

CURRICULUM VITAE

Chia-Jeng (CJ) Chen, Ph.D.

Assistant Professor
Civil Engineering, National Chung Hsing University

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I. EXPERTISE AND RESEARCH INTERESTS

Hydro-Climatic Forecasting and Hydrological Modeling
GIS and Remote Sensing Applications
Regional Catastrophe Modeling and Risk Assessments
Integrated Climate Change Impact Assessments
Sustainable Water Resources Planning and Management
Statistical Modeling and Machine Learning
Optimization Algorithms and Applications

II. PROFESSIONAL APPOINTMENTS

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|---|-------------------------|
| Assistant Professor Civil Engineering National Chung Hsing University | August 2015–Present |
| Sr. Scientist Catastrophe Risk Engineering AIR Worldwide | July 2013–July 2015 |
| Postdoctoral Fellow Georgia Water Resources Institute School of Civil and Environmental Engineering Georgia Institute of Technology, Atlanta, Georgia | August 2012–June 2013 |
| Graduate Research Assistant School of Civil and Environmental Engineering Georgia Institute of Technology, Atlanta, Georgia | January 2007–July 2012 |
| Research Assistant Research and Development Center Central Weather Bureau, Taipei, Taiwan | August 2004–August 2006 |

III. EDUCATION

- Ph.D.,** **Civil and Environmental Engineering, August 2012**
Georgia Institute of Technology, Atlanta, Georgia
Major: Environmental Fluid Mechanics and Water Resources
Minor: Earth and Atmospheric Sciences and Statistics
Thesis Title: *Hydro-Climatic Forecasting Using Sea Surface Temperatures*
- M.S.,** **Civil and Environmental Engineering, May 2008**
Georgia Institute of Technology, Atlanta, Georgia
- M.S.,** **Bioenvironmental Systems Engineering, May 2004**
National Taiwan University, Taipei, Taiwan
Major: Soil and Water Resources Engineering
Thesis Title: *Inverse Analysis of Identifying Groundwater Contaminant Source and its Release History along with Optimizing Dispersivity Spatial Patterns*
- B.S.,** **Bioenvironmental Systems Engineering, May 2002**
National Taiwan University

IV. PROJECT EXPERIENCE, SPONSORED RESEARCH, AND COLLABORATION

1. Taiwan typhoon catastrophe model: Typhoon characteristic analysis, loss prediction, and risk assessment, \$720,000 NTD funded by the **Ministry of Science and Technology (MOST 107-2625-M-005-001-; PI)** (August 2018–July 2019).
2. Interactions between Taiwan’s land-use/cover change and regional atmospheric and hydro-meteorological modeling and large-scale climate variability, \$2,483,000 NTD funded by **MOST 105-2621-M-005-004-MY3; PI** (August 2016–July 2019).
3. Rainfall analysis in the context of climate change for Jen-I-T’an reservoir, Southwest Taiwan, \$300,000 NTD funded by **Liming Engineering Consultants; PI** (May 2019–September 2019).
4. Hydro-climatic forecasting for East and Southeast Asia—methodology and integrated modeling, \$901,000 NTD funded by **MOST 106-2625-M-005-004-; PI** (August 2017–October 2018).
5. Hydro-climatic forecasting for East and Southeast Asia—teleconnection patterns, methodology, and integrated modeling, \$1,687,000 NTD funded by **MOST 104-2625-M-005-007-MY2; PI** (November 2015–July 2017).

