

1 **Supplementary data figures**

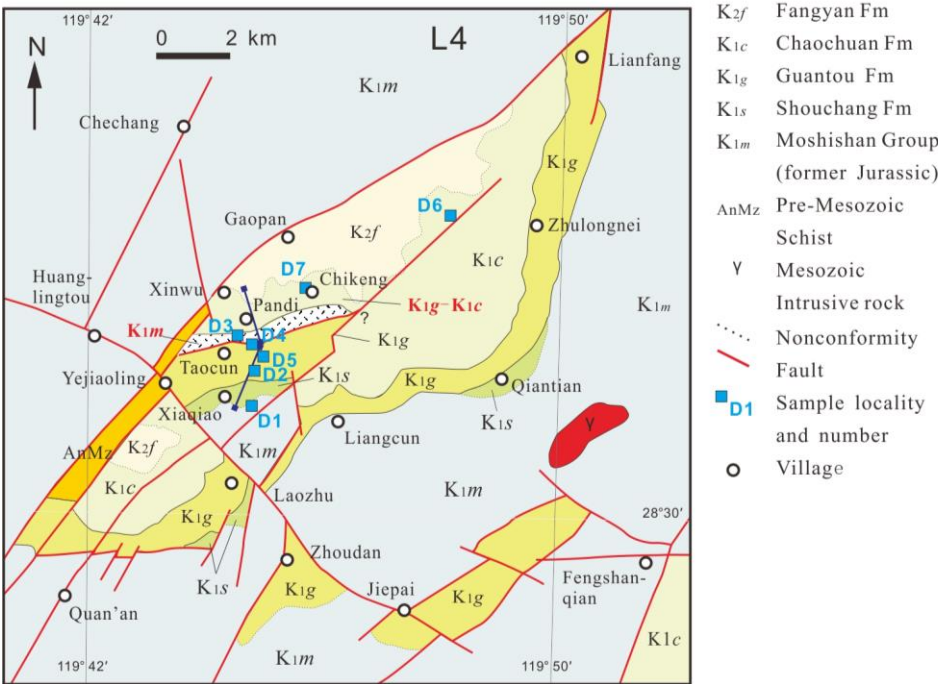
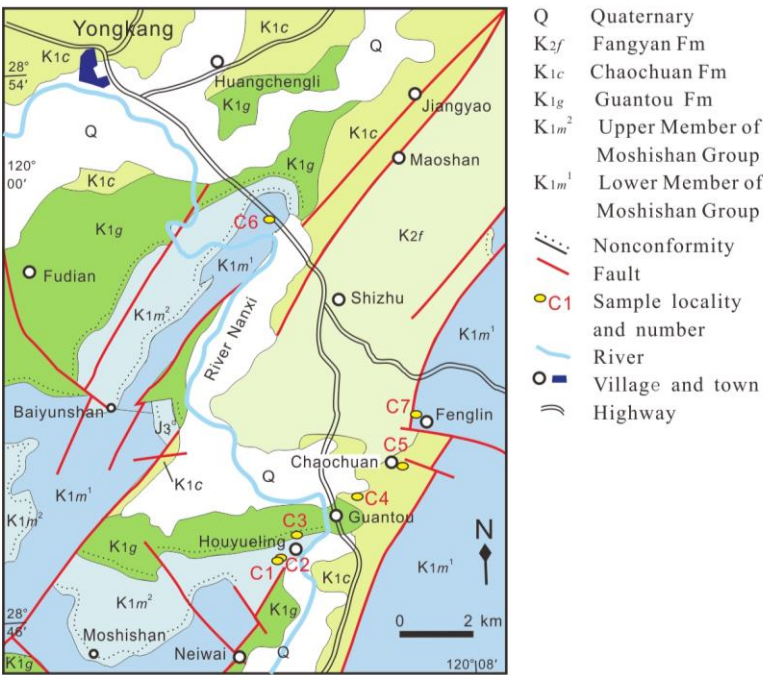
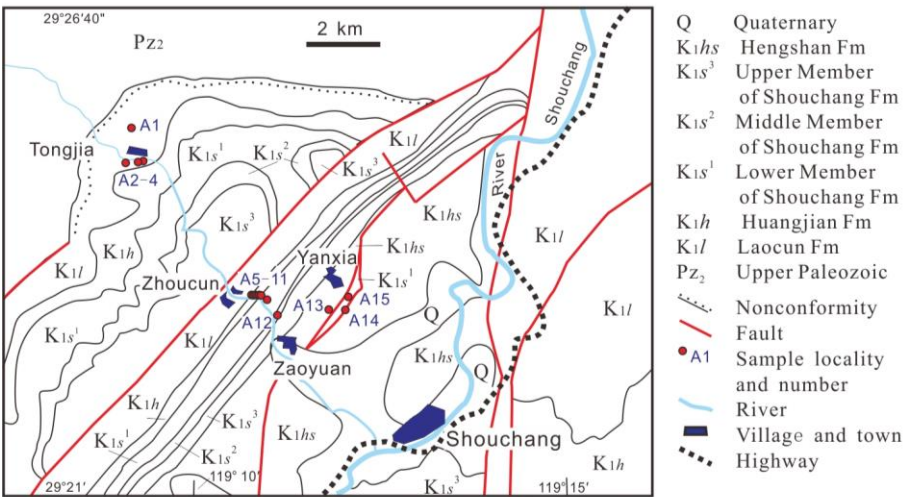
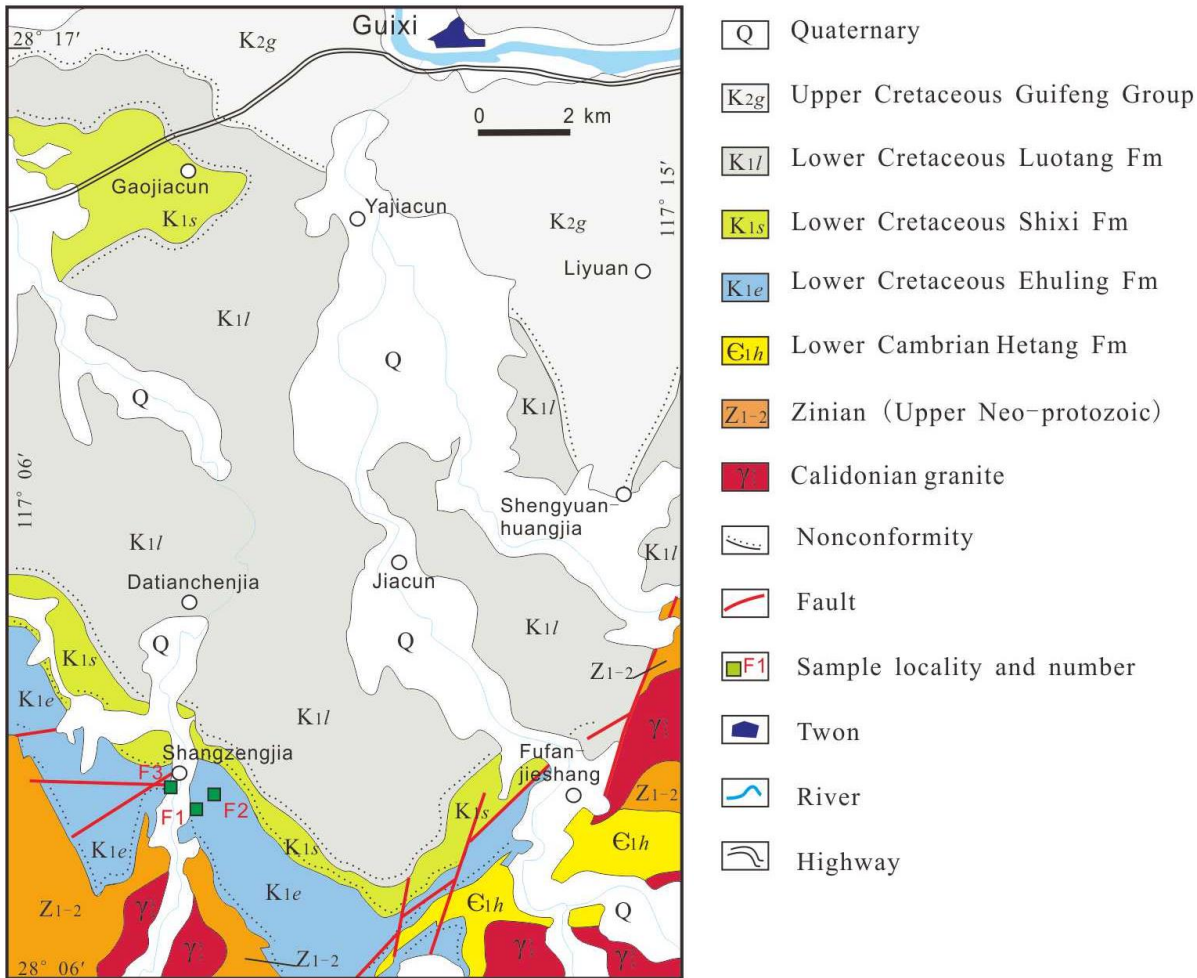


