

Study on shocked materials on active Earth

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The following is the summary of the present study. 1) New type of impact-related event can be defined at active tectonic regions on the Earth by using different aging data between impact and volcanic events, semi-circular structure, bulk composition, shocked materials of carbon, silica and Fe-related elements and spherules. 2) These indicators are applied to Takamatsu MKT crater in Japan as follows.

i) Bulk XRF compositional data indicate various compositions between (granitic) basement and glassy breccias. ii) Quartz grains with the PDFs have been found in granitic rocks and breccia outcrops. The PDFs in the quartz mineral grains (measured on a U-Stage) occur in the the $(10\bar{1}2)$, $(10\bar{1}3)$ and $(10\bar{1}1)$ crystallographic directions. iii) The MKT impact event occurred in the Late Cretaceous Rhyolite Granite on the proto-Japanese islands located near the continental margin at 15.3 Ma followed by developing an southward opening of the Sea of Japan. The crater was filled and buried during formation of the Japanese Islands. Original MKT crater structure with double ring structure is broken during the northward formation of the Seto-Inland Sea, followed by small basaltic andesite volcanism around and inside the MKT structure at about 14.2 Ma.