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EDUCATION

1995/08 – 1998/11	Ph.D.	Department of Marine, Earth, and Atmospheric Sciences, North Carolina State Univ., USA
1988/09 – 1990/06	M.S.	Institute of Marine Geology, National Sun Yat-sen Univ., Taiwan
1984/09 – 1988/06	B.S.	Department of Oceanography, National Taiwan Ocean Univ., Taiwan

EMPLOYMENT

2022/05 – present Research Fellow, RCEC, Academia Sinica.
2020/01 – 2022/04 Distinguished Professor, National Taiwan Normal Univ.
2013/07 – 2015/12 Research Chair Professor, National Taiwan Normal Univ.
2009/08 – 2022/04 Professor, National Taiwan Normal Univ.
2007/08 – 2008/07 Visiting Scientist, Program in Atmospheric & Oceanic Sciences, Princeton Univ.
2005/08 – 2009/07 Associate Professor, Depart. of Earth Sciences, National Taiwan Normal Univ.
2001/02 – 2005/07 Assistant Professor, Depart. of Earth Sciences, National Taiwan Normal Univ.
1999/02 – 2001/01 Postdoc Researcher, Institute of Marine Sciences, Univ. of Southern Mississippi

HONORS & AWARDS

2016 Outstanding Faculty Service Award, National Taiwan Normal Univ.
2012 – 2014 Outstanding Research Award, National Science Council.
2012 Outstanding Research Award, National Taiwan Normal Univ.
2010 – 2015 Research Excellence Award, College of Science, National Taiwan Normal Univ.

PROFESSIONAL SERVICE

- Editorial Board Member, *Scientific Reports* (SCI), 2018 – present
- Guest editor, *Journal of Geophysical Research: Oceans* (SCI), 2020 – present
- Guest editor, *Water* (SCI), 2021 – present
- Guest editor, *Sustainability* (SCI), 2018 – 2020
- Editor-in-Chief, *Journal of Research in Education Sciences* (Scopus), 2013 – 2018
- Guest editor, *Estuarine, Coastal and Shelf Science* (SCI), 2013 – 2015
- Associate editor, *Ocean Dynamics* (SCI), 2009 – 2010
- Associate editor, *Terrestrial, Atmospheric and Oceanic Sciences* (SCI), 2009 – 2012

RESEARCH INTEREST

I have developed numerous models with different integration domains and resolutions to study ocean circulation over the North Pacific. These models are now routinely used, not only for process studies to uncover dynamics and mechanisms, but also (in conjunction with field/satellite data) for ocean predictions and to help analyze and explain observations. In recent years, I have made substantial further advancement in the climate impact on the ocean current and marine life. It is demonstrated that global climate change/variability plays an essential role on modulating regional ocean circulation. Several new findings and their associated mechanisms have been published recently. For example, we found out a systemwide weakened Kuroshio despite enhanced warming along its path, updating the earlier argument of an accelerating Kuroshio under the global warming. We also pointed out interannual variability in the eel catch in East Asia is strongly correlated with the combination mode (C-mode), but not with ENSO. In addition, we demonstrated that the North Atlantic warming is the ultimate forcing leading to changes in the atmospheric and oceanic circulation over the North Pacific.

RESEARCH HIGHLIGHTS

A. The profound influence from the North Atlantic on the Tropical Pacific has been a primary focus. We conducted observational analyses and numerical modeling experiments to show that the North Atlantic has also strongly influenced the Extratropical North Pacific. A rapid and synchronous change in the atmospheric and oceanic circulations was observed in the North Pacific during the late 1990s. The change was driven by the transbasin influence from the Atlantic. During the positive AMO phase since the 1990s, the anomalously warm North Atlantic triggers a series of zonally symmetric and asymmetric transbasin teleconnections involving the ITCZ (Intertropical Convergence Zone), Walker and Hadley circulations, and Rossby wave propagation that lead to a decrease in wind stress curls over the Pacific subtropics, resulting in an abrupt weakening in the North Pacific subtropical gyre and Kuroshio.

B. The Japanese eels migrate long distances and spawn to the south of the salinity front in the NEC during new moon periods. It has been reported the salinity front has extended farther south, which has shifted the eel's spawning grounds to a lower latitude, resulting in smaller eel catches in 1983, 1992, and 1998. We demonstrated interannual variability in the eel catch is strongly correlated with the combination mode (C-mode), but not with ENSO. The spawning grounds accompanied by the salinity front extend farther south during the C-mode of climate variability, and eel larvae fail to join the nursery in the NEC, resulting in poor recruitment in East Asia. The C-mode is a previously neglected mode of climate variability generated by the nonlinear interaction between ENSO and the annual cycle in the western Pacific warm pool. Furthermore, we propose an appropriate SST index to project the eel catch in East Asian countries.

REPRESENTATIVE PUBLICATIONS (*: corresponding author)

Huang, P.-W., Y.-F. Lin, **C.-R. Wu*** (2021): Impact of the southern annular mode on extreme changes in Indian rainfall during the early 1990s. *Scientific Reports*, 11, 2798, doi:10.1038/s41598-021-82558-w.

