

POSSIBLE IMPACT CRATERS IN CHINA: PRELIMINARY REPORT, Y.Miura, T.Maeda¹, J.B.Li^{2,3}, A.Nakamura¹, and X.Hu². 1Dept. of Earth Sci., Faculty of Sci., Yamaguchi University, Yoshida 1677-1, Yamaguchi, 753-8512, Japan. yasmiura@yamaguchi-u.ac.jp. 2.President Office, University of Qinghai, Xining, Qinghai, 610016, P.R.China. 3.The State Key Lab. NCFR, Tsinghua University, Tsinghua, Beijing, 100084, P.R.China.

Introduction: There are few reports of impact crater in China, because large China continents consists of a few smaller continents by continental drift including Japanese old basements from southern parts of the Equator [1,2]. Japanese first impact crater research [3-6] can be applied to survey first China impact crater. In fact, senior author used Yamaguchi University academic fund of China - Japan Academic Exchange of 2002FY, to collect the samples at candidates of Chinese crater one month of summer holiday period o 2002. From satellite images and geological maps, we visited eight locations of wide China country to find best candidates of China crater region of Qinghai Province, western highlands of China. Purpose of the present paper is to discuss

Possible impact craters in China from geological - topographic maps and satellite images.

First candidate of Chinese craters in Qinghai Province: We found best candidate of Chinese impact craters in highlands of 2,200m to 4,000m in height, where old peoples (>60 years old) are not welcome mainly due to its less oxygen region. There are few active volcanic rocks, but primordial basement rocks of granitic and gneiss rocks are found. The following three possible craters are selected here from satellite images, rock collections and material analyses :

- 1) Possible impact crater A: Black and red impact-like melt breccias are collected at south and north sides, respectively, of the Qinghai Lake, Qinghai Province, P.R.China. Brecciated rocks are found at western part of the lake. Shattercone like texture on black shale can be found at west and east sides of the lake. Present large lake (ca.60kmx30km) shows irregular shape where fault line to form low lands are crossed to the center of the lake during Chinese joining from a few smaller continents. The Qinghai Lake is the largest salt-rich lake in China, which reveals strange water circular system to flow out to the bottom of the lake (maybe along the crack lines). Therefore, its lake is considered to be joint lakes from three small lakes (ca.10km in size) by tectonic movement of the joining to form larger lake.
- 2) Probable impact crater B: satellite image photo shows quasi-circular structure with central peaks as ca.20km in size in Qinghai province, P.R. China. The north and south rims of the crater

structure reveal black and red impact melt rocks, respectively. This crater structure is broken by radiated direction with three rivers and fault lines which were formed by crustal movement after impact event.

- 3) Clear impact crater C: Photographic image shows clear rim and with central peak of the lake in Qinghai Province, China. The detailed sampling will be planned next summer holiday period.

Impact melt rocks: There are two impact melt glasses (i.e. tektites) by impact process are found first in Qinghai Province,

- 1) Impact glass rock I: It reveals glassy silicate rocks found at north of the possible impact crater B in Xining city of Qinghai Province.
- 2) Impact glass brecciated rock II: This is mixed with brown clasts and red matrix glasses which is considered to be formed at possible impact crater A.

Summary: There are three candidates of Chinese impact craters with impact melt rocks (found two crater candidates). The more detailed survey and analyses will be planned as joint cooperation project.

References:[1] Y.Miura and S.Tanaka (2003):*In this LPI Contribution*. pp.1 (submitted). [2] Y. Miura, M.Kedves and J.Rucklidge(2001): *Proc. 23th ISAS Solar System*, 23, 13-16. [3] Miura Y. (2002): *Geol.Soc.America (Denver,USA)*, Abstract #239-11, [4] Miura Y. (2002): *LPS XXXIII*, Abstract# 1231.[5] Miura Y. (2002): *Proc. 35th ISAS LPS*, 34,124-127. [6] Y.Miura (2003):*In this LPI Contribution*. pp.1 (submitted)

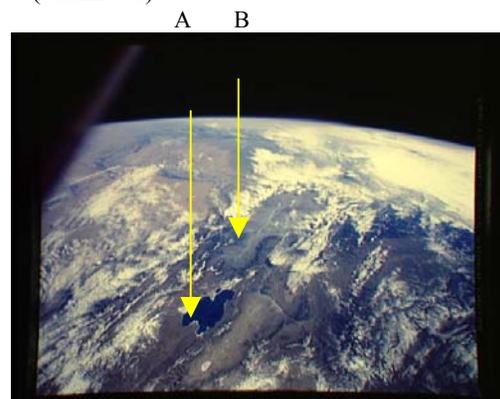


Fig. 1. Satellite image (NASA, Space Shuttle) of possible impact craters in Qinghai Province, P.R.China. Thanks for NASA satellite images.