Discovery of well-preserved site of tsunami deposits on Sakishima Island, Okinawa.

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Before the occurrence of the 2011 off the Pacific coast of Tohoku earthquake, the largest tsunami recorded in Japan was the Yaeyama (Meiwa) tsunami of 24 April AD 1771. The tsunami struck Sakishima Islands including Ishigaki and Miyako Islands along the southern Ryukyu Trench, and resulted in ~12,000 deaths. Based on historical records, the run-up heights of this tsunami were up to 30 m. There are many studies of tsunami boulders and sandy tsunami deposits on archaeological remains. Recently, Dr. Masataka Ando found excellent-preserved tsunami deposits from a ranch on Ishigaki Island. Four paleotsunamis deposits (T-I to T-IV) are identified in a trench. Three of the tsunami deposits (T-I, T-II, and T-IV) consist of calcareous sand beds, while the other (T-III, located stratigraphically between T-II and T-IV) consists of boulders (Ando et al., 2018, Tectonophysics, 722, 265-276). The tsunami deposit T-I was caused by the AD 1771 Meiwa tsunami. Depositional ages of the three older tsunami deposits (T-II, T-III, and T-IV) are 920–620, 1670–1250, and 2700–2280 to 1670–1250 cal. yrs BP, respectively. The elevation of the landward margin of T-I was up to 9 m, which is 90% of the height of the 1771 tsunami run-up at the trench estimated at 10 m in historical documents. Ground fissures in a soil beneath the 1771 tsunami deposit may have been generated by stronger shaking than recorded by historical documents. Molluscan assemblages in the tsunami deposits show that the shallow lagoon off the study area has remained since the occurrence of tsunami T-IV. There are many problems such as depositional age of tsunami T-IV, further work is needed in the site.

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