Wang, Y.-L. and **C.-R. Wu*** (2020): Nonstationary El Niño teleconnection on the post-summer upwelling off Vietnam. *Scientific Reports*, doi:10.1038/s41598-020-70147-2.

Wu, C.-R.*, Y.-L. Wang, S.-Y. Chao (2019): Disassociation of the Kuroshio Current with the Pacific Decadal Oscillation since 1999. *Remote Sensing*, 11(3), 276, doi:10.3390/rs11030276.

Wu, C.-R.*, Y.-F. Lin, B. Qiu (2019): Impact of the Atlantic Multidecadal Oscillation on the Pacific North Equatorial Current bifurcation. *Scientific Reports*, 9, 2162, doi:10.1038/s41598-019-38479-w.

Wu, C.-R.*, L.-C. Wang, Y.-L. Wang, Y.-F. Lin, T.-L. Chiang, Y.-C. Hsin (2019c): Coherent response of Vietnam and Sumatra-Java upwellings to cross-equatorial winds. *Scientific Reports*, 9, 3650, doi:10.1038/s41598-019-40246-w.

Wu, C.-R.*, Y.-F. Lin, Y.-L. Wang, N. Keenlyside, J.-Y. Yu (2019d): An Atlantic-driven rapid circulation change in the North Pacific Ocean during the late 1990s. *Scientific Reports*, 9, 14411, doi:10.1038/s41598-019-51076-1.

Wang, Y.-L. and **C.-R. Wu*** (2019): Enhanced warming and intensification of the Kuroshio Extension, 1999-2013. *Remote Sensing*, 11(1), 101, doi:10.3390/rs11010101.

Lin, Y.-F. and **C.-R. Wu*** (2019): Distinct impacts of the 1997–98 and 2015–16 extreme El Niños on Japanese eel larval catch. *Scientific Reports*, 9, 1384, doi:10.1038/s41598-018-37569-5.

Wang, Y.-L., Y.-C. Hsu, C.-P. Lee, **C.-R. Wu*** (2019): Coupling influences of ENSO and PDO on the inter-decadal SST variability of the ACC around the western South Atlantic. *Sustainability*, 11(18), 4853, doi:10.3390/su11184853.

Wang, Y.-L. and **C.-R. Wu*** (2018): Discordant multi-decadal trend in the intensity of the Kuroshio along its path during 1993-2013. *Scientific Reports*, 8, 14633, doi:10.1038/s41598-018-32843-y.

Chiang, T.-L., Y.-C. Hsin, **C.-R. Wu*** (2018): Multidecadal changes of upper-ocean thermal conditions in the tropical northwest Pacific Ocean versus South China Sea during 1960-2015. *Journal of Climate*, 31(10), 3999-4016, doi:10.1175/JCLI-D-17-0394.1.

Hsu, Y.-C., C.-P. Lee, Y.-L. Wang, **C.-R. Wu***, H.-K. Lui (2018): Leading El-Niño SST Oscillations around the southern south American continent. *Sustainability*, 10(6), 1783, doi:10.3390/su10061783.

Wu, C.-R.*, Y.-L. Wang, Y.-F. Lin, S.-Y. Chao (2017): Intrusion of the Kuroshio into the South and East China Seas. *Scientific Reports*, 7, 7895, doi:10.1038/s41598-017-08206-4.

Lin Y.-F., **C.-R. Wu***, Y.-S. Han (2017): A combination mode of climate variability responsible for extremely poor recruitment of the Japanese eel (*Anguilla japonica*). *Scientific Reports*, 7, 44469, doi:10.1038/srep44469.

Wang, Y.-L., **C.-R. Wu***, and S.-Y. Chao (2016): Warming and weakening trends of the Kuroshio during 1993-2013. *Geophysical Research Letters*, 43(17), 9200-9207, doi:10.1002/2016GL069432.

Wu, C.-R.*, Y.-L. Wang, Y.-F. Lin, T.-L. Chiang, and C.-C. Wu (2016): Weakening of the Kuroshio intrusion into the South China Sea under the global warming hiatus. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 9(11), 5064-5070, doi:10.1109/JSTARS.2016.2574941.

Wang, L.-C., **C.-R. Wu***, and B. Qiu (2014): Modulation of Rossby waves on the Pacific North Equatorial Current bifurcation associated with the 1976 climate regime shift. *Journal of Geophysical Research: Oceans*, 119(10), 6669-6679, doi:10.1002/2014JC010233.

Wu, C.-R.*, Y.-C. Hsin, T.-L. Chiang, Y.-F. Lin, and I-F. Tsui (2014): Seasonal and interannual changes of the Kuroshio intrusion onto the East China Sea Shelf. *Journal of Geophysical Research: Oceans*, 119(8), 5039-5051, doi:10.1002/2013JC009748.

Wu, C.-R.*, and L.-C. Wang (2013): Contrasting the evolution between two types of El Niño in a data assimilation model. *Ocean Dynamics*, 63(5), 577-587, doi:10.1007/s10236-013-0610-8.

Wu, C.-R.* (2013): Interannual modulation of the Pacific Decadal Oscillation (PDO) on the low-latitude western North Pacific. *Progress in Oceanography*, 110, 49-58, doi:10.1016/j.pocean.2012.12.001.