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EDUCATIONS

Ph.D. 2010	Geospatial Information Sciences (GIS), University of Texas at Dallas, USA
M.S. 2003	Marine Geology, Ocean University of China, China
B.S. 1998	Marine Geology, Ocean University of China, China

EMPLOYMENT HISTORY

08/2021- present	Professor, Florida Atlantic University, USA
08/2016- 07/2021	Associate Professor, Florida Atlantic University, USA
01/2011- 08/2016	Assistant Professor, Florida Atlantic University, USA
08/2010- 12/2010	Instructor, Florida Atlantic University, USA
01/2010- 06/2010	Satellite Oceanographer, NOAA, USA
09/1998- 08/2000	Lecturer, Zhejiang Ocean University, China

PUBLICATIONS (Total: 53)

BOOK

Zhang, C., 2020. Multi-sensor System Applications in the Everglades Ecosystem. CRC Press, ISBN: 1498711774; ISBN-13: 9781498711777; 334 pages.

BLIND PEER-REVIEWED JOURNAL ARTICLES (: Advisee)*

1) **Zhang, C**., T. A. Douglas, D. Brodylo, M. T. Jorgenson, 2023. Linking Repeat Lidar with Landsat Products for Large Scale Quantification of Fire-induced Permafrost Thaw Settlement in Interior Alaska. *Environmental Research Letters*, 18, 015003.
2) **Zhang, C**., D. Brodylo, M. Rahman, M. A. Rahman, T. A. Douglas, and X. Comas, 2022. Using an Object-based Machine Learning Ensemble Approach to Upscale Evapotranspiration Measured from Eddy Covariance Towers in a Subtropical Wetland. *Science of The Total Environment*, 831, 154969.
3) **Zhang, C**., T. A. Douglas, and J. Anderson, 2021. Modeling and Mapping Permafrost Active Layer Thickness using Field Measurements and Remote Sensing Techniques. *International Journal of Applied Earth Observations and Geoinformation*, 102, 102455.
4) Douglas, T. A., and **C. Zhang**, 2021. Machine Learning Analyses of Remote Sensing Measurements Establish Strong Relationships between Vegetation and Snow Depth in the Boreal Forest of Interior Alaska. *Environmental Research Letters*, 16, 065014.
5) **Zhang, C**., D. Brodylo, M. J. Sirianni, T. Li, X. Comas, T. Douglas, and G. Starr, 2021. Mapping CO_2 Fluxes of Cypress Swamp and Marshes in the Greater Everglades Using Eddy Covariance Measurements and Landsat Data. *Remote Sensing of Environment*, 262, 112523.
6) Bloetscher, F., A. Abbate, J. Huber, W. Liu, D. Meeroff, D. Mitsova, S. Nagarajan, C. Polsky, H. Su, R. Teegavarapu, Z. Xie, Y. Yong, **C. Zhang**, R. Jones, G. Oglesby, E. Suarez, J. Weaver, M. Hoque, and T. Hindle, 2021. Establishing a Framework of a Watershed-wide Screening Tool to Support the Development of Watershed-based Flood Protection Plans for

Low-lying Coastal Communities. *Journal of Infrastructure Policy and Development*, 5, 1273.

7) Bloetscher, F., G. Rojas, A. Abbate, T. Hindle, J. Huber, R. Jones, W. Liu, D. Meeroff, D. Mitsova, S. Nagarajan, G. Oglesby, C. Polsky, H. Su, E. Suarez, R. Teegavarapu, J. Weaver, Z. Xie, Y. Yong, and **C. Zhang**, 2021. A Framework for a Sub-Watershed Scale Screening Tool to Support Development of Resiliency Solutions and Flood Protection Priority Areas in a Low-Lying Coastal Community. *Journal of Geoscience and Environment Protection*, 9, 180-205.
8) **Zhang, C**., T. Douglas, and J. Anderson, 2020. Mapping Vegetation and Seasonal Thaw Depth in Central Alaska using Airborne Hyperspectral and Lidar Data. *IEEE International Geoscience and Remote Sensing Symposium (IGARSS),* DOI: 10.1109/IGARSS39084.2020.9323660.
9) **Zhang, C**., X. Comas, and D. Brodylo, 2020. A Remote Sensing Technique to Upscale Methane Emission Flux in a Subtropical Peatland. *Journal of Geophysical Research: Biogeosciences*, 125, e2020JG006002.
10) **Zhang, C**., H. Su, T. Li, W. Liu, D. Mitsova, S. Nagarajan, R. Teegavarapu, Z. Xie, F. Bloetscher, and Y. Yong, 2020. Modeling and Mapping High Water Table for a Coastal Region in Florida Using Lidar DEM Data. *Groundwater*, 59 (2), 190-198.
11) Durgan, S*., **C. Zhang**, A. Duecaster, F. Fourney, and H. Su, 2020. Unmanned Aircraft System Photogrammetry for Mapping Diverse Vegetation Species in a Heterogeneous Coastal Wetland. *Wetlands*, 40 (6), 2621-2633.
12) Durgan, S*., **C. Zhang**, and A. Duecaster, 2020. Evaluation and Enhancement of Unmanned Aircraft System Photogrammetric Data Quality for Coastal Wetlands. *GIScience & Remote Sensing*, 57, 865-881.
13) **Zhang, C**., 2019. Combining Ikonos and Bathymetric LiDAR Data to Improve Reef Habitat Mapping in the Florida Keys. *Papers in Applied Geography*, 5, 256-271.
14) **Zhang, C**., S. Durgan, and D. Lagomasino, 2019. Modeling Risk of Mangroves to Tropical Cyclones: A Case Study of Hurricane Irma. *Estuarine, Coastal, and Shelf Science*, 224, 108-116.
15) **Zhang, C**., D. R. Mishra, and S. Pennings, 2019. Mapping Salt Marsh Soil Properties Using Imaging Spectroscopy. *ISPRS Journal of Photogrammetry and Remote Sensing*, 148, 221-234.
16) Cooper, H*., **C. Zhang**, S.E. Davis, and T.G. Troxler, 2019. Object-based Correction of LiDAR DEMs Using RTK-GPS Data and Machine Learning Modeling in the Coastal Everglades. *Environmental Modeling & Software*, 112, 179-191.
17) **Zhang, C**., S. Denka, and D. R. Mishra, 2018. Mapping Freshwater Marsh Species in the Wetlands of Lake Okeechobee using Very High-resolution Aerial Photography and Lidar Data. *International Journal of Remote Sensing*, 39, 5600-5618.
18) **Zhang, C**., S. Denka, H. Cooper, and D. R. Mishra, 2018. Quantification of Sawgrass Marsh Aboveground Biomass in the Coastal Everglades Using Object-Based Ensemble Analysis and Landsat Data. *Remote Sensing of Environment*, 204, 366-379.
19) **Zhang, C**., M. Smith, and C. Fang, 2018. Evaluation of Goddard's LiDAR, Hyperspectral, and Thermal Data Products for Mapping Urban Land-cover Types. *GIScience & Remote Sensing*, 55, 90-109.
20) **Zhang, C**., M. Smith, J. Lv, and C. Fang, 2017. Applying Time Series Landsat Data for Vegetation Change Analysis in the Florida Everglades Water Conservation Area 2A during 1996-2016. *International Journal of Applied Earth Observations and Geoinformation*, 57, 214-223.
21) **Zhang, C**., 2016. Multiscale Quantification of Urban Composition from EO-1/Hyperion Data Using Object-based Spectral Unmixing. *International Journal of Applied Earth Observations*

