

Study of shocked quartz at the M (KT) impact crater in Japan

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A Miura (Kagawa-Takamatsu), M(KT), impact crater is defined as larger circular structure of ca. 8km in diameter by recent re-investigation with shocked quartz and feldspar minerals in the crater-filling breccias and suevite impact rocks found on semi-circular structure at Takamatsu, Kagawa, Shikoku, Japan.

Quartz grains with planar deformation features, PDFs, with small fluid inclusions along crystalline planes which are found in five types rocks of reddish/grey/white glassy breccia and suevites, and in zeolite-bearing breccias in a 300 m deep borehole.

This PDFs data indicate medium-impact pressure to formation of the M(KT) crater.

Impact crater is used to contain shocked quartz minerals. A main purpose of the study is that shocked minerals of quartz and feldspar can be found in Japanese impact crater.

Takamatsu crater located in Takamatsu city, Kagawa Prefecture, Shikoku, Japan is a buried circular feature defined by a 4-km diameter negative gravity anomaly in an area of Late Cretaceous (ca.90 Ma) Rhyoke granitic rocks. Recent satellite data analysis indicates that there is semi-circular rim of ca. 8 km where we can find fresh and white suevite rocks.

We proposed new impact crater name of Miura (Kagawa-Takamatsu), designated as M(KT) ,crater, where we can find shocked minerals, diaplectic feldspar glass located ca. 8km outside Takamatsu city.

Shocked quartz grains with planar deformation features (PDFs) have been found in clasts of breccia, five kinds of brecciated rocks and four locations as follows.

- 1) All PDFs in shocked quartz grain show arrays of small fluid inclusions.
- 2) Shocked quartz texture are altered by zeolite-bearing breccias in a 300 m deep borehole.
- 3) PDFs in the quartz grains (measured on a U-Stage) occur in the (001), (100) and (103) crystallographic directions indicative of intermediate shock pressures.
- 4) Feldspar grains showing deformation lamellae and diaplectic glass have been found in granitic clasts with glassy clasts and in the matrix of suevite melt breccias outside the gravity anomaly rim.