Figure RD1 Selected geological sketches in western Zhejiang province, showing sample locations. L1, geological sketch of Shouchang area, Jiande Basin, modified from Jiang et al. (1993); L3, geological sketch of Yongkang area, Yongkang Basin, simplified from ZBG (1978); L4, geological sketch of Laozhu area (Lishui), Yongkang Basin, simplified from ZBG (1966). Details of sample are provided in Table RD1. Geological sketch for L2 is not made as only two samples were taken from this section.

Cited references:
Jiang, W. S., Zhen, J. S., Li, L. T., and Xu, K. D.: Study of the Cretaceous in Zhengjiang, China, Nanjing, Nanjing University Press, 1-42 (in Chinese with English summary), 1993.
ZBG (Bureau of Geology): 1:200,000 Geological Map of Lishui, People's Republic of China (in Chinese), 1 sheet, 1966.
ZBG: 1:200,000 Geological Map of Xianju, People's Republic of China (in Chinese), 1 sheet. 1978.

L6



L5

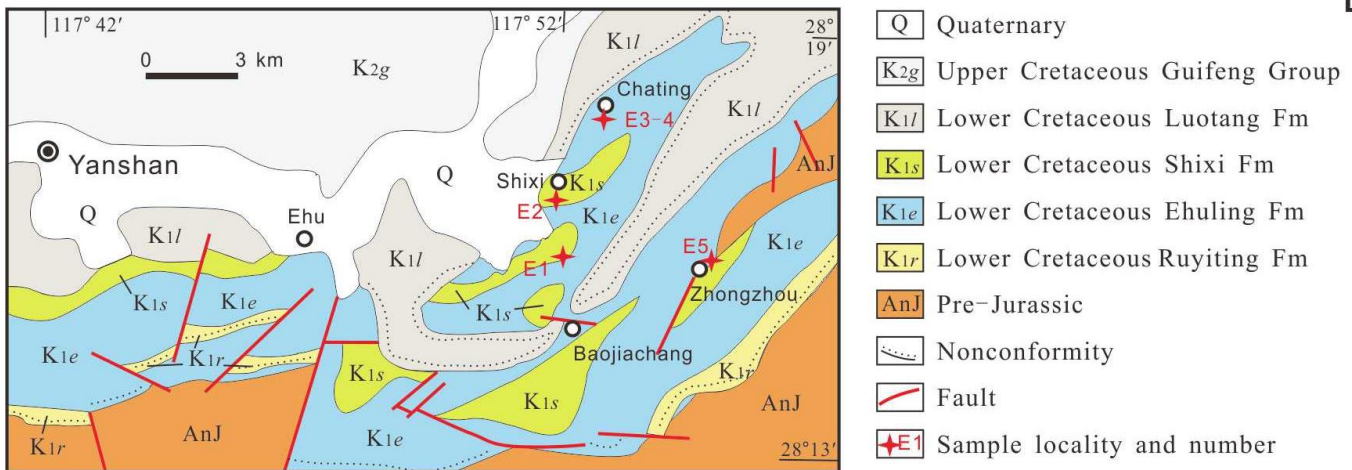
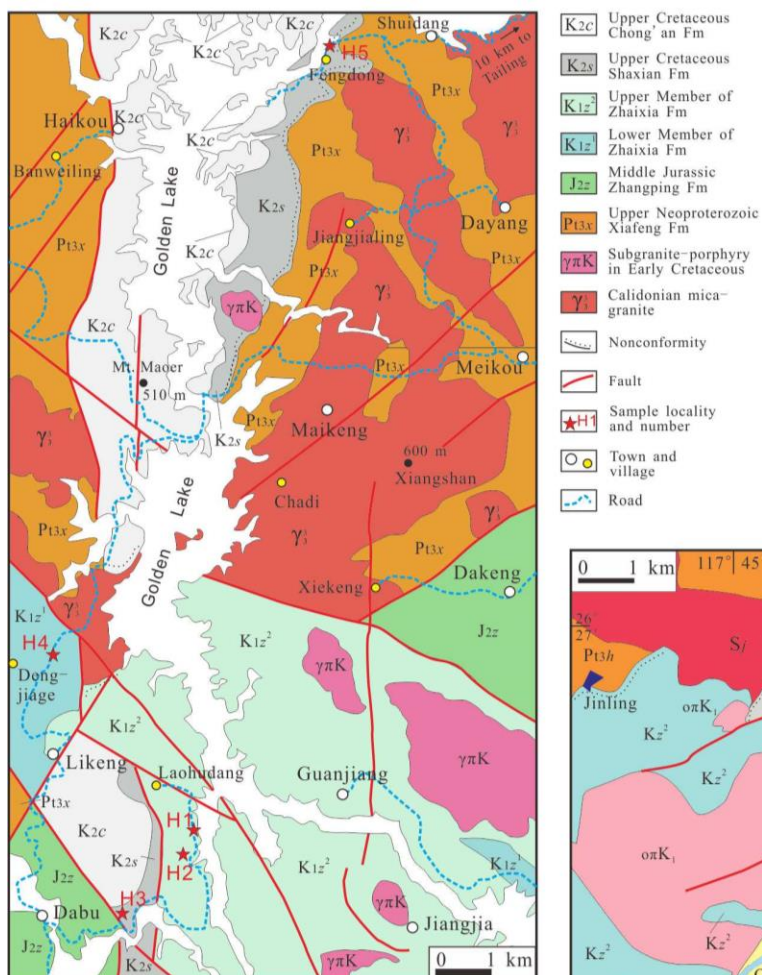