6. Applying integrated numerical modeling of surface water and subsurface water to study groundwater resources management, \$3,400,000 NTD funded by the Water Resources Agency under **MOEAWRA1050043; Co-PI** (November 2015–July 2017).
7. Development of inland flood modeling for Southeast Asian countries (Indonesia, the Philippines, and Vietnam), sponsored by **AIR Worldwide** (November 2013–July 2015).
8. Enable climate change responses in Asia and the Pacific—developing a disaster risk financing (DRF) capability—Phase 2: study of potential DRF options, in partnership with the **Asian Disaster Preparedness Center (Thailand) and Swiss Re (Switzerland)**, sponsored by the **Asian Development Bank** (November 2013–July 2015).
9. Philippines catastrophe risk assessment and modeling—Component 3: country catastrophe risk profiles, in partnership with the **Asian Disaster Preparedness Center**, sponsored by the **World Bank** (July 2013–December 2013).
10. Development of inland flood modeling for Southeast European countries (Albania, Macedonia, and Serbia), in support of the **Europa Re** operations, sponsored by the **World Bank** (July 2013–September 2013).
11. Apalachicola Chattahoochee Flint (ACF) sustainable water management plan—Phase I: ACF unimpaired flow review and assessment; Phase II: instream flow and lake levels assessment, sponsored by **Black and Veatch Corporation** and the **ACF Stakeholders** (May 2012–June 2013).
12. FY 2011 state water resources program, sponsored by **U.S. Dept. of Interior and Geological Survey** (January 2012–June 2013).
13. Establishing strategies for natural disaster research based on hydrometeorology and hydroclimatology, recipient of Taiwan Merit Scholarships, sponsored by the **National Science Council in Taiwan** (~\$70,000USD, January 2007–December 2008).
14. Developing an atmospheric-pattern-based flood hazard module, sponsored by the **National Science Council in Taiwan** (August 2004–July 2006).
15. Developing a climate change and extreme weather monitoring and forecasting system, sponsored by the **Central Weather Bureau in Taiwan** (August 2004–July 2006).

V. TEACHING EXPERIENCE

- Instructor** Fall 2015~2018
CE 2315 Engineering Statistics (I)
Department of Civil Engineering
National Chung Hsing University, Taichung, Taiwan
- Instructor** Spring 2016 and 2018
CE 2371 Fluid Mechanics
Department of Civil Engineering
National Chung Hsing University, Taichung, Taiwan
- Instructor** Spring 2017 and 2018
CE 4158 Topic Study in Civil Engineering (Capstone)
Department of Civil Engineering
National Chung Hsing University, Taichung, Taiwan
- Instructor** Spring 2016 and 2017
CE 3329 Climate Change and Environmental Impact
Department of Civil Engineering
National Chung Hsing University, Taichung, Taiwan
- Instructor** Fall 2015~2017
CE 6765 Applied Statistics
Department of Civil Engineering
National Chung Hsing University, Taichung, Taiwan
- Instructor** Fall 2018
CE 6765 Random Data Analysis
Department of Civil Engineering
National Chung Hsing University, Taichung, Taiwan
- Instructor** Spring 2017 and 2018
CE 6765 Analysis of Water Resources System (I)
Department of Civil Engineering
National Chung Hsing University, Taichung, Taiwan
- Instructor** Summer 2010 and 2011; Fall 2011
CEE 4210 Hydrology
School of Civil and Environmental Engineering
Georgia Institute of Technology, Atlanta, Georgia

Teaching Assistant Fall 2009, 2010, and 2012
CEE 6231 Probability and Statistics (Statistical Hydrology)
School of Civil and Environmental Engineering
Georgia Institute of Technology, Atlanta, Georgia

Laboratory Assistant Spring 2003
BSE 2016 Fluid Mechanics Laboratory
Department of Bioenvironmental Systems Engineering
National Taiwan University, Taipei, Taiwan

Teaching Assistant Fall 2002
BSE 5071 Climate Change and Environmental Ecology
Department of Bioenvironmental Systems Engineering
National Taiwan University, Taipei, Taiwan

VI. PUBLICATIONS AND PRESENTATIONS

Refereed Journal Articles:

