



New Evidences of Holocene Activity in the Jiangsu Part of Anqiu-Juxian Fault of the Tan-Lu Fault Zone

ZHANG Peng^{1,2}, FAN Xiaoping^{1,2,*}, LI Limei¹, XU Hangang², JIANG Xin² and MENG Ke²

¹ College of Transportation Science & Engineering, Nanjing Tech University, 210009

² Earthquake Administration of Jiangsu Province, 210014, China

Citation: Zhang et al., 2019. New Evidences of Holocene Activity in the Jiangsu Part of Anqiu-Juxian Fault of the Tan-Lu Fault Zone. *Acta Geologica Sinica* (English Edition), 93(supp.2): 87–88.

Abstract: The Anqiu-Juxian fault is an important fault in the Tan-lu fault zone, with the largest seismic risk, the latest era of activities and the most obvious surface action. Due to the lack of credible geological evidence, substantial controversy exists about Holocene activity in the Jiangsu part of this fault. Research on

the characteristics of activities in the late Quaternary of the Jiangsu part of the Anqiu-Juxian fault (JPAJF), particularly in its latest activity period, is of great significance to the assessment of its earthquake capacity and seismic risk. Based on field investigation of the JPAJF integrated with trench excavations,

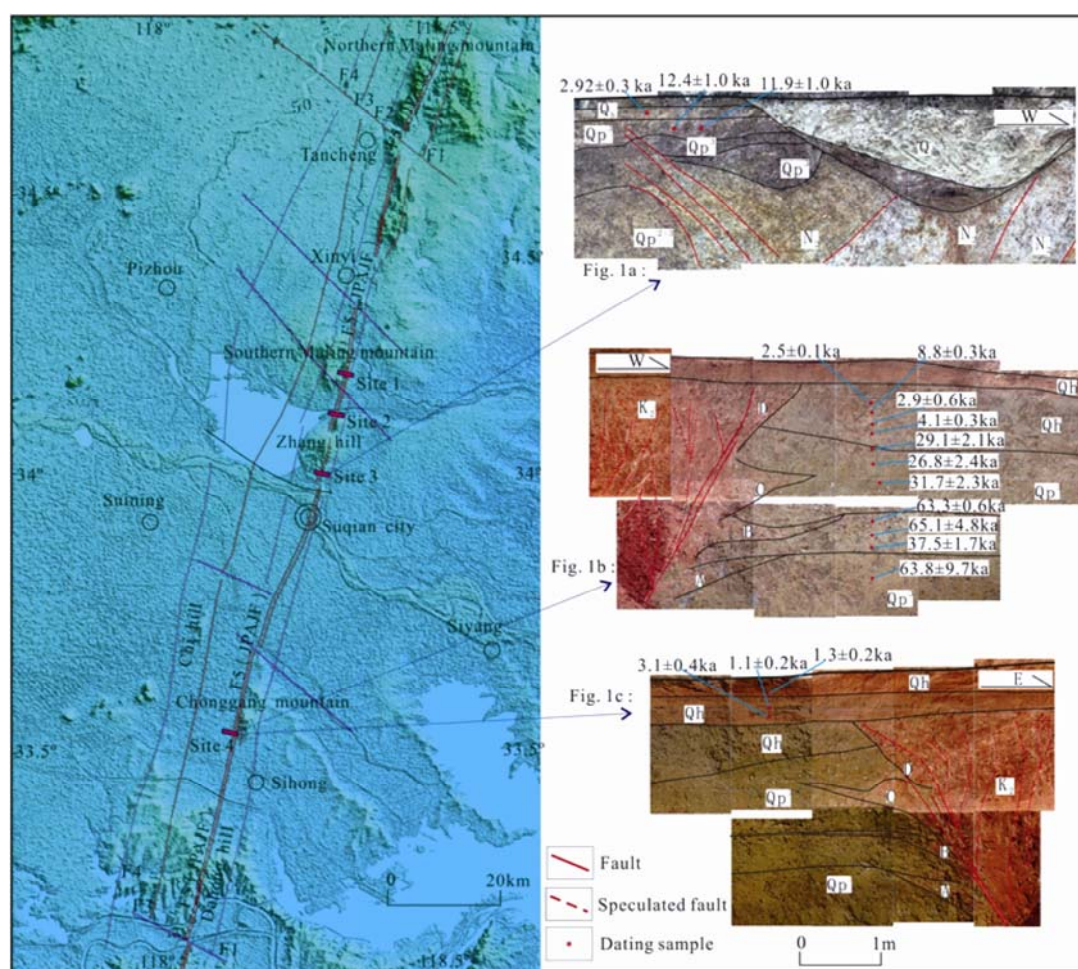


Fig. 1. Location and typical geological section of the JPAJF.

(a) Photo-mosaic and interpretation of the south wall of the trench in the north of Hehuan Road, Suqian City; (b) Photo-mosaic and interpretation of the south wall of the trench in Houchen village, west of Chonggang mountain; (c) Photo-mosaic and interpretation of the north wall of the trench in Houchen village, west of Chonggang mountain.

* Corresponding author. E-mail: nj_fxp@163.com

we discuss the characteristics of its activities in the late Quaternary. Multiple geological sections (Fig.1) from southern Maling mountain to Chonggang mountain indicate that there was an ancient seismic event that occurred in Holocene on the JPAJF. Based on dating results, we suggest that the time of the latest seismic event was approximately 4.853 ± 0.012 ka BP $\sim 2.92 \pm 0.3$ ka BP. The latest activity is characterized by strike-slip with thrusting movement, with maximum displacement of 1 m. In the geological sections in southern Maling mountain, Suqian city, and Chonggang mountain, the fault is covered by a layer of horizontal sand (Fig. 1), which indicates that the main part of the JPAJF was probably not affected by the Tancheng M8½ earthquake in 1668 and was not the surface rupture zone of the Tancheng earthquake. The JPAJF has experienced a number of activities since the late Quaternary, including obvious activity in the Holocene. The seismic activities of the JPAJF have the characteristics of high intensity and low frequency.

Keywords: The Tan-Lu fault zone, Anqiu-Juxian fault, Jiangsu part, Holocene activity, Paleoearthquake event

Acknowledgements: This work is supported by the National Science Foundation of China (No.41202155 and No. 41874051) and the project of “Urban active fault detection and seismic risk assessment of Suqian city”.

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About the first author



ZHANG Peng, male, born in 1981 in Qiqihaer City, Heilongjiang Province; Ph.D.; graduated from Nanjing University; Associate Professor of Transportation Science & Engineering, Nanjing Tech University. He is now interested in the study on active tectonics. Email: zhpnju@163.com; phone: 025-83587882, 13913848750.

About the corresponding author



FAN Xiaoping, male, born in 1974 in Qingyang City, Gansu Province; Ph.D.; graduated from Institute of Geophysics, China Earthquake Administration; Professor of Transportation Science & Engineering, Nanjing Tech University; He is now interested in the study on seismic tomography. Email: nj_fxjp@163.com; phone: 025-83587882, 13813897216.