

# DUO CHAN

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I have a background in statistics and dynamics of ocean and atmosphere. I use statistical models and physical simulations to reconstruct past climate and understand underlying dynamics. My currently work is on improving the quality and interpretation of historical sea surface temperature data.

## EDUCATION

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- 2015-        **Ph.D. Candidate** in Atmospheric, Ocean, and Climate Sciences, Harvard University  
              **Thesis:** Combining statistical, physical, and historical methods to improve the quality and interpretations of historical sea surface temperature data  
              **Advisor:** Peter Huybers, Professor
- 2013-15     **M.S.** in Meteorology, Nanjing University, China
- 2009-13     **B.S.** in Applied Meteorology and **Minor** in Finance, Nanjing University, China

## AWARDS & MEDIA EXPOSURE

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- 2020        Harvard Horizons Fellow
- 2019        Harvard GSAS professional development award
- 2019        NPR: How much hotter are the oceans? ([link](#))
- 2016        Yale Climate Connections: 2015's key climate science research advances ([link](#))
- 2015-16     William Benjamin and Jill Kowal Graduate Aid Fund in Environmental Studies

## PUBLICATIONS

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### Manuscripts Under Review

\* co-first author

- **Chan D., & Huybers P.** Finding and fixing sea surface temperature biases during the second world war. *Submitted*.
- **Chan D., Vecchi G., Yang W. & Huybers P.** Correcting sea surface temperatures improves simulations of historical hurricane activity. *Submitted*.

### Selected Publications

1. **Chan D., & Huybers P.** (2020). Systematic differences in bucket sea surface temperatures caused by misclassification of engine room intake measurements. *Journal of Climate*. In press.
2. **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.
3. **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), 2569-2589.

## Additional Published Research

4. Dai C., **Chan D\***, Huybers P., & Pillai, N. (2020). Late 19th-century navigational uncertainties and their influence on sea surface temperature estimates. *Annals of Applied Statistics*. In press.
5. **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.
6. **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), 2447-2463.
7. 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), 2109-2122.
8. 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), 2792-2800.
9. **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), 283-293.
10. **Chan, D.**, & Wu, Q. (2015). Significant anthropogenic-induced changes of climate classes since 1950. *Scientific Reports*. 5. 13487.
11. **Chan, D.**, & Wu, Q. (2015). Attributing observed SST trends and sub-continental land warming to anthropogenic forcing during 1979–2005. *Journal of Climate*, 28, 3152–3170.

## TEACHING EXPERIENCE

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**Teaching Assistant:** Responsibilities included developing new class materials, leading class discussions, grading all assignments, and meeting with students individually.

1. **Weather, Water, and Climate** (Winter, 2020). Perry School, ~10 7<sup>th</sup> grades (Public school outreach)
2. **Climate change debate** (Spring, 2019). Harvard college, 28 undergraduates
3. **Paleoclimate as prologue** (Fall, 2016). Harvard EPS, 3 undergraduates and 6 graduates
4. **General Circulation of the Atmosphere** (Fall, 2014). Nanjing University, ~5 UG and ~30 G

## CONFERENCES AND PRESENTATIONS

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### Invited Talks

- Climate detective: Combining statistical, physical, and historical methods to improve historical sea surface temperature data (Harvard Horizon, 2020)
- Correcting datasets leads to more homogeneous early-twentieth-century sea surface warming (Fudan University, 2019; Nanjing University, 2019)

### Conference Talks

- Correcting datasets leads to more homogeneous early-twentieth-century sea surface warming

(International meeting on statistical climatology, 2019; CLIMAR5 Workshop on Advances in Marine Climatology, 2019)

- Remote control of surface soil moisture on projections of summertime mid-latitude land temperature variability (ACDC, 10-year reunion, 2019; EGU, 2018)
- On the dynamics of the interannual variability of East Asian jet stream (15th AOGS Meeting, 2018)

### **Posters**

- Improved SSTs better predict multi-decadal variability of Atlantic TC count (AGU, 2019)
- Correcting datasets leads to more homogeneous early-twentieth-century sea surface warming (AGU 2018; Frontiers in Oceanic, Atmospheric, and Cryospheric Boundary Layers , KITP, 2018; AGU 2017)
- Is diurnal cycles of sea surface temperature increasing since the 1970s? (AGU, 2016)
- Significant anthropogenic-induced changes of climate classes since 1950 (AGU, 2014)
- Attribution of observed SST trends and sub-continental land warming to anthropogenic forcing during 1979-2005 (AGU, 2013)
- Inter-annual variability in the position and strength of the East Asian jet stream and its relation to large-scale circulation (EGU, 2013)

### **SUMMER SCHOOLS**

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| 2019 | Ecole Polytechnique: Fluid Dynamics of Sustainability and the Environment, |
| 2017 | University of Bergen: Advanced Climate Dynamics Courses                    |
| 2017 | Beijing University: Climate, Weather, Pollution & Health Consequences      |
| 2016 | Chicago University: Rossbypalooza  |