

Hesen Zhao, Qingfei Wang, David I. Groves, and Jun Deng, 2021, Progressive spatial and temporal evolution of tectonic triggers and metasomatized mantle lithosphere sources for orogenic gold mineralization in a Triassic convergent margin: Kunlun-Qinling Orogen, central China: GSA Bulletin, <https://doi.org/10.1130/B35754.1>.

Supplemental Material

Figure S1. Geological map of the Wulonggou gold district of the East Kunlun segment.

Figure S2. Geological map of the Huachanggou-Jianchaling gold district of the West Qinling segment.

Figure S3. Geological map and representative cross sections of the Shuizhadonggou gold deposit of the Wulonggou district.

Figure S4. Geological map and representative cross sections of the Huachanggou gold deposit.

Figure S5. Typical gold ore assemblages from orogenic gold deposits of the East Kunlun-West Qinling Orogen.

Figure S6. Typical zoned pyrite from orogenic gold deposits of the East Kunlun-West Qinling Orogen.

Table S1. Isotope age dataset for ophiolites, magmatic intrusions, and metamorphic and deformation events related to Triassic orogeny in the East Kunlun-West Qinling Orogen.

Table S2. Isotopic age, deposit geology and ore-related mineral C-O-S isotope data for the studied orogenic gold deposits in the East Kunlun-West Qinling Orogen.

Table S3. Deposit geology and fluid inclusion dataset for the studied orogenic gold deposits in the East Kunlun-West Qinling Orogen.

Table S4. C-O-S isotope dataset for the studied orogenic gold deposits of the East Kunlun-West Qinling Orogen.

