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PRESENT POSITION

- **PROFESSOR** — **APR 2025 – PRESENT**

  School of Social Safety and Systems Engineering, Hankyong National University, Anseong, Republic of Korea

- **DIRECTOR** — **DEC 2019 – PRESENT**

  National Agricultural Water Research Center, Hankyong National University, Anseong, Republic of Korea

PROFESSIONAL EXPERIENCE

- **ASSOCIATE PROFESSOR** — **APR 2020 –MAR 2025**

  School of Social Safety and Systems Engineering, Hankyong National University, Anseong, Republic of Korea

- **ASSISTANT PROFESSOR** — **MAR 2016 – MAR 2020**

  Department of Bioresources and Rural Systems Engineering, College of Agriculture and Life Science, Hankyong National University, Anseong, Republic of Korea

- **POST-DOCTORAL RESEARCH ASSOCIATE** — **DEC 2014 – FEB 2016**

  National Drought Mitigation Center, School of Natural Resources, University of Nebraska-Lincoln, Lincoln, Nebraska, USA (Advisor: Dr. Michael J. Hayes) *funded by* University of Nebraska-Lincoln

- **POST-DOCTORAL RESEARCH ASSOCIATE** — **APR 2014 – MAR 2015**

School of Natural Resources, University of Nebraska-Lincoln, Lincoln, Nebraska, USA (Advisor: Dr. Guillermo A. Baigorria) *funded by* University of Nebraska-Lincoln

- **VISITING POST-DOCTORAL RESEARCH ASSOCIATE** **DEC 2013 – NOV 2014**

  School of Natural Resources, University of Nebraska-Lincoln, Lincoln, Nebraska, USA (Advisor: Dr. Donald A. Wilhite) *funded by* Post-doctoral Fellowships Program for Young Global Researchers, National Research Foundation of Korea

- **SENIOR RESEARCHER** **MAR 2013 – NOV 2013**

  Research Institute for Agriculture and Life Sciences, College of Agriculture and Life Sciences, Seoul National University, Seoul, Republic of Korea

EDUCATION

- **DOCTOR OF PHILOSOPHY** **MAR 2008 – FEB 2013**

  Agricultural and Rural Systems Engineering, Department of Landscape Architecture and Rural System Engineering, Rural System Engineering Major, Seoul National University, Republic of Korea
  Dissertation: *Sustainability and operations evaluation of agricultural reservoirs based on probability theory*

- **MASTER OF SCIENCE IN ENGINEERING** **MAR 2006 – FEB 2008**

  Agricultural and Rural Systems Engineering, Department of Landscape Architecture and Rural System Engineering, Rural System Engineering Major, Seoul National University, Republic of Korea
  Thesis: *Development of web-based GIS for hydrological and meteorological data provision in real time*

- **BACHELOR OF SCIENCE IN ENGINEERING** **MAR 2002 – FEB 2006**

  Agricultural Engineering, College of Agriculture and Life Science, Department of Landscape Architecture and Rural System Engineering, Rural System Engineering Major, Seoul National University, Republic of Korea
  Thesis: *Drought analysis using soil water balance model*

RESEARCH EXPERIENCE

- 2023–2020: Development of advanced analysis of drought for upland crops and assessing the variability of moisture conditions based on effective soil moisture *funded by* Rural Development Administration (RDA), Republic of Korea (PI: Won-Ho Nam)
- 2021–2019: Development of mega drought adaptation and emergency response plan *funded by* Korean Ministry of Interior and Safety (MOIS), Republic of Korea (PI: Won-Ho Nam)
- 2020–2018: Development of an agricultural-drought monitoring model using satellite images(I) *funded by* Korea Institute of Planning and Evaluation for Technology in Food, Agriculture and Forestry (IPET), Republic of Korea (PI: Won-Ho Nam)
- 2020–2018: Development and application of recurrent agricultural water management system based on ICT, Bigdata for drought contingency plan *funded by* Korea Institute of Planning and Evaluation for Technology in Food, Agriculture and Forestry (IPET), Republic of Korea
- 2020–2017: Development and application of drought disaster monitoring system in Korea *funded by* National Research Foundation of Korea (NRF), Republic of Korea (PI: Won-Ho Nam)
- 2019–2017: Assessment of upland drought and establishment system for anticipatory response to drought *funded by* Rural Development Administration (RDA), Republic of Korea (PI: Won-Ho Nam)
- 2018–2016: Development of LPWA network and machine learning based smart farm management platform *funded by* Korea Institute of Planning and Evaluation for Technology in Food, Agriculture and Forestry (IPET), Republic of Korea (PI: Won-Ho Nam)
- 2019–2016: Development of the new technology of agricultural drought monitoring based on ICT *funded by* Korea Institute of Planning and Evaluation for Technology in Food, Agriculture and Forestry (IPET), Republic of Korea (PI: Won-Ho Nam)
- 2018–2016: Development of agricultural drought risk and response management system *funded by* Korea Institute of Planning and Evaluation for Technology in Food, Agriculture and Forestry (IPET), Republic of Korea
- 2017–2016: Application of drought indices according to extreme weather events and climate change in North Korea *funded by* Hankyong National University, Republic of Korea (PI: Won-Ho Nam)

