



Long-term variability in seasonal march of rainfall at Manila since the late of the 19th century reconstructed by data rescue

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Manila has the longest meteorological observation record in the Philippines. The meteorological observation had started by Jesuit at Manila Observatory in 1865. To study longer-term variability in the seasonal march of rainfall in the Philippines, we used daily rainfall data for 1868–1940 obtained by our data rescue projects and for 1949–2012 obtained from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA). The data before the early 20th century were recovered from old paper-based meteorological observation records observed by the Manila Observatory and the Philippine Weather Bureau. The data include missing value for the 1880s.

As a first step in this study, we determined the onset and withdrawal pentads of summer rainy season at Manila by preliminary definition as follows: the onset (withdrawal) pentad of summer rainy season corresponds to the first (last) pentad when pentad rainfall exceeds 25mm since April. The threshold amount is almost equal to the annual mean pentad rainfall. As a result, delayed onsets frequently appeared in the 1900s and 1970–1993, and the early onsets were more common in 1913–1934 and 1999–2012. While the long-term variations in the onset showed inter-decadal variability, annual variations of the onset became larger since 1999. Those of the withdrawal also became larger and the delayed withdrawal frequently appeared since the late 1980s. To investigate these characteristics in more detail, we will compare the long-term variability in the onset and withdrawal of summer rainy season at Manila with those in other observation stations of the Philippines. The result will be shown in our presentation.