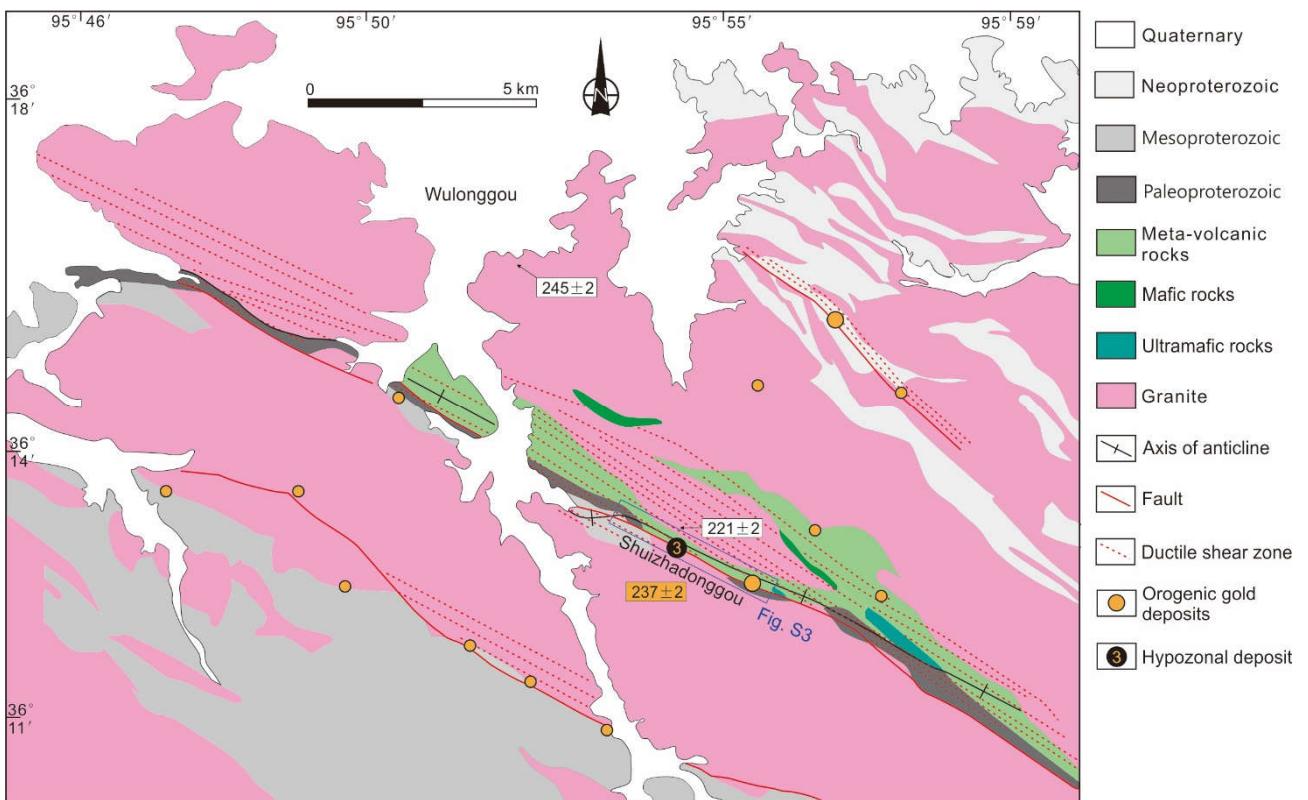


Figure S1. Geological map of the Wulonggou gold district situated in the central Kunlun arc unit of the East Kunlun segment, modified after [Zhang et al. \(2017\)](#), showing spatial distribution of strata and rocks, structures, and orogenic gold deposits. Granite ages (Ma) are listed in [Table S1](#). Note that the gold deposits are distributed along anticline axes and ductile shear zones.

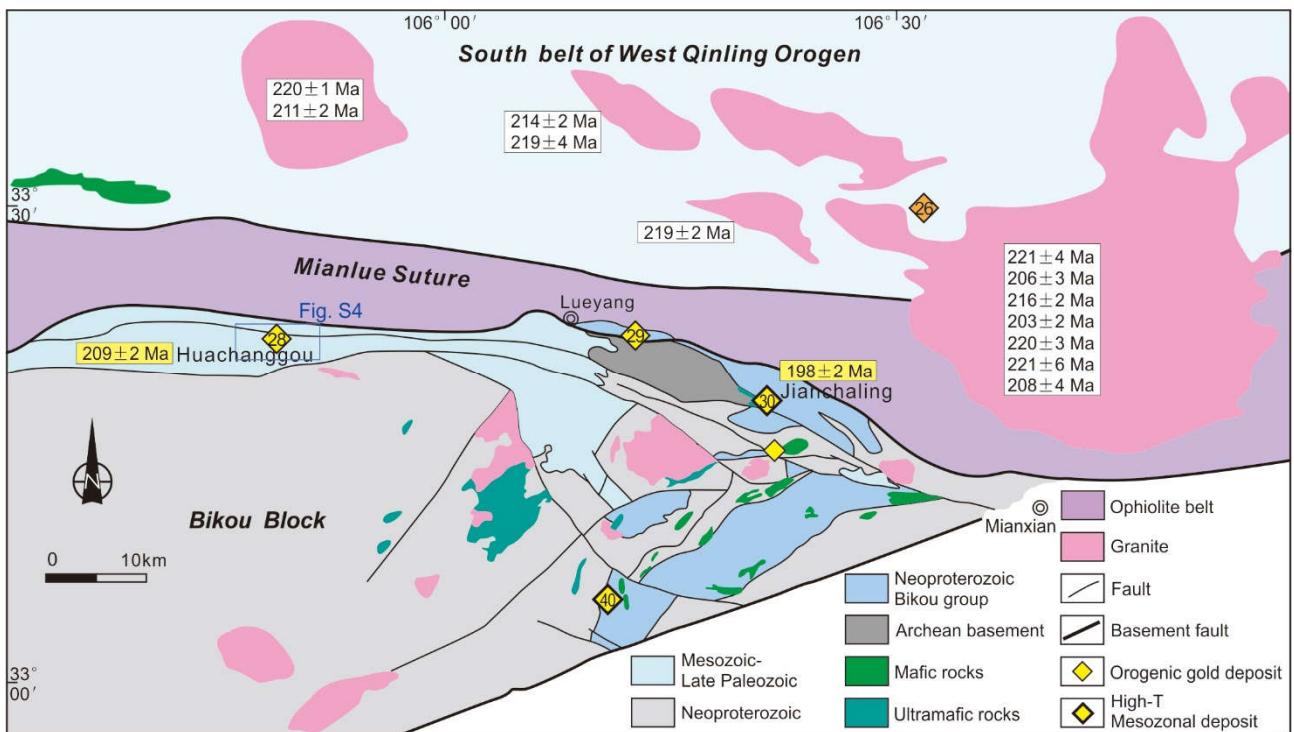


Figure S2. Geological map of the Huachanggou-Jianchaling gold district situated along the Mianlue suture zone of the West Qinling segment, modified after Dong et al. (2011) and Yue et al. (2017), showing spatial distribution of strata and rocks, structures, and orogenic gold deposits. Granite ages (Ma) are from Yang et al. (2017) and summarized in Table S1. Note that the gold deposits are distributed along regional faults parallel to the suture zone.