- 2016–2015: Using the North American Drought Monitor to track the movement of livestock into the United States *funded by* United States Department of Agriculture (USDA), USA (PI: Michael J. Hayes)
- 2016–2015: Improving United States drought monitor (USDM): Integrating soil moisture data and developing a drought blends portal *funded by* United States Department of Agriculture (USDA), USA (PI: Michael J. Hayes)
- 2016–2015: Develop a companion product to the vegetation drought response index (VegDRI) tool called the "Canada VegDRI" *funded by* United States Geological Survey (USGS), USA (PI: Tsegaye Tadesse)
- 2015: Soil climatology for the Central United States called the "SoilClim model" *funded by* a joint international project in the Czech Republic (PI: Michael J. Hayes and Miroslav Trnka)
- 2015: Drought information services in support the National Integrated Drought Information System (NIDIS) *funded by* National Oceanic and Atmospheric Administration (NOAA) and the NIDIS, USA (PI: Michael J. Hayes)
- 2016–2014: Seasonal prediction of hydro-climatic extremes in the Greater Horn of Africa under evolving climate conditions to support adaptation strategies (NASA-GHA project) *funded by* National Aeronautics and Space Administration (NASA), USA (an international, and multinational project) (PI: Tsegaye Tadesse)
- 2015–2014: The quick drought response index (Quick DRI): An integrated approach to maximizing the use of NASA data sets for rapid response agricultural drought monitoring *funded by* NASA Earth Science Applications: Water Resources, USA (PI: Brian D. Wardlow, Mark D. Svoboda and Michael J. Hayes)
- 2015–2014: Enhancing decision support for drought risk in the United States: A NDMC decision support tool called the "Drought Risk Atlas" *funded by* National Oceanic and Atmospheric Administration (NOAA), Climate Program Office-Sectoral Applications Research Program (SARP): Coping with Drought and the National Integrated Drought Information System (NIDIS), USA (PI: Mark D. Svoboda and Michael J. Hayes)
- 2015–2014: Model-based decision making tools developer: Development of a decision support system on climate-related useful information for agricultural decision makers called the "CropClimate" *funded by* University of Nebraska-Lincoln, USA (PI: Guillermo A. Baigorria)

- 2014–2013: Water supply vulnerability of agricultural reservoirs in response to climate change considering the outlook for future water resources *funded by* National Research Foundation of Korea (NRF), Republic of Korea (PI: Won-Ho Nam)
- 2013: Development of risk management system for water supply vulnerability in agricultural water resources *funded by* IS Technologies, Republic of Korea
- 2013: A study on survey of agricultural infrastructure in North Korea using GIS *funded by* Rural Research Institute at Korea Rural Community Corporation (KRC), Republic of Korea
- 2013: Development and application of water footprint assessment for agriculture in South Korea *funded by* Rural Research Institute at Korea Rural Community Corporation (KRC), Republic of Korea
- 2013: Development of intelligent for management of irrigation and drainage *funded by* the Ministry for Food, Agriculture, Forestry, and Fisheries (MIFAFF), Republic of Korea
- 2013–2011: Development of pilot operating system for smart water management of rural water district *funded by* Rural Research Institute at Korea Rural Community Corporation (KRC), Republic of Korea
- 2013–2010: Development of improved farming methods to reduce agricultural NPS pollution *funded by* Rural Research Institute at Korea Rural Community Corporation (KRC), Republic of Korea
- 2012: Evaluation on agricultural water supply considering land use planning in Saemangeum reclaimed area *funded by* Rural Research Institute at Korea Rural Community Corporation (KRC), Republic of Korea
- 2012–2011: Extraction of paddy rice field in North Korea using time-series satellite images *funded by* Korea Aerospace Research Institute (KARI), Republic of Korea
- 2012–2010: Irrigation component and system evaluation and integrated operational program development for automated irrigation system *funded by* Rural Development Administration (RDA), Republic of Korea
- 2011–2010: Integration module development for agricultural reservoirs operation to river flow management system *funded by* Korea Water Resources Corporation (K-water), Republic of Korea
- 2011–2009: Irrigation facility inspection and assessment technology development using wireless sensor network *funded by* the Ministry for Food, Agriculture, Forestry, and Fisheries (MIFAFF), Republic of Korea

- 2011–2008: Development of web-GIS based drought management system *funded by* Korea Rural Community Corporation (KRC), Republic of Korea
- 2011–2008: Water quality impact assessment of low concentration manure application in forestry watershed *funded by* Rural Development Administration (RDA), Republic of Korea
- 2010: Analysis of land-use change and water requirement for paddy rice affected by climate change *funded by* Rural Research Institute at Korea Rural Community Corporation (KRC), Republic of Korea
- 2009: A study on integrated operation strategy development of agricultural reservoirs considering four major rivers restoration project in Korea *funded by* Korea Water Resources Corporation (K-water), Republic of Korea
- 2009–2008: Soil moisture change monitoring and modeling on conifer forest *funded by* Korea Research Foundation, Republic of Korea
- 2009–2006: Rural amenity resources development *funded by* Rural Development Administration (RDA), Republic of Korea
- 2008: A study on the investigation measure of using water in the rural area *funded by* Korea Rural Community Corporation (KRC), Republic of Korea
- 2008: North Korea drought monitoring using time series MODIS satellite imagery *funded by* Korea Aerospace Research Institute (KARI), Republic of Korea
- 2008–2007: Drought information system (focus on guideline for water supply) *funded by* Korea Water Resources Corporation (K-water), Republic of Korea
- 2008–2006: Application technique on rural amenity resources database *funded by* Rural Development Administration (RDA), Republic of Korea
- 2007: Construction of rural agricultural water resource information system, *funded by* Korea Rural Community Corporation (KRC), Republic of Korea
- 2007–2006: Estimating agricultural water requirement in North Korea using time-series satellite data *funded by* Korea Aerospace Research Institute (KARI), Republic of Korea
- 2007–2006: An analysis and mapping of the drought characteristics in North Korea *funded by* Institute for Peace and Unification Studies (IPUS) at Seoul National University, Republic of Korea

PUBLICATIONS

■ INTERNATIONAL JOURNAL PUBLICATIONS (PEER-REVIEWED PAPERS)

