Age and Composition of Holocene Tropical Submarine Volcanoes in the Equatorial and North Pacific

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GISP2 ice cores have previously shown the presence of rhyolitic and dacitic volcanic glass in layers that correspond to historical eruptions between 533 and 543 CE. Five of these eruptions may have come from submarine volcanoes. However, many submarine volcanoes in the Equatorial and North Pacific have no quantitative chemical analyses in PETDB. This region is an important part of our search for potential volcanic sources due to its proximity to China, where historical records of volcanic eruption and subsequent climatic downturns were recorded during the 6th century. We searched for LDEO cores within 300 km of poorly understood submarine volcanoes in the Equatorial and North Pacific. After selecting magnetic susceptibility highs in the top 30 cm of each core, we sieved the layers with potentially high contents of volcanic glass. We then picked volcanic glass and conducted EDS analyses and took SEM images. Our EDS analyses determined the compositions of ash in cores located within 170 km of two seamounts (Forecast and Kika-Fukotkutai). The chemical compositions of these two volcanos were unknown before our study. The ash from the core close to Kita-Fukokutai is dominated by dacite. All other nearby Holocene volcanos are dominated by andesite or basalt. The ash from the core near Forecast Seamount is dominated by dacite. All other nearby Holocene volcanoes are dominated by basaltic ash. Our results also match an EDS XRF analysis of rhyolitic ash from a core near the submarine Kita-Bayonaise rocks with an EDS XRF analysis of rhyolitic ash from the GISP2 ice core dated to 539.9±0.33 CE. We are working on ^{14}C dating of our samples to constrain the ages of the submarine ash layers.