1. **Chen C-J**, Lee T-Y, Chang C-M, Lee J-Y (2018) Assessing typhoon damages to Taiwan in the recent decade: return period analysis and loss prediction. *Natural Hazards*, **91(2)**, 759–783 (SCI, 40/90, WATER RESOURCES).
2. **Chen C-J**, Lee T-Y (2017) Variations in the correlation between teleconnections and Taiwan's streamflow. *Hydrology and Earth System Sciences*, **21**, 3463–3481 (SCI, 5/90, WATER RESOURCES).
3. **Chen C-J**, Senarath SUS, Dima West IM, Marcella MP (2017) Evaluation and restructuring of gridded precipitation data over the Greater Mekong Subregion. *International Journal of Climatology*, **37**, 180–196 (SCI, 23/86, METEOROLOGY & ATMOSPHERIC SCIENCES).
4. **Chen C-J**, Georgakakos AP (2015) Seasonal prediction of East African Rainfall. *International Journal of Climatology*, **35**, 2698–2723 (SCI, 23/86, METEOROLOGY & ATMOSPHERIC SCIENCES).
5. **Chen C-J**, Georgakakos AP (2014) Hydro-climatic forecasting using sea surface temperatures—methodology and application for the Southeast U.S. *Climate Dynamics*, **42**, 2955–2982. DOI: 10.1007/s00382-013-1908-4 (SCI, 15/86, METEOROLOGY & ATMOSPHERIC SCIENCES).
6. **Chen C-J**, Lu MM (2007) Detection of the climatic extreme rainfall events in Taiwan. *Atmospheric Sciences*, **35(2)**, 105–118 (in Chinese).

7. Lu MM, **Chen C-J**, Lin YC (2007) Long-term variations of the occurrence frequency of extreme rainfall events during the period of 1951–2005. *Atmospheric Sciences*, **35**(2), 87–104 (in Chinese).
8. Lu MM, **Chen C-J** (2005) Statistical analysis of heavy rainfall frequency. *Meteorological Bulletin*, **46**(1), 45–49 (in Chinese).
9. Tung CP, **Chen C-J** (2002) Study of optimizing reservoir operation rules using Genetic Algorithms—case study of Liyu-Tan Reservoir. *Journal of Taiwan Water Conservancy*, **50**(3), 61–69 (in Chinese).

Journal Articles Under Review or in Preparation:

1. Shih D-S, **Chen C-J**, Lee M-H, Jang C-S, Chang C-M, Liao Y-Y (2018) Statistical and numerical assessments of groundwater resource subject to excessive pumping: case study in Southwest Taiwan. *Journal of Water Resources Planning and Management* (under review).
2. **Chen C-J** (2018) An improved procedure for empirical seasonal prediction.
3. Tseng S-C, **Chen C-J**, Senarath SUS (2018) Seasonal evaluation of weather generators at different spatial scales.
4. Chen C-C, Chang C-M, Lo M-H, **Chen C-J**, Juang J-Y (2018) Analyzing the impact of land use/cover changes on local and regional climate.
5. **Chen C-J**, Georgakakos AP (2018) Seasonal prediction of Atlantic hurricane activity.
6. **Chen C-J**, Georgakakos AP, Yao H (2018) Integrated seasonal runoff forecasting and water resources management in China and the United States.

Presentations to Conferences, Symposia, and Seminars:

1. **Chen C-J**, Chen C-C, Chang C-M, Juang J-Y, Lo M-H (2018) Modelling the impact of land use/cover changes on Taiwan's climate. Global Land Project Asia Conference 2018, Taipei, September 3–5 (oral).
2. **Chen C-J**, Chen C-C, Chang C-M, Juang J-Y, Lo M-H (2017) Understanding the impact of land use/cover changes on regional climate modeling for Taiwan. 14th Annual Meeting Asia Oceania Geosciences, AOGS 2017, Singapore, August 6–11 (oral).
3. Tseng S-C, **Chen C-J** (2017) Intercomparison of stochastic weather generators using rainfall data in Taiwan. 14th Annual Meeting Asia Oceania Geosciences, AOGS 2017, Singapore, August 6–11.

