Tephrostratigraphy of deep-sea sediments in the northwestern Pacific and implication for chronology of the past 300 kyr

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A total 49 distal tephra layers intercalated with four deep-sea sedimentary cores of MR0102-PC1, KR0215-PC2, KR0215-PC3, and KR0217-PC7 from the northwestern Pacific have been studied to establish a highly reliable chronology of the past 300 kyr. Based on mineral composition of tephras, shape and major chemical composition of volcanic glasses, and stratigraphy, six correlatable tephras are found in these analyzed cores.Further, three of these tephras are correlated with known wide spread tephra, which are Aso-4, On-Pm1, and Ata-Th tephra. Based on the constraint of stratigraphic levers of these tephras, continues magnetic susceptibility records of these cores and the previously dated sedimentary core of S2612 from the Shatsky Rise are correlated. Based on this correlation, a new chronology for these cores is provided. This chronology reveals that ages of On-Pm1 and other three tephras are assigned as approximately 98, 159, 219, and 230 ka in descending sequence. This chronology also provides changes of the sedimentation rates for these cores during the last 300 kyr, which will contribute future paleoceanographic study of the subarctic boundary of the northwestern Pacific.