and Geoinformation, 47, 153-162.

22) **Zhang, C**., D. Selch, and H. Cooper, 2016. A Framework to Combine Three Remotely Sensed Data Sources for Vegetation Mapping in the Central Florida Everglades. *Wetlands*, 36, 201-213.

23) Zhou, Y., F. Qiu, F. Ni, Y. Lou, **C. Zhang**, M. Alfarhan, and A. Al-Dosari, 2016. Curve Matching Approaches to Waveform Classification: A Case Study Using ICESat Data. *GIScience & Remote Sensing*, 53, 739-758.

24) **Zhang, C**., 2015. Applying Data Fusion Techniques for Benthic Habitat Mapping and Monitoring in a Coral Reef Ecosystem. *ISPRS Journal of Photogrammetry and Remote Sensing*, 104, 213-223.

25) **Zhang, C**., Y. Zhou, and F. Qiu, 2015. Individual Tree Segmentation from LiDAR Point Clouds for Urban Forest Inventory. *Remote Sensing*, 7, 7892-7913.

26) Cooper, H*., **C. Zhang**, and D. Selch, 2015. Incorporating Uncertainty of Groundwater Modeling in Sea-level Rise Assessment: A Case Study in South Florida. *Climatic Change*, 129, 281-294.

27) **Zhang, C**., 2014. Combining Hyperspectral and LiDAR Data for Vegetation Mapping in the Florida Everglades. *Photogrammetric Engineering & Remote Sensing*, 80 (8), 733-743. (This paper won the 2015 John I. Davidson President's Award from ASPRS).

28) **Zhang, C**., H. Cooper, D. Selch, *et al*., 2014. Mapping Urban Land Covers Using Object-based Multiple Endmember Spectral Mixture Analysis. *Remote Sensing Letters*, 5 (6), 521-529.

29) **Zhang, C**., and Z. Xie, 2014. Data Fusion and Classifier Ensemble Techniques for Vegetation Mapping in the Coastal Everglades. *Geocarto International*, 29 (3), 228-243.

30) Qiu, F., B. Chastain, Y. Zhou, **C. Zhang**, and H. Sridharan, 2014. Modeling Land Suitability/Capability Using Fuzzy Evaluation. *GeoJournal*, 79, 167-182.

31) **Zhang, C**., and Z. Xie, 2013. Object-based Vegetation Mapping in the Kissimmee River Watershed Using HyMap Data and Machine Learning Techniques. *Wetlands*, 33 (2), 233-244.

32) **Zhang, C**., D. Selch, Z. Xie, C. Roberts, H. Cooper, and G. Chen, 2013. Object-based Benthic Habitat Mapping in the Florida Keys from Hyperspectral Imagery. *Estuarine, Coastal and Shelf Science*, 134, 88-97.

33) **Zhang, C**., Z. Xie, and D. Selch, 2013. Fusing LiDAR and Digital Aerial Photography for Object-based Forest Mapping in the Florida Everglades. *GIScience & Remote Sensing*, 50 (5), 562-573.

34) Xie, Z., **C. Zhang**, and L. Berry, 2013. Geographically Weighted Modeling of Surface Salinity in Florida Bay Using Landsat TM Data. *Remote Sensing Letters*, 4 (1), 76-84.

35) **Zhang, C**., and F. Qiu, 2012a. Mapping Individual Tree Species in an Urban Forest Using Airborne LiDAR Data and Hyperspectral Imagery. *Photogrammetric Engineering & Remote Sensing*, 78 (10), 1079-1087. (This paper won the Early Career Paper Award of Remote Sensing Specialty Group (RSSG) of AAG in 2012, and the First Place of ERDAS Award for Best Scientific Paper in Remote Sensing from ASPRS in 2013).

