pandey RP, Palmate SS, Datta, A. (2023). Assessing the applicability of Variable Infiltration Capacity (VIC) Model and Remote Sensing Products for Water Balance Study of a River Basin. *Journal of the Indian Society of Remote Sensing*. In press, Publisher: Springer [[Impact Factor: 2.5](#)]
- 4) Boote KJ, Hoogenboom G, Ale S, Adams C, Shrestha R, Mvuyekure RF, **Himanshu SK**, Grover K, Angadi S. (2023). Adapting the CROPGRO model to simulate growth and production of guar, *Cyamopsis*

---

\* Corresponding author

- tetragonoloba* L, an industrial legume crop. *Industrial Crops and Products*, 197, 116596. Publisher: Elsevier [Impact Factor: 5.9]
- 5) Ullah H, Ahmed SF, Santiago-Arenas R, **Himanshu SK**, Mansour E, Cha-um S, Datta A. (2023). Tolerance mechanism and management concepts of iron toxicity in rice: A critical review. *Advances in Agronomy*, 177, 215-257. Publisher: Elsevier [Impact Factor: 9.265]
  - 6) Praseartkul P, Taota K, Pipatsitee P, Tisarum R, Sakulleerungroj K, Sotesaritkul T, **Himanshu SK**, Datta A, Cha-um S. (2023). Unmanned aerial vehicle-based vegetation monitoring of aboveground and belowground traits of the turmeric plant (*Curcuma longa* L.). *International Journal of Environmental Science and Technology*, 20, 8673–8686, <https://doi.org/10.1007/s13762-022-04545-6>. Publisher: Springer [Impact Factor: 3.1]
  - 7) Bawa A, Samanta S, **Himanshu SK**, Kim J, Singh J, Ale S, Chang A, Jung J, DeLaune P, Bordovsky J, Barnes E. (2023). A support vector machine and image processing-based approach for counting cotton bolls and estimating lint yield from UAV imagery. *Smart Agricultural Technology*, 3, 100140. Publisher: Elsevier. [Cite Score: 2.3]
  - 8) Khalequzzaman, Ullah H, Islam N, **Himanshu SK**, Tisarum R, Cha-um S, Datta A. (2023). Seed Priming Improves Germination, Yield, and Water Productivity of Cotton Under Drought Stress. *Journal of Soil Science and Plant Nutrition*, 23(2), 2418–2432, Publisher: Springer [Impact Factor: 3.9]
  - 9) Alam A, Ullah H, **Himanshu SK**, Praseartkul P, Tisarum R, Cha-Um S, Datta A. (2023). Seed Priming and Foliar Application of Salicylic Acid is Equally Beneficial in Mitigating Drought Stress in Cucumber. *Journal of Soil Science and Plant Nutrition*, <https://doi.org/10.1007/s42729-023-01485-z>. Publisher: Springer [Impact Factor: 3.9]
  - 10) Rahman MS, Zulfiqar F, Ullah H, **Himanshu SK**, Datta A. (2023). Farmers' perceptions, determinants of adoption, and impact on food security: Case of climate change adaptation strategies in coastal Bangladesh. *Climate Policy*, <https://doi.org/10.1080/14693062.2023.2212638>. Publisher: Taylor & Francis [Impact Factor: 7.1]
  - 11) Kitayama M, Tisarum R, Samphumphuang T, Cha-um K, Takagaki M, **Himanshu SK**, Cha-um S. (2023). Promotion of mineral contents and antioxidant compounds in water spinach using foliar paclobutrazol and salt elicitors. *Journal of Soil Science and Plant Nutrition*, 23(1), 275-289. Springer [Impact Factor: 3.9]
  - 12) Rahman MS, Zulfiqar F, Ullah H, **Himanshu SK**, Datta A. (2023). Status and drivers of food security in climate-affected coastal areas of Bangladesh: A comparison between the exposed and interior coasts. *International Journal of Sustainable Development & World Ecology*, 30(1), 81-94 Publisher: Taylor & Francis [Impact Factor: 5.6]
  - 13) Islam AT, Ullah H, **Himanshu SK**, Tisarum R, Cha-um S, Datta, A. (2023). The interactive effects of silicon and arbuscular mycorrhizal fungi on growth, physio-biochemical traits, and cob yield of baby corn plants under salt stress. *Silicon*, <https://doi.org/10.1007/s12633-023-02363-0>. Springer [Impact Factor: 3.4]
  - 14) Alam A, Ullah H, **Himanshu SK**, Tisarum R, Cha-Um S, Datta A. (2023). Seed priming enhances germination and morphological, physio-biochemical, and yield traits of cucumber under water-deficit stress. *Journal of Soil Science and Plant Nutrition*, <https://doi.org/10.1007/s42729-023-01314-3>. Publisher: Springer [Impact Factor: 3.9]

- 15) Chakma R, Ullah H, Sonprom J, Biswas A, **Himanshu SK**, Datta A. (2023). Effects of silicon and organic manure on growth, fruit yield, and quality of grape tomato under water-deficit stress. *Silicon*, 15(2), 763-774. Publisher: Springer [Impact Factor: 3.4]
- 16) Dayal D, Pandey A, Gupta PK, **Himanshu SK**. (2023). Multi-criteria evaluation of satellite-based precipitation estimates over agro-climatic zones of India. *Atmospheric Research*, 292, 106879. Publisher: Elsevier [Impact Factor: 5.5]
- 17) Ale S, Su Q, Singh J, **Himanshu SK**, Fan Y, Stoker B, Gonzalez E, Sapkota B, Adams C, Biggers K, Kimura E, Wall J. (2023). Development and Evaluation of a Decision Support Mobile Application for Cotton Irrigation Management. *Smart Agricultural Technology*, 5, 100270. Publisher: Elsevier [Cite Score: 2.3]
- 18) Ahmed SF, Biswas A, Ullah H, **Himanshu SK**, Tisarum R, Cha-um S, Datta A. (2023). Interactive effects of silicon and potassium on photosynthesis and physio-biochemical traits of rice (*Oryza sativa* L.) leaf mesophyll under ferrous iron toxicity. *Plant Stress*. <https://doi.org/10.1016/j.stress.2023.100203>. Publisher: Elsevier [Impact Factor: 5.0]
- 19) Chungloo D, Tisarum R, Sotesaritkul T, Praseartkul P, **Himanshu SK**, Datta A, Cha-um S. (2023). Exogenous foliar application of methyl jasmonate alleviates water-deficit stress in *Andrographis paniculata*. *Journal of Soil Science and Plant Nutrition*, <https://doi.org/10.1007/s42729-023-01414-0>. Publisher: Springer [Impact Factor: 3.9]
- 20) Udupay S, Ullah H, **Himanshu SK**, Tisarum R, Cha-um S, Datta A. (2023). Drought tolerance screening of okra genotypes in relation to growth and physio-biochemical traits at the early seedling stage. *Genetic Resources and Crop Evolution*. <https://doi.org/10.1007/s10722-023-01689-3>. Publisher: Springer [Impact Factor: 2.0]

