

Singapore Management University

## Institutional Knowledge at Singapore Management University

---

Research Collection School of Social Sciences

School of Social Sciences

---

11-2020

### Archives of societies and historical climatology in East and Southeast Asia

Fiona WILLIAMSON

*Singapore Management University, [fwilliamson@smu.edu.sg](mailto:fwilliamson@smu.edu.sg)*

Qing PEI

Follow this and additional works at: [https://ink.library.smu.edu.sg/soss\\_research](https://ink.library.smu.edu.sg/soss_research)



Part of the [Asian History Commons](#), [Asian Studies Commons](#), [Environmental Sciences Commons](#), and the [Place and Environment Commons](#)

---

#### Citation

1

This Magazine Article is brought to you for free and open access by the School of Social Sciences at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in Research Collection School of Social Sciences by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email [cherylds@smu.edu.sg](mailto:cherylds@smu.edu.sg).







© 2012 Billie Love Historical Collection

**Figure 2:** Custom House and German-Asiatic Bank, Bund, Shanghai, May 1911. Source: <https://www.hpcbristol.net/visual/bl02-024>

period tends to hold the best documentation on past climates, with a wealth of climate data collated by the colonial French, British, Dutch, Spanish, Japanese, and American governments. From early medical topographies that noted aspects of the climate as they related to health, to private diaries and military records, these sources became increasingly sophisticated by the end of the 19th century as meteorological science became more standardized and regulated globally.

### Comments

Studies undertaken for East and Southeast Asia have tended to focus on two main areas with the bulk of research undertaken in China and later Japan: first, the correlation of climatic events with changes to human societies, for example through natural disaster or prolonged climatic instability, resulting in famine, death, warfare, or regime changes; and second, the reconstruction of climate dynamics or particular events, such as El Niño or typhoons (Kubota and Chan 2009). Chinese scholars are better known for studies extending over centuries and even millennia, whereas in Japan – although Chinese recording systems had a large influence historically – scholars have had a different focus, exploring more recent climates and explaining past variations from the perspective of explaining teleconnections and climate dynamics.

Of course, there are inherent problems in using these early records. In China, the ancient records usually entailed general patterns of phenomena or events, a recording style that translates as “Generalize Details and Absorb

Them”. Descriptions were qualitative rather than quantitative, for instance: big (大), medium (中), or small (小). Even the considerably more systematic Qing YXFC records contain inconsistencies, as external influences, such as the abilities of the recorder or administrative differences across regions, all impinge on their accuracy (Pei and Forêt 2018).

Even the supposedly standardized instrumental observations of the later 19th century are not without criticism. In Singapore and Malaysia, even contemporaries critiqued the pre-1920s records, blaming poorly trained staff and a lack of resources.

Cross validation of statistics and data homogenization methods are used to combat these issues (Gao et al. 2018). Current paleoclimate reconstructions based on Chinese records are typically interpreted using a five-point series following the Semantic Differential Method (Zhang 2004). Japanese scholars have used the Standard Normal Homogeneity test, the Buishand Range test, and the Pettitt test (Zaiki et al. 2006). Studies reliant on ancient chronicles may also combine the historical narratives with paleoproxy data (Buckley et al. 2014).

In spite of inaccuracies, however, reconstructions based on social archives still have the potential to span millennia and allow for amazing insights into past climates. Because studies using archives of societies for this region are significantly different from their European counterparts, the use of such archives are still gaining momentum in research and continuing to enrich the application of social archives in paleoclimatology.

### AFFILIATIONS

<sup>1</sup>School of Social Sciences, Singapore Management University, Singapore

<sup>2</sup>Department of Social Sciences, Education University of Hong Kong, Hong Kong

### CONTACT

Fiona Clare Williamson: [fwilliamson@smu.edu.sg](mailto:fwilliamson@smu.edu.sg)

### REFERENCES

- Allan R et al. (2011) *Bull Amer Meteorol Soc* 92: 1421-1425
- Aono Y, Saito S (2010) *Int J Biometeorol* 54: 211-219
- Brönnimann S et al. (2018) In: White S et al. (Eds) *The Palgrave Handbook of Climate History*. Palgrave Macmillan, 27-36
- Buckley B et al. (2014) *Quat Sci Rev* 95: 1-19
- Chun Y et al. (2013) *Meteorological, Astronomical, and Seismological Observations from Ancient Korea*. Korean Meteorological Archives Series No. 4, Korea Meteorological Administration, 137 pp
- Demarée GR et al. (2013) *Bull Séanc Acad R Sci Outre-Mer* 59: 385-405
- Gao E et al. (2018) *Meteorol Serv Singapore Res Lett* 2: 3-11
- Huang B et al. (2019) *Nat Hazards* 95: 529-545
- Kubota H, Chan JCL (2009) *Geophys Res Lett* 36: 1-4
- Mikami T (2008) *Weather* 63: 190-193
- Pei Q, Forêt P (2018) *Environ Hist* 23: 863-871
- Pfister C (2018) In: White S et al. (Eds) *The Palgrave Handbook of Climate History*. Palgrave Macmillan, 37-47
- Wang PK et al. (2018) *Sci Data* 5: 180288
- Zaiki M et al. (2006) *Int J Climatol* 26: 399-423
- Zhang DE (2004) *A Compendium of Chinese meteorological records of the last 3,000-years*. Jiangsu Education Press, 2701-2843