

Rescuing historic climate data in the East Asian region

June 8 2018

An international team from the U.K., China, Japan and the U.S. has addressed the challenges of recovering, collating, digitizing and working with long-term instrumental weather observations in the East Asian Region. Historic instrumental weather observations are critical in extending the knowledge of past weather and climate and for comparison with paleo-proxy data. The potential of such data is shown to best effect when assimilated into dynamical 4-D global reanalyses to reconstruct weather and climate patterns and fluctuations over 200+ years, creating a spatially and temporally complete database of global weather that is used for improving climate projections and contributing to climate change detection and attribution studies.

For some regions of the world, however, a paucity of observational data requires a global, multidisciplinary effort to source and recover previously unknown repositories of instrumental [weather](#) observations. This is the premise behind the Atmospheric Circulation Reconstructions over the Earth (ACRE) project, a dedicated effort within the wider Climate Science for Service Partnership (CSSP) China project.

In a recent article, Dr. Fiona Williamson of the National University of Singapore and her co-authors from the U.K., China, Japan and the U.S., discussed this project.

The region covered by ACRE China covers the mainland of China, Hong Kong PRC, Macau, China, and the wider China seas region. The recovery of instrumental observations for the area entails different

stages, sourcing, imaging and digitization of historical data, enabled by cooperation among cross-disciplinary investigators from around the globe. Sources of data include weather observations taken on board "stationary ships" in Hong Kong harbour and vessels patrolling Chinese seas, those made on ships during voyages of exploration or naval surveys in Chinese waters or in Southeast Asia, as well as observations made at terrestrial meteorological registering stations, by observatories, government bodies, and port authorities at sub-daily scales.

The effort and collaboration expended by all partners globally, says Williamson, enables the researchers to contribute to the magnitude and accuracy of important regional and global weather and [climate](#) data bases.

More information: Fiona Williamson et al, Collating Historic Weather Observations for the East Asian Region: Challenges, Solutions, and Reanalyses, *Advances in Atmospheric Sciences* (2018). [DOI: 10.1007/s00376-017-7259-z](#)

Provided by Chinese Academy of Sciences

Citation: Rescuing historic climate data in the East Asian region (2018, June 8) retrieved 27 June 2024 from <https://phys.org/news/2018-06-historic-climate-east-asian-region.html>

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