## 2022

- 21) **Himanshu SK**, Ale S, Singh J, DeLaune P, Barnes E. (2022). Assessing the effects of a winter wheat cover crop on soil water use, cotton yield, and soil organic carbon in no-till cotton production systems. *Transactions of the ASABE*, 65(5): 1163-1177. Publisher: American Society of Agricultural and Biological Engineers [Impact Factor: 1.5]
- 22) Mauguet S, **Himanshu SK**, Goebel TS, Ale S, Payton P, Lewis K, Baumhardt RL. (2022). Modeling management of continuous dryland cotton with an intervening winter wheat cover crop in a semiarid climate. *Frontiers in Sustainable Food Systems*, 6:1043647. Publisher: Elsevier [Impact Factor: 4.7]
- 23) Singh J, Ale S, DeLaune P, **Himanshu SK**, Barnes E. (2022). Modeling the impacts of cover crops and no-tillage on soil health and cotton yield in an irrigated cropping system of the Texas Rolling Plains. *Field Crops Research*, 287, 108661. Publisher: Elsevier [Impact Factor: 5.8]
- 24) Das D, Ullah H, **Himanshu SK**, Tisarum R, Cha-um S, Datta A. (2023). Arbuscular mycorrhizal fungi inoculation and phosphorus application improve growth, physiological traits, and grain yield of rice under alternate wetting and drying irrigation. *Journal of Plant Physiology*, 278, 153829. Publisher: Elsevier [Impact Factor: 4.3]
- 25) Ale S, Su Q, Singh J, **Himanshu SK**, Fan Y, Stoker B, Gonzalez E, Sapkota B, Adams C, Biggers K, Kimura E, Wall J. (2022). A Mobile App for Cotton Irrigation Management. *Resource Magazine: Engineering and Technology for Sustainable World*, 29(4), 6-8. Publisher: American Society of Agricultural and Biological Engineers

- 26) Fan Y, **Himanshu SK**, Ale S, DeLaune PB, Zhang T, Park SC, Colaizzi PD, Evett SR, Baumhardt RL. (2022). The synergy between water conservation and economic profitability of adopting alternative irrigation systems for cotton production in the Texas High Plains. *Agricultural Water Management*, 262, 107386. Publisher: Elsevier [[Impact Factor: 6.7](#)]
- 27) Madolli MJ, **Himanshu SK\***, Patro ER, Michele CD. (2022). Past, present and future perspectives of seasonal prediction of Indian summer monsoon rainfall: a review. *Asia-Pacific Journal of Atmospheric Sciences*, 58, 591–615. Publisher: Springer [[Impact Factor: 2.3](#)]
- 28) Islam, ATMT, Ullah H, **Himanshu SK**, Tisarum R, Cha-um S, and Datta A. (2022). Effect of salicylic acid seed priming on morpho-physiological responses and yield of baby corn under salt stress. *Scientia Horticulturae*, 304, 111304. Publisher: Elsevier [[Impact Factor: 4.3](#)]

## 2021

- 29) **Himanshu SK**, Fan Y, Ale S, Bordovsky J. (2021). Simulated efficient growth-stage-based deficit irrigation strategies for maximizing cotton yield, crop water productivity and net returns. *Agricultural Water Management*, 250, 106840. Publisher: Elsevier [[Impact Factor: 6.7](#)].
- 30) **Himanshu SK**, Ale S, Bordovsky J, Kim J, Samanta S, Omani N, Barnes E. (2021). Assessing the impacts of irrigation termination periods on cotton productivity under strategic deficit irrigation regimes. *Scientific Reports*, 11, 20102. Publisher: Nature [[Impact Factor: 4.6](#)].
- 31) Mauget S, **Himanshu SK**, Goebel T, Ale S, Gitz D, Lascano R. (2021). Soil and soil organic carbon effects on simulated Southern High Plains dryland cotton production. *Soil and Tillage Research*, 212, 105040. Publisher: Elsevier [[Impact Factor: 6.5](#)].
- 32) Ale S, **Himanshu SK**, Mauget S, Hudson D, Goebel T, Liu B, Baumhardt R, Bordovsky J, Brauer D, Lascano R, Gitz, D. (2021). Potential dryland cotton yield increases from management of selected soil properties associated with soil health. *Frontiers in Sustainable Food Systems*, 4, 617509. Publisher: Frontiers [[Impact Factor: 4.7](#)].

## 2020

- 33) Ale S, Omani N, **Himanshu SK**, Bordovsky JP, Thorp KR, Barnes EM. (2020). Determining optimum irrigation termination periods for cotton production in the Texas High Plains. *Transactions of the ASABE*, 63(1), 105-115. Publisher: American Society of Agricultural and Biological Engineers [[Impact Factor: 1.5](#)].
- 34) Yadav B., Gupta PK, Patidar N, **Himanshu SK**. (2020). Ensemble modeling framework for groundwater level prediction in urban areas of India. *Science of the Total Environment*, 712, 135539. Publisher: Elsevier [[Impact Factor: 9.8](#)].

## 2019

- 35) **Himanshu SK\***, Pandey A, Yadav B, Gupta A. (2019). Evaluation of best management practices for sediment and nutrient loss control using SWAT Model. *Soil and Tillage Research*, 192, 42-58. Publisher: Elsevier [[Impact Factor: 6.5](#)].
- 36) **Himanshu SK**, Ale S, Bordovsky JP, Darapuneni M. (2019). Evaluation of crop-growth-stage-based deficit irrigation strategies for cotton production in the Southern High Plains. *Agricultural Water Management*, 225, 105782. Publisher: Elsevier [[Impact Factor: 6.7](#)].
- 37) Kumar A, Mishra S, Pandey R, **Himanshu SK**, Singh S. (2019). Standardized precipitation index-based approach to predict environmental flow conditions. *Ecohydrology*, 12: e2127. Publisher: Wiley-Blackwell [[Impact Factor: 2.6](#)].

**2018**

- 38) **Himanshu SK\***, Pandey A, Patil A. (2018). Hydrologic evaluation of the TMPA-3B42V7 precipitation data set over an agricultural watershed using the SWAT model. *Journal of Hydrologic Engineering*, 23(4), 05018003. Publisher: American Society of Civil Engineers [Impact Factor: 2.4].

**2017**

- 39) **Himanshu SK\***, Pandey A, Yadav B. (2017). Assessing the applicability of TMPA-3B42V7 precipitation dataset in wavelet-support vector machine approach for suspended sediment load prediction. *Journal of Hydrology*, 550, 103–117. Publisher: Elsevier [Impact Factor: 6.4].
- 40) **Himanshu SK\***, Pandey A, Shrestha P. (2017). Application of SWAT in an Indian river basin for modeling runoff, sediment and water balance. *Environmental Earth Sciences*, 76(3), 1-18. Publisher: Springer [Impact Factor: 2.8].
- 41) **Himanshu SK\***, Pandey A, Yadav B. (2017). Ensemble wavelet-support vector machine approach for prediction of suspended sediment load using hydro-meteorological data. *Journal of Hydrologic Engineering*, 22(7), 05017006. Publisher: American Society of Civil Engineers [Impact Factor: 2.4].
- 42) Dhama B, **Himanshu SK\***, Pandey A, Gautam AK. (2017). Evaluation of the SWAT model for water balance study of a mountainous snow-fed river basin of Nepal. *Environmental Earth Sciences*, 77(1), 21. Publisher: Springer [Impact Factor: 2.8].

**2016**

- 43) Pandey A, **Himanshu SK**, Mishra SK, Singh VP. (2016). Physically based soil erosion and sediment yield models revisited. *CATENA*, 147, 595-620. Publisher: Elsevier [Impact Factor: 6.2].