1. Zhang, X., Zhang, X., Terfa, B.K., **Nam, W.H.**, Zeng, J., Ma, H., Gu, X., Du, W., Wang, C., Yang, J., Wang, P., Niyogi, D., Chen, N., 2024. Mapping global drought-induced forest mortality based on multiple satellite vegetation optical depth data. ***Remote Sensing of Environment*** 315: 114406, Dec. 2024. (ISSN: 0034-4257) DOI:10.1016/j.rse.2024.114406
2. Zhang, X., Zhang, M., Liu, X., Terfa, B.K., **Nam, W.H.**, Gu, X., Zhang, X., Wang, C., Yang, J., Wang, P., Hu, C., Wu, W., Chen, N., 2024. Review on the progress and future prospects of geological disasters prediction in the era of artificial intelligence. ***Natural Hazards*** 120 (13): 11485–11525, Oct. 2024. (ISSN: 0921-030X) DOI:10.1007/s11069-024-06673-3
3. Shin, J.H., **Nam, W.H.***, Jeon, M.G., Hong, E.M., Zhang, X., Sharama, V., Irmak, S., Do, J.W., Kisekka, I., 2024. Assessing water distribution and efficiency by coupled hydraulic hydrological modeling for irrigation canal network. ***Paddy and Water Environment*** 22 (4): 567–580, Oct. 2024. (ISSN: 1611-2490) DOI:10.1007/s10333-024-00985-7
4. Kim, H., Kim, D.S., **Nam, W.H.**, Jang, M.W., 2024. Assessing the impact of rainfall inputs on short-term flood simulation with Cell2Flood: A case study of the Waryong reservoir basin. ***Hydrology*** 11(10): 162, Oct. 2024. (ISSN: 2306-5338) DOI:10.3390/hydrology11100162
5. Cao, J., Luo, Y., Zhang, X., Fan, L., Tao, J., **Nam, W.H.**, Sur, C., He, Y., Gulakhmadov, A., Niyogi, D., 2024. Assessing the responsiveness of multiple microwave remote sensing vegetation optical depth indices to drought on crops in Midwest US. ***International Journal of Applied Earth Observation and Geoinformation*** 132: 1040721, Aug. 2024. (ISSN: 1872-826X) DOI:10.1016/j.jag.2024.104072
6. Sur, C., **Nam, W.H.***, Zhang, X., Tadesse, T., Wardlow, B.D., 2024. Assessment of agricultural drought status using visible infrared imaging radiometer suite land products. ***Theoretical and Applied Climatology*** 155 (7): 6887–6897, July 2024. (ISSN: 0177-798X) DOI:10.1007/s00704-024-05038-x
7. Zhang, X., Liu, J., Zeng, J., Yin, J., Volchak, A., Zhang, X., Gu, X., **Nam, W.H.**, Terfa, B.K., Niyogi, D., Chen, N., 2024. Impact of drought-induced forest mortality on terrestrial carbon cycle from remote sensing perspective. ***The Innovation Geoscience*** 2 (1): 100057, Mar. 2024. (ISSN: 2959-8753) DOI:10.59717/j.xinn-geo.2024.100057
8. Zhang, X., Song, Y., **Nam, W.H.**, Huang, T., Gu, X., Zeng, J., Huang, S., Chen, N., Yan, Z., Niyogi, D., 2024. Data fusion of satellite imagery and downscaling for generating highly fine-

scale precipitation. ***Journal of Hydrology*** 631: 130665, Mar. 2024. (ISSN: 0022-1694) DOI:10.1016/j.jhydrol.2024.130665

9. Huang, T., Zhang, X., Terfa, B.K., **Nam, W.H.**, Gu, X., Zeng, J., Zhang, X., Huang, S., Du, W., Wang, C., Yang, I.J., Wang, P., Wu, W., Chen, N., Niyogi, D., 2024. Considering geographical spatiotemporal attributes for seamless air temperature data fusion with high accuracy. ***Remote Sensing Applications: Society and Environment*** 33: 101135, Jan. 2024. (ISSN: 2352-9385) DOI:10.1016/j.rsase.2023.101135
10. Sadiqi, S.S., **Nam, W.H.**, Lim, K.J., Hong, E.M., 2024. Investigating nonpoint source and pollutant reduction effects under future climate scenarios: A SWAT-based study in a highland agricultural watershed in Korea. ***Water*** 16 (1): 179, Jan. 2024. (ISSN: 2073-4441) DOI:10.3390/w9100735
11. Sur, C., **Nam, W.H.***, Zhang, X., Tadesse, T., Wardlow, B.D., 2023. Assessment of an evapotranspiration algorithm accounting for land cover types and photosynthetic perspectives using remote sensing images. ***GIScience & Remote Sensing*** 60 (1): 2279802, Dec. 2023. (ISSN: 1548-1603) DOI:10.1080/15481603.2023.2279802
12. Cao, J., Guan, F., Zhang, X., **Nam, W.H.**, Leng, G., Gao, H., Ye, Q., Gu, X., Zeng, J., Zhang, X., Huang, T., Niyogi, D., 2023. Multiple markov chains for categorial drought prediction on United States Drought Monitor at weekly scale. ***Journal of Applied Meteorology and Climatology*** 62 (10): 1415–1435, Oct. 2023. (ISSN: 1558-8424) DOI:10.1175/JAMC-D-23-0061.1
13. Wang, S., Zhang, X., Chen, N., Tian, L., Zhang, Y., **Nam, W.H.**, 2023. A systematic review and quantitative meta-analysis of the relationships between driving forces and cyanobacterial blooms at global scale. ***Environmental Research*** 216: 114670, Jan. 2023. (ISSN: 0013-9351) DOI:10.1016/j.envres.2022.114670
14. Sadiqi, S.S., Hong, E.M., **Nam, W.H.**, Kim, T., 2022. An integrated framework for understanding ecological drought and drought resistance. ***Science of The Total Environment*** 846: 157477, Nov. 2022. (ISSN: 0048-9697) DOI:10.1016/j.scitotenv.2022.157477
15. Jeon, M.G., **Nam, W.H.***, Mun, Y.S., Yoon, D.H., Yang, M.H., Lee, H.J., Shin, J.H., Hong, E.M., Zhang, X., 2022. Climate change impacts on reference evapotranspiration in South Korea over the recent 100 years. ***Theoretical and Applied Climatology*** 150: 309–326, Oct. 2022. (ISSN: 0177-798X) DOI: 10.1007/s00704-022-04152-y
16. Zhang, X., Huang, T., Gulakhmadov, A., Song, Y., Gu, X., Zeng, J., Huang, S., **Nam, W.H.**, Chen, N., Niyogi, D., 2022. Deep learning-based 500 m spatio-temporally continuous air

temperature generation by fusing multi-source data. ***Remote Sensing*** 14 (15): 3536, Aug. 2022. (ISSN: 2072-4292) DOI:10.3390/rs14153536

