

20世紀前半の西部北太平洋域の台風経路の復元

The recovery of historical typhoon track data over the Western North Pacific during the early 20th century

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Typhoon provides fresh water to the land but it can cause disaster when it makes landfall due to strong winds and heavy rain. Recently the variability of typhoon activity becomes a great concern because it may be affected by global warming. Over the Western North Pacific (WNP) basin, typhoon best track data are available from 1945 from the Joint Typhoon Warning Center (JTWC). However to understand the typhoon variability which comes from natural or anthropogenic, 60 years best track data is not sufficient.

In this study historical observation records of typhoon track over the WNP during the 1901 to 1940 were collected from the Monthly Bulletins of the Philippine Weather Bureau (MBP). We digitalized the locations of each track into digital files, performed the quality check of the reliability of the track and investigated the variability of typhoon numbers.

We selected 14 stations over the WNP and checked the numbers the typhoon passage within 600 km radius of each station by the perturbation of daily surface pressure data. After 1911, typhoon track data have enough numbers over this restricted area. This restricted area covers about 80 % of the typhoon over the WNP in current best track data. We counted the typhoon numbers in this restricted area over the WNP by the combination of MBP and JTWC and found that whole area numbers have interdecadal variability without any long term trend. However when we divided into low/ high latitude numbers south of 10N, north of 20N, and between them, low latitude typhoon numbers have a decreasing trend. The maximum numbers appear around 1920s and they decrease less than half during the late 1990s. Typhoon numbers seem not to be changed, however the typhoon tracks tend to shift northward over the WNP during the 20th century.