

Yu-Fen Huang

Ph.D. Candidate of Natural Resources and Environmental Management

University of Hawaii at Manoa

✉ yfhuang@hawaii.edu 🌐 [yfhuang7](https://github.com/yfhuang7) 🌐 yfhuang7.github.io/

EDUCATION

Ph.D. candidate, University of Hawaii at Manoa, 2020

Dissertation: "Advancing Knowledge on Causes and Mechanisms of Flooding in Hawaii"

University of Hawaii at Manoa, HI, USA, M.S. Atmospheric Science 2016

Thesis: "A Study of Summer Leeward Rainfall over the Islands of Hawai'i and Oahu"

National Central University, Taoyuan, Taiwan, B.S. Atmospheric Science 2011

RESEARCH EXPERIENCES

Graduate Assistant in Tsang Stream Lab., Department of Natural Resources and Environmental Management, University of Hawaii at Manoa, HI, USA: 2016–present

Advisor: Dr. Tsang, Yin-Phan

- Field experiences: Install and maintain stream gages (staff plates, pressure transducers, and YSI); measure streamflow and build rating curves; conduct benthic survey.
- Data streaming/visualization: Visualize the data above, and maintain a near real-time webpage for public by using Github static website: [TsangStreamLab](#) (Currently discontinued)
- Simulation: Hydrological Modeling for watersheds in Hawaii by using SWAT and WRF-Hydro.
- Data analysis: (1) Long-term trend analysis for the peakflow/flood and its association with rainfall. (2) Characterizing natural flow regime of Hawaiian forest watersheds and its implication on downstream water availability. (3) Characterizing the water availability and nutrient transport of Hawaii's watersheds and its implication to downstream agriculture and coastal environment
- Workshop: (1) Assist "2017 Stream Meeting", Honolulu, Hawaii, U.S.A.; (2) Assist "2020 Current Topics in Tropical Island Hydrology: Water Hazard & Resource Prediction + WRF-Hydro Modeling", online.
- Project management: Project manager for Halawa project, 2022.
- Administrative: Maintain lab website and design lab logo/stickers.

Graduate Assistant in the Water Resources Research Center, University of Hawaii at Manoa, HI, USA: 2021-2022

Advisor: Dr. Jonghyun "Harry" Lee

- Develop Space-time rainfall map for the Hawaiian Islands.

Intern in Commission Water Resource Management, Department of Land and Natural Resources, State of Hawaii, HI, USA: May–June 2019

Supervisor: Dr. Ayron M. Strauch

Estimated ungaged streamflow for five locations by the Soil & Water Assessment Tool (SWAT) to assist [Comission on Water Resource Management \(CWRM\)](#) to build the instream flow standard in Wailua, Kauai, HI, USA.

Graduate Assistant in the Department of Meteorology, School of Ocean and Earth Science and Technology, University of Hawaii at Manoa, HI, USA: 2013–2016

Advisor: Dr. Chen, Yi-Leng

- Analyze the island effect on the rainfall and airflow over Hawaiian Islands by using the Fifth-Generation Penn State/NCAR Mesoscale Model (MM5) data, and describe the main mechanism for the rainfall in Kona by seasonal analysis.
- Analyze the seasonal rainfall over Hawaii by CMORPH and MM5 output data from 2003 to 2010 by using GrADS.

Research Assistant in Precipitation Modeling Lab., Department of Atmospheric Sciences, National Central University, Taoyuan, Taiwan: 2011–2013

Advisor: Dr. Yang, Ming-Jen

- Assist with analyzing typhoon, Fanapi, to see how it rebuilt in the west after deconstructed due to the high mountain by using the Weather Research and Forecast (WRF) model.
- Administer the lab cluster/computers.

Part-time Research Intern (40 hours/month) in the Atmospheric Chemistry Modeling Lab., Department of Atmospheric Sciences, National Central University, Taoyuan, Taiwan: 2009–2010

Advisor: Dr. Kuo-Ying Wang

- Analyze the relationship between El Nino and lightening by using Fortran.
- Assist with the study in relationship between the summer surface circulation and convection in Taiwan by using the Lagrangian particle dispersion model - Windmodel to simulate each day in July and August during 2005 to 2009.