17. Huang, S., Zhang, X., Yang, L., Chen, N., **Nam, W.H.**, Niyogi, D., 2022. Urbanization-induced drought modification: Example over the Yangtze River Basin, China. ***Urban Climate*** 44: 101231, July 2022. (ISSN: 2212-0955) DOI:10.1016/j.uclim.2022.101231
18. Sadiqi, S.S., Hong, E.M., **Nam, W.H.***, 2022. Identification of priority management practices for soil erosion control through estimation of runoff and sediment yield using soil and water assessment tool on Salma watershed in Afghanistan. ***Irrigation and Drainage*** 71 (3): 804–822, July 2022. (ISSN: 1531-0361) DOI:10.1002/ird.2668
19. Huang, S., Zhang, X., Chen, N., Ma, H., Zeng, J., Fu, P., **Nam, W.H.**, Niyogi, D., 2022. Generating high-accuracy and cloud-free surface soil moisture at 1 km resolution by point-surface data fusion over the Southwestern U.S. ***Agricultural and Forest Meteorology*** 321: 108985, June 2022. (ISSN: 0168-1923) DOI:10.1016/j.agrformet.2022.108985
20. Huang, S., Zhang, X., Chen, N., Ma, H., Fu, P., Dong, J., Gu, X., **Nam, W.H.**, Xu, L., Rab, G., Niyogi, D., 2022. A novel fusion method for generating surface soil moisture data with high accuracy, high spatial resolution, and high spatio-temporal continuity. ***Water Resources Research*** 58 (5): e2021WR030827, May 2022. (ISSN: 1944-7973) DOI: 10.1029/2021WR030827
21. Mun, Y.S., **Nam, W.H.***, Jeon, M.G., Bang, N.K., Kim, T., 2020. Assessment of vulnerability to drought disaster in agricultural reservoirs in South Korea. ***Atmosphere*** 11 (11): 1244, Nov. 2020. (ISSN: 2073-4433) DOI:10.3390/atmos11111244
22. Yassen, A.N., **Nam, W.H.***, Hong, E.M., 2020. Impact of climate change on reference evapotranspiration in Egypt. ***Catena*** 194: 104711, Nov. 2020. (ISSN: 0341-8162) DOI:10.1016/j.catena.2020.104711
23. Yoon, D.H., **Nam, W.H.***, Lee, H.J., Hong, E.M., Feng, S., Wardlow, B.D., Tadesse, T., Svoboda, M.D., Hayes, M.J., Kim, D.E., 2020. Agricultural drought assessment in East Asia using satellite-based indices. ***Remote Sensing*** 12 (3): 444, Feb. 2020. (ISSN: 2072-4292) DOI:10.3390/rs12030444
24. Cho, G.H., Ahmad, M.J., Lee, S., Choi, K.S., **Nam, W.H.**, Kwon, H.J., 2019. Influence mechanism of climate change on paddy farming practices and irrigation water demand. ***Paddy and Water Environment*** 17 (3): 359–371, July 2019. (ISSN: 1611-2490)

    DOI:10.1007/s10333-019-00731-4

25. **Nam, W.H.**, Baigorria, G.A., Hong, E.M., Kim, T.G., Choi, Y.S., Feng, S., 2018. The fingerprint of climate change and urbanization in South Korea. ***Atmosphere*** 9 (7): 273, July 2018. (ISSN: 2073-4433) DOI:10.3390/atmos9070273
26. **Nam, W.H.**, Tadesse, T., Wardlow, B.D., Hayes, M.J., Svoboda, M.D., Hong, E.M., Pachepsky, Y., Jang, M.W., 2018. Developing the vegetation drought response index for South Korea (VegDRI-SKorea) to assess the vegetation condition during drought events. ***International Journal of Remote Sensing*** 39 (5): 1548–1574, Mar. 2018. (ISSN: 0143-1161) DOI:10.1080/01431161.2017.1407047
27. **Nam, W.H.**, Kim, T.G., Hong, E.M., Choi, J.Y., Kim, J.T., 2017. A Wireless Sensor Network (WSN) application for irrigation facilities management based on Information and Communication Technologies (ICTs). ***Computers and Electronics in Agriculture*** 143: 185–192, Dec. 2017. (ISSN: 0168-1699) DOI:10.1016/j.compag.2017.10.007
28. **Nam, W.H.**, Kim, T.G., Hong, E.M., Choi, J.Y., 2017. Regional climate change impacts on irrigation vulnerable season shifts in agricultural water availability for South Korea. ***Water*** 9 (10): 735, Oct. 2017. (ISSN: 2073-4441) DOI:10.3390/w9100735
29. Hong, E.M., Shelton, D., Pachepsky, Y.A., **Nam, W.H.**, Coppock, C., Muirhead, R., 2017. Modeling the interannual variability of microbial quality metrics of irrigation water in a Pennsylvanian stream. ***Journal of Environmental Management*** 187: 253–264, Feb. 2017. (ISSN: 0301-4797) DOI:10.1016/j.jenvman.2016.11.054
30. Kim, H.D., Kim, J.T., **Nam, W.H.***, Kim, S.J., Choi, J.Y., Koh, B.S., 2016. Irrigation canal network flow analysis by a hydraulic model. ***Irrigation and Drainage*** 65 (S1): 57–65, Oct. 2016. (ISSN: 1531-0361) DOI:10.1002/ird.1992
31. Hong, E.M., Choi, J.Y., **Nam, W.H.***, Kim, J.T., 2016. Decision support system for real-time operation and management of an agricultural water supply. ***Irrigation and Drainage*** 65 (2): 197–209, Apr. 2016. (ISSN: 1531-0361) DOI:10.1002/ird.1935
32. **Nam, W.H.**, Hong, E.M., Choi, J.Y., 2016. Assessment of water delivery efficiency in irrigation canals using performance indicators. ***Irrigation Science*** 34 (2): 129–143, Mar. 2016. (ISSN: 0342-7188) DOI:10.1007/s00271-016-0488-6
33. **Nam, W.H.**, Hong, E.M., Baigorria, G.A., 2016. How climate change has affected the spatio-temporal patterns of precipitation and temperature at various time scales in North Korea. ***International Journal of Climatology*** 36 (2): 722–734, Feb. 2016. (ISSN: 1097-0088) DOI:10.1002/joc.4378