**<2016**

- 44) **Himanshu SK\***, Singh AK, Kumar S, Kalura P. (2013). Response of Broccoli to irrigation scheduling and methods under drip, sprinkler and surface irrigation. *International Journal of Engineering and Advanced Technology*, 2(4), 777-782. Publisher: Blue Eyes Intelligence Engineering and Sciences Publication.
- 45) **Himanshu SK\***, Garg N, Rautela S, Anuja KM, Tiwari M. (2013). Remote sensing and GIS applications in determination of geomorphological parameters and design flood for a Himalayan river basin, India. *International Research Journal of Earth Sciences*, 1(3), 11-15. Publisher: International Science Community Association.
- 46) **Himanshu SK\***, Kumar S, Kumar D, Mokhtar A. (2012). Effects of lateral spacing and irrigation scheduling on drip irrigated cabbage (*brassica oleracea*) in a semi-arid region of India. *Research Journal of Engineering Sciences*, 1(5), 1-6. Publisher: International Science Community Association.
- 47) Kumari P, **Himanshu SK\***. (2016). Estimation of design flood for rivers of Saurashtra region contributing to the Gulf of Khambhat. *Current World Environment*, 11(3), 869-882. Publisher: Enviro Research Publishers
- 48) **Himanshu SK**, Kumar S, Kumar A, Gupta KK. (2012). Energy economics assessment of crops in traditional and mechanized farming. *International Research Journal of Environment Sciences*, 1(5), 2319-1414. Publisher: International Science Community Association.
- 49) Kumar S, **Himanshu SK**, Gupta KK. (2012). Effect of global warming on mankind-a review. *International Research Journal of Environment Sciences*, 1(4), 56-9. Publisher: International Science Community Association.

## Under Review

- 50) **Himanshu SK**, Singh B, Mvuyekurea RFS, Ale S, Bell J, Fan Y, Kothari K, Bordovsky J, Gitz III D, Brauer D. (----). Optimizing growth-stage-based variable deficit irrigation strategies to improve yield and irrigation water use efficiency of grain sorghum. *Agricultural Systems*. Publisher: Elsevier [Impact Factor: 6.6]
- 51) Kanannavar PS, Madolli MJ, **Himanshu SK\***. (----). Assessing the effects of topographical variations on crop yield, soil water and water productivity in rainfed sorghum production systems. *International Journal of Environmental Science and Technology*. Publisher: Springer [Impact Factor: 3.1]
- 52) Phukunkamkaew S, Tisarum R, Samphumphuang T, Sotesaritkul T, Maksup S, **Himanshu SK**, Datta A, Cha-um S. (----). Screening of rice genotypes (*Oryza sativa* L.) for iron and aluminum-stress response using morpho-physiological and biochemical analysis. *Genetic Resources and Crop Evolution*. Publisher: Springer [Impact Factor: 2.0]
- 53) Phukunkamkaew S, Tisarum R, Sotesaritkul S, Samphumphuang T, Maksup S, **Himanshu SK**, Datta A, Cha-um S. (----). Expression levels of metal homeostasis and root developmental related genes, aluminum enrichment, and physio-morphological traits of rice in response to aluminum toxicity. *Acta Physiologiae Plantarum*. Publisher: Springer [Impact Factor: 2.6]
- 54) Rahman A, Farhad Z, Rahman MS, **Himanshu SK**, Shrestha RP, Datta A. (----). Exploring small-scale farmers' agricultural production and adaptation strategies under soil salinity impacts in coastal areas of Bangladesh. *Environmental Development*. Publisher: Elsevier [Impact Factor: 5.4]
- 55) Tisarum R, Theerawitaya C, Praseartkul P, Chungloo D, Ullah H, **Himanshu SK**, Datta A, Cha-umm S. (----). Expression levels of transcription factors and proline biosynthesis-related genes, biochemical and physio-morphological responses of cotton (*Gossypium hirsutum* L.) to water deficit. *Protoplasma*. Publisher: Springer [Impact Factor: 2.9]
- 56) Su Q, Ale S, **Himanshu SK**, Singh J, Singh VP. (----). Calibration and bias correction of the seasonal weather forecasts of the North American Multi-Model Ensemble (NMME) for regional crop modeling and irrigation management. *Agricultural and Forest Meteorology*. Publisher: Elsevier [Impact Factor: 6.2]
- 57) Rahman MS, Zulfiqar F, Ullah H, **Himanshu SK**, Rahman M, Datta A. (----). Does the adoption of homestead gardening increase dietary diversity in climate-vulnerable coastal areas? Evidence from Bangladesh. *Environment, Development and Sustainability*. Publisher: Springer [Impact Factor: 4.9]
- 58) Khalequzzaman, Ullah H, **Himanshu SK**, Tisarum R, Cha-um S, Datta A. (----). Effects of potassium nitrate seed priming on growth, yield, and fiber quality of cotton under drought stress. *South African Journal of Botany*. Publisher: Springer [Impact Factor: 3.1]
- 59) Theerawitaya C, Prasertkul P, Tisarum R, Sotesaritkul T, Saimi K, **Himanshu SK**, Datta A, Cha-um S. (----). Optimal irrigation regime on plant phenotype characteristics, physiological responses based on high-throughput phenotyping and andrographolide profiles of *Andrographis paniculate*. *Irrigation Science*. Publisher: Springer [Impact Factor: 3.0]
- 60) Praseartkul P, Tisarum R, Sotesaritkul T, Taota K, Ullah H, **Himanshu SK**, Datta A, Cha-um, S. (----). Foliar Silicon Application Mitigates Iron Toxicity in Rice Plants by Modulating Morpho-Physiological Traits. *Journal of Soil Science and Plant Nutrition*. Springer [Impact Factor: 3.9]
- 61) Ahmed M, Ullah H, **Himanshu SK**, Tisarum R, Cha-um S, Datta A. (----). Interactive effects of *Ascophyllum nodosum* seaweed extract and potassium on growth, fruit yield and quality, and water

productivity of tomato under drought stress. *Scientia Horticulturae*, 304, 111304. Publisher: Elsevier [Impact Factor: 4.3]