36) **Zhang, C**., and F. Qiu, 2012b. Unsupervised Hyperspectral Image Classification with a Neuro-fuzzy System. *Journal of Applied Remote Sensing*, 6, 063515.

37) **Zhang, C**., and Z. Xie, 2012. Combining Object-based Texture Measures with a Neural Network for Vegetation Mapping in the Everglades from Hyperspectral Imagery. *Remote Sensing of Environment*, 124, 310-320.

38) **Zhang, C**., Z. Xie, C. Roberts, L. Berry, and G. Chen, 2012. Salinity Assessment in Northeastern Florida Bay Using Landsat TM Data. *Southeastern Geographer*, 52 (3), 267-281.

39) Qiu, F., **C. Zhang**, and Y. Zhou, 2012. The Development of an Areal Interpolation ArcGIS Extension and a Comparative Study. *GIScience & Remote Sensing*, 49(5), 644-663.

40) Chen, G., C. Qian, and **C. Zhang**, 2012. New Insights into Annual and Semiannual Cycles of Sea Level Pressure. *Monthly Weather Review*, doi: 10.1175/MWR-D-11-00187.1.

41) **Zhang, C**., and F. Qiu, 2011. A Point-based Intelligent Approach to Areal Interpolation. *The Professional Geographer*, 63 (2), 262-276.

42) **Zhang, C.**, and G. Chen, 2008. Atmospheric Wet Pool: Definition and Comparison with the Oceanic Warm Pool. *Chinese Journal of Oceanology and Limnology*, 26, 440-449.

43) **Zhang, C.**, G. Chen, and F. Qiu, 2008. Annual Amphidromes Observed in the Atmosphere with Remote Sensing Data. *Journal of Geophysical Research-Atmospheres*, 113, D16112.

44) **Zhang, C.**, and F. Qiu, 2008. Empirical Relationship between Sea Surface Temperature and Water Vapor: Improvement of the Physical Model with Remote Sensing Derived Data. *Journal of Oceanography*, 64, 163-170.

45) **Zhang, C.**, and G. Chen, 2007. A Global Analysis of Multi-Mode Sea Surface Temperature Pattern. *Acta Oceanologica Sinica*, 26, 12-22.

46) **Zhang, C.**, B. Wang, and G. Chen, 2006. Annual Sea Level Amphidromes in the South China Sea Revealed by Merged Altimeter Data. *Geophysical Research Letters*, 33, L14606, doi:10.1029/2006GL026493.

47) **Zhang, C.**, and G. Chen, 2006. A First Comparison of Simultaneous Sea Level Measurement from Envisat, GFO, Jason-1, and TOPEX/Poseidon. *Sensors*, 6, 235-248.

48) **Zhang, C.**, and G. Chen, 2006. SST Variations of the Kuroshio from AVHRR Observation. *Chinese Journal of Oceanology and Limnology*, 24, 345-351.

49) Chen, G., C. Fang, **C. Zhang**, and Y. Chen, 2004. Observing the Coupling Effect between Warm Pool and "Rain Pool" in the Pacific Ocean. *Remote Sensing of Environment*, 91, 153-159.

50) Chen, G., C. Fang, X. Qiao, H. Li, **C. Zhang**, Y. Chen, and D. Han, 2004. A Satellite Remote Sensing Based Marine and Atmospheric Geographical Information System-MAGIS. *Periodical of Ocean University of China*, (in Chinese), 34, 839-843.

51) Huang, H., Z. Yang, and **C. Zhang**, 2003. The Advances of Yellow River Mouth Sand Bar. *Marine Sciences* (in Chinese), 27, 35-37.

52) **Zhang, C.**, Z. Yang, Y. Zhang, and H. Huang, 2002. Application of MAPINFO in the Study of Yellow River Mouth Sand Bar. *Coastal Engineering* (in Chinese), 21, 1-5.

GRANTS

EXTERNAL

1) Near Real Time (NRT) Seasonally Frozen and Thawed Terrain Condition Assessment Using Machine Learning and Multiple Data Sources. **C. Zhang** (sole-PI), $341,593, U.S. Army Corps Engineers (USACE)-CRREL, 2023-2026.
2) Remote Sensing and Mapping Plant Communities. **C. Zhang** (sole-PI), $191,706, Florida Fish and Wildlife Conservation Commission, 2023-2026.
3) Remote Sensing and Mapping of Plant Communities for the Preservation of Natural Systems. **C. Zhang** (sole-PI), St. Johns River Water Management District, $150,000, 10/2022-09/2025.