34. Hong, E.M., **Nam, W.H.***, Choi, J.Y., Pachepsky, Y.A., 2016. Projected irrigation requirements for upland crops using soil moisture model under climate change in South Korea. ***Agricultural Water Management*** 165: 163–180, Feb. 2016. (ISSN: 0378-3774) DOI:10.1016/j.agwat.2015.12.003

35. **Nam, W.H.**, Baigorria, G.A., 2015. Analysing changes to the spatial structures of precipitation and temperature under different ENSO phases in the Southeast and Midwest United States. ***Meteorological Applications*** 22 (4): 797–805, Oct. 2015. (ISSN: 1469-8080) DOI:10.1002/met.1526

36. **Nam, W.H.***, Hayes, M.J., Svoboda, M.D., Tadesse, T., Wilhite, D.A., 2015. Drought hazard assessment in the context of climate change for South Korea. ***Agricultural Water Management*** 160: 106–117, Oct. 2015. (ISSN: 0378-3774) DOI:10.1016/j.agwat.2015.06.029

37. **Nam, W.H.**, Choi, J.Y., Hong, E.M., 2015. Irrigation vulnerability assessment on agricultural water supply risk for adaptive management of climate change in South Korea. ***Agricultural Water Management*** 152: 173–187, Apr. 2015. (ISSN: 0378-3774) DOI:10.1016/j.agwat.2015.01.012

38. **Nam, W.H.**, Hong, E.M., Choi, J.Y., 2015. Has climate change already affected the spatial distribution and temporal trends of reference evapotranspiration in South Korea? ***Agricultural Water Management*** 150: 129–138, Mar. 2015. (ISSN: 0378-3774) DOI:10.1016/j.agwat.2014.11.019

39. Hong, E.M., Choi, J.Y., **Nam, W.H.**, Kang, M.S., Jang, J.R., 2014. Monitoring nutrient accumulation and leaching in plastic greenhouse cultivation. ***Agricultural Water Management*** 146: 11–23, Dec. 2014. (ISSN: 0378-3774) DOI:10.1016/j.agwat.2014.07.016

40. **Nam, W.H.**, Choi, J.Y., 2014. Development of an irrigation vulnerability assessment model in agricultural reservoirs utilizing probability theory and reliability analysis. ***Agricultural Water Management*** 142: 115–126, Aug. 2014. (ISSN: 0378-3774) DOI:10.1016/j.agwat.2014.05.009

41. Hong, E.M., Choi, J.Y., Yoo, S.H., **Nam, W.H.**, 2013. Monitoring of shallow groundwater salinity in livestock manure applications to reclaimed tidal land. ***Irrigation and Drainage*** 62 (S1): 63–74, Oct. 2013. (ISSN: 1531-0361) DOI:10.1002/ird.1787

42. Yoo, S.H., Choi, J.Y., **Nam, W.H.**, Hong, E.M., 2012. Analysis of design water requirement of paddy rice using frequency analysis affected by climate change in South Korea. ***Agricultural Water Management*** 112: 33–42, Sep. 2012. (ISSN: 0378-3774) DOI:10.1016/j.agwat.2012.06.002

43. **Nam, W.H.**, Choi, J.Y., Yoo, S.H., Jang, M.W., 2012. A decision support system for agricultural drought management using risk assessment. ***Paddy and Water Environment*** 10 (3): 197–207, Sep. 2012. (ISSN: 1611-2490) DOI:10.1007/s10333-012-0329-z
44. **Nam, W.H.**, Choi, J.Y., Yoo, S.H., Engel, B.A., 2012. A real-time online drought broadcast system for monitoring soil moisture index. ***KSCE Journal of Civil Engineering*** 16 (3): 357–365, Mar. 2012. (ISSN: 1226-7988) DOI:10.1007/s12205-012-1357-3

■ KOREAN JOURNAL PUBLICATIONS (PEER-REVIEWED PAPERS)

45. Lee, Y.J., **Nam, W.H.***, Yoon, D.H., Jang, M.W., Kim, J.T., Kim, H.J., Hong, S.G., Kim, D.S., 2025. Rainfall-runoff simulation for agricultural reservoir watersheds using the grid-based distributed hydrological model, Cell2Flood. *Journal of the Korean Society of Agricultural Engineers* 67 (2): 33–43, Mar. 2025. DOI:10.5389/KSAE.2025.67.2.033
46. Kim, M.J., **Nam, W.H.***, Yang, M.H., Lee, J.W., Kim, T., Do, J.W., You, K., Kim, S.J., 2025. Leveraging news big data to detect early warning signs of natural disasters. *Journal of the Korean Society of Agricultural Engineers* 67 (2): 1–12, Mar. 2025. DOI:10.5389/KSAE.2025.67.2.001
47. Shin, J.H., **Nam, W.H.***, 2024. Estimating agricultural water demand considering the water distribution system. *Journal of the Korean Society of Agricultural Engineers* 66 (6): 47–57, Nov. 2024. DOI:10.5389/KSAE.2024.66.6.047
48. Do, J., **Nam, W.H.**, Shin, H., Lim, H., Cho, W., Kisekka, I., 2024. Comparative analysis of water management policy and action plans in California and Korea. *The Korean Journal of Agricultural Economics* 65 (3): 233–258, Sep. 2024. DOI:10.24997/KJAE.2024.65.3.233
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143. **Nam, W.H.**, Yoon, D.H., Kim, K.M., Kim, S.W., Park, J.H., 2023. Development of a watershed-based balance model for agricultural water management. *Magazine of the Korean Society of Agricultural Engineers* 65 (2): 44–53, May 2023. (ISSN: 0253-3146) (in Korean)
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PROCEEDING PUBLICATION AND CONFERENCE PRESENTATIONS

■ INTERNATIONAL SOCIETY MEETING

1. Jeon, M.G., **Nam, W.H.***, Zhang, X., 2024. Assessment of future upland drought using multiple drought indices based on SSP scenario in South Korea. *American Geophysical Union Fall Meeting 2024*, Washington, D.C., USA.
2. Yang, M.H., **Nam, W.H.***, 2024. Historical climate change impacts on reservoir water reliability considering water storage capacity and environmental changes. *American Geophysical Union Fall Meeting 2024*, Washington, D.C., USA.

