Duo Chan

duochan.github.io | GitHub

National Oceanography Centre, Waterfront Campus European Way, SO14 3ZH
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Education

2015-21 Ph.D. in Earth and Planetary Sciences, Harvard University (Advisor: Peter Huybers)
2013-15 M.S. in Meteorology, Nanjing University, China
2009-13 B.S. in Applied Meteorology and Minor in Finance, Nanjing University, China

Appointments

2023- Lecturer (Assistant Professor equivalent), School of Ocean and Earth Science, University of Southampton
2021-23 Postdoctoral Scholar, Physical Oceanography, Woods Hole Oceanographic Institution (WHOI)

Awards and Honours

2021 Weston Howland Jr. Postdoctoral Fellowship, WHOI
2021 High Meadows Environmental Institute Fellowship, Princeton (Declined)
2021 Outstanding Student Oral Presentation, 101st AMS
2020 Harvard Horizons Fellowship
2019 Harvard GSAS professional development award
2015-16 William Benjamin and Jill Kowal Graduate Aid Fund in Environmental Studies

Professional Service

Postdoc Mentor Se-yong Song (2023-)
Ph.D. Mentor Glenn Liu (2022-) | Yifei Fan (2021-) | Chenggong Wang (2021-2022)
Undergraduate Mentor Charlotte Henke (2021) | Sarah King (2020-2021) | David Ma (Summer, 2020)
Reviewer PNAS | Nature Communication | Science Advances | Journal Climate | Geophysical Research Letter | JGR Atmosphere | Earth's Future | Climate Dynamics | Journal of Atmospheric and Oceanic Technology | Earth Space Science | Remote Sensing | Sustainability | Stochastic Environmental Research and Risk Assessment | NOAA Small Business Innovation Research Funding
Organizer AGU co-convener (2023; GC084) | Harvard ClimaTea seminar (2017)
Presentation Judge AGU (2022) | Ocean Science Meeting (2022) | National Collegiate Research Conference (2022)
Outreach Teach Climate Science at Perry School (public middle school in south Boston; Winter, 2019-20)

Invited Talks

[6] Recent advancements in historical earth surface temperature analysis and insights into climate change from enhanced data. (Plenary Talk, IMSC, France, 2024)

[5] Combining the physics of air-sea interaction and data-driven methods to improve historical estimates of earth surface temperatures. (Ocean University of China, China, 2023 | Duke Kunshan, China, 2023 | Hanyang University, Korea, 2023 | MIT, USA, 2023 | UC Colorado, USA, 2023 | NCAR, USA, 2023 | U Chicago, USA, 2023 | WHOI GFD summer school, USA, 2022 | U Miami, USA, 2022).

[4] Are we already at a 1.5°C warming threshold? (U Southampton, UK, 2022).

[3] Combining statistical, physical, and historical methods to improve historical sea-surface temperature data. (Zhejiang University, 2022 | Ocean Dynamics Seminar, 2022 | Penn State U, 2022 | UC Irvine, 2021 | U Washington, 2021 | WHOI, 2021 | Nanjing University, 2021 | U.K. National Oceanography Centre, 2021 | Harvard Horizons, 2021 | Princeton, 2020 | Yale, 2020).

[2] Applying statistical methods to climate reconstructions – Late 19th-century navigational errors and their influence on sea surface temperatures. (Joint Statistical Meeting, 2020).

[1] Correcting datasets leads to more homogeneous early-twentieth-century sea surface warming. (Fudan University, 2019 | Nanjing University, 2019).

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Peer-reviewed Publications

[21] **Chan D.**, Gebbie G., & Huybers P (2024). Ensemble of land-surface air temperatures between 1880-2022 using revised pair-wise homogenization algorithms accounting for auto-correlation. Journal of Climate, In press.

[20] Ridgen A., Golden C., **Chan D.**, & Huyber P. (2024). Climate change linked to ongoing drought in Southern Madagascar. NPJ climate and atmospheric science, In press.

[19] Bao X., Zhang S., Jiang G., **Chan D.**, Hu Y., Wu H., Li H., Wang X., & Ynag T. (2023). Climate changes in the Cryogenian nonglacial epoch: A global synthesis with new findings from the Datangpo Formation in South China. Global and Planetary Change, 229, 104234.

[18] Yin X., Huang B., Hu Z., **Chan D.**, & Zhang H. (2023) Sea-surface temperatures [in "State of the Climate in 2022"]. BAMS, 104(9), S153–S156.

[17] **Chan D.**, Gebbie G., & Huybers P. (2023). Global and Regional Discrepancies between Early 20th Century Coastal Air and Sea-Surface Temperature Detected by a Coupled Energy-Balance Analysis. Journal of Climate. 36(9), 2205-20.