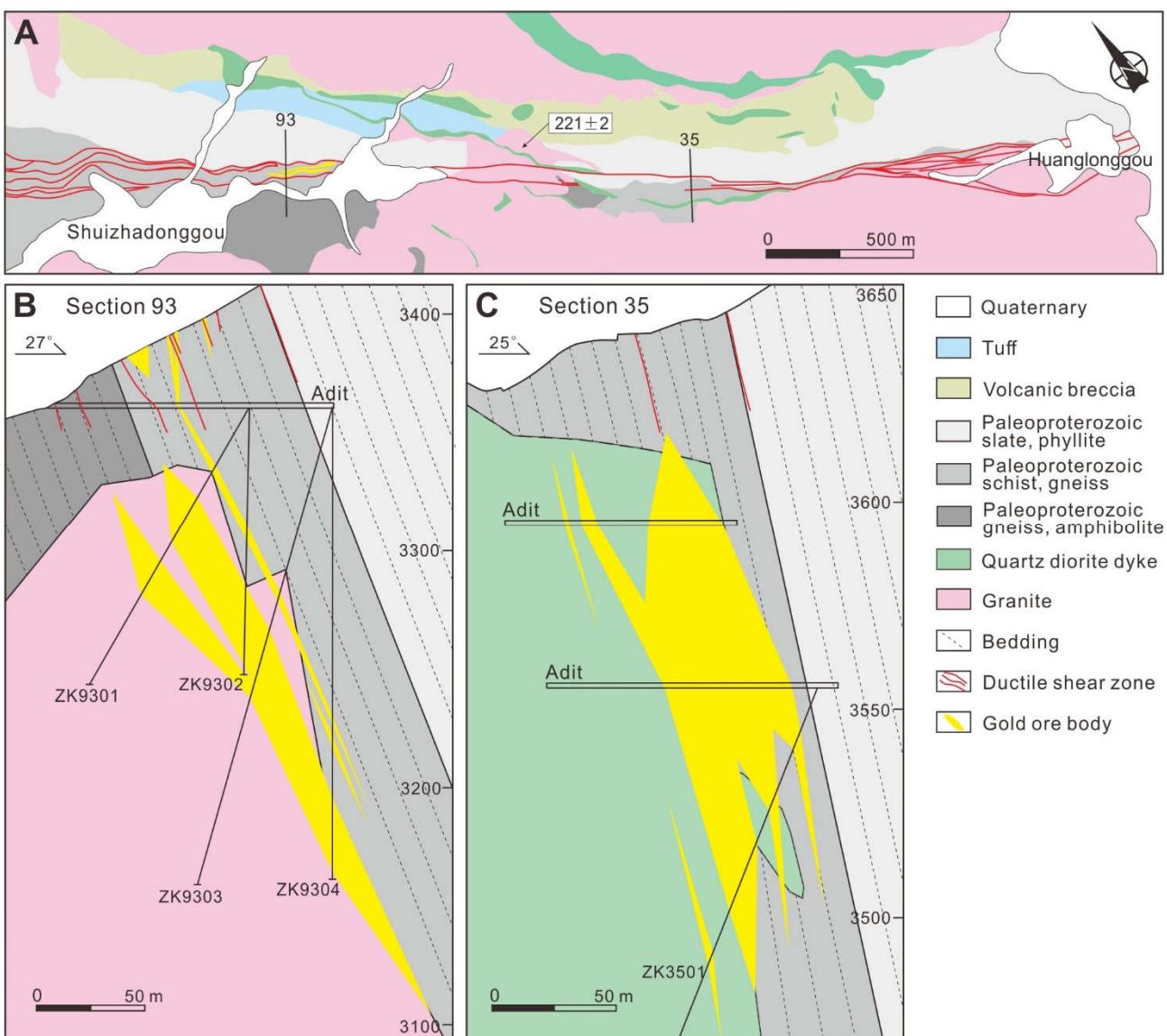


Figure S3. (A) Geological map of the Shuizhadonggou gold deposit of the Wulonggou district, modified after Zhang et al. (2017), showing spatial distribution of strata and rocks, major shear zones and gold ore bodies. Granite age (Ma) is summarized in Table S1. (B) Section 93. (C) Section 95. Note that the gold ore bodies are constrained by bedding-parallel lithological contrasts.