3. Yoon, D.H., **Nam, W.H.***, 2024. A water balance network model to estimate the impact of climate change on water demand and supply for agricultural watersheds in South Korea. *American Geophysical Union Fall Meeting 2024*, Washington, D.C., USA.
4. Lee, H.J., **Nam, W.H.***, Otkin, J.A., Zhong, Y., Svoboda, M.D., 2024. Comparison of spatio-temporal flash drought characteristics using satellite-derived soil moisture products in North and South Korea. *American Geophysical Union Fall Meeting 2024*, Washington, D.C., USA.
5. Moon, Y.S., **Nam, W.H.***, Do, J.W., Irmak, S., 2024. Propagation dynamics and interactions in East Asia using grid-based rainfall satellite data. *American Geophysical Union Fall Meeting 2024*, Washington, D.C., USA.
6. Shin, J.H., **Nam, W.H.***, Sharma, V., Irmak, S., 2024. The impact of return flow on the water cycle and water allocation using EPA-SWMM. *American Geophysical Union Fall Meeting 2024*, Washington, D.C., USA.
7. **Nam, W.H.**, Hong, E.M., Kim, T., Choi, S.K., 2024. Assessing environmental sustainability under climate change impacts on agricultural water resources using the SWAT+ model. *PAWEES 2024 International Conference*, Taichung, Taiwan.
8. **Nam, W.H.**, 2024. Estimating agricultural resilience during drought-heat extremes in North and South Korea across various agricultural, energy, and food systems. *2024 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Anaheim, California, USA.
9. Do, J., Jeon, M., **Nam, W.H.**, Shin, H., Lim, H. Lee, K., Kisekka, I., 2024. Comparative analysis of agricultural water management in California and Korea: Current status and future perspectives. *2024 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Anaheim, California, USA.
10. **Nam, W.H.**, 2023. Integrating UAV-LIDAR and multibeam echosounder data for remote sensing of water observations. *American Geophysical Union Fall Meeting 2023*, San Francisco, California, USA.
11. **Nam, W.H.**, 2023. Towards drought-resilient water resources under future climate change in East Asia. *CHES (Chinese Hydraulic Engineering Society) 2023 Annual Conference*, Zhengzhou, Henan, China.
12. Jeon, M.G., Lee, H.J., Park, G.S., Kim, S.H., Sur, C., **Nam, W.H.***, 2023. CMIP6 model-projected hydroclimatic and flash drought responses to climate change. *PAWEES 2023 International Conference*, Busan, Republic of Korea.

13. Shin, J.H., Yoon, D.H., Yang, M.H., Mun, Y.S., **Nam, W.H.***, 2023. Application of coupled hydraulic-hydrological modeling for water circulation in agricultural watershed. *PAWEES 2023 International Conference*, Busan, Republic of Korea.
14. Sadiqi, S.S., Hong, E.M., **Nam, W.H.**, 2023. Ingraining a resilient socio-ecological system for long-term sustainability: Case of Chuncheon city, in Korea. *PAWEES 2023 International Conference*, Busan, Republic of Korea.
15. Park, G.S., **Nam, W.H.***, 2023. Examining the extreme and long-term 2022 drought event in the southern region of South Korea using remote sensing-based drought index. *2023 AOGS Annual Meeting, Asia Oceania Geosciences Society*, Singapore.
16. Kim, S.H., **Nam, W.H.***, 2023. Projection of future drought characteristics using the multiple drought indices under SSP scenarios in South Korea. *2023 AOGS Annual Meeting, Asia Oceania Geosciences Society*, Singapore.
17. Jeon, M.G., **Nam, W.H.***, Hong, E.M., 2023. Projected spatio-temporal variations of soil moisture drought under CMIP6 climate change scenarios. *2023 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers,* Omaha, Nebraska, USA.
18. Yang, M.H., **Nam, W.H.***, 2023. Assessment of water supply reliability for agricultural reservoirs using Big data and climate variability. *2023 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Omaha, Nebraska, USA.
19. Yoon, D.H., **Nam, W.H.***, 2023. Assessment of water balance model for water supply system and reservoir linkage operation. *2023 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Omaha, Nebraska, USA.
20. Lee, H.J., **Nam, W.H.***, Otkin, J.A., Zhong, Y., Svoboda, M.D., 2023. Flash drought onset and development analysis using Flash Drought Intensity Index (FDII) in South Korea. *2023 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Omaha, Nebraska, USA.
21. Moon, Y.S., **Nam, W.H.***, Do, J.W., Lee, K.Y., 2023. Application of Objective Drought Blend (ODB) for drought monitoring in South and North Korea. *2023 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Omaha, Nebraska, USA.
22. Shin, J.H., **Nam, W.H.***, Irmak, S., Sharma, V., Zhang, X., 2023. Modeling irrigation canal network flow for return flow on agricultural watershed using EPA-SWMM. *2023 ASABE*

Annual International Meeting, American Society of Agricultural and Biological Engineers, Omaha, Nebraska, USA.