4) Developing Sensor-based Models for Mapping Greenhouse Gas Exchanges and Evapotranspiration from Wetlands in the Greater Everglades. **C. Zhang** (PI), X. Comas and B. Shoemaker (co-Is). NASA/Florida Space Grant Consortium (FSGC), $37,404, 2022-2023.
5) Predicting Hot Spots and Hot Moments of Biogenic Gas Accumulation and Release in a Subtropical Ecosystem Using Airborne Ground-Penetrating Radar (GPR). X. Comas (PI), **C. Zhang** (co-PI), N. Terry (co-PI), DOE, $111,656, 2021-2023.
6) Watershed Master Planning Initiative Pilot Program, Phase 2. Fred Bloetscher (PI), **C. Zhang** (co-PI), and others, $2,000,000, Florida Division of Emergency Management, 2022-2023.
7) Characterizing Permafrost Terrains Using Machine Learning Techniques. **C. Zhang** (sole-PI), $129,122, U.S. Army Corps Engineers (USACE)-CRREL, 2020-2023.
8) Development of Automated Methods for Using Satellite Imagery to Monitor Changes in Vegetative Communities. **C. Zhang** (sole-PI), St. Johns River Water Management District, $99,374, 10/2020-09/2022.
9) Watershed Master Planning Initiative Pilot Program, Phase 1. Fred Bloetscher (PI), **C. Zhang** (co-PI), and others, $1,700,000, Florida Division of Emergency Management, 2019-2020.
10) Increasing Unmanned Aerial Vehicle Data Integrity for Coastal Vulnerability Analysis in the Florida Everglades. **C. Zhang** (Advisor), Sara Durgan (Student Fellow), NASA/FSGC, $5,000, 2018-2019.
11) Research and Technical Assistance for Assessing: Climate Change, Sea Level Rise and Salinity Dynamics in the Greater Everglades. Leonard Berry (PI); **C. Zhang (**co-PI**)**, and Z. Xie (co-PI). USGS, $ 730, 000, 2011-2016.
12) Amphidromes Observed in the Air-sea System Based on Remote Sensing. **C. Zhang** (PI). National Science Foundation of China, RMB 210,000, 2008-2010.

INTERNAL

13) Exploring Sensor-based Machine Learning Models for Estimating Greenhouse Gases and Evapotranspiration at Multiple Scales in the Greater Everglades. **C. Zhang** (PI), Co-PIs: X. Comas, R. Teegavarapu, and B. Shoemaker. FAU I-SENSE, $8,000, 01-06/2022.
14) Impacts of Land Use Land Cover on the Life Cycles of Thunderstorms. W. Liu (PI), **C. Zhang** (co-PI), 2018 Seed Funding of College of Science at FAU, $13,100.
15) Impacts of LCLU on the Life Cycles of Thunderstorms in Florida. **C. Zhang** (mentor), W. Liu (mentee), 2018 FAU mentor-mentee program, $3,000.
16) Evaluating the Impact of Hurricane Irma on the Abundance, Biomass and Elevation of Coastal Marshes in the Everglades Using Multiple Remote Sensing Data Sources. **C. Zhang** (PI), H. Su, and W. Liu (co-PIs). 2017 Seed Funding of College of Science at FAU, $12,500.
17) Examining the Effects of Salinity, Nutrients, and Sea Level Rise on Vegetation Using Remote Sensing Spectroscopy Technique. **C. Zhang** (PI), FAU Faculty Research Mentoring Program, with Dr. Marguerite Koch-Rose as mentor, $ 6, 000, 03/2015 -04/2016.
18) Mapping Benthic Habitats in the Florida Keys Using Hyperspectral Remote Sensing Techniques. **C. Zhang** (PI), FAU Faculty Research Mentoring Program, with Dr. Charles Roberts as mentor, $3,000, 03/2014-02/2015.
19) Water Quality Assessment in Florida Bay Using Remote Sensing Techniques. **C. Zhang** (PI), T. Root, Z. Xie, L. Berry, and M. Koch (co-PIs). FAU 2012 Seed Grant Program, $20,000, 01/2012-01/2013.
20) Salinity Assessment in Northeastern Florida Bay Using Landsat TM Data. **C. Zhang** (PI), FAU Faculty Research Mentoring Program, with Z. Xie as mentor, $ 3,000, 01/2012 -01/2013.

PRESENTATIONS AND PROCEEDINGS

INTERNATIONAL / NATIONAL

1) **Zhang, C**., T. Douglas, D. Brodylo, and M. T. Jorgenson, 2023. Two Permafrost Projects Using AI Techniques, Remote Sensing and Field Data in Interior Alaska. AAG 2023 Annual Meeting, Denver, 03/22-03/27/2023.
2) **Zhang, C**., T. Douglas, D. Brodylo, and M. T. Jorgenson, 2022. Two Permafrost Projects Using AI Techniques, Remote Sensing and Field Data in Interior Alaska. AGU Fall Meeting, Chicago, IL, 12/12-12/16/2022.
3) **Zhang, C**., T. Douglas, and J. Anderson, 2022. Mapping Permafrost Active Layer Thickness in Alaska. AAG, 3/1/2022, virtual presentation.
4) **Zhang, C**., T. Douglas, and J. Anderson, 2020. Mapping Vegetation and Seasonal Thaw Depth in Central Alaska using Airborne Hyperspectral and Lidar Data. 2020 IEEE International Geosciences and Remote Sensing Symposium. Waikoloa, Hawaii. (Changed from physical to virtual meeting due to COVID-19), 7/2020.
5) **Zhang, C**., 2019. Modeling Risk of Mangroves to Hurricanes. AAG, DC, 04/04-04/07, 2019.
6) Smith, M*., **C. Zhang**, and A. Oleinik, 2018. Determining Carbonate Content in Coastal Sands of SE Florida Using Field and Remote Spectral Reflectance Data. AAG, New Orleans, 04/10-04/14, 2018.
7) Cooper, H. M*., and **C. Zhang**, 2017. Understanding Coastal Wetland Vulnerability to Sea-Level Rise Enhanced Inundation Using Real-time Stage Monitoring, LiDAR, and Monte Carlo simulation in Everglades National Park. American Geophysical Union (AGU), New Orleans, Louisiana, 12/2017.
8) **Zhang, C**., 2016. Salinity Assessment in Florida Bay Using Landsat TM Data. AAG 2016 Annual Meeting, San Francisco, CA, 03/29/-04/12.
9) Selch, D*., M. Rochelo, and **C. Zhang**., 2016. Correcting Imagery for Accurate Surface Water Salinity Models using GIS and Remote Sensing. ESRI User Conference 2016, San Diego, CA, 06/27/-07/01.
10) Selch, D*., and **C. Zhang**, 2016. Using Spectroscopy Remote Sensing to Assess Stress Factors of Vegetation Water Content on Black Needlerush in the Florida Everglades. ASPRS 2016 Annual Meeting, Fort Worth, TX, 04/11-04/15.
11) Selch, D*., and **C. Zhang**, 2016. Extracting Benthic Habitat from Shallow Water Hyperspectral Imagery Examining Reflectance Influences. AAG 2016 Annual Meeting, San Francisco, CA, 03/29/-04/12.
12) Smith, M*., **C. Zhang**, and A. Oleinik, 2016. Determination of Mineral Abundance in Beach Sands Using Spectroscopic Data and Traditional Methods of Sand Composition and Grain Size Analysis. ASPRS 2016 Annual Meeting, Fort Worth, TX, 04/11-04/15.
13) Cooper, H. M*, and **C. Zhang**, 2016. Uncertainty in LiDAR elevation measurements of coastal vegetation substrate for sea-level rise assessment. AAG 2016 Annual Meeting, San Francisco, CA, 03/29/-04/12.
14) Smith, M*., D. Selch, A. Oleinik, and **C. Zhang**, 2015. Assessment of Carbonate Abundance in Sands Using Hyperspectral Indices. GSA Annual Meeting, Baltimore, 11/01-11/04.
15) Selch, D*., and **C. Zhang**, 2015. Hyperspectral Responses to Changes in Salinity for *Juncus Roemerianus*. AAG 2015 Annual Meeting, Chicago, 04/21/-04/25.
16) Selch, D*., **C. Zhang**, and A. Oleinik, 2014. Building a Spectral Library for Sand Classification Using an ASD Spectrometer. AAG 2014 Annual Meeting, Tampa, FL, Poster Session, 04/08/-04/12.