PUBLICATIONS

Huang, Y-F., Tsang, Y., Gochis, D., RafieeiNasab, A., Omani, N., The uncertainty of flood simulation to rainfall spatial distribution. (*in prep*)

Kodama K., Kourkchi, E., Longman, R.J., Lucas, M.P., Bateni, S., **Huang, Y-F.**, Kagawa-Viviani A., Mclean, J., Cleveland, S.B., and Giambelluca, T.W. Mapping Daily Temperature in the Hawaiian Islands (1990-2021), using an optimized bi-linear regression technique. (*in prep*)

Huang, Y-F., Tsang, Y., Nugent A., Deriving gridded hourly rainfall on Oahu by combining gauge network and radar rainfall. (*submitted*)

Strauch, A.M., Tsang, Y-F., **Huang, Y-F.**, Utilization of gridded high-resolution daily rainfall to predict water availability for hydropower in a tropical watershed using the SWAT model. (submitted)

Huang, Y-F., Gayte M., Tsang Y., Longman R., Nugent A., Kodama K., Lucas M., Giambelluca T. 2022. Hourly rainfall data from rain gauge networks and weather radar up to 2020 across the Hawaiian Islands. Scientific Data 9, 334. <https://doi.org/10.1038/s41597-022-01430-2>.

Lucas, M.P., Longman, R.J., Giambelluca, T.W., Frazier, A.G., Mclean, J., Cleveland, S.B., **Huang, Y-F.**, Lee, J., 2022. Optimizing Automated Kriging to Improve Spatial Interpolation of Monthly Rainfall over Complex Terrain. Journal of Hydrometeorology 23, 561-572. <https://doi.org/10.1175/JHM-D-21-0171.1>

Huang, Y-F., Tsang, Y., Strauch, A.M., Clilverd, H.M., 2021. Shifting magnitude and timing of streamflow extremes and the relationship with rainfall across the Hawaiian Islands. Journal of Hydrology 600, 126424. <https://doi.org/10.1016/j.jhydrol.2021.126424>

Benoit, L., Lucas, M., Tseng, H., **Huang, Y-F.**, Tsang, Y.P., Nugent, A.D., Giambelluca, T.W. and Mariethoz, G., 2020. High space-time resolution observation of extreme orographic rain gradients in a Pacific Island catchment. Frontiers in Earth Science, 8, p.585.

Cohen, S., Raney, A., Munasinghe, D., Loftis, J.D., Molthan, A., Bell, J., Rogers, L., Galantowicz, J., Brakenridge, G.R., Kettner, A.J., **Huang, Y-F.**, and Tsang, Y.F. 2019. The Floodwater Depth Estimation Tool (FwDET v2. 0) for improved remote sensing analysis of coastal flooding. *Natural Hazards and Earth System Sciences*, 19(9), pp.2053-2065.

Huang, Y-F. and Chen, Y.L., 2019. Numerical Simulations of Seasonal Variations of Rainfall over the Island of Hawaii. Journal of Applied Meteorology and Climatology, 58(6), pp.1219-1232.

Munasinghe, D., Cohen, S., **Huang, Y-F.**, Tsang, Y., Zhang, J. and Fang, Z., 2018. Inter-comparison of Satellite Remote Sensing Techniques of Flood Inundation Mapping". *Journal of the American Water Resources Association (JAWRA)* 54(4): 834-846. <https://doi.org/10.1111/1752-1688.12626>

Zhang, J., Munasinghe, D., **Huang, Y-F.**, Fang, Z., Cohen, S., and Tsang, Y.P., 2018. Comparative Analysis of Inundation Mapping Approaches for the 2016 Flood in the Brazos River, Texas, *Journal of the American Water Resources Association (JAWRA)* 54(4): 820-833. <https://doi.org/10.1111/1752-1688.12623>

Cohen, S., Brakenridge, G. R., Kettner, A., Bates, B., Nelson, J., McDonald, R., **Huang, Y-F.**, Munasinghe, D., and Zhang, J., 2017. Estimating Floodwater Depths from Flood Inundation Maps and Topography. *Journal of the American Water Resources Association (JAWRA)* 54(4): 847-858. <https://doi.org/10.1111/1752-1688.12609>

Zhang, J., Munasinghe, D., & **Huang, Y-F.**, 2016. Comparison of Flood Inundation Mapping Techniques between Different Modeling Approaches and Satellite Imagery. *NATIONAL WATER CENTER INNOVATORS PROGRAM SUMMER INSTITUTE REPORT 2016*, 4, 46.