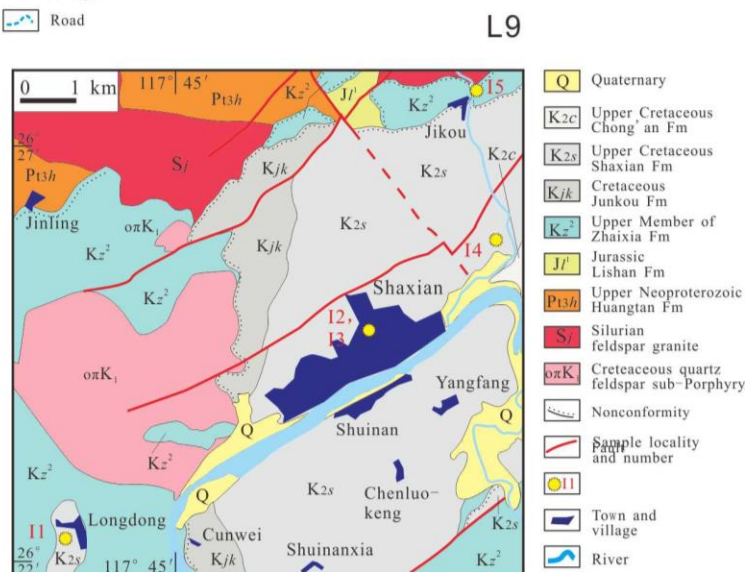
Figure RD2 Selected geological sketches in northeastern Jiangxi province, showing sample locations. L5, geological sketch of eastern Yanshan area, Xinjiang Basin, modified from Wu and Guan (1994); L6, geological sketch of southern Guixi area, modified from JTRG (1982). Geological sketch for L7 is not made as only one sample was taken. Details of samples are provided in Table RD1.

Cited references:

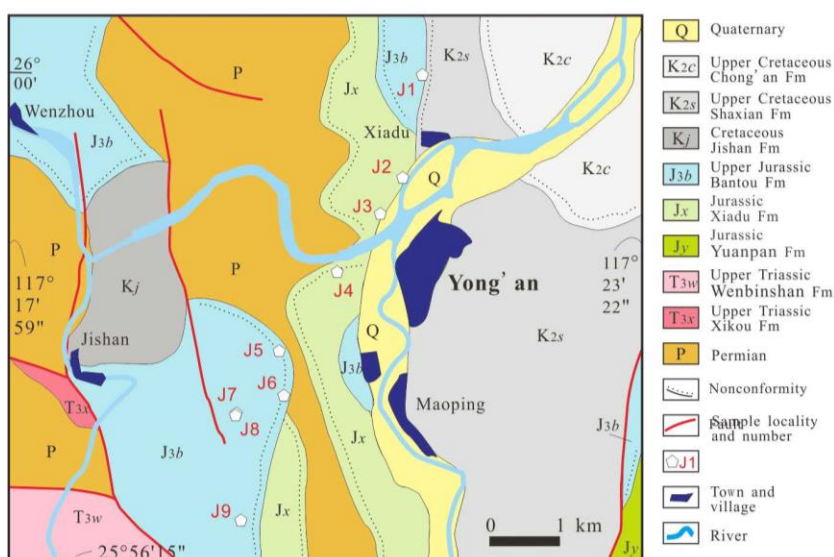
- JTRG (Team of Regional Geological Survey, Jiangxi Bureau of Geology and Mineral Ore): 1:200,000 Geological Map of Shangrao City, The People's Republic of China (in Chinese), 1 sheet, 1982.
- Wu, J. H., and Guan, T.Y.: A new knowledge of the "Shixi Formation" in the Yanshan and Shangrao areas, Jiangxi, J. Stratig., 18(1), 57-63 (in Chinese with English abstract), 1994.



L8



L9



L10

Figure RD3 Selected geological sketches in western Fujian province, showing sample locations. L8, geological sketch of southwestern Golden Lake area of Taining, intercepted from FGS (2004); L9, geological sketch of Shaxian area, intercepted from FTRGS (1997); L10, geological sketch of Yong'an, intercepted from FGS (2005). Details of sample refer to Table RD1.

Cited references:

FGS (Fujian Geological Survey): Geological Map of the Taining Geopark (in Chinese), 1:10,000, 1 sheet, 2004.

FGS: 1:10,000 Geological Map of the Yong'an National Geopark (in Chinese), 2005.

FTRGS (Team of Regional Geological Survey, Fujian Bureau of Geology and Mineral Ore): Geological Map of Shaxian, People's Republic of China (in Chinese), 1:50,000, 1 sheet, 1997.