17) **Zhang, C**., 2014. Fusing Hyperspectral and LiDAR Data for Vegetation Mapping in the Florida Everglades. AAG 2014 Annual Meeting, Tampa, FL, 04/08/-04/12.
18) **Zhang, C**., and Z. Xie, 2013. Data Fusion and Classifier Ensemble Techniques for Vegetation Mapping in the Coastal Everglades. AAG 2013 Annual Meeting, Los Angeles, CA, 04/09/-04/13.
19) **Zhang, C**., and F. Qiu, 2012. Mapping Individual Tree Species in an Urban Forest Using LiDAR Data and Hyperspectral Imagery. AAG 2012 Annual Meeting, New York City, NY, 2/23-2/28.
20) **Zhang, C**., and F. Qiu, 2010. Unsupervised Hyperspectral Image Classification Using a Neuro-fuzzy System, AAG 2010 Annual Meeting, Washington, D.C., 4/14-4/18. (This presentation won the First Place of Student Honors Paper Competition from RSSG of AAG).
21) Qiu, F., J. Chang, Z. Lu, and **C. Zhang**, 2010. Object Based 3D Model Acquisition for Individual Buildings and Trees from Airborne LiDAR, GeoWeb 2010, Vancouver, Canada, 07/26-07/30.
22) Qiu, F., and **C. Zhang**, 2010. Forest Inventory at the Individual Tree Level using LiDAR Point Cloud Data, American Society for Photogrammetry and Remote Sensing (ASPRS) 2010 Annual Conference, San Diego, CA, 04/26-04/30.
23) Qiu, F., **C. Zhang**, and H. Chen, 2010. An Improved Point Based Areal Interpolation Using K-Nearest Neighbors, The 18th International Conference on Geoinformatics 2010, Beijing, China, 06/18-06/20.
24) **Zhang, C**., B. Wang, and G. Chen, 2006. Annual Amphidromes Observed in the South China Sea, AGU Western Pacific Geophysical Annual Meeting, Beijing, China, 07/24-07/28.

REGIONAL / LOCAL

25) **Zhang, C**., Applying Machine Learning to Map Greenhouse Gases and ET in the Everglades Wetlands. GEER, Coral Springs, 4/17-4/20, 2023.
26) **Zhang, C**., Mapping Wetland Fluxes in the Florida Everglades. FSG, 2/17-2/19/2023.
27) **Zhang, C**., T. Douglas, and J. Anderson, 2022. Using Object-based Machine Learning Techniques to Estimate Permafrost Active Layer Thickness in Alaska. FSG, 2/12/2022, virtual.
28) **Zhang, C**., 2021. Modeling and Mapping High Water Table using LiDAR DEM Data. Florida Society of Geographers (FSG) annual meeting, 2/20/2021 (virtual)
29) **Zhang, C**., et al., 2021. Mapping CO_2 Fluxes of Cypress Swamp and Marshes in the Greater Everglades Using Eddy Covariance Measurements and Landsat Data. Greater Everglades Ecosystem Restoration (GEER) science conference, 4/28/2021 (virtual)
30) **Zhang, C**., et al., 2021. Mapping Permafrost Active Layer Thickness in Alaska. SEDAAG annual conference, Florence, AL, 11/21-11/22/2021.
31) **Zhang, C**., 2019. Mapping and Modeling Risk of Mangroves to Hurricanes. SEDAAG, 11/24-25, Wilmington, NC.
32) **Zhang, C**., 2019. GIS Program and Research at FAU. South Florida GIS Expo, 8/22-23, West Palm Beach, FL.
33) **Zhang, C**., 2019. Modeling Risk of Mangroves to Hurricanes in the Coastal Everglades: A Case Study of Hurricane Irma. FSG, Orlando, 2/8-2/9, 2019.
34) **Zhang, C**., 2019. Quantification of Sawgrass Biomass in the Coastal Everglades. GEER, Coral Springs, 4/23-4/25, 2019.
35) **Zhang, C**., S. Denka, D. Mishra, 2018. Mapping Marsh Species in the Wetlands of Lake

Okeechobee. South Florida GIS Expo, 8/23-24, West Palm Beach, FL.