PRESENTATIONS

Oral

Huang, Y-F., Tsang, Y-P., Strauch, A.M., Clilverd, H.M. "The changes and trends in the peak flow across the Hawaiian Islands" Virtual workshop: Current Topics in Tropical Island Hydrology: Water Hazard & Resource Prediction + WRF-Hydro Modeling, online 2020

Huang, Y-F., Tsang, Y-P., Strauch, A.M., Clilverd, H.M. "Changes in Peak Streamflow and its Associated Rainfall across the Hawaiian Islands from 1970 to 2005" American Meteorological Society 100th Annual Meeting at Boston, MA, USA 2020

Huang, Y-F., Tsang, Y-P., Strauch, A.M., Clilverd, H.M. "Temporal Shifts in Peak Flow Magnitudes Across the Island of Maui, Hawaii." Asia Oceania Geoscience Society (AOGS) 15th Annual Meeting, Honolulu, HI, USA 2018

Huang, Y-F. "An evaluation of the stability indices for local convective systems in Taiwan." East-West Center International Graduate Student Conference, Honolulu, HI, USA 2016

Poster

Huang, Y-F.; Tsang, Yin-Phan; Gayte, Maxime; Nugent, Alison D, "Deriving gridded hourly rainfall on Oahu by combining gauge network and radar rainfall" Annual Geophysical Union 2021 Fall Meeting, Virtual 2021

Gayte, M., Tsang, Y., **Huang, Y-F.**, "Changes and Trends in Hourly Rainfall Extremes Across the Five Main Hawaiian Islands" " Annual Geophysical Union 2021 Fall Meeting, Virtual 2021

Clilverd, H., Tsang, Y., Lynch, A., Infante, D., Frazier, A.G., Longman, R.J., **Huang, Y-F.**, "Simulation of the hydrological impacts of climate change on Hawaiian streams (H102-07)" Annual Geophysical Union 2020 Fall Meeting, Virtual 2020

Benoit, L., Lucas, M., Tseng, H., **Huang, Y-F.**, Tsang, Y.P., Nugent, A.D., Giambelluca, T.W. and Mariethoz, G., "High-resolution rainfall mapping in tropical Island mountains (B122-03)" Annual Geophysical Union 2020 Fall Meeting, Virtual 2020

Huang, Y-F., Tsang, Y-P. "Comparisons of Rainfall Estimation from Different Sources in Hawaii" American Meteorological Society 100th Annual Meeting at Boston, MA, USA 2020

Tsang, Y-P., Strauch, A.M., **Huang, Y-F.** "Predicting water availability for hydropower in a tropical watershed using the SWAT model" American Geophysical Union 2019 Fall Meeting, San Francisco, CA. USA 2019

Cohen, Sagy, . . . , **Huang, Y-F.** "The Floodwater Depth Estimation Tool (FwDET v2.0) for Improved Remote Sensing Analysis of Coastal Flooding" American Geophysical Union 2019 Fall Meeting, San Francisco, CA. USA 2019

Huang, Y-F., Tsang, Y-P., Strauch, A.M., Clilverd, H.M. "Temporal Shifts in the Magnitude of Peak Streamflow and its Associated Rainfall across the Hawaiian Islands" American Geophysical Union 2018 Fall Meeting, Washington, DC. USA 2018

Huang, Y-F., Tsang, Y-P. "Apply Spatially Distributed Rainfall Data to a Hydrological Model in a Tropical Watershed in Hawaii." American Geophysical Union 2017 Fall Meeting, New Orleans, LA, USA 2017

Huang, Y-F. and Chen, Y-L. "Summer Leeseide Rainfall Maxima over the Island of Hawaii." American Geophysical Union 2016 Fall Meeting, San Francisco, CA, USA 2016

AWARDS, FELLOWSHIP AND HONOR

2020 Department School Achievement scholarship for graduate students. The Department of Natural Resources and Environmental Management, University of Hawaii at Manoa.

2019 The University of Washington WaterHackWeek travel grant.

2018 The University of Hawaii at Manoa Graduate Student Organization (GSO) Grant and Award.

2017 The Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) Instrumentation Discovery Travel Grant.

2016 The Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) The National Water Center Innovators Program Summer Institute.

