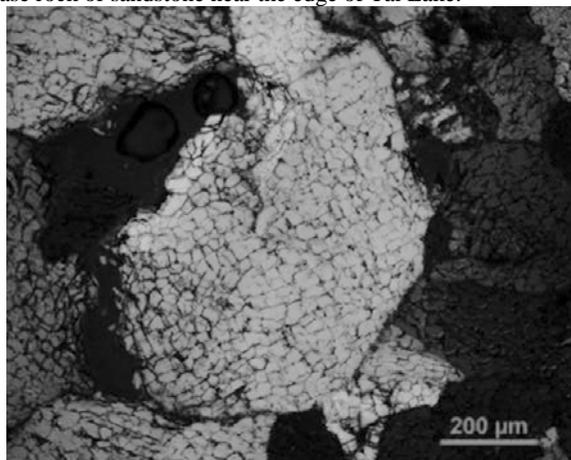


NEW IMPACT EVIDENCES DISCOVERED IN THE VICINITY OF TAI LAKE, SOUTHEAST CHINA: INDICATING A UNIQUE IMPACT CRATER

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Introduction: The impact origin of Taihu lake was proposed twenty years ago based on the deformation features of quartz in Devonian sandstone, which were collected from rock outcrops in islands of Taihu lake[1-2]. However the impact origin hypothesis was not confirmed because the lack of sufficient evidence, and the inability to explain how a 65 km diameter crater could be so shallow. Here we report new evidence of shock: Impact breccia, shocked basement rock, impact ejecta.

Results: Ejecta were discovered first and revive the impact origin hypothesis [3, 4 abstract of this meeting], and indicate an impact event of less than ten thousand years. Breccia found in other side of Tai Lake is described in another abstract [5] of this meeting. The image below shows the shattered quartz fragments in base rock of sandstone near the edge of Tai Lake.



Discussion and significance: The shattered quartz fragments were found in impacted breccia and ejecta too, indicating links between three types of rock in different location, apart away from several to 100 km, suggesting an impact related crater in the Tai Lake area. The shattered features indicate a low shock-pressure range. Breccia with melt and ejecta indicate that temperature is high enough to melt or vaporized the rock. There are still more work need to do, and a lot of mysterious waiting for us to explore.

The confirmation of an impact origin for Tai lake will have great impact on our understanding of nature impact process, carbon cycle, element chemistry interaction under extreme condition. In addition, the young age of impact event of Tai lake will change our view of the impact rate on Earth.

Reference: [1] Y. He et al., 1991, *Chinese Science Bulletin*: 36(10), 847-850 [2] E. Wang et al., 1994, *Chinese Science Bulletin*: 39(5), 419-423 [3] H. Wang, Z. Xie*, and H. Qian, 2009, *Geological Journal of China Universities*: 15: 437-444. [4] Xie et al, 2010, *MAPs*, this meeting. [5] Qian et al., 2010. *MAPs*, this meeting.