36) **Zhang, C**., 2018. Quantifying Sawgrass Marsh Aboveground Biomass in the Coastal Everglades. FSG, Melbourne, Florida, 2/9-11, 2018.

37) **Zhang, C**., 2017. Applying Time Series Landsat Data for Vegetation Change Analysis in the Florida Everglades Water Conservation Area 2A during 1996-2016. Greater Everglades Ecosystem Restoration (GEER), 4/17-21, 2017.

38) Cooper, H., and **C. Zhang**, 2017. Combining LiDAR with RTK GPS Shows Promise for DEMs of Mangrove and Sawgrass Soil Heights in Florida's Coastal Everglades. Greater Everglades Ecosystem Restoration (GEER), 4/17-21, 2017.

39) **Zhang, C**., 2016. Applying GIS and Remote Sensing to Map Vegetation Changes in the Florida Everglades Water Conservation Area 2A. South Florida GIS Expo, Palm Beach, Florida, 9/29.

40) **Zhang, C**., D.Selch, and H. Cooper, 2016. A Framework to Combine Three Remotely Sensed Data Sources for Vegetation Mapping in the Central Florida Everglades. National Conference on Ecosystem Restoration (NCER), 8/18-22, 2016.

41) **Zhang, C**., 2015. Salinity Modeling in Florida Bay. Workshop of South Florida Water Resources: Observations, Modeling, and Management in the Context of Regional Environmental Changes, FAU, March 12.

42) Cooper, H., **C. Zhang**, and D. Selch, 2015. Incorporating Uncertainty of Groundwater Modeling in Sea-level Rise Assessment: A Case Study in South Florida. GEER 2015 Science in Support of Everglades Restoration, 4/21-23, Coral Springs, FL.

43) Cooper, H., **C. Zhang**, and D. Selch, 2015. Incorporating Uncertainty of Groundwater Modeling in Sea-level Rise Assessment: A Case Study in South Florida. Workshop of South Florida Water Resources: Observations, Modeling, and Management in the Context of Regional Environmental Changes, FAU, March 12.

44) Cooper, H.M, and **C. Zhang**, 2015. Incorporating Uncertainty of Groundwater Modeling in Sea-level Rise Assessment: A Case Study in South Florida. South Florida GIS Expo, Palm Beach, Florida, Oct. 2015.

45) Cooper, H., **C. Zhang**, and D. Selch, 2014. Incorporating Uncertainty of Groundwater Modeling in Sea-level Rise Assessment: A Case Study in South Florida. GIS User Seminar at South Florida Water Management District. Dec. 9.

46) **Zhang, C**., 2014. Combining Hyperspectral and LiDAR Data for Vegetation Mapping in the Everglades. ASPRS-FAU Joint Symposium, FAU, Nov. 8.

47) **Zhang, C**., 2013. Combining Hyperspectral and LiDAR Data for Vegetation Mapping in the Everglades. South Florida GIS Expo, West Palm Beach, October 11.

48) **Zhang, C**., 2013. Application of Hyperspectral Remote Sensing for Vegetation Mapping in the Everglades. South Florida Water Management District (SFWMD), July 19.

49) **Zhang, C**., 2012. Salinity Assessment in Northeastern Florida Bay Using Landsat TM Data. South Florida Water Management District (SFWMD) GIS Meeting, March 7.

50) Xie, Z., **C. Zhang**, and L. Berry 2012. Geographically Weighted Modelling of Surface Salinity in Florida Bay Using Landsat TM Data. Intecol & GEER 2012, Orlando, FL.

51) **Zhang, C**., Z. Xie, C. Roberts, and L. Berry, 2011. Salinity Assessment in Northeastern Florida Bay Using Landsat TM Data. 66th Southeastern Division of AAG Annual Conference, Savannah, GA, 11/20-11/22.

INVITED TALK

1) **Zhang, C**., et al., 2022. Three AI Projects in Geosciences at FAU. FAU Data-Driven Science and AI Conference. 5/21/2022.
2) **Zhang, C**., et al., 2022. Mapping Greenhouse Gases and ET in Wetlands Using Machine Learning, Eddy Covariance and Remote Sensing Data. USJRB Research & Management Consortium 8th Annual Meeting, 12/6/2022 (virtual).
3) **Zhang, C**., et al., 2022. Two Research Projects Using Machine Learning and Satellite Products. Florida Geographic Information Office Imagery Workshop, 12/8/2022 (virtual).
4) **Zhang, C**., et al., 2021. Vegetation mapping in District wetlands using machine learning. USJRB Research & Management Consortium 7th Annual Meeting, 12/1/2021 (virtual).
5) Durgan, S*., and **C. Zhang**., 2019. UAS Applications in Florida Wetlands. South Florida Water Management District, holiday GIS day. 12/19.
6) **Zhang, C**., 2019. Modeling Sawgrass Biomass and Mangrove Damages from Hurricanes in the Coastal Everglades Using Multiple Earth Observations. Everglades National Park, 9/26.
7) **Zhang, C**., 2017. Remote Sensing of Marshes: Freshwater Marsh in Lake Okeechobee, and Sawgrass Marsh in the Coastal Everglades. University of Georgia, 10/18.
8) **Zhang, C**., 2016. Fusing LiDAR and Hyperspectral data for urban forest inventory. Ocean University of China, Qingdao Geotechnical Investigation and Surveying Institute, Qingdao University of Technology, Xian Science and Technology University, Northwestern University, 4/14-4/18.