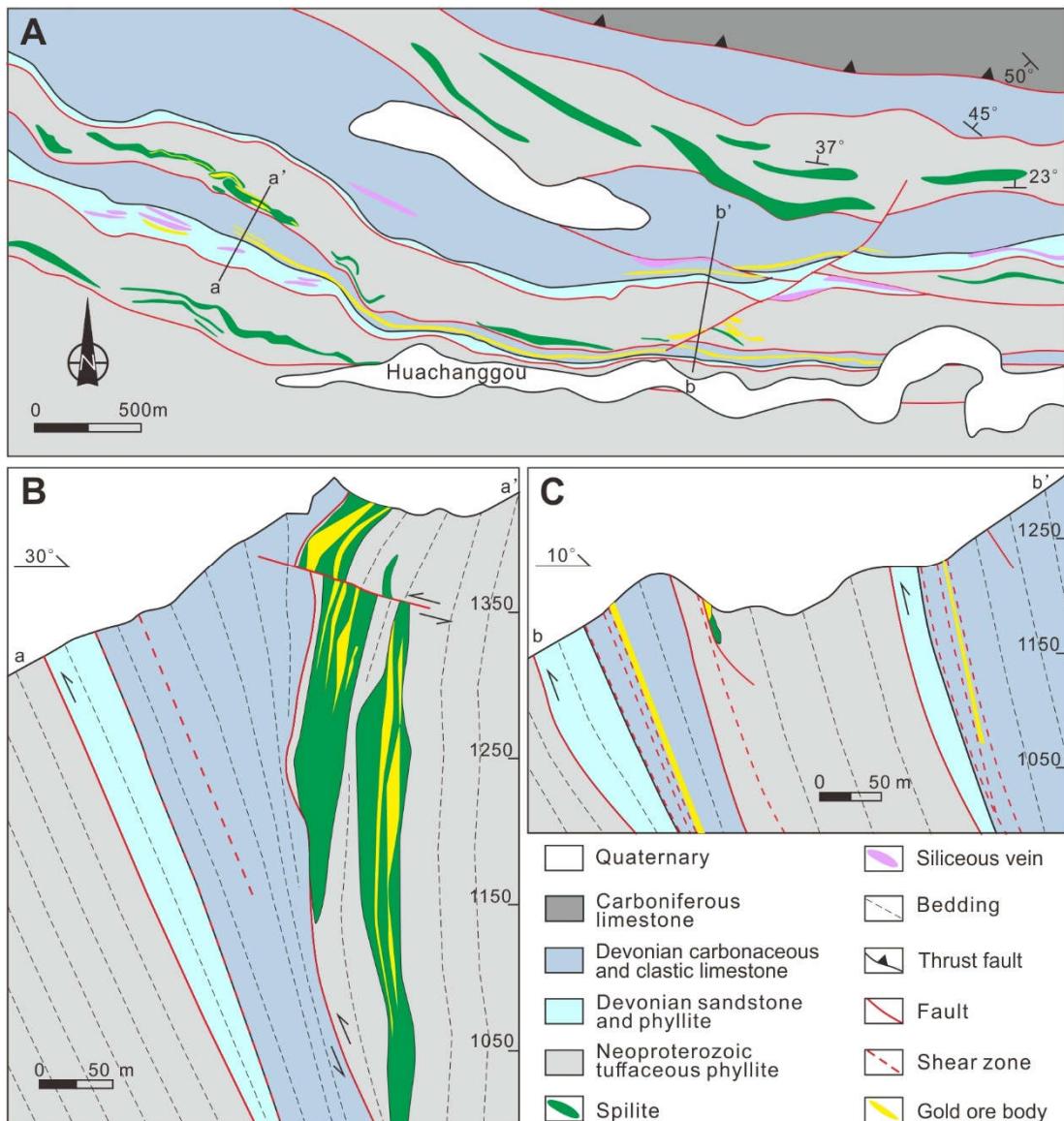


Figure S4. (A) Geological map of the Huachanggou gold deposit, modified after Lin et al. (2017), showing spatial distribution of strata and rocks, major shear zones and gold ore bodies. (B) Section a-a'. (C) Section b-b'. Note that the gold ore bodies are constrained by bedding-parallel lithological contrasts where shear zones are developed.