[16] Proctor J., Rigden A., **Chan D.**, & Huybers P. (2022). Soil moisture measurements improve prediction of crop yields and reduce projected climate change damages. Nature Food, 3(9): 753.

[15] **Chan D.**, Rigden A., Proctor J., Chan P. H. & Huybers P. (2022). Differences in radiative forcing, not sensitivity, explain differences in summertime land temperature variance change between CMIP5 and CMIP6. Earth's Future, e2021EF002402.

[14] **Chan D.**, Vecchi G., Yang W. & Huybers P (2021). Improved simulation of 19th- and 20th-century North Atlantic hurricane frequency after correcting historical sea surface temperatures. Science Advances. 7(26), eabg6931.

[13] **Chan D.**, & Huybers P (2021). Correcting sea surface temperature observations removes World War II warm anomaly. Journal of Climate, 34(11), 4585-602.

[12] **Chan D.** (2021). Combining statistical, physical, and historical evidence to improve historical sea surface temperature records. Harvard Data Science Review. 3(1), doi: 10.1162/99608f92.edcee38f

[11] Dai C., **Chan D.***, Huybers P., & Pillai, N. (2021). Late 19th-century navigational uncertainties and their influence on sea surface temperature estimates. Annals of Applied Statistics, 15(1): 22-40.

[10] **Chan D.**, & Huybers P. (2020). Systematic differences in bucket sea surface temperatures caused by misclassification of engine room intake measurements. Journal of Climate. 33(18), 7735–53

[9] **Chan D.**, Cobb A., Vargas L., Battisti D., & Huybers P. (2020). Summertime temperature variability increases with local warming in mid-latitude regions. Geophysical Research Letters, e2020GL087624.

[8] **Chan D.**, Zhang, Y., Wu Q., & Dai X. (2020). Quantifying the dynamics of the interannual variabilities of the wintertime East Asian Jet Core. Climate Dynamics, 54(3), 2447-63.

[7] **Chan D.**, Kent E., Berry D. & Huybers P. (2019). Correcting datasets leads to more homogeneous early 20th century sea surface warming. Nature, 571, 393-397. (covered by NPR)

[6] **Chan D.** & Huybers P. (2019). Systematic differences in bucket sea surface temperature measurements amongst nations identified using a linear-mixed-effect method. Journal of Climate, 32(5), 2569-89.

[5] Hu C., Wu Q., Yang S., Yao Y., **Chan D.**, Li Z., & Deng K. (2016). A linkage observed between austral autumn Antarctic Oscillation and preceding Southern Ocean SST anomalies. Journal of Climate, 29(6), 2109-22.

[4] Wu Q., Cheng L., **Chan D.**, Yao Y., Hu H., & Yao Y. (2016). Suppressed mid-latitude summer atmospheric warming by Arctic sea ice loss during 1979–2012. Geophysical Research Letters, 43(6), 2792-800.

[3] **Chan D.**, Wu Q., Jiang G., & Dai X. (2016). Projected shifts in Köppen climate zones over China and their temporal evolution in CMIP5 multi-model simulations. Advances in Atmospheric Sciences, 3(33), 283-93.

[2] **Chan D.**, & Wu Q. (2015). Significant anthropogenic-induced changes of climate classes since 1950. Scientific Reports. 5. 13487. (covered by Yale Climate Connections)

[1] **Chan D.**, & Wu Q. (2015). Attributing observed SST trends and sub-continental land warming to anthropogenic forcing during 1979–2005. Journal of Climate, 28, 3152–70.

Manuscripts under review. *(* co-first author; † student or mentee)*

[6] **Chan D.**, Gebbie G., & Huybers P. Revised global temperatures indicate 1.5°C warming by 2030. Under review at Nature.

[5] **Chan D.**, Gebbie G., Kent E., & Huybers P. DCENT: Dynamicaly Consistent ENsemble of Temperature at the earth surface. Under review at Scientific Data.

[4] Proctor J., Vargas Zeppetello L., **Chan D.**, & Huybers P. Climate change increases the interannual variability of summer crop yields globally. Under review at Nature Food.

[3] Fan Y. †, **Chan D.**, & Li L. Varying sensitivity between AMOC and subpolar North Atlantic SSTs. Under review at Journal of Climate.

[2] Fan Y. †, **Chan D.**, & Li L. Disagreement on the North Atlantic Cold Bold Formation Mechanisms among Climate Models. Under review at Journal of Climate.

[1] Song S. †, **Chan D.**, & Yeh S. Using historical temperature estimates to constrain the hysteresis of global mean surface temperatures in a recovery climate. In prep.