### III. Book Chapters

- 1) Fan Y, **Himanshu SK**. (2022). Farm management practices for water quality improvement: economic risk analysis of winter wheat production in the Southern High Plains. In PK Gupta, B Yadav, SK Himanshu (Eds.), *Advances in Remediation Techniques for Polluted Soils and Groundwater*, pp. 49-66. Elsevier, Amsterdam, Netherland, <https://doi.org/10.1016/B978-0-12-823830-1.00004-3>
- 2) Palmate SS, Amrit K, Jadhao VG, Dayal D, **Himanshu SK**. (2022). Prioritization of erosion-prone areas based on a sediment yield index for conservation treatments: A case study of the upper Tapi River basin. In PK Gupta, B Yadav, SK Himanshu (Eds.), *Advances in Remediation Techniques for Polluted Soils and Groundwater*, pp. 291-307. Elsevier, Amsterdam, Netherland, <https://doi.org/10.1016/B978-0-12-823830-1.00019-5>
- 3) **Himanshu SK**, Pandey A, Dayal D. (2021). Assessment of multiple satellite-based precipitation estimates over Muneru watershed of India. In: A Pandey, SK Mishra, ML Kansal, RD Singh, VP Singh (Eds.), *Water Management and Water Governance*. Water Science and Technology Library, vol 96, pp 61–78, Springer, Cham, [https://doi.org/10.1007/978-3-030-58051-3\\_5](https://doi.org/10.1007/978-3-030-58051-3_5)
- 4) Gupta PK, Yadav B, Kumar A, **Himanshu SK**. (2021). Machine learning and artificial intelligence application in constructed wetlands for industrial effluent treatment: advances and challenges in assessment and bioremediation modeling. In: G Saxena, V Kumar, MP Shah (Eds.), *Bioremediation for Environmental Sustainability*, pp. 403-414, Elsevier, Amsterdam, Netherland, <http://doi.org/10.1016/B978-0-12-820524-2.00016-X>
- 5) Gupta PK, Goel M, **Himanshu SK**. (2021). Understanding hydrocarbon in subsurface: biomonitoring and bioremediation. In: Gupta PK, Bhargava RN (Eds), *Fate and Transport of Subsurface Pollutants: Microorganisms for Sustainability*, vol 24, pp 1–19. Springer, Singapore, [https://doi.org/10.1007/978-981-15-6564-9\\_1](https://doi.org/10.1007/978-981-15-6564-9_1)
- 6) Pandey A, Dayal D, Palmate SS, Mishra SK, **Himanshu SK**, Pandey RP. (2021). Long-term historic changes in temperature and potential evapotranspiration over Betwa river basin. In: A Pandey, SK Mishra, ML Kansal, RD Singh, VP Singh (Eds.), *Climate Impacts on Water Resources in India*. Water Science and Technology Library, vol 95, pp 267–286. Springer, Cham. [https://doi.org/10.1007/978-3-030-51427-3\\_23](https://doi.org/10.1007/978-3-030-51427-3_23)
- 7) Gupta A, **Himanshu SK**, Gupta S, Singh R. (2020). Evaluation of the SWAT model for analyzing the water balance components for the Upper Sabarmati basin. In: R AlKhaddar, RK Singh, S Dutta, M Kumari (Eds.), *Advances in Water Resources Engineering and Management*. Lecture Notes in Civil Engineering, vol 39, pp 141-151, Springer, Singapore, [https://doi.org/10.1007/978-981-13-8181-2\\_11](https://doi.org/10.1007/978-981-13-8181-2_11)
- 8) Gupta S, Gupta A, **Himanshu SK**, Singh R. (2020). Analysis of the extreme rainfall events over upper catchment of Sabarmati River basin in Western India using extreme precipitation indices. In: R AlKhaddar, RK Singh, S Dutta, M Kumari (Eds.), *Advances in Water Resources Engineering and Management*. Lecture Notes in Civil Engineering, vol 39, pp 103-111, Springer, Singapore, [https://doi.org/10.1007/978-981-13-8181-2\\_8](https://doi.org/10.1007/978-981-13-8181-2_8)

#### IV. Papers in Refereed Conference Proceedings

- 1) Ale S, **Himanshu SK**, Samanta S, Singh B, Francis SMR. (2023). Enhancing crop water productivity through crop-growth-stage-based variable deficit irrigation strategies. 25th International Congress of ICD (International Commission on Irrigation and Drainage), Visakhapatnam, India [1-8 November]
- 2) **Himanshu SK**, Ale S, Bordovsky J, Barnes E. (2019). Assessment of deficit irrigation strategies for cotton production in the Texas High Plains. In proceeding of the *Beltwide Cotton Conference-2019*, pp. 536-542, New Orleans, LA, USA [8-10 January]
- 3) Ale S, **Himanshu SK**, Omani N, Bordovsky J, Thorp K, Barnes E. (2019). Determining ideal irrigation termination dates under deficit irrigation strategies. In proceeding of the *Beltwide Cotton Conference-2019*, pp. 552-558, New Orleans, LA, USA [8-10 January]
- 4) **Himanshu SK**, Pandey A, Dayal D. (2018). Evaluation of satellite-based precipitation estimates over an agricultural watershed of India. In proceeding of the *World Environmental and Water Resources Congress 2018: Watershed Management, Irrigation and Drainage, and Water Resources Planning and Management*, American Society of Civil Engineers, pp. 308-320, Minneapolis, Minnesota, USA, <https://doi.org/10.1061/9780784481400.028> [03-07 June]
- 5) Dayal D, Pandey A, **Himanshu SK**, Palmate SS. (2018). Long-term historic changes of precipitation and aridity index over an Indian river basin. In proceeding of the *World Environmental and Water Resources Congress 2018: Groundwater, Sustainability, and Hydro-Climates/Climate Change*, American Society of Civil Engineers, pp. 262-272, Minneapolis, Minnesota, USA, <https://doi.org/10.1061/9780784481417.026> [03-07 June]
- 6) **Himanshu SK**, Pandey A, and Palmate SS. (2015). Derivation of Nash model parameters from geomorphological instantaneous unit hydrograph for a Himalayan River using ASTER DEM. In proceeding of the *International Conference on Structural Architectural and Civil Engineering*, pp. 234-239, Dubai, UAE [21-22 November]

#### V. Papers in Workshops

- 1) **Himanshu SK**, Ale S, Bell J, Mvuyekure R, Samanta S, Singh B, Kpthari K, Fan Y, Bordovsky J, Gitz D, Lascano R, Brauer D. (2023). Simulated efficient growth stage-based variable deficit irrigation strategies for cotton and grain sorghum production. Ogallala Aquifer Workshop, Canyon, TX, USA [4-5 April]
- 2) Ale S, **Himanshu SK**. (2019). Climate Resilient Water Sensitive Urban Design: Concept and Examples. Workshop on Climate Change and Urbanization: Building Resilience in the Urban Water Sector. Osmania University, Hyderabad, India [16-17 December]
- 3) Ale S, **Himanshu SK**. (2019). Climate Change Data Download and Processing. Workshop on Climate Change and Urbanization: Building Resilience in the Urban Water Sector. Osmania University, Hyderabad, India [16-17 December]

#### VI. Abstracts

- 1) Ale S, **Himanshu SK**, Samanta S, Bordovsky J. (2023). Evaluation of Efficient Irrigation Strategies for Cotton Production in the Texas High Plains. *The 57<sup>th</sup> ISAE Annual Convention on Agri-Food Systems' Transformation through Engineering Innovations*, UAS Raichur, Karnataka, India [6-8 November 2023]
- 2) Ale S, **Himanshu SK**, Singh B, Samanta S, Mvuyekure RFS, Kothari K, Bordovsky J. (2023). Simulated Growth-Stage-based Variable Deficit Irrigation Strategies for Increasing Irrigation Water Use

Efficiency of Grain Sorghum. *International Symposium on Engineering Interventions for Making Millets a Global food*, UAS Raichur, Karnataka, India [6-8 November 2023]