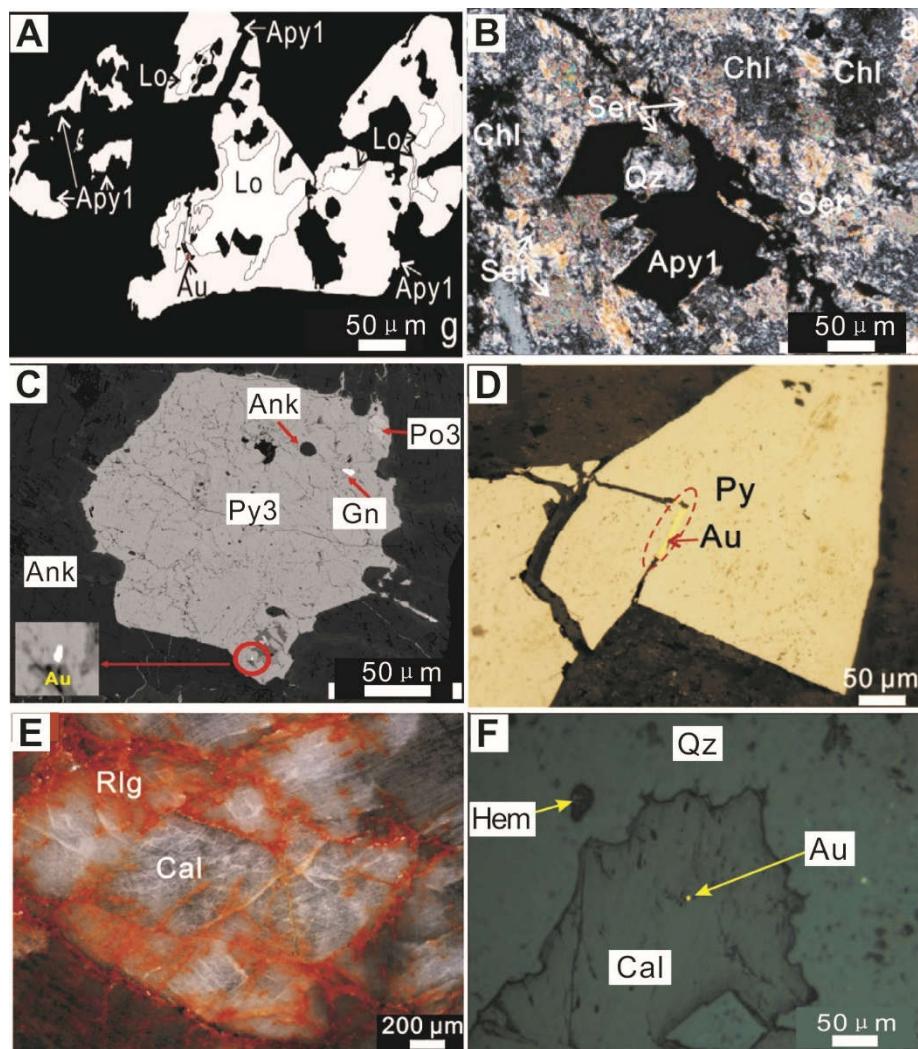


Figure S5. Typical gold ore assemblages from orogenic gold deposits of the East Kunlun-West Qinling Orogen. **(A)** Schematic representations of löllingite (Lo) replaced by type 1 arsenopyrite (Apy1). **(B)** Hydrothermal arsenopyrite (Apy1), sericite (Ser), quartz (Qz) and chlorite (Chl) assemblages. **(C)** Ore mineralogy of pyrite (Py3)-pyrrhotite (Po3)-Galena (Gn)-Ankerite (Ank) of stage 3 mineralization. **(D)** Pyrite and native gold ore assemblage. **(E)** Realgar (Rlg) and calcite (Cal) in polished hand specimen. **(F)** Ore assemblage of calcite (Cal) with native gold and quartz (Qtz) together with hematite (Hem). **A** and **B** from [Zhang et al. \(2017\)](#) for the hypozonal Shuizhadonggou deposit; **C** from [Wang et al. \(2020\)](#) for the high-T mesozonal Baguamiao gold deposit; **D** from [Li N et al. \(2018\)](#) for the low-T mesozonal Huachanggou deposit; **E** and **F** from [Li J et al. \(2018\)](#) and [Li et al. \(2019\)](#) for the epizonal Manaoke and Dashui deposits, respectively.