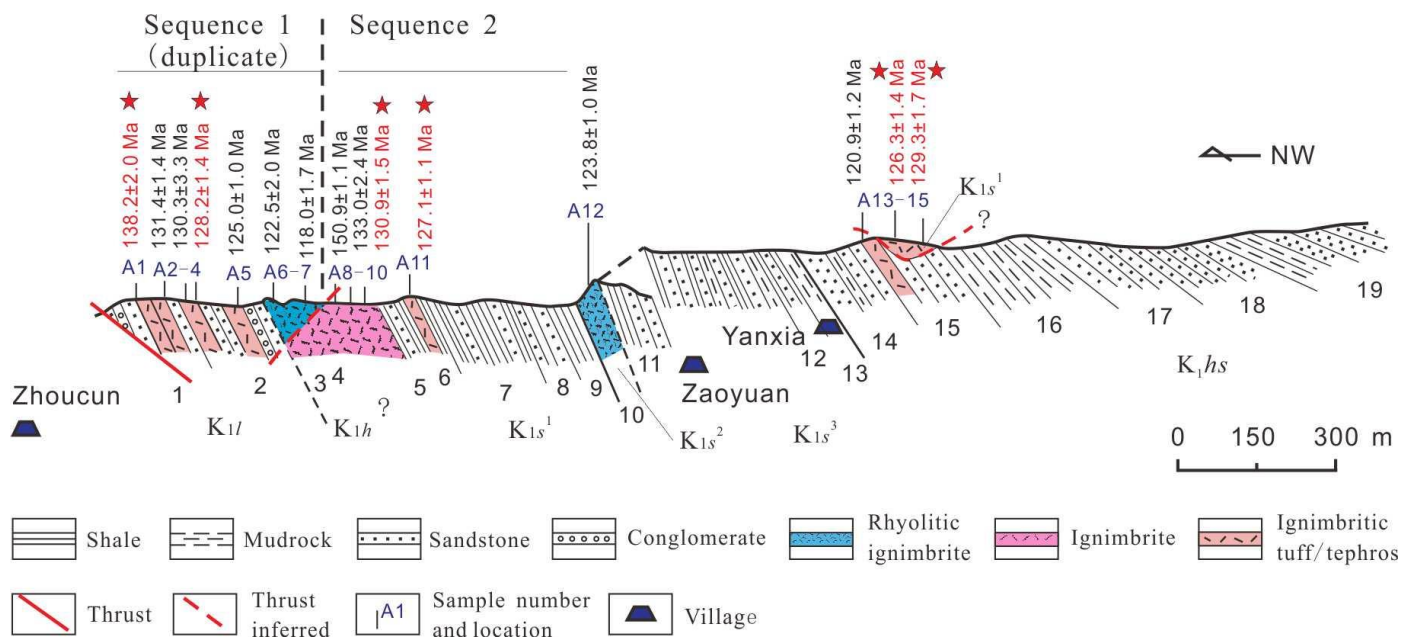


Figure RD4 Profile of the type Zhoucun-Yanxia section (L1) in Shouchang town of Jiande city, western Zhejiang with sampling horizons. Strata partly changed from the profile by Jiang et al. (1993). Star-marked samples are from Li et al. (2019).

Note, Sequence 1 is the duplicate of the lower Sequence 2. K_{1l} , Lower Cretaceous Laocun Fm; K_{1h} , Lower Cretaceous Huangjian Fm; K_{1s}^1 , Lower Member of Shouchang Fm; K_{1s}^2 , Middle Member of Shouchang Fm; K_{1s}^3 , Upper Member of Shouchang Fm; K_{1hs} , Lower Cretaceous Hengshan Fm.

Cited references:

- Jiang, W. S., Zhen, J. S., Li, L. T., and Xu, K. D.: Study of the Cretaceous in Zhejiang, China, Nanjing, Nanjing University Press, 1-42 (in Chinese with English summary), 1993.
- Li, X. H., Zhang, C. K., Li, Y. X., Wang, Y., and Liu, L.: Refined chronostratigraphy of the late Mesozoic terrestrial strata in South China and its tectono-stratigraphic implications, *Gond. Res.*, 66, 143-167, 2019.

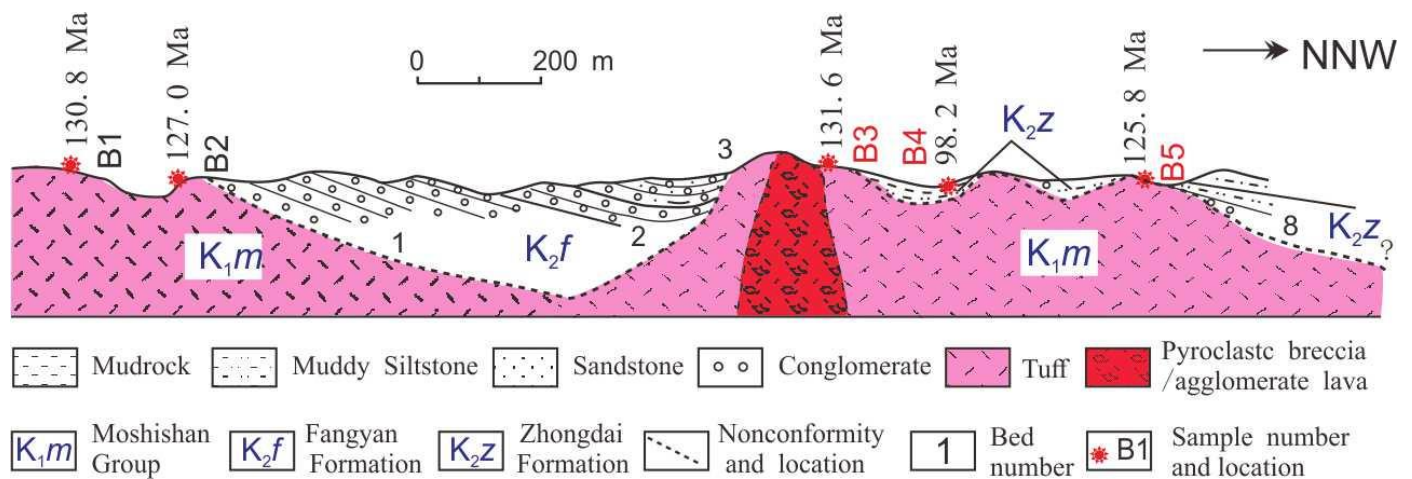


Figure RD5 Profile of the type Zhongdai section (L2) of Jinhua, western Zhejiang, showing sampling locations. Stratigraphical reinterpretation and samples B1, B3, and B5 are from Li et al. (2019), B2 and B4 from this study. Symbol of lithostratigraphic units refer to figure RD4.

Cited reference:

- Li, X. H., Zhang, C. K., Li, Y. X., Wang, Y., and Liu, L.: Refined chronostratigraphy of the late Mesozoic terrestrial strata in South China and its tectono-stratigraphic implications, *Gond. Res.*, 66, 143-167, 2019.