- 3) Singh H, Singh B, Ale S, **Himanshu SK**, DeLaune P, Mohtar R. (2023). Simulated effects of winter wheat termination date on cotton production systems in the Texas Rolling Plains. *ASABE's Annual International Meeting*, Omaha, USA [9-12 July]
- 4) Ale S, Samanta S, Singh J, **Himanshu SK**, DeLaune P, Morgan C. Enhancing Resiliency of Rainfed Crop Production Systems through the Adoption of Regenerative Agricultural Practices. *ASABE's Annual International Meeting*, Omaha, USA [9-12 July]
- 5) **Himanshu SK**, Ale S, Bell J, Fan Y, Bordovsky J, Gitz D, Brauer D. (2022). Simulating efficient crop-growth-stage-based variable deficit irrigation strategies for sustaining cotton production in the Texas High Plains. *Beltwide Cotton Conference-2021*, San Antonio, TX, USA [4-6 January]
- 6) Boote KJ, Hoogenboom G, Ale S, Shrestha R, Mvuyekure RF, Grover K, Angadi S, **Himanshu SK**, Adams C. (2022). Adapting the CROPGRO model to simulate growth and production of guar, *Cyamopsis tetragonoloba* L, an industrial legume crop. *ASA, CSSA, SSSA International Annual Meeting*, Baltimore, Maryland, USA [6-9 November]
- 7) Ale S, Samanta S, **Himanshu SK**, DeLaune P, Morgan C. (2022). Simulated Field- and Watershed-Scale Effects of Conservation Practices on Soil Health and Water Conservation in Semi-Arid Rainfed Crop Production Systems. International Conference on "*Reimagining Rainfed Agro-ecosystems-Challenges & Opportunities (ICRA-2022)*" Hyderabad, India [22-24 November]
- 8) Bawa A, Samanta S, **Himanshu SK**, Kim J, Singh J, Ale S, Chang A, Jung J, DeLaune P, Bordovsky J, Barnes E. (2022). Support vector machine and image processing based cotton boll counting approach from UAV Imagery. *Beltwide Cotton Conference-2021*, San Antonio, TX, USA [4-6 January]
- 9) Fan Y, **Himanshu SK**, Ale S, Bordovsky J, Park SC. (2022). Long-term economic feasibility of crop growth stage-based deficit irrigation strategies for cotton production in the Southern High Plains of Texas. *2022 SAEA Annual Meeting*, New Orleans, USA [12-15 February]
- 10) Ale S, Su Q, Singh J, **Himanshu SK**, Fan Y, Stoker B, Gonzalez E, Sapkota B, Adams C, Biggers K, Kimura E, Wall J. (2021). idCROP: An irrigation decision support system for conserving resources and optimizing cotton production. *ASA, CSSA, SSSA International Annual Meeting*, Salt Lake City, UT, USA [7-10 November]
- 11) Singh J, Ale S, DeLaune PB, **Himanshu SK**, Barnes E. (2021). Simulated effects of winter cover crops on Southern Great Plains cotton production. *ASA, CSSA, SSSA International Annual Meeting*, Salt Lake City, UT, USA [7-10 November]
- 12) **Himanshu SK**, Ale S, Singh J, DeLaune P, Barnes E. (2021). Evaluation of the effects of winter wheat cover crop on soil health in cotton production systems of the Texas Rolling Plains. *Virtual Beltwide Cotton Conference-2021* [5-7 January]
- 13) Ale S, **Himanshu SK**, Samanta S, Chang A, Kim J, Bordovsky J, Jung J, Barnes, E. (2021). Validation of UAV estimates of canopy height and boll count with manual measurements for two cotton cultivars. *Virtual Beltwide Cotton Conference-2021* [5-7 January]
- 14) Fan Y, **Himanshu SK**, Ale S, Bordovsky J, Park SC. (2021). Growth stage-based deficit irrigation strategies to improve profitability of cotton production in the Southern High Plains of Texas. *ASA Southern Regional Branch Virtual Meeting-2021* [30 January]

- 15) Fan Y, **Himanshu SK**, Ale S, Bordovsky JP, Park SC. (2021). Economic risk analysis of growth stage-based deficit irrigation strategies: simulated trends from Texas cotton production. *ASA Southern Regional Branch Virtual Meeting-2021* [30 January]
- 16) **Himanshu SK**, Ale S, DeLaune P, Singh J, Barnes E. (2021). Evaluating soil health benefits of winter wheat cover crop in cotton production systems. *ASABE's Annual Virtual International Meeting, USA* [11-14 July]
- 17) **Himanshu SK**, Ale S, Bell J, Fan Y, Bordovsky J, Gitz D, Brauer D. (2021). Evaluation of efficient crop-growth-stage-based deficit irrigation strategies for cotton production in the Texas High Plains. *ASABE's Annual Virtual International Meeting, USA* [11-14 July]
- 18) Fan Y, **Himanshu SK**, Ale S, Bordovsky J, Park SC. (2021). Long-term economic feasibility of crop growth stage-based deficit irrigation strategies for cotton production in the Southern High Plains of Texas. *2021 UCOWR/NIWR Annual Water Resources Conference (Virtual)* [8-10 June]
- 19) Samanta S, **Himanshu SK**, Chang A, Zhang T, Singh J, Ale S, DeLaune P, Jung J, Morgan CSL, Barnes E. (2021). Evaluation of the impacts of tillage and winter cover crops on soil water availability for and yield of cotton using UAV-acquired data. *ASABE's Annual Virtual International Meeting, USA* [11-14 July]
- 20) Singh J, Ale S, DeLaune PB, **Himanshu SK**, Barnes E. (2021). Modeling the impacts of cover crops on soil water availability, soil health and cotton yield in the Texas Rolling Plains. *ASABE's Annual Virtual International Meeting, USA* [11-14 July]
- 21) Singh J, Ale S, Kimura E, **Himanshu SK**, Su Q, Adams C. (2021). Determination of DSSAT-CSM-CROPGRO-Cotton model cultivar coefficients from cotton variety trial data for regional-scale crop yield prediction. *ASABE's Annual Virtual International Meeting, USA* [11-14 July]
- 22) Su Q, Ale S, **Himanshu SK**, Singh J. (2021). Improving the reliability of monthly and seasonal weather forecasts of the North American Multi-Model Ensemble (NMME) for regional crop modeling. *ASABE's Annual Virtual International Meeting, USA* [11-14 July]
- 23) Su Q, Ale S, Adams C, Singh J, **Himanshu SK**. (2021). Comparison of four theoretical crop water stress index models in irrigation scheduling of cotton. *ASABE's Annual Virtual International Meeting, USA* [11-14 July]
- 24) Mvuyekure RFS, Ale S, Shrestha R, Adams C, **Himanshu SK**, Boote K, Trostle C, Hoogenboom G. (2021). Determination of optimal planting dates and assessing climate variability impacts on guar production in the Texas Rolling Plains and High Plains. *ASABE's Annual Virtual International Meeting, USA* [11-14 July]
- 25) Ale S, Su Q, Singh J, **Himanshu SK**, Fan Y, Stoker B, Gonzalez E, Adams C, Biggers K, Kimura E, Wall J. (2021). An irrigation decision support system for conserving resources and optimizing cotton production (idCROP). *ASABE's Annual Virtual International Meeting, USA* [11-14 July]
- 26) **Himanshu SK**, Samanta S, Chang A, Kim J, Ale S, Bordovsky J, Jung J, Barnes E. (2020). A comparison of UAV-derived and manually-measured cotton phenological dataset under different irrigation strategies. *ASA, CSSA and SSSA International Annual Virtual Meetings* [9-13 November]
- 27) **Himanshu SK**, Ale S, Bordovsky J, Kim J, Samanta S, Omani N, Barnes E. (2020). Evaluating the effects of irrigation termination on productivity of cotton under deficit irrigation strategies. *ASA, CSSA and SSSA International Annual Virtual Meetings* [9-13 November]
- 28) Ale S, **Himanshu SK**, Mauget S, Hudson D, Goebel T, Liu B, Baumhardt R, Bordovsky J, Brauer D, Lascano R, Gitz D. (2020). Simulated effects of changes in selected soil physical and chemical