4. **Chen C-J** (2017) Seasonal prediction of Taiwan's streamflow using teleconnection patterns. 19th EGU General Assembly, EGU 2017, Vienna, Austria, April 23–28 (poster).
5. **Chen C-J** (2016) Temporal disaggregation of seasonal forecasting for streamflow simulation. World Environmental and Water Resources Congress 2016, West Palm Beach, Florida, USA, May 22–26 (oral).
6. Jayasekera DL, **Chen C-J**, Senarath SUS, Marcella MP (2015). Generation of stochastic rainfall estimates for the Mekong River basin. Watershed Management Symposium 2015, Reston, Virginia, August 5–7.
7. **Chen C-J**, Jayasekera DL, Senarath SUS (2015) Assessing uncertainty in precipitation and hydrological modeling in the Mekong. World Environmental and Water Resources Congress 2015, Austin, Texas, USA, May 17–21 (oral).
8. Shen Yi, **Chen C-J**, Senarath SUS (2014) Sensitivity of a hydraulic model to land use uncertainty under extreme flooding. Floodplain Management Annual Conference, Santa Clara, California, USA, September 2–5.
9. **Chen C-J**, Senarath SUS (2014) Implications of SRTM- and ASTER-based DEMs on hydrologic responses at various catchment scales. EWRI World Water and Environmental Resources Congress, Portland, Oregon, USA, June 1–5 (oral).
10. Marcella PM, **Chen C-J**, Senarath SUS (2013) Analysis of non-tropical cyclone-induced flood events over Southeast Asia: investigating flood frequency and extremes in the Philippines. AGU Fall Meeting, San Francisco, California, USA, December 9–13.
11. **Chen C-J** (2013) Understanding the benefits of hydro-climatic forecasting to water resources planning and management. Southern Illinois University Edwardsville, April 24 (invited).
12. **Chen C-J**, Georgakakos AP (2012) Seasonal rainfall forecasting using SST dipoles with application to the Southeast US. AGU Fall Meeting, San Francisco, California, USA, December 3–7 (poster).
13. **Chen C-J**, Georgakakos AP (2011) Seasonal rainfall prediction using sea surface temperature with an application in the southeast US. AGU Fall Meeting, San Francisco, California, USA, December 5–9 (oral).
14. **Chen C-J**, Georgakakos AP (2011) Seasonal rainfall prediction using sea surface temperature information. Proceedings of the 2011 Georgia Water Resources Conference, University of Georgia, Athen, Georgia, USA, April 11–13 (oral).

15. **Chen C-J** (2008) Improving hydro-climatic assessment and forecasting by utilizing ocean-atmosphere information. Central Weather Bureau, Taipei, Taiwan, December 15 (invited).
16. Liu TM, Tung CP, **Chen C-J**, Chen SW (2004) Establishing a drought warning system based on long-lead climate forecasting. EWRI World Water and Environmental Resources Congress, Salt Lake City, Utah, USA, June 28–July 1.
17. Hsu SY, Tung CP, **Chen C-J**, Wang CF (2004) Application to reservoir operation rule-curves. EWRI World Water and Environmental Resources Congress, Salt Lake City, Utah, USA, June 28–July 1.

VII. PROFESSIONAL SERVICE, ACTIVITIES, AND MEMBERSHIP

Associate Editor:

Weather and Forecasting (AMS)

Journal Reviewer:

Bulletin of the American Meteorological Society (AMS)

Environmental Monitoring and Assessment (Springer)

Environmental Modelling & Software (Elsevier)

Journal of Applied Meteorology and Climatology (AMS)

Journal of Atmospheric and Oceanic Technology (AMS)

Journal of Climate (AMS)

Journal of Hydrology (Elsevier)

Journal of Hydrologic Engineering (ASCE)

Journal of Hydrometeorology (AMS)

Journal of the American Water Resources Association (AWRA)

Journal of Water Resources Planning and Management (ASCE)

Monthly Weather Review (AMS)

Paddy and Water Environment (Springer)

PLOS One (PLOS)

Water Resource Management (Springer)

Water Resources Research (AGU)

Weather and Forecasting (AMS)

Terrestrial, Atmospheric and Oceanic Sciences (CGU)

Taiwan Water Conservancy (in Chinese)

Journal of the Chinese Institute of Civil and Hydraulic Engineering (in Chinese)

Proposal Reviewer:

MOST 2018

Conference Organization:

Convener, Global Land Project Asia Conference 2018, Taipei, September 3–5.