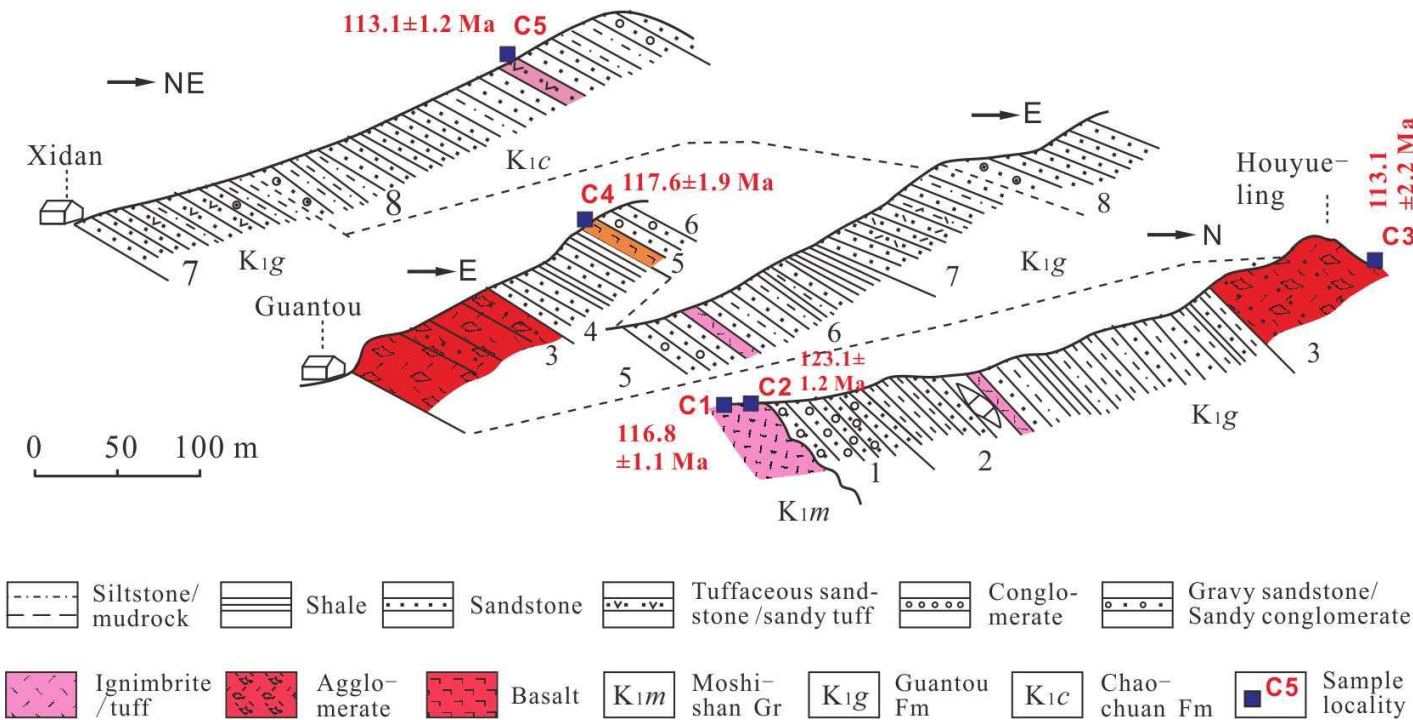


Figure RD6 Profile and sampling horizons of the type Houyueling-Guantou section (L3) in Yongkang Basin, western Zhejiang. Profile mainly selected from [Jiang et al. \(1993\)](#).

Cited reference:

Jiang, W. S., Zhen, J. S., Li, L. T., and Xu, K. D.: Study of the Cretaceous in Zhejiang, China, Nanjing, Nanjing University Press, 1-42 (in Chinese with English summary), 1993.

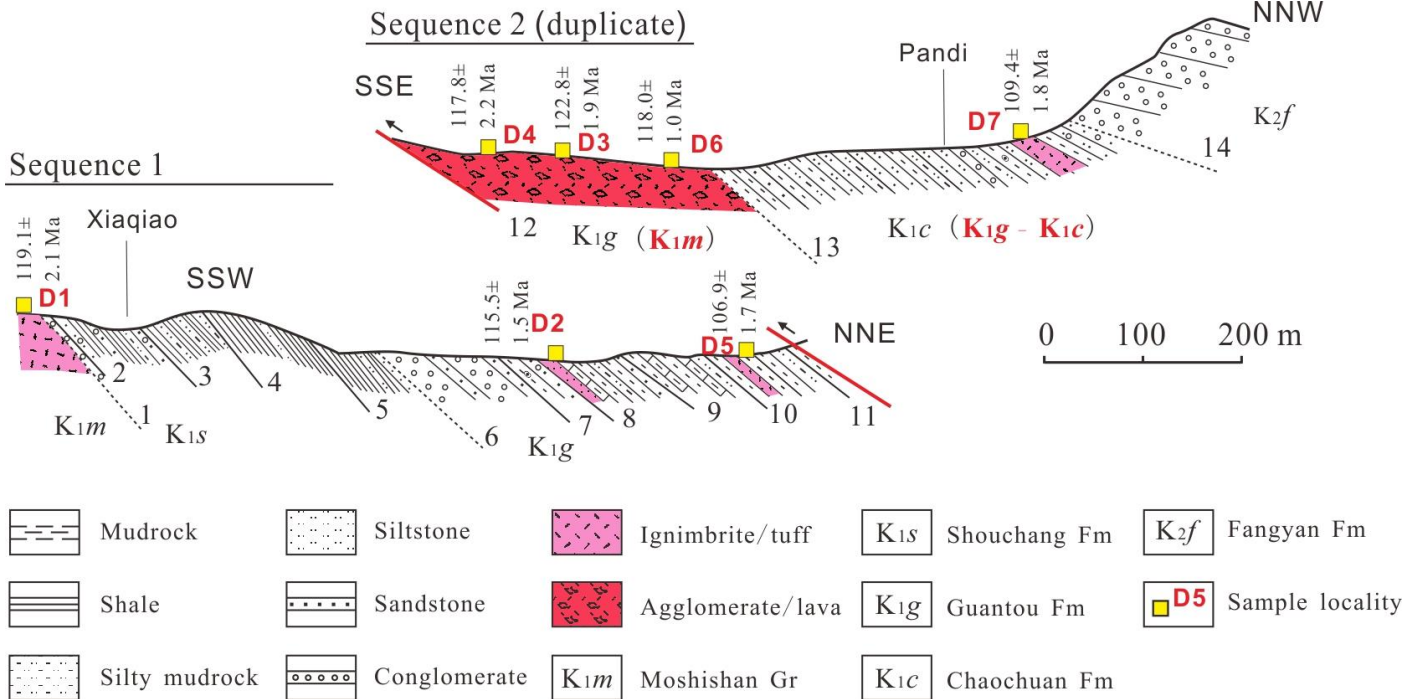


Figure RD7 Profile and sample locations of the type Laozhu section (L4) of Lishui, western Zhejiang. Stratigraphical reinterpretation is from [Li et al. \(2019\)](#).

Cited reference:

Li, X. H., Zhang, C. K., Li, Y. X., Wang, Y., and Liu, L.: Refined chronostratigraphy of the late Mesozoic terrestrial strata in South China and its tectono-stratigraphic implications, *Gond. Res.*, 66, 143-167, 2019.

