

## The volcanic ash dispersion of the Aira super-eruption, Japan

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The Aira (AT) caldera super-eruption in the Kyushu, southwest Japan was much important event in last 100 ka. In terms of eruption volume and dispersion map of the Aira super-eruption, it released at least 500 km<sup>3</sup> products and volcanic ashes were eastwardly dispersed to Honshu, Hokkaido and the Japan Sea at the downwind direction. The tephrostratigraphic studies of the Aira super-eruption have well done by other previous studies in the Japan area. In the recent, a notable new discovery is that the volcanic glass shards of the Aira caldera super-eruption are found at the depth 2160 cm of the IMAGES MD052910 core (24°1.64'N; 122° 12.04'E) at the western offshore Taiwan. The SiO<sub>2</sub> and K<sub>2</sub>O chemical compositions as well as <sup>87</sup>Sr/<sup>86</sup>Sr and εNd isotopic ratios of glass shards in the core are 78.16%, 3.56%, 0.70630 and -4.1, respectively, which are completely consistent with those of the Aira super-eruption. Based on the C-14 dating results of MD052910, the sedimentary time of the depth 2160 cm can be estimated as 29.4 ka <sup>14</sup>C age BP, which is also consistent that the suggested age as 26-29 ka of the Aira super-eruption (Machida and Arai, 2003)

The volcanic ashes were dispersed almost the same order of distances at both down and up wind directions during the super-eruption. What kind of eruptive styles and how to disperse so far in the upwind direction become very interesting question. The similar manifestation of volcanic ash distribution of the Toba super-eruption has been found in not only Indian peninsula, but in the South China Sea. The results strongly suggested that the volcanic ash dispersed behaviors of the super-eruption should appear the more complicate mechanism of ash dispersion. Baines and Sparks (2005) claimed that the super-eruptions shall generate the giant 'spinning' ash clouds , which are greater than 600 km and up to 6000 km in diameter.