Member:

American Geophysical Union (AGU)
American Meteorological Society (AMS)
American Society of Civil Engineers (ASCE)
Environmental and Water Resources Institute (EWRI)

VIII. HONORS AND AWARDS

ASCE 2016 Outstanding Reviewer of *J. Water Res. Pl.*
MOST Subsidies for Schools of Higher Education to Hire Distinguished Talents, 2015–2018
Georgia Tech's Nominee for the 2012 Lorenz G. Straub Award
Taiwan Merit Scholarships Program, National Science Council (NSC), Taiwan, 2006–2008
Thesis Award for the Memorial to Prof. Takasaka, National Taiwan University, 2002
Grant-In-Aid of the Undergraduate Monographic Study, NSC, Taiwan, 2001
Scholarship of Prof. Xu, National Taiwan University, 2001

IX. GRADUATE ADVISEES

Former Advisees:

M.S.: Meng-Kai Yu and Shao-Chun (Debbie) Tseng

Present Advisees:

M.S.: Pei-Pei Chuang, Chih-Yun Yu, Pin-Lun Li, and Yan-Cheng Chen

X. PROFICIENCY IN RESEARCH SKILLS

Programming, Database, and Statistical Packages

C++, FORTRAN, GrADS, MATLAB, NCL, OpenMP, R, SPSS, SAS, Visual Basic, VBA

Hydrologic, Hydraulic, and Water Resources Modeling Essentials

ArcGIS, AutoCAD, CASC2D, GWLF, HEC-DSSVue, HEC-GeoHMS, HEC-HMS, HEC-RAS, HEC-ResSim, IHA, MODFLOW, PDM

Operating Systems and Others

Cygwin, LaTeX, Linux, Mac OS, MS Office, Windows

XI. PROFESSIONAL REGISTRATION

Engineer-In-Training, MD Board for Professional Engineers, License 43656

XII. COLLABORATORS & PROFESSIONAL REFERENCES

Dr. Aris P. Georgakakos
Professor
School of Civil and Environmental Engineering
Georgia Institute of Technology
Mason 2201D, 790 Atlantic Drive
Atlanta, Georgia 30332, USA
Email: ageorgak@ce.gatech.edu

Dr. Sharika U.S. Senarath
Director
Flood Peril
Berkshire Hathaway Specialty Insurance
2633 Camino Ramon, Suite 325
San Ramon, CA 94583
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Dr. Tsung Yu (Daniel) Lee
Assistant Professor
Department of Geography
National Taiwan Normal University, Taipei, Taiwan
162, Section 1, HePing East Road
Taipei 10610, Taiwan
Email: tylee@ntnu.edu.tw

Dr. Min-Hui Lo
Associate Professor
Department of Atmospheric Sciences
National Taiwan University
1, Section 4, Roosevelt Road
Taipei 10673, Taiwan
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Dr. Marc Marcella
Sr. Scientist and Manager of Hydrometeorology Group
AIR Worldwide
131 Dartmouth Street
Boston, MA 02116, USA
Email: marc.p.marcella@gmail.com

Dr. Dong-Sin Shih
Associate Professor
Department of Civil Engineering
National Chung Hsing University
145 Xingda Road, South District
Taichung 40227 Taiwan
Email: dsshih@nchu.edu.tw

Dr. Mong-Ming Lu
Project Professor
Department of Atmospheric Sciences
National Taiwan University
1, Section 4, Roosevelt Road
Taipei 10673, Taiwan
Email: mongminglu@gmail.com