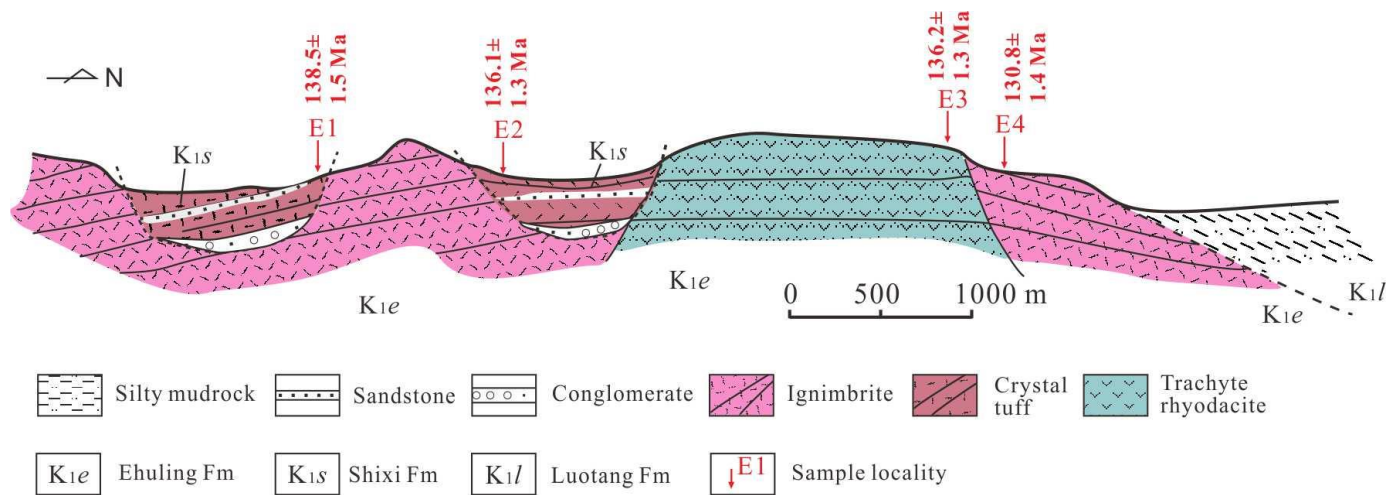


Figure RD8 Profile and sample locations of the type Shixi section (L5) of Yanshan, eastern Jiangxi.

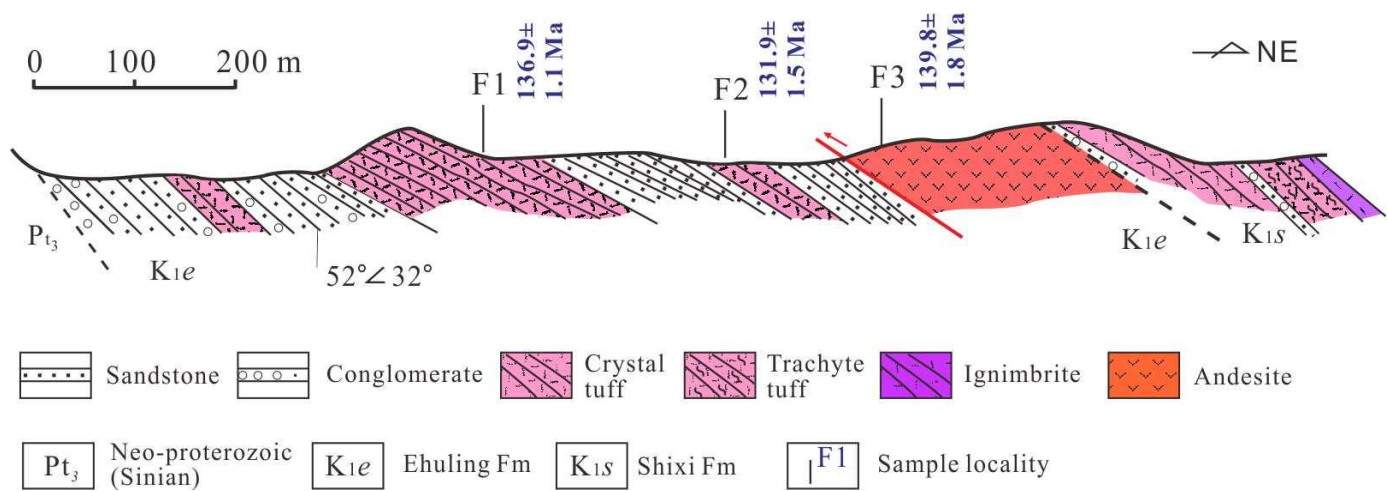


Figure RD9 Profile and sample locations of the Shangzengjia section (L6) of Guoxi, eastern Jiangxi. Profile modified from Wu and Wu (2013).

Cited reference:

Wu, J., and Wu, J. H.: Shuangfengling formation in Jiangxi and its geological age, J. East China Inst. Techn., 36, 17-24 (in Chinese with English abstract), 2013.

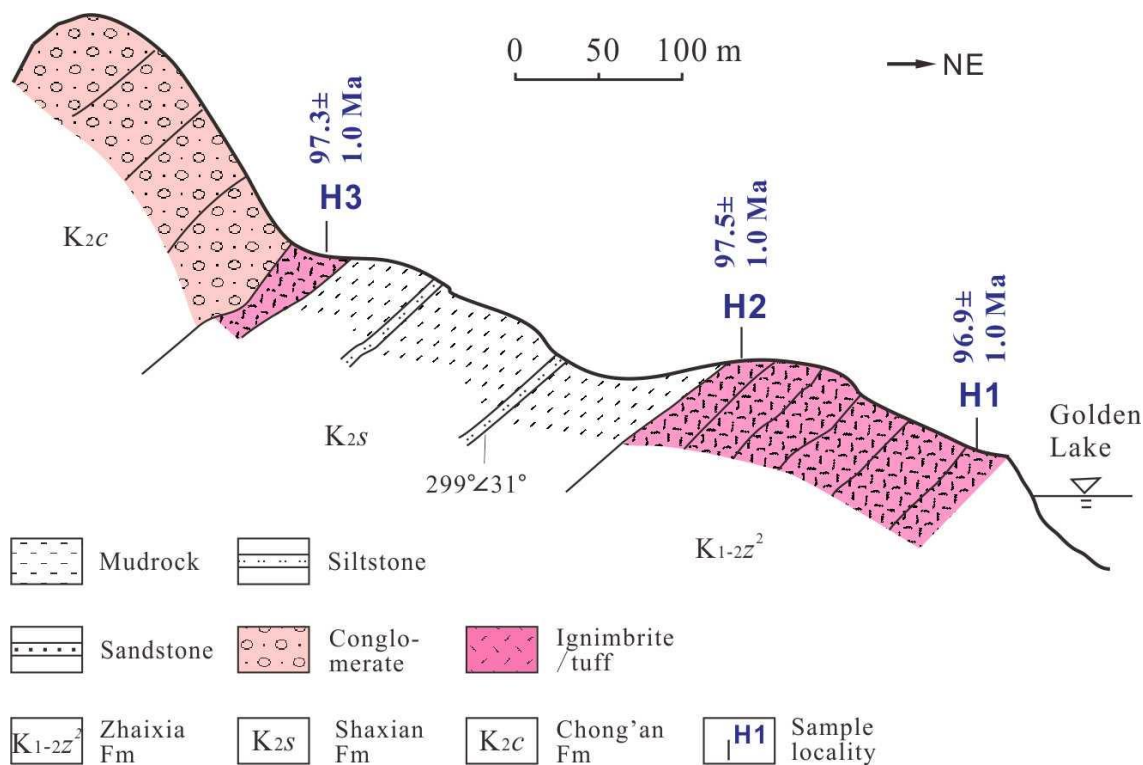


Figure RD10 Profile and sample locations of the Dabu section (L8) of Taining, western Fujian.