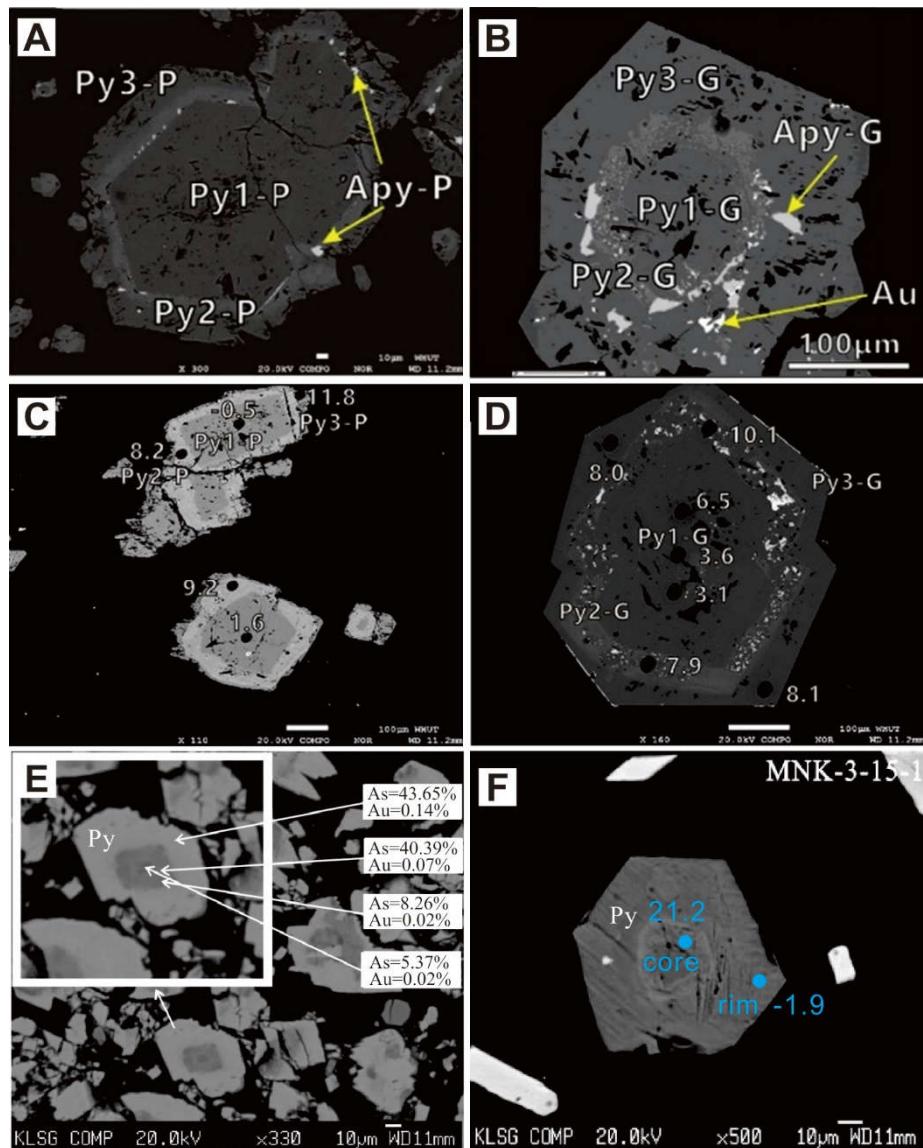


Figure S6. Typical zoned pyrite from orogenic gold deposits of the East Kunlun-West Qinling Orogen. (A-D) Zonal pyrite rims with intergrown native gold in the disseminated ore of the Pangjiahe (12) gold deposit (Ma et al., 2018), having obviously higher *in situ* $\delta^{34}\text{S}$ value (white number) than those for the cores. -P and -G mean the wallrock is phyllite and granite porphyry respectively. (E-F) Zonal pyrite rims with high gold content in the disseminated ore of the Manaoke (27) gold deposit (Li, 2018), having obviously lower *in situ* $\delta^{34}\text{S}$ value (blue number) than those for the cores. All pictures are backscattered electron (BSE) images.

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Table S2 Isotopic age, deposit geology and ore-related mineral C-O-S isotope data for the studied orogenic gold deposits in the East Kunlun-West Qinling Orogen. All gold deposits listed broadly in order from north to south within each segment to broadly match decreasing isotopic age of formation.

