

GAO Rui, CHEN Chen, LU Zhanwu, and Larry D. BROWN*, 2013. SINOPROBE Deep Reflection Profile Reveals Neo-Proterozoic Subduction Zone beneath the Sichuan Basin. *Acta Geologica Sinica* (English Edition), 87(supp.): 126.

SINOPROBE Deep Reflection Profile Reveals Neo-Proterozoic Subduction Zone beneath the Sichuan Basin

GAO Rui¹, CHEN Chen², LU Zhanwu¹, and Larry D. BROWN^{2*}

1 Chinese Academy of Geological Sciences, Beijing, China 100037

2 Institute for the Study of the Continents, Cornell University, Ithaca, NY 14853

A new multichannel seismic reflection profile collected across the Sichuan Basin by the SINOPROBE Project images prominent reflectors that originate within the lower crust and penetrate well into the underlying mantle. The geometry of these mantle reflectors is strikingly similar to those observed on deep reflection profiles from other parts of the world that have been interpreted as relicts of ancient subduction. Based on the geological history of the basement beneath and surrounding the Sichuan Basin, we propose that these newly revealed reflectors are the

remnants of Neo-Proterozoic subduction that assimilated the Precambrian Yangtze Block into the South China Craton. Moreover, preservation of these reflectors supports the interpretation of the Sichuan lithosphere as a well consolidated buttress against which the Tibetan Plateau has impinged to produce the Longmenshan orogenic belt.

Key words: Tibet, lithospheric structure, deep seismic profiling

* Corresponding author. E-mail: ldb7@cornell.edu