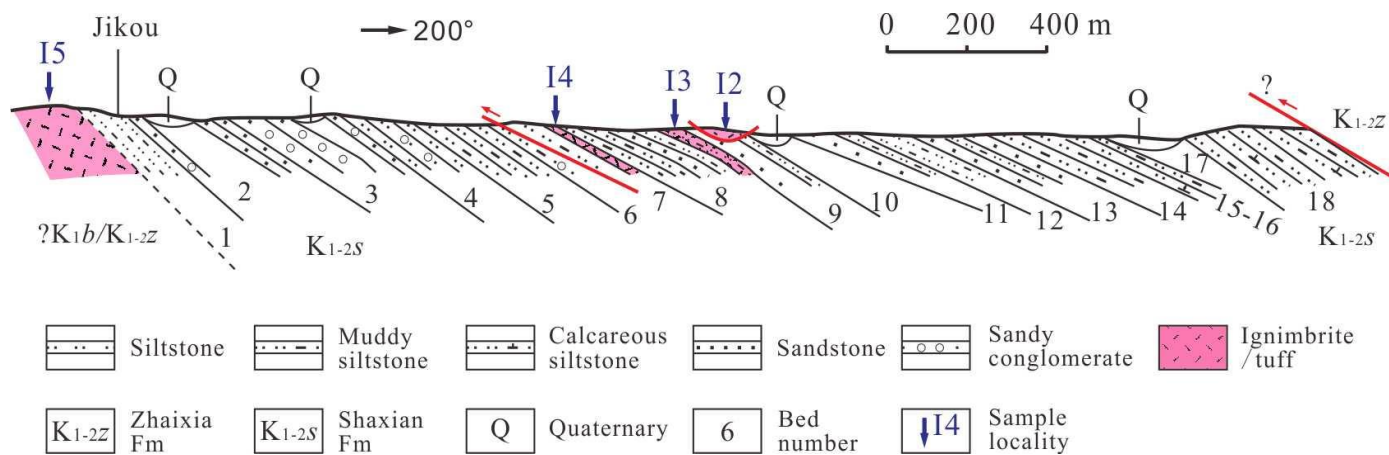


Figure RD11 Profile and sample locations of the Shaxian section (L9), western Fujian. Profile modified from FTRGS (1997).

Cited reference:

FTRGS (Team of Regional Geological Survey, Fujian Bureau of Geology and Mineral Ore): Geological Map of Shaxian, People's Republic of China (in Chinese), 1:50,000, 1 sheet, 1997.

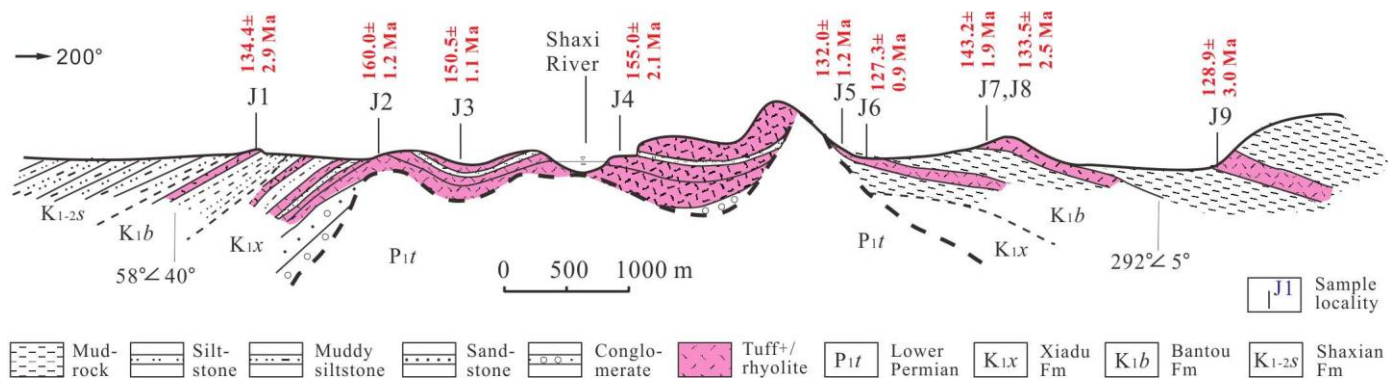


Figure RD12 Profile and sample locations of the Yong'an section (L10), western Fujian.

