

Fossil corals record 6000 year history of typhoon activity in the Northwest Pacific

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Prediction of future typhoon activity is important for determining their role in ecological disturbance and economic loss. Recent increase in sea surface temperatures (SSTs) caused by anthropogenic impacts has led to an increase in intense typhoons. However, instrumental records of typhoon are too short and unreliable to reveal trends in the typhoon activity. Understanding long-term variability of past typhoons is important for assessing whether changes in the variability are induced ongoing increase in SSTs. Fossil tabular corals preserved in raised reef coast offer new indicator to understand the variability of past typhoon intense. This study presents a record of typhoon activity in the Northwest Pacific over the past 6000 years based on fossil tabular corals (*Acropora digitifera*) from Kikai Island in the Ryukyu Islands that are characterized by the variability of size related to typhoon intense. The record indicates that the frequency of typhoon has varied on millennial scales over this period; it weakened during the mid Holocene climatic optimum and it strengthened over the past 2000 years. The variability of typhoon intense was correlated with the strength of El Nino-Southern Oscillation (ENSO) during the past 6000 years. This data suggests that it is important to understand the variability of ENSO and locations of genesis of typhoon for prediction of the change in typhoon activity near future. Therefore, the information implies that recent increases in SSTs are probably not the important drivers of typhoon activity.

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