23. Jeon, M.G., **Nam, W.H.***, 2022. Assessment of drought vulnerability based on the soil water balance. *73rd International Executive Council Meetings, 24th International Commission on Irrigation and Drainage*, Adelaide, South Australia.
24. Yang, M.H., **Nam, W.H.***, 2022. Developing data-driven quality control algorithm to manage real-time water level using deep learning. *73rd International Executive Council Meetings, 24th International Commission on Irrigation and Drainage*, Adelaide, South Australia.
25. Yoon, D.H., **Nam, W.H.***, 2022. Spatio-temporal trend analysis of drought occurrence using multisatellite images in South Korea. *73rd International Executive Council Meetings, 24th International Commission on Irrigation and Drainage*, Adelaide, South Australia.
26. Lee, H.J., **Nam, W.H.***, 2022. Water storage estimation in reservoirs using multiple satellite observations. *73rd International Executive Council Meetings, 24th International Commission on Irrigation and Drainage*, Adelaide, South Australia.
27. Moon, Y.S., **Nam, W.H.***, 2022. Drought vulnerability assessment on water supply of reservoir for climate change adaptation. *73rd International Executive Council Meetings, 24th International Commission on Irrigation and Drainage*, Adelaide, South Australia.
28. Shin, J.H., **Nam, W.H.***, 2022. Irrigation efficiency and water saving potential considering irrigation return flow and reservoir operation. *73rd International Executive Council Meetings, 24th International Commission on Irrigation and Drainage*, Adelaide, South Australia.
29. Sadiqi, S.S., Hong, E.M., **Nam, W.H.**, 2022. Evaluation of the reduction effect of NPS under SSP climate change scenarios using SWAT in Doam dam. *The 2022 World Congress on Advances in Civil, Environmental, & Materials Research*, Seoul, Republic of Korea.
30. **Nam, W.H.**, Shin, J.H., Hong, E.M., 2022. Dynamic irrigation water distribution network modeling based on hydraulic-hydrological performance analysis using SWMM with modulated control. *2022 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Houston, Texas, USA.
31. **Nam, W.H.**, 2021. Spatiotemporal drought propagation and awareness related to climate-water-soil-vegetation dynamic interactions over the Korean Peninsula. *American Geophysical Union Fall Meeting 2021*, Virtual and On Demand.

32. **Nam, W.H.**, Jeon, M.G., Yoon, D.H., Yang, M.H., Lee, H.J., Moon, Y.S., 2021. Remote sensing of the impact of flash drought on vegetation dynamics over East Asia. *2021 Asian Conference on Remote Sensing*, Can Tho, Viet Nam.
33. **Nam, W.H.**, Shin, J.H., Kim, H.Y., Woo, S.B., 2021. Application of coupled hydraulic-hydrological modeling of irrigation canal network for improving water delivery performance. *PAWEES 2021 International Conference*, Taipei, Taiwan.
34. **Nam, W.H.**, Kim, T., 2021. Development of reservoir operation and water allocation model for optimal operating policy using machine learning techniques and climate phenomenon information. *2021 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.
35. Bang, N.K., **Nam, W.H.***, 2021. Assessment of water supply systems reliability with irrigation distribution networks in agricultural reservoirs under climate change. *2021 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.
36. Jeon, M.G., **Nam, W.H.***, 2021. Evaluation of GRACE satellite-derived surface soil moisture and groundwater product for drought risk assessment over agricultural regions of East Asia. *2021 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.
37. Yang, M.H., **Nam, W.H.***, 2021. Development of anomaly detection algorithm for reservoir water levels based on deep learning. *2021 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.
38. Yoon, D.H., **Nam, W.H.***, 2021. System dynamics modeling for drought preparedness based on complex water resources systems. *2021 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.
39. Lee, H.J., **Nam, W.H.***, 2021. Assessing the evolution of soil moisture and vegetation conditions using the Evaporative Demand Drought Index (EDDI) during flash drought in South Korea. *2021 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.
40. Moon, Y.S., **Nam, W.H.***, 2021. Evaluation of global-scale satellite-assisted precipitation products for meteorological drought risk assessment in East Asia. *2021 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.

41. Shin, J.H., **Nam, W.H.***, 2021. Assessment of water efficiency and uniformity with irrigation performance indicators using EPA SWMM. *2021 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.
42. Kim, H.Y., **Nam, W.H.***, 2021. Estimation of watershed-scale irrigation return flow by monitoring and canal network modeling for agricultural water management. *2021 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.
43. Woo, S.B., **Nam, W.H.***, 2021. Linking historical drought severity and drought awareness from big data-driven google trends. *2021 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.
44. Bang, N.K., **Nam, W.H.***, Lee, H.J., Yang, M.H., Jang, M.W., Shin, A., 2021. Monitoring water surface and reservoir storage using remote sensing images combined with hydrological statistical data. *2021 International Symposium on Remote Sensing*, Virtural Conference.
45. Jeon, M.G., **Nam, W.H.***, Mun, Y.S., Hong, E.M., Hwang, S., Ok, J.H., Hur, S.O., 2021. Performance of the operational Simplified Surface Energy Balance (SSEBop) model for estimating actual evapotranspiration in South Korea. *2021 International Symposium on Remote Sensing*, Virtural Conference.
46. Yoon, D.H., **Nam, W.H.***, Lee, H.J., Shin, J.H., Wardlow, B.D., Tadesse, T., 2021. Using the high-resolution Evaporative Stress Index to monitor field-scale drought in South Korea. *2021 International Symposium on Remote Sensing*, Virtural Conference.
47. Lee, H.J., **Nam, W.H.***, Yoon, D.H., Woo, S.B., Svoboda, M.D., 2021. Identification and spatiotemporal characteristics of flash drought using multiple-satellite images in South Korea. *2021 International Symposium on Remote Sensing*, Virtural Conference.
48. Moon, Y.S., **Nam, W.H.***, Jeon, M.G., Kim, H.Y., Kim, T., 2021. Comparison of global gridded precipitation products for hydroclimate extremes and impacts in East Asia. *2021 International Symposium on Remote Sensing*, Virtural Conference.
49. **Nam, W.H.**, Kim, T., Hayes, M.J., 2020. Examining the drought characteristics and awareness using evapotranspiration-based drought indices (EDDI, SEDI, SPEI). *American Geophysical Union Fall Meeting 2020*, Virtual and On Demand.
50. **Nam, W.H.**, Hayes, M.J., Svoboda, M.D., Fuchs, B., 2020. Comparison of spatio-temporal trends on drought characteristics using meteorological drought indices (SPI and EDI) in the United States. *2020 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.