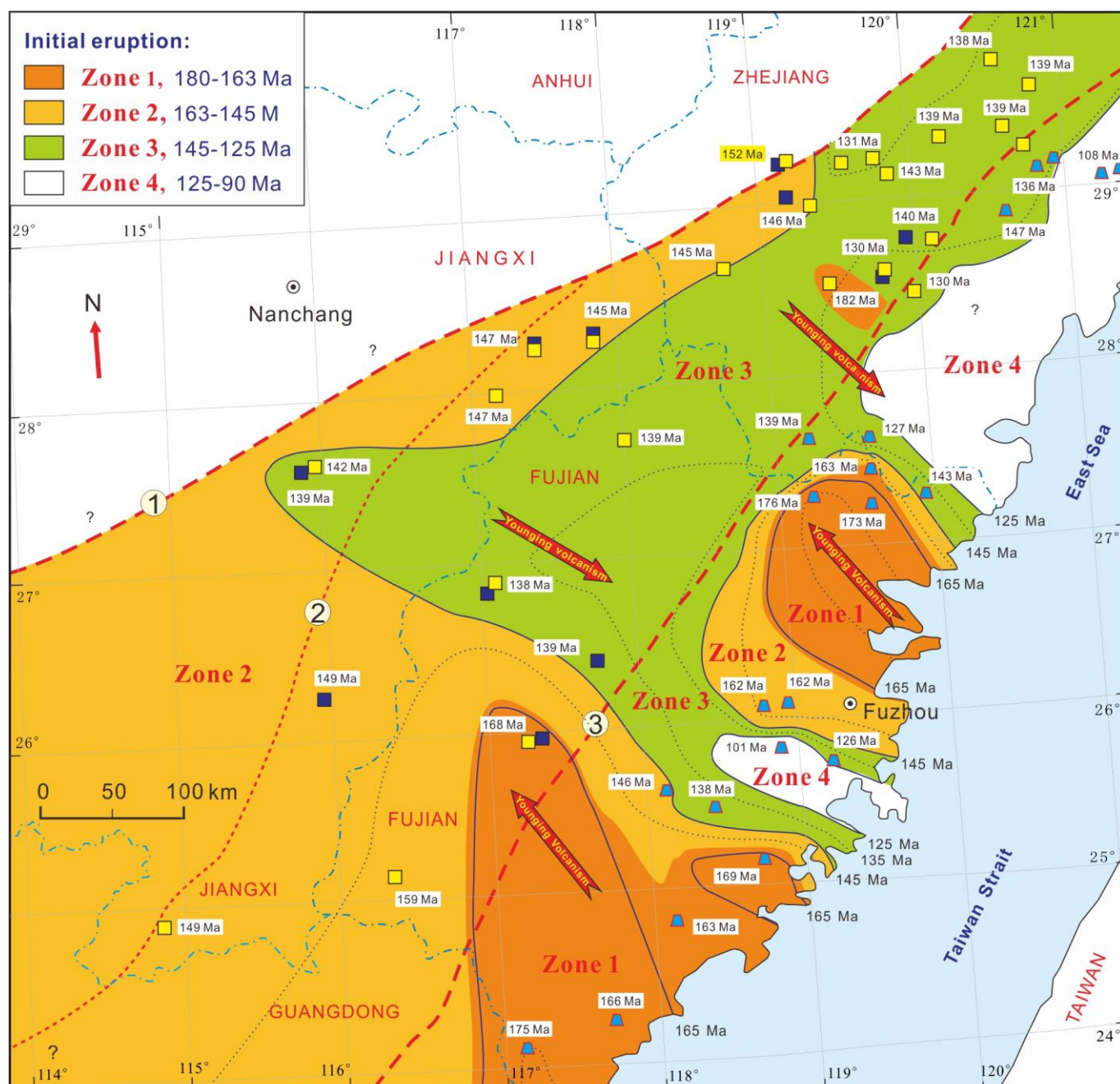


Figure RD13 Sketch map showing extrusive zonation of the late Mesozoic volcanism by initial ages in SE China. Four zonation Zones 1, 2, 3, and 4 are recognized by the initial eruption ages 180-163 Ma, 163-145 Ma, 145-125 Ma, and 125-90 Ma, separately. Ages within white rectangles are the initial eruption ages at a location or in a basin/region. Names of the faults, color squares and trapezoids refer to Figure 1.

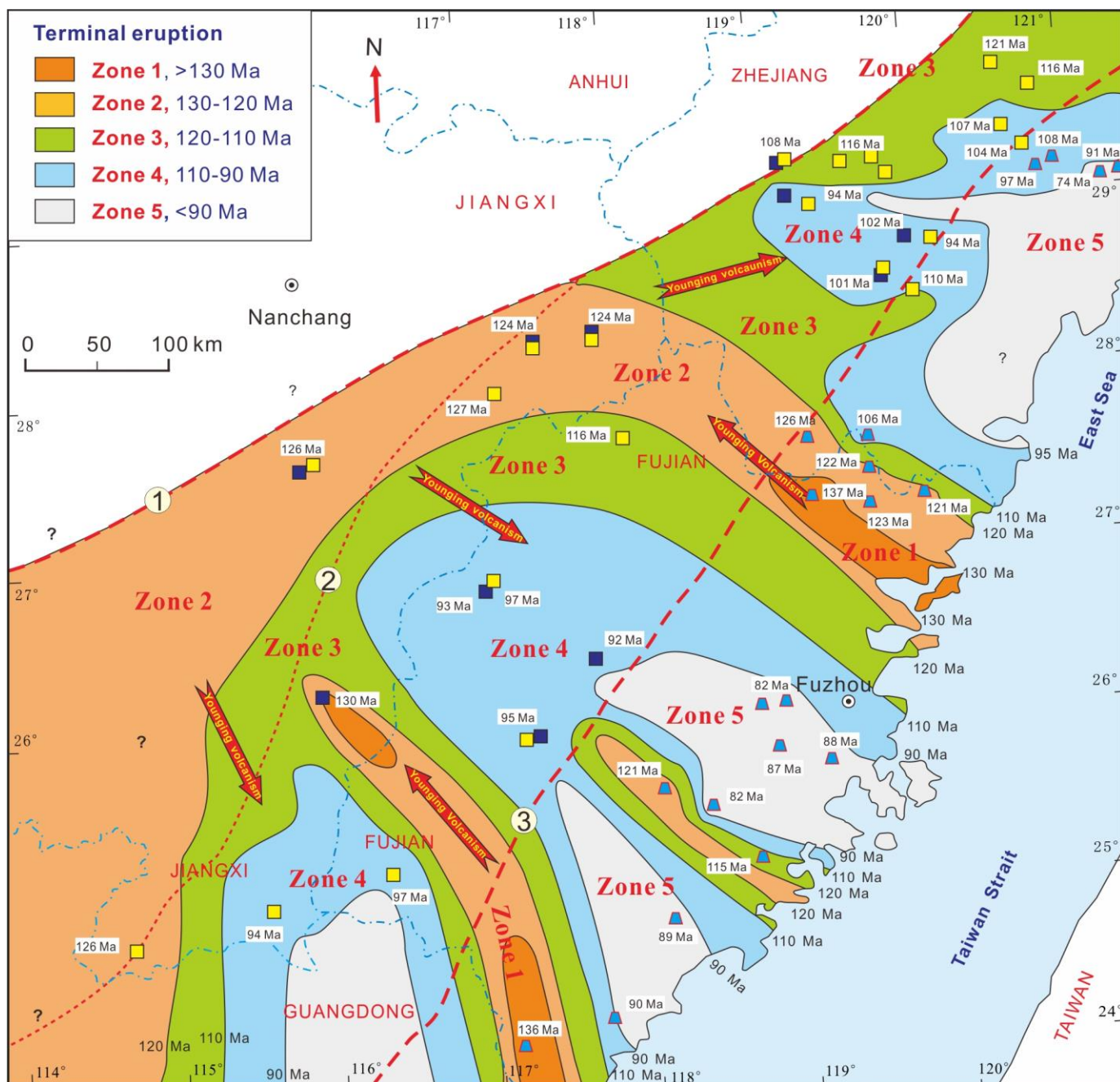


Figure RD14 Sketch map showing extrusive zonation of the late Mesozoic volcanism by terminal volcanic ages in SE China. Five zonation Zone 1, 2, 3, 4, and 5 are recognized in the order of the terminal age >130 Ma, 130-120 Ma, 120-110 Ma, 110-90 Ma, and <90 Ma, separately. Ages within white rectangles are the peak eruption age at a location or in a basin/region. Names of the faults, color squares and trapezoids refer to Figure 1.