Late Quaternary tephrostratigraphy of the East Asia: implications for the eruptive histories of Baegdusan and Ulleung volcanoes.

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The alkaline tephra-forming volcanoes in and around Japan occur in only two districts, but little is known about the tephrostratigraphy, except U-Oki and B-Tm tephras from the Japan Sea/East Sea. The differences in chemical composition between within-plate alkaline tephras and hemipelagic sediments are usually so large that trace element geochemistry is likely to be useful for particularly alkaline cryptotephra detection in other areas with similar tectonic characteristics. The newly identified tephras (named U-Sado, B-Sado and B-Ym), U-Ym, and B-J tephras were detected and eruption ages identified between AT (29.4 cal. ka) and Aso-4 (87 ka) in five cores based on microscopic observation and the stratigraphic correlations between cores of the Holocene sediments and volcanic glasses from Ulleung and Baegdusan in the East Asia.

The main objective of the present study is to construct an alkaline tephrostratigraphical framework of the late Quaternary in the marine cores that can be integrated with the lithological sediment sequences to better define a regional stratigraphic framework. Major and trace-element data on individual glass shards separated from the detected cryptotephra layers are used to fingerprint the source volcano and confirm regional correlations in East Asia.