TEACHING AND ADVISING

COURSE TEACHING AT FAU

1) Hyperspectral Remote Sensing, 2010-present
2) LiDAR Remote Sensing, 2012-present
3) Photogrammetry and Aerial Photo Interpretation, 2011-present
4) Digital Image Analysis, 2012-present
5) Remote Sensing of Environment, 2018-present
6) Marine Geology, Spring 2013

GRADUATE STUDENT MENTORING

Chair Advisor - MA/MS

1) Donna Selch (M.A., 2012)
   Thesis: Comparing salinity models in Whitewater Bay using remote sensing
2) Nicole Gamboa (M.A., 2016)
   Thesis: Data fusion of LiDAR and aerial imagery to map the campus of Florida Atlantic University
3) Molly Smith (M.S., co-advisor, 2016)
   Thesis: Utilizing hyperspectral reflectance to aid sand composition analysis
4) Madan Thapa Chhetri (M.S., ongoing)
5) David Ramirez (M.S., ongoing)

Chair Advisor - Ph.D.

6) Aaron Evans (Ph.D., co-advisor, 2014)
   Dissertation: Remote sensing of evapotranspiration using automated calibration: development and testing in the state of Florida
7) Donna Selch (Ph.D., 2016)
   Dissertation: Salinity assessment, change, and impact on plant stress/canopy water content (CWC) in Florida Bay using Remote Sensing and GIS

8) Hannah Cooper (Ph.D., 2018)
   Dissertation: Increasing LiDAR data integrity in sea-level rise impact assessment on Florida's coastal Everglades
9) Sara Denka (Ph.D., 2020)
   Dissertation: Evaluating unmanned aircraft system photogrammetry for coastal Florida Everglades restoration and management
10) Jing Liu (Ph.D., 2020)
    Dissertation: Modeling ground elevation of Louisiana coastal wetlands and analyzing relative sea level rise inundation using RSET-MH and lidar measurements
11) Molly Smith (Ph.D., co-advisor, 2020)
    Dissertation: Combining traditional and image analysis techniques for unconsolidated exposed terrigenous beach sand characterization
12) Heather Nicholson (Ph.D., 2022)
    Dissertation: Salt marsh species classification and soil property modeling using multiple remote sensors
13) Pramod Pandey (Ph.D., ongoing)
14) David Brodylo (Ph.D., ongoing)
15) Mizanur Rahman (Ph.D., ongoing)
16) Abdullah Al-Fazari (Ph.D., ongoing)
17) Fiona Benzi (Ph.D., ongoing)
18) Sandip Rijal (Ph.D., ongoing)

Committee

1) Brian Johnson (Ph.D., 2012)
2) Stevee Norman (M.A., 2013)
3) Abu Bakar Siddke (M.S., 2018)
4) Richard Hart (M.S., 2019)
5) Stephanie Insalaco, (M.S., 2021)
6) Mason Smith (Ph.D., 2022)
7) Asha Paudel (Ph.D., 2022)
8) Summer Manestar (M.S., ongoing)
9) James Gammack-Clark (Ph.D., ongoing)
10) Alana Edwards (Ph.D., ongoing)
11) Aaron Duecaster (Ph.D., ongoing)
12) Andres Garzon-Oechsle (Ph.D., ongoing)
13) Rabindra Parajuli (Ph.D., ongoing)

SERVICES AND PROFESSIONAL DEVELOPMENT

DEPARTMENT SERVICE

- Director, Center for Geographic Information System and Modeling (CGIS), 2015-present
- Committee, Department Strategic Plan, 2019-2020
- Committee, Ph.D. Program, 2016-present
- Committee, GIS curriculum, 2016-present
- Committee, Search for GIS position, 2015-2016
- Committee, Search for Human-Environment Interaction position, 2015-2016
- Committee, Department Student Scholarship, 2012-present
- Committee, Graduate Student Admission, 2015-present
- Committee, Department Scholarship, Fall 2015-present

- Committee Chair, Department Colloquium (Spring 2017)
- Assistant Director, CGIS at FAU (2012-2015)
- Observer of Human-Environment Interaction Presentation from Senior Geography Students in Department of Geosciences at FAU (2014, and 2015)
- Committee, Department Graduate Curriculum, 2015-present
- Coordinator, Department Library (2014-2018)
- Committee, Geoscience B.S. Degree development (Spring 2014)
- Speaker, Geosciences Colloquium (2010, 2011, 2013, 2016, 2018, 2020)

COLLEGE SERVICE

- Committee, E.S. degree, (2019-present)
- Regalia, (Summer 2016)
- Volunteer, Expo for High School Students (Fall 2016)
- Exhibitor, College I-Connect Event (Fall 2016)
- Supervisor, Science Olympiad (2016, 2017)
- Judge, Graduate Research & Inquiry Program (GRIP) proposals (Spring 2015).
- Judge, Research Day of Charles E. Schmidt College of Science, FAU (2011, 2013, 2014, and 2015).