- properties associated with soil health on dryland cotton production. *ASA, CSSA and SSSA International Annual Virtual Meetings* [9-13 November]
- 29) **Himanshu SK**, Fan Y, Ale S, Bodovsky JP. (2020). Simulated crop-growth-stage-based deficit irrigation strategies for cotton for increasing water productivity and net returns. *Beltwide Cotton Conference-2020*, Austin, TX, USA [8-10 January]
- 30) **Himanshu SK**, Samanta S, Chang A, Kim J, Ale S, Bordovsky J, Jung J, Barnes E. (2020). Comparative validation of UAV-collected cotton phenological dataset with manual measurements under different irrigation treatments. *ASABE's Annual Virtual International Meeting*, USA [13-15 July]
- 31) **Himanshu SK**, Fan Y, Ale S, Bordovsky J. (2020). Modeling water productivity and net returns of crop-growth-stage-based deficit irrigation strategies for cotton, *ASABE's Annual Virtual International Meeting*, USA, July 13-15.
- 32) Ale S, **Himanshu SK**, Mauguet S, Hudson D, Goebel TS, Liu B, Baumhardt RL, Bordovsky J, Brauer DK, Lascano RJ, Gitz, DC. (2020). Potential dryland cotton yield increases from management of selected soil physical and chemical properties associated with soil health. *ASABE's Annual Virtual International Meeting*, USA [13-15 July]
- 33) **Himanshu SK**, Ale S, Bodovsky JP, Darapuneni M. (2019). Evaluation of deficit irrigation scheduling strategies for cotton to cope with declining water availability in the Southern High Plains. *ASABE's Annual International Meeting*, Boston, MA, USA [13-15 July]
- 34) **Himanshu SK**, Ale S, Omani N, Bodovsky J, Thorp K, Barnes E. (2019). Evaluation of irrigation termination effects on cotton yield and water use efficiency under deficit irrigation strategies in the Texas High Plains. *ASABE's Annual International Meeting*, Boston, MA, USA [13-15 July]
- 35) Ale S, **Himanshu SK**, Omani N, Bodovsky J, Thorp K, Barnes E. (2019). A modeling approach to determine ideal irrigation termination periods for cotton. *ASA, CSSA and SSSA International Annual Meetings*, San Antonio, Texas, USA [10-13 November]
- 36) **Himanshu SK**, Pandey A, Dayal D. (2018). Assessment of satellite-based precipitation estimates over agriculture based Indian watershed. *International Conference on Sustainable Technologies for Intelligent Water Management*, Indian Institute of Technology Roorkee, India [16-19 February]
- 37) Ale S, Omani N, **Himanshu SK**, DeLaune P. (2018). Effect of winter wheat cover crop termination date on soil water availability and yield of cotton in the Texas Rolling Plains, *ASABE Annual Meeting Paper No. 1801053*, Detroit, Michigan, USA [29 July – 1 August]
- 38) Ale S, **Himanshu SK**, Omani N, Bodovsky J, Thorp K, Barnes E. (2018). Simulated strategies for efficient use of irrigation water for cotton production in the Texas High Plains. *ASABE Global Water Security Conference for Agriculture and Natural Resources*, Hyderabad, India [3-7 October]
- 39) Pandey A, Dayal D, Palmate SS, Mishra SK, **Himanshu SK**, Pandey RP. (2018). Long-term historic changes in temperature and potential evapotranspiration over Betwa river basin. *International Conference on Sustainable Technologies for Intelligent Water Management*, Indian Institute of Technology Roorkee, India [16-19 February]
- 40) **Himanshu SK**, Pandey A. (2017). Evaluation of TRMM-based multi-satellite precipitation analysis (TMPA) for suspended sediment load simulation over a Southwest Indian watershed. *World Environmental & Water Resources Congress, EWRI-ASCE*, Sacramento, California, USA [21–25 May]
- 41) Palmate SS, Pandey A, Suryavanshi S, **Himanshu SK**. (2016). Relationship between Climate Variability and Runoff in the Betwa River Basin. *International Conference on Climate Change and Rural Development*, Aurangabad, India [21-23 January]

### **VII. Development Project Reports**

- 1) Ale S, **Himanshu SK**, Bell J, Fan Y, Bordovsky J, Gitz D. (2022). Evaluation of Efficient Crop-Growth-Stage-based Deficit Irrigation Strategies for Cotton and Grain Sorghum Production in the Texas High Plains. Final Project Report submitted to Ogallala Aquifer Program (OAP), United States Department of Agriculture (USDA), USA (OAP agreement 58-3090-0-012) [November 2022]
- 2) Ale S, DeLaune PB, **Himanshu SK**. (2021). Evaluation of soil health benefits of cover crops in cotton production systems of the Texas Rolling Plains. Final Project Report submitted to Cotton Incorporated, USA [January 2021]
- 3) Ale S, Bordovsky J, Thorp K, **Himanshu SK**. (2020). Determining optimum irrigation termination periods for cotton production in the Texas High Plains using the DSSAT cropping system model (Renewal 2). Final Project Report submitted to Cotton Incorporated, USA [January 2020]
- 4) Ale S, Bordovsky J, Thorp K, **Himanshu SK**. (2019). Determining optimum irrigation termination periods for cotton production in the Texas High Plains using the DSSAT cropping system model. Final Project Report submitted to Cotton Incorporated, USA [January 2019]
- 5) Goel NK, Arya DS, **Himanshu SK**. (2016). Review of hydrological and power potential studies for Vishnugad Pipalkoti hydro-electric project. Final Project Report submitted to the THDC India Limited, Govt. of India [February 2016]

### **VIII. News in mass media (newspaper, TV, major websites, etc.)**

- 1) Texas A&M University Research Bulletin, USA highlighted our research findings on irrigation management in cotton, with the title 'Cotton producers can gain maximum use of limited water using irrigation methods, says new modeling study' (<https://research.tamu.edu/2023/06/02/cotton-producers-can-gain-maximum-use-of-limited-water-using-irrigation-methods-according-to-new-modeling-study/>)
- 2) AgriLife Today magazine, USA highlighted our research findings on irrigation strategies in cotton, with the title 'Variable deficit irrigation in cotton can help improve yields, save water' (<https://agrilifetoday.tamu.edu/2023/05/30/variable-deficit-irrigation-in-cotton-can-help-improve-yields-save-water/>)
- 3) RESOURCE Magazine, by the American Society of Agricultural and Biological Engineers, published our research 'A mobile app for cotton irrigation management' (<https://bt.editionsbyfry.com/publication/?m=23718&i=752031&p=6&ver=html5>)
- 4) Texas+Water Newsletter, USA highlighted our research findings on irrigation management in cotton, with the title 'The Synergy Between Water Conservation and Economic Profitability of Adopting Alternative Irrigation Systems for Cotton Production in the Texas High Plains' (<https://texaspluswater.wp.txstate.edu/2022/01/23/thinkwater-cedar-promotes-recharge-irrigation-is-releasing-carbon-and-farmers-prefer-lepa/>)
- 5) AgriLife Today magazine, USA highlighted our research findings on growth-stage-based irrigation strategies in cotton, with the title 'Study reveals optimum irrigation times for best cotton growth and water savings in the Southern High Plains' (<https://today.agrilife.org/2019/11/18/growth-stage-irrigation-strategies-for-high-yielding-cotton/>)
- 6) AIT Newsletter, coverage on delivered talk 'Precision Irrigation for Food Security and Agricultural Sustainability' in commemoration of World Food Day 2021 (<https://www.ait.ac.th/2021/10/>)