51. **Nam, W.H.**, Kim, T., 2020. Development of reservoir operation and water allocation model for optimal operating policy using machine learning techniques and climate phenomenon information. *2020 ASABE Annual International Meeting, American Society of Agricultural and Biological Engineers*, Virtual and On Demand.
52. **Nam, W.H.**, 2020. Application in agricultural drought management using remote sensing-based Evaporative Stress Index of crop yield. *2nd International Crop Modelling Symposium (ICROPM 2020)*, Montpellier, France.
53. **Nam, W.H.**, Kim, T., 2020. Comparison of spatio-temporal trends on drought characteristics using meteorological drought indices (SPI and EDI) in the United States. *2020 AMS Annual Meeting, American Meteorological Society*, Boston, Massachusetts, USA.
54. **Nam, W.H.**, Kim, T., Hong, E.M., Feng, S., Hayes, M.J., 2019. Multi-model ensemble projections of the climate change effect on the mega-drought. *American Geophysical Union Fall Meeting 2019*, San Francisco, California, USA.
55. Safi, S., **Nam, W.H.**, Ghafoori, H., Malyar, I., 2019. Impact of climate change on flood frequency and proposed dams using SWAT model under CMIP5 RCP scenarios in the Kunar basin, Afghanistan. *23rd International Congress on Modelling and Simulation (MODSIM 2019)*, Canberra, Australia.
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124. Lee, H.J., **Nam, W.H.***, Sur, C., Otkin, J.A., Svoboda, M.D., 2024. Analysis of flash drought characteristics using AMSR2-based soil moisture in the Korean Peninsula.
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PROFESSIONAL SOCIETY

- 2006 – present: Korean Society of Agricultural Engineers (KSAE)
- 2007 – present: Korean National Committee on Irrigation and Drainage (KCID)
- 2008 – present: Korea Water Resources Association (KWRA)
- 2016 – present: Korean Society of Rural Planning (KSRP)
- 2016 – present: Korean Society of Climate Change Research (KSCC)

- 2019 – present: Korean Society of Hazard Mitigation (KSHM)
- 2019 – present: Korean Society of Remote Sensing (KSRS)
- 2007 – present: American Society of Agricultural and Biological Engineers (ASABE)
- 2008 – present: International Society of Paddy and Water Environment Engineering (PAWEES)
- 2011 – present: International Commission on Irrigation and Drainage (ICID)
- 2015 – present: American Geophysical Union (AGU)
- 2017 – present: Water for Food at the University of Nebraska
- 2019 – present: American Meteorological Society (AMS)

HONORS AND AWARDS

- **BEST RESEARCH PROFESSOR AWARD IN APR 2025**

  Hankyong National University, Republic of Korea

- **RECOGNITION AWARD IN DEC 2024**

  Ministry for Food, Agriculture, Forestry and Fisheries (MIFAFF), Republic of Korea

- **RECOGNITION AWARD IN NOV 2024**

  National Agricultural Water Research Center, Hankyong National University, University Industry Foundation, Republic of Korea

- **MOST CITED PAPER AWARD IN OCT 2024**

  Korean Society of Agricultural Engineers (KSAE), Republic of Korea

- **RECOGNITION AWARD IN JAN 2024**

  Korea Water Resources Association (KWRA), Republic of Korea

- **RECOGNITION AWARD IN DEC 2023**

  Korea Rural Community Corporation (KRC), Republic of Korea

- **BEST RESEARCH PROFESSOR AWARD IN APR 2023**

  Hankyong National University, Republic of Korea

- **YOUNG PROFESSIONAL AWARD IN MAR 2023**

  Korean National Committee on Irrigation and Drainage (KCID), Republic of Korea

- **ACADEMIC PAPER AWARD IN FEB 2023**

Korean Society of Hazard Mitigation (KOSHAM), Republic of Korea

- **YOUNG PROFESSIONAL AWARD IN NOV 2022**

  International Society of Paddy and Water Environment Engineering (PAWEES), Japan

- **BEST RESEARCH PROFESSOR AWARD IN APR 2022**

  Hankyong National University, Republic of Korea

- **ACADEMIC AWARD IN APR 2021**

  Hankyong National University, Republic of Korea

- **BEST RESEARCH PROFESSOR AWARD IN APR 2021**

  Hankyong National University, Republic of Korea

- **KCID BEST PERFORMING COMMITTEE AWARD IN JUL 2020**

  Korean National Committee on Irrigation and Drainage (KCID), Republic of Korea

- **YOUNG SCIENTIST AWARD IN OCT 2019**

  Korean Society of Agricultural Engineers (KSAE), Republic of Korea

- **BEST RESEARCH PROFESSOR AWARD IN APR 2019**

  Hankyong National University, Republic of Korea

- **YOUNG RESEARCHERS AWARD IN OCT 2018**

  International Conference on Energy and Sustainability 2018 (ICES 2018), Seoul, Republic of Korea
  Title: *Climate change impacts on drought risk management in Egypt using Standardized Precipitation Index (SPI) and Standardized Precipitation Evapotranspiration Index (SPEI)*

- **KSAE OUTSTANDING PAPER PRESENTATION AWARD IN OCT 2016**

  2016 Annual Conference of the Korean Society of Agricultural Engineers (KSAE), Daejeon, Republic of Korea
  Title: *Climate change impact assessment on agricultural water resources for upland crops*

- **KSAE OUTSTANDING PAPER PRESENTATION AWARD IN SEP 2012**

  2012 Annual Conference of the Korean Society of Agricultural Engineers (KSAE), Cheonan, Republic of Korea
  Title: *Agricultural drought assessment using reservoir drought index*

- **KWRA OUTSTANDING PAPER PRESENTATION AWARD IN MAY 2012**

  2012 Annual Conference of the Korea Water Resources Association (KWRA), Gangwon, Republic of Korea
  Title: *Reliability assessment of water supply system in agricultural reservoir using probability distribution of water demand and supply*

- **OUTSTANDING PAPER PRESENTATION AWARD IN SEP 2009**

  2009 Chuncheon Global Water Forum, Gangwon, Republic of Korea
  Title: *Development of web-GIS based SWAT data generation system*

RESEARCH INTERESTS

- Irrigation and drainage engineering
- Agricultural drought and water resources management
- Drought monitoring, mitigation, planning and policy
- Risk and vulnerability management
- Remote sensing for drought monitoring and management
- Climate change impact and mitigation on agricultural water resources
- Web-GIS for watershed management decision support systems
- Information and communications technology applications for agricultural water management
- Soil moisture and hydrologic/watershed modeling
- Monitoring agro-environmental impacts for sustainable agricultural system
- Agrometeorology and climate teleconnection
- Crop simulation modelling and decision support tools to improve crop management