No.	Deposit	Gold tonnage	Tectonic unit	Deposit nature	Age (Ma)	Dating method	Ore type/wallrock	$\delta^{34}\text{S}(\text{\textperthousand})$	$\delta^{18}\text{O}_{\text{fluid}}(\text{\textperthousand})$	$\delta^{13}\text{C}(\text{\textperthousand})$	Reference
East Kunlun											
1	Dashuidou	6t	Arc	High-T mesozonal	$< 239.5 \pm 0.9$	Intrusion zircon U-Pb	Disseminated				Li et al. (2015)
2	Wulonggou	90t	Arc	High-T mesozonal	236.5 ± 0.5	Sericite Ar-Ar	Disseminated	$0.4 \sim 6.5$ (m=4.4, n=15)	$Q: 6.3 \sim 8.6$ (m=7.1, n=5) $T=360^\circ\text{C}$	$-7.8 \sim -6.8$ (m=-7.3, n=2)	Zhang et al. (2005)
3	Shuizhadonggou	10t	Arc	Hypozoneal	$237 \pm 2.0 \sim 230.8 \pm 1.7$	Sericite Ar-Ar	Disseminated	$1.0 \sim 7.9$ (m=3.6, n=15)	$Q: 4.7 \sim 9.7$ (m=6.3, n=11) $T=380^\circ\text{C}$		Zhang et al. (2017)
4	Balong	8t	Arc	High-T mesozonal			Quartz vein	$0.7 \sim 4.1$			Huang (2017)
5	Asiha	15t	Arc	High-T mesozonal	234.6 ± 1.2	Sericite Ar-Ar	Quartz vein	$4.9 \sim 7.7$ (m=6.2, n=24)	$Q: 6.3 \sim 10.1$ (m=7.6, n=6) $T=380^\circ\text{C}$		Chen (2018)
6	Jiawu	>20t	Suture zone	Low-T mesozonal	$< 233.4 \pm 4.3$	Intrusion zircon U-Pb	Quartz vein	$-4.7 \sim -0.1$	$Q: 7.5 \sim 9.2$ $T=300^\circ\text{C}$		Wang et al. (2015)
7	Guoluo-longwa	33t	Suture zone	Low-T mesozonal	$229.3 \pm 2.3 \sim 202.7 \pm 1.5$	Muscovite Ar-Ar	Quartz vein Disseminated	$-5.8 \sim +5.2$ (m=1.7, n=26) $-5.2 \sim +4.5$ (m=0.8, n=9)	$Q: 6.5 \sim 8.9$ (m=7.7, n=19) $T=280^\circ\text{C}$		Xiao et al. (2014)
8	Naomuhun	16t	Suture zone	Low-T mesozonal	227.8 ± 1.1	Sericite Ar-Ar	Disseminated	$3.0 \sim 4.6$ (m=3.9, n=4)			Li et al. (2017)
9	Manite	7.5t	Suture zone	High-T mesozonal	$< 217.3 \pm 1.6$	Intrusion zircon U-Pb	Quartz vein				Zhao (2017)
10	Xizang-dagou	5t	Suture zone	Low-T mesozonal	$< 225.0 \pm 1.2$	Intrusion zircon U-Pb	Quartz vein				Li et al. (2018)
11	Dachang	102t	Suture zone	Low-T mesozonal	218.6 ± 3.2	Sericite Ar-Ar	Disseminated Wallrock	$-8.8 \sim -0.7$ (m=-4.4, n=26) $8.1 \sim 9.2$ (m=8.6, n=2)	$Q: 5.8 \sim 10.1$ (m=8.1, n=10) $T=220^\circ\text{C}$	$-6.9 \sim -5.3$ (m=-6.1, n=7)	Zhang et al. (2005)
West Qinling											
1	Laodou	>20t	Back-arc	Low-T mesozonal	$249.1 \pm 1.6 \sim 249.0 \pm 1.5$	Sericite Ar-Ar	Quartz vein Disseminated	$-5.9 \sim +4.2$ (m=-3.6, n=10) $0.0 \sim +2.9$ (m=1.5, n=3)	$Q: 5.4 \sim 6.0$ (m=5.7, n=2) $T=300^\circ\text{C}$		Jin et al. (2017)
2	Zaozigou	118t	Back-arc	Low-T mesozonal	$245.6 \pm 1.0 \sim 242.1 \pm 1.0 / 211.1 \pm 3.0$	Sericite Ar-Ar/ Monazite Th-U-Pb	Disseminated	$-9.3 \sim -4.9$ (m=-7.0, n=8)	$Q: 5.4 \sim 12.0$ (m=9.4, n=6) $T=280^\circ\text{C}$	$-6.9 \sim -4.1$ (m=-5.5, n=2)	Sui et al. (2018) Qiu et al. (2020)