- 7) AIT Newsletter, coverage on the opening of the new 'Digital Agriculture Lab' in the Department of Food, Agriculture and Bioresources. (<https://ait.ac.th/2022/09/opening-of-the-new-digital-agriculture-lab-in-the-department-of-food-agriculture-and-bioresources/>)

#### **IX. Invited Talks/Presentations/Guest Lectures**

- 1) Delivered a talk on "Climate-Smart Rice Production Management". Technology Clinic for Agro-Food Small and Medium-Sized Enterprises (SMEs), Asian Institute of Technology, Thailand [8 June 2022]
- 2) Invited keynote presentation on 'Career planning for Postgraduate Researchers' organized by the Department of Water Resources Development & Management, Indian Institute of Technology Roorkee, India [13 April 2022]
- 3) Invited keynote presentation on "Modern Technologies for Sustainable Irrigation Management". organized by the Society of Young Agriculture and Hydrology Scholars of India (SYAHI) [9 January 2022]
- 4) Invited talk on "Development of a Mobile App for Precision Irrigation". Global Indian Scientists and Technocrats (GIST) Fest, India International Science Festival (IISF) Goa-2021 [11 December 2021]
- 5) Invited lecture on "Precision Agriculture". Education Innovation Camp 2021, Asian Institute of Technology, Thailand [8 November 2021]
- 6) Invited talk on "Precision Irrigation for Food Security and Agricultural Sustainability". Given jointly with Dr. Farhad Zulfiqar in commemoration of World Food Day 2021, Asian Institute of Technology, Thailand [16 October 2021]

#### **RESEARCH GRANTS AND SPONSORED PROJECTS**

---

##### **i. Regenerative Agriculture in ASEAN: Promoting Nature-positive Solutions for Rice Production (REGA-ASEAN)**

Role: Co-PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: August 2023-July 2025  
Donor: The Rockefeller Foundation, USA  
Budget: USD 300,000 (THB 10,500,00)  
Status: Ongoing

##### **ii. Precision Agriculture with Smart Farming Technologies**

Role: PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: September 2023-August 2028  
Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India  
Budget: USD 64,500 (THB 2,224,419)  
Status: Ongoing

##### **iii. Climate Change Adaptation in Crop Production using Smart Farming Techn**

Role: Co-PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: September 2023-August 2028  
Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India  
Budget: USD 80,180 (THB 2,782,364)  
Status: Ongoing

- iv. Smart Agricultural Technologies for Nutrients and Irrigation Water Management**  
Role: PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: May 2022-April 2024  
Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India  
Budget: USD 25,180 (THB 849,500)  
Status: Ongoing
- v. Nutrient and irrigation water management in field and horticultural crops through smart agriculture technologies**  
Role: Co-PI with Prof. Avishek Datta  
Duration: November 2021-October 2023  
Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India  
Budget: USD 33,335 (THB 1,103,557)  
Status: Ongoing
- vi. Development of Machine Learning Algorithms for Spatial Downscaling of Satellite Precipitation Data Over Thailand to help Farmers Achieve Agricultural Sustainability**  
Role: PI  
Duration: November 2021-December 2023  
Donor: Asian Institute of Technology, Thailand  
Budget: THB 150,000  
Status: Ongoing
- vii. Evaluation of efficient crop-growth-stage-based deficit irrigation strategies for cotton and grain sorghum production in the Texas High Plains**  
Role: Co-PI with Prof. Srinivasulu Ale, Dr. Jourdan Bell, Prof. Yubing Fan, Dr. James Bordovsky and Dr. Dennis Gitz III  
Duration: September 2020-August 2021  
Donor: United States Department of Agriculture (USDA), USA  
Budget: USD 38,000 (~THB 1,375,000)  
Status: Completed
- viii. Evaluation of Soil Health Benefits of Cover Crops in Cotton Production Systems of the Texas Rolling Plains**  
Role: Co-PI with Prof. Srinivasulu Ale and Prof. Paul DeLaune  
Duration: January 2019-December 2021  
Donor: Cotton Incorporated, USA  
Budget: USD 40,000 (~THB 1,448,000)  
Status: Completed
- ix. Planning and Development of Climate Resilient Water Sensitive Urban Designs: A Case Study of Hyderabad Metropolitan City**  
Role: International Scholar  
Duration: January 2019-December 2022  
Donor: Scheme for Promotion of Academic and Research Collaboration, Govt. of India  
Budget: INR 74,40,000 (~THB 3,369,000)  
Status: Completed
- x. The 8th International Conference on Climate Change**  
Role: Co-PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: May 2021-April 2024

Donor: Sebelas Maret University, Indonesia  
Budget: USD 10,000 (THB 371,700)  
Status: Ongoing

**xi. Crop Nutrient and Irrigation Water Management Using Smart Agricultural Technology**

Role: Co-PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: November 2022-November 2025  
Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India  
Budget: USD 45,000 (~THB 1,575,000)  
Status: Ongoing

**xii. Agrotechnology Innovations Toward Sustainability in Agriculture and Food Systems**

Role: Co-PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: January 2023-December 2025  
Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India  
Budget: USD 51,000 (THB 1,747,950)  
Status: Ongoing

**xiii. Smart Farming and Innovative Postharvest Technologies for Sustainable Agriculture Systems**

Role: PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: January 2023-December 2025  
Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India  
Budget: USD 49,425 (THB 1,699,203)  
Status: Ongoing

**xiv. Technological Advancements Towards Sustainable Development of Horticulture and Forestry**

Role: Co-PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: January 2023-January 2026  
Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India  
Budget: USD 48,000 (THB 1,635,959)  
Status: Ongoing

**xv. Technological Innovations to Meet the Future Challenges of Agriculture and Allied Sectors**

Role: PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: January 2023-January 2026  
Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India  
Budget: USD 45,600 (THB 1,500,650)  
Status: Ongoing

**xvi. Smart Farming Technologies for Sustainable Agricultural Development**

Role: Co-PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: February 2023-February 2027  
Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India  
Budget: USD 74,360 (THB 2,500,731)  
Status: Ongoing

**xvii. Innovative Smart Technologies for Sustainable Farm Management**

Role: PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar  
Duration: March 2023-March 2027  
Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India  
Budget: USD 69,000 (THB 2,363,717)

Status: Ongoing

### xviii. Nutrients and Irrigation Water Management through Smart Agri-Tech Approaches

Role: CO-PI with Prof. Avishek Datta and Dr. Farhad Zulfiqar

Duration: April 2023-April 2027

Donor: The World Bank through the Indian Council of Agricultural Research (ICAR), India

Budget: USD 45,000 (THB 1,534,977)