UNIVERSITY/COMMUNITY SERVICES

- Judge, Graduate Student Research Day, FAU (2013, 2014, 2017, 2018, 2020)
- Judge, Undergraduate Research Symposium – Oral sessions, FAU (2013 and 2014)
- Marshals for the Spring Graduation Commencement, FAU (May 2011)
- Graduation commencement, representative of COS (2011- present)
- Honors Convocation (Spring 2011)
- Transportation Access Fee Committee (2011-2012)
- Living Water Chinese Bible Club, advisor (2013-2018)
- Organizer, Super Kids Clubhouse, (2017-present)

PROFESSIONAL SERVICE

- 2023- present, Chair, Remote Sensing Specialty Group of AAG
- 2021- 2023, vice Chair, Remote Sensing Specialty Group of AAG
- 2021- present, Associate Editor, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)*
- 2020- present, Associate Editor, *Estuarine, Coastal and Shelf Science (ECSS)*
- 2019- present, Editorial Advisory Board, *International Journal of Remote Sensing*
- 2019- 2021, Secretary, Remote Sensing Specialty Group of AAG
- Journal manuscript reviewer (reviewed 122 papers, Fall 2011-Summer 2020)
  Remote Sensing of Environment; ISPRS Journal of Photogrammetry and Remote Sensing; Photogrammetric Engineering & Remote Sensing; Remote Sensing; Remote Sensing Letters; GIScience & Remote Sensing; Journal of Applied Remote Sensing; International Journal of Remote Sensing; International Journal of Digital Earth; International Journal of Applied Earth Observation and Geoinformation; Geocarto International; Sensors; Annals of GIS; Applied Geomatics; Journal of Coastal Research; International Journal of Geographical Information Science; Arboriculture & Urban Forestry; Frontiers of Earth Science; Optical Engineering; Chinese Journal of Oceanology and Limnology; Journal of Atmospheric and Oceanic Technology; Estuarine, Coastal and Shelf Science; Urban

Forestry & Urban Greening; Computers and Electronics in Agriculture; European Journal of Remote Sensing; Journal of Ocean University of China; Ecosphere; IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing; Journal of Environmental Management; Physics and Chemistry of the Earth.

- Book reviewer
  - ❖ Urban Remote Sensing, 2nd edition (2020)
  - ❖ 3D Imaging: Advances in Environmental Mapping and Monitoring (2018)
  - ❖ Remote Sensing for Sustainability (2015)
  - ❖ Hyperspectral Remote Sensing for Terrestrial Applications. Remote Sensing Handbook, Land Resources: monitoring, Modelling, and mapping (2014).
  - ❖ Scale Issues in Remote Sensing (2012)
- NSF grant proposal reviewer; NASA LCLUC Panelist
- Program committee of *Earth Observation and Remote Sensing Applications* (EORSA) workshop, 2012, 2014, 2016, 2018.
- Judge, Student Honors Paper Competition sponsored by the Remote Sensing Specialty Group (RSSG) of Association of American Geographers (AAG), reviewed 8 full papers and evaluated the performance of competitors at the AAG presentation on April 9, 2013, Los Angeles, CA.
- Session Organizer, 2013, 2016 and 2019 Association of American Geographers (AAG) Annual Conference.

HONORS AND AWARDS

HONORS TO ZHANG AS RECIPIENT

1) Third Place Recipient of John I. Davidson President's Award for Practical Papers (2015): honored for the paper "**Zhang, C**., 2014. Combining Hyperspectral and Lidar Data for Vegetation Mapping in the Florida Everglades, *PE&RS*, 80 (8), 733-743", by the American Society for Photogrammetry and Remote Sensing (ASPRS).
2) First Place Recipient of ERDAS Award for Best Scientific Paper in Remote Sensing (2013): honored for the paper "**Zhang, C**., and F. Qiu, 2012. Mapping Individual Tree Species in an Urban Forest Using Airborne LiDAR Data and Hyperspectral Imagery, *PE&RS*, 78 (10), 1079-1087", by the American Society for Photogrammetry and Remote Sensing (ASPRS).
3) Early Career Paper Award (2012): honored for the paper "**Zhang, C**., and F. Qiu, 2012. Mapping Individual Tree Species in an Urban Forest Using Airborne LiDAR Data and Hyperspectral Imagery", by the Remote Sensing Specialty Group (RSSG) of AAG at the AAG 2012 annual meeting.
4) First Place of Student Honors Paper Competition (2010): honored for the paper "**Zhang, C**., and F. Qiu, Unsupervised Hyperspectral Image Classification with a Neuro-fuzzy System", by RSSG of AAG at the 2010 AAG annual meeting.
5) National Natural Science Award (First Prize, 2009): honored by the Ministry of Education of the People's Republic of China for making significant contributions in the project "Multi-sensors remote sensing the boundary of the ocean and atmosphere: theories and methods" funded by the Nature Science Foundation of China (NSFC).
6) Doctoral Dissertation Award (2008): honored for the dissertation "Study of Low-frequency Variations and Interactions in the Air-sea System" (10 awardees out of 181 candidates) by Ocean University of China.
7) First Prize of Graduate Student Award (2004): honored for the distinguished research during

the period of doctorial education at Ocean University of China.

HONORS TO GRADUATE ADVISEES WITH ZHANG AS CO-RECIPIENT

1) First Place for Analytical Presentation for the presentation "Selch, D*., M. Rochelo, and **C. Zhang**, 2016. Correcting Imagery for Accurate Surface Water Salinity Models using GIS and RS." at ESRI User Conference.
2) Norb Psuty Student Paper Merit Award (2016): honored for the presentation "Selch, D*., and **C. Zhang**, 2016. Extracting Benthic Habitat from Shallow Water Hyperspectral Imagery Examining Reflectance Influences" by the Coastal & Marine Specialty Group of AAG.