

Depositional evidence for the Kamikaze Typhoons from Western Kyushu, Japan

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In the late 13th century, Kublai Khan, ruler of the Mongol Empire, launched what was at the time the world's largest armada in an attempt to conquer Japan. Early narratives describe the decimation/dispersal of these fleets by the "Kamikaze" of 1274CE and 1281CE– a pair of intense typhoons sent by the gods to protect Japan from invasion. Preserved wreckage provides evidence for the larger of the Mongol defeats; however, the probability of two major typhoons impacting this area in such close succession today is relatively low. Here we present a 2000 yr sedimentary reconstruction of typhoon overwash from a coastal lake near the location of the Mongol invasions (Lake Daija). Two marine-sourced flood deposits date to the Kamikaze typhoons and are the events of record in the reconstruction. Results from an additional nearby lake (Lake Kawahara), provide secondary depositional evidence for the events in the form of an extreme freshwater discharge event, thus helping to delineate deposits as storm-induced rather than tsunamigenic. The complete Daija reconstruction indicates greater regional typhoon activity relative to modern beginning around 250CE and extending past the timing of the Kamikaze events to 1500CE. It is difficult to conclusively attribute a pair of extreme weather events to varying climate. However, our results support the occurrence of two major typhoons in the late 13th century near the site of the Mongol invasions and show that extreme events of this nature were more frequent during the timing of the invasions as compared to present day. The role of the paired Kamikaze typhoons in preventing the conquering of Japan by the Mongol fleets may therefore serve as an important example of how an increase in severe weather associated with changing climate has helped to shape major geopolitical boundaries of today.

Keywords: Typhoons, Tropical Cyclones, ENSO, Coastal Flooding