2011 Department Scholarship for Academic Excellence, National Central University, Taoyuan, Taiwan.

2010 University Scholarship for Athletic Excellence, National Central University, Taoyuan, Taiwan.

2009 Seventh Place, National Intercollegiate Athletic Games, 100 m freestyle, Taiwan.

2008–2012 Record holder of 50 m and 100 m backstroke, National Central University, Taoyuan, Taiwan.

2009 Book Aroma Award, National Central University, Taoyuan, Taiwan.

2007 Medalist, intramural swimming, National Central University, Taoyuan, Taiwan.

TEACHING EXPERIENCES

Lecturer:

- Guest lecture - Flooding in Hawaii in GEO 305 Water and Society, Department of Geography at the University of Hawaii at Manoa 2020
- The introduction of hydrology in a 300-level class, Natural Resources Management, Department of Natural Resources and Environmental Management at the University of Hawaii at Manoa, Honolulu, HI, USA. 2019
- The introduction of *circular statistics* in R in Tsang Stream Lab., Department of Natural Resources and Environmental Management, University of Hawaii at Manoa, HI, USA. 2018
- The introduction of hydrology in a graduate-level class, Watershed Hydrology, Department of Natural Resources and Environmental Management at the University of Hawaii at Manoa, Honolulu, HI, USA. 2018
- Rmarkdown in a graduate-level class, Geospatial Analysis, Department of Tropical Plant and Soil Science, University of Hawaii at Manoa, HI, USA. 2016
- The introduction of R in Tsang Stream Lab., Department of Natural Resources and Environmental Management, University of Hawaii at Manoa, HI, USA. 2016
- The mesoscale meteorological simulation in a 400-level class, mesoscale modeling, Department of Atmospheric Science at the University of Hawaii at Manoa, Honolulu, HI, USA 2016
- Give an introduction of space science in a junior high's summer camp in Tung-De Junior High School, Taoyuan, Taiwan 2008

Tutorer:

- Tutor a junior high student in science. (2 hours/week) 2013
- Tutor a junior high student in geography and history. (4 hours/ week) 2005

Swimming Instructor:

- Teach in both one-on-one and a small group with 7- to 9-year-old kids. 2009–2010

LEADERSHIP, ADMINISTRATION AND SERVICE EXPERIENCES

Department represent in Graduate Student Organization. University of Hawaii at Manoa, Honolulu, HI, USA. 2017–2018

Group leader in information and sport sectors of Atmospheric Sciences Student Association, National Central University, Taoyuan, Taiwan. 2009–2010

- Plan and execute sports competition within different departments or different universities.
- Lead student in the department of Atmospheric Sciences in sports intramural competition.
- Design and host the website of Atmospheric Sciences Student Association.

Captain of Intramural woman basketball, National Central University, Taoyuan, Taiwan 2009–2010

- Lead and supervise the training.
- Recruited new members.

Work-Study Student (4 hours/week) in the Language Center, National Central University, Taoyuan, Taiwan: 2011

- Guide students to find English books at English Reading Corner.
- Assist with Language Center to hold English speeches.

Work-Study Student (12 hours/month). 2008–2009

- Plan and execute extra-curricular activities for students.
- Organize data by using Microsoft Word and Excel.
- Make the memorial film for events.

Administrator Assistant for a summer English camp in Taiwan (20 hours/week) 2004

Volunteer Graduate Women in Science (GWIS) Public Relations (PR) team 2020–present

Volunteer for teaching 12-K kids how to catch fish by traditional Hawaiian opae net with Cory Yap 2017–2020

Volunteer for reviewing abstract in the 24th Annual Hawaii Conservation Conference (HCC), Honolulu, HI, USA, July 18-20, 2017 2017

Volunteer (30 hours for 10 days) for the International Union for Conservation of Nature Conference, Honolulu, Hawaii, USA, Sept. 1 - 10, 2016: 2016

- Assist information desk.
- Assist e-poster session.
- Assist panels for their needs.
- Assist printing press session.

Volunteer for assisting lunch set-up in the East-West Center International Graduate Student Conference, Honolulu, HI, USA Feb. 11 - 13, 2016 2016