Status: Ongoing

## STUDENT RESEARCH SUPERVISION

### Summary of Student Research Supervision

STUDENTS	COMPLETED			IN-PROGRESS		
	Chair of the Committee	Co-Chair of the Committee	Member of the Committee	Chair of the Committee	Co-Chair of the Committee	Member of the Committee
Doctoral	-	-	1	4	5	11
Master's	2	-	14	6	3	15

#### 1. Doctoral students (as Program Committee Chair)

No.	Student's name	Dissertation title	Status
1	Pavit Tandwongkit	A deep learning-based classification of coffee tree varieties: improving value of coffee production	Ongoing
2	Md Akhter Ul Alam	Induction of drought tolerance in cucumber plants by application of mineral nutrients, growth regulators, and bioinoculant	Ongoing (Co-Chair with Prof. Avishek Datta)
3	Khalequzzaman	Alleviation of drought stress in cotton by exogenous application of bioinoculant, growth regulator, and mineral-nutrient	Ongoing (Co-Chair with Prof. Avishek Datta)
4	Thawatchai Koedsuk	UAV-based multispectral vegetation indices and machine learning approach to evaluate soil water and nitrogen status in pangola grass ( <i>Digitaria eriantha</i> )	Ongoing (Co-Chair with Prof. Avishek Datta)
5	Prakash Subedi	Title pending	Ongoing
6	Mitesh Vishwas Sawant	Title pending	Ongoing (Co-Chair with Prof. Avishek Datta)
7	Mallappa Jadyappa Madolli	Title pending	Ongoing
8	Shubham Anil Gade	Title pending	Ongoing
9	Yash Shukla	Impact of Climate Change on Food Security in Himachal Pradesh, India	Ongoing (Co-Chair with Dr. Vivek Gupta; IIT Mandi, India)

**2. Master students (as Program Committee Chair)**

No.	Student's name	Academic Program	Thesis title	Status
1	Sakron Vilavan	ASE	Simulating the Climate Change Impacts and Potential Adaptation Strategies for Rice Production in the Lower Chao Phraya Basin [Received <b>Dr. R K Sivanappan Award</b> in recognition of outstanding academic performance in the field of Irrigation management]	Graduated, May 2023
2	Pema Wangmo	ASE	Spatial Downscaling of Satellite Precipitation Data Using Machine Learning Approach	Graduated, May 2023
3	Kiran Karki	WRDM, IIT Roorkee	Application of VIC Model for River Basin Planning and Management	Graduated June 2020 (Co-Chair with Prof. Ashish Pandey)
4	Deo Abinoja Sumer	CCSD	Title pending	Ongoing (Co-Chair with Prof. Avishek Datta)
5	Apirak Somnam	ASE	Title pending	Ongoing
6	Suthima Homhual	ASE	Title pending	Ongoing
7	Chime Wangmo	ASE	Title pending	Ongoing
8	Kumari Nikitha	ASE	Title pending	Ongoing
9	Nitiwat Wongchanla	ASE	Title pending	Ongoing
10	Jirapat Suksomboon	ASE	Title pending	Ongoing
11	Ms. Soe Sandy Lin	CCSD	Title pending	Ongoing (Co-Chair with Prof. Avishek Datta)
12	Mr. Sajjad Hasnain Md. Haikel	CCSD	Title pending	Ongoing (Co-Chair with Prof. Avishek Datta)

**PROFESSIONAL SERVICES/ OUTREACH ACTIVITIES**

- i. Invited and attended 'knowledge sharing and opinion exchange meeting' by Bangladesh Agricultural Research Council (BARC), Dhaka, Bangladesh [30 August 2023]
- ii. Invited and discussed 'potential opportunities of collaborative research and capacity development of scientists' by Bangladesh Agricultural Research Institute (BARI), Dhaka, Bangladesh [28 August 2023]
- iii. Served as mentor for the 'AIT Sustainability Expo-2023' [23 -25 August 2023]

- iv. Served as a jury member for the “Hackathon: Hacking Zero - Inspiring Innovation for Net-Zero Emissions” organized under the AIT Sustainability Expo-2023 [23 -25 August 2023]
- v. Organized a knowledge-sharing and collaboration meeting with the research team from Virginia Tech (VT) USA and Virginia Cooperative Extension (VCE) and presented AIT’s work on ‘Climate Smart Agriculture and Digital Agriculture’ [08 June 2023]
- vi. International Adviser, ‘International Conference on Biodiversity, Food Security, Sustainability & Climate Change’ organized by Assam Agricultural University, Jorhat, Assam [25-28 April 2023]
- vii. Advisory Committee, ‘3<sup>rd</sup> International Conference on Environmental Sustainability” to be organized by BITS Pilani, Dubai Campus, UAE [27-29 November 2023]
- viii. Obtained Remote Pilot License for operating small Unmanned Aerial Systems (UAS) with effect from February 11, 2023.
- ix. ‘Selection committee member 2022’ for the selection of lab supervisor for agricultural Systems and Engineering disciplines.
- x. Jury Member at Research Pitching Competition on the theme "Food Innovations and the SDGs". Organized under FOODI Info Day Workshop by the Department of Food, Agriculture and Bioresources, Asian Institute of Technology, Thailand [March 25, 2022]
- xi. Developed and taught a master’s course ‘Integrated Watershed Management’ in my role as a collaborator in a research project with Osmania University, Hyderabad that was funded by the Government of India under the Scheme for Promotion of Academic and Research Collaboration (SPARC).
- xii. Guest Editor, special issue ‘Climate change and Coastal Agriculture’ of ‘The Journal of the Indian Society of Coastal Agricultural Research’.
- xiii. National Eligibility Test (NET) qualified with specialization ‘Land and Water Management Engineering’.
- xiv. All India Rank-82 in Graduate Aptitude Test for Engineers (GATE-2010).
- xv. Joint organizing secretary, Cognizance-2011, The Annual Technical Festival of Indian Institute of Technology Roorkee, India.
- xvi. Councilor and member, Student Affairs Council, Indian Institute of Technology Roorkee, India (2011-12, 2014-15).
- xvii. Student Representative, Coordinating Committee of Bhawans, Indian Institute of Technology Roorkee, India (2011-12).
- xviii. Reviewed ~50 articles for ~15 journals including the Journal of Hydrology, Advances in Water Resources, Water Resources Management, Agricultural Water Management, Agricultural Systems, Transactions of the ASABE, Precision Agriculture, Science of the Total Environment, Global and Planetary Change, etc.
- xix. Co-chairman, Sustainable Technologies for Intelligent Water Management (STIWM-2018) conference, Indian Institute of Technology Roorkee, India.
- xx. Moderator, Session- Sustainable Irrigation Management, ASABE Annual International Meeting-2019, Boston, MA, United States.
- xxi. Moderator, Session- Advances in Agrohydrology: Challenges and Opportunities, ASABE Virtual Annual International Meeting-2020.

## **SOCIETIES/MEMBERSHIPS**

---

- Member, “**American Society of Agricultural and Biological Engineers (ASABE)**”.
- Life Member, “**Indian Water Resources Society (IWRS)**”.
- Fellow Member, “**International Science Congress Association (ISCA)**”.
- Affiliate member, “**American Society of Civil Engineers (ASCE)**”.
- Associate member (AMIE), “**The Institution of Engineers (India)**”.
- Life Member, “**International Association of Hydrological Sciences (IAHS)**”.