No.	Deposit	Gold tonnage	Tectonic unit	Deposit nature	Age (Ma)	Dating method	Ore type/wallrock	$\delta^{34}\text{S}(\text{\textperthousand})$	$\delta^{18}\text{O}_{\text{fluid}}(\text{\textperthousand})$	$\delta^{13}\text{C}(\text{\textperthousand})$	Reference
3	Ludousou	8t	Back-arc	Low-T mesozonal	$235.7 \pm 0.3 \sim 235.6 \pm 0.4 / 235.7 \pm 4.9$	Sericite Ar-Ar/ Apatite U-Pb	Disseminated				Yu et al. (2020a)
4	Gangcha	11t	Back-arc	Low-T mesozonal	$229.9 \pm 4.7 \sim 225.3 \pm 3.4$	Pyrite Rb-Sr	Disseminated	$0.6 \sim 1.3$ (m=1.0, n=4)			Kong et al. (2018)
5	Yidi'nan	20t	Back-arc	Low-T mesozonal	220.2 ± 0.3	Sericite Ar-Ar	Disseminated				Yu et al. (2020b)
6	Zhaishang	127t	Back-arc	Low-T mesozonal	$130.6 \pm 1.4 \sim 125.3 \pm 1.3$	Sericite Ar-Ar	Quartz vein	$3.1 \sim 9.2$ (m=4.5, n=5)	$Q: 8.3 \sim 14.5$ (m=13.8, n=15) $Q: 11.2 \sim 14.1$ (m=12.7, n=10)	$-2.1 \sim +1.1$ (m=-0.4, n=12)	Lu et al. (2006a)
									$T=300^\circ\text{C}$		
7	Mawu	10t	Back-arc	High-T mesozonal			Quartz vein	$7.1 \sim 7.9$ (m=7.8, n=4)	$Q: 9.1 \sim 13.9$ (m=12.1, n=6) $T=340^\circ\text{C}$		Zhao et al. (2009)
8	Liba	80t	Back-arc	High-T mesozonal	$216.4 \pm 1.5 / 210.6 \pm 1.3$	Mica Ar-Ar/ Quartz Ar-Ar	Quartz vein Disseminated Wallrock	$2.5 \sim 10.3$ (m=7.1, n=20) $6.9 \sim 10.6$ (m=8.6, n=6) $-0.7 \sim 6.7$ (m=5.6, n=3)	$Q: 11.0 \sim 11.7$ (m=11.4, n=8) $T=340^\circ\text{C}$	$-5.9 \sim -1.7$ (m=-3.7, n=3)	Zeng et al. (2012)/ Feng et al. (2002)
9	Jinshan	31t	Back-arc	High-T mesozonal			Disseminated	$-0.9 \sim 7.7$ (m=4.5, n=4)			Yang and Chen (2004)
10	Maquan	7.5t	Back-arc	High-T mesozonal			Quartz vein	$4.4 \sim 7.6$ (m=6.0, n=2)	$Q: 10.8 \sim 16.6$ (m=13.4, n=5) $T=330^\circ\text{C}$		Jiang et al. (2009)
11	Liziyuan	12t	Back-arc	Low-T mesozonal	206.8 ± 1.6	Sericite K-Ar	Quartz vein Disseminated	$3.9 \sim 7.9$ (m=6.8, n=10) $7.0 \sim 8.1$ (m=7.5, n=5)			Liu et al. (2011)
12	Pangjiahe	37t	Back-arc	Low-T mesozonal	$230.9 \pm 1.9 \sim 219.3 \pm 2.1$	Intrusion zircon U-Pb	Quartz vein Disseminated Wallrock	$5.9 \sim 12.0$ (m=8.6, n=20) $3.9 \sim 7.9$ (m=8.7, n=44) $-1.5 \sim +8.1$ (m=4.1, n=45)			Ma et al. (2018)
13	Zuojiazhuang	15t	Back-arc	Low-T mesozonal			Quartz vein	$11.4 \sim 12.9$ (m=12.3, n=20)	$Q: 7.0 \sim 10.9$ (m=8.8, n=4) $T=310^\circ\text{C}$		Ma et al. (2019)

No.	Deposit	Gold tonnage	Tectonic unit	Deposit nature	Age (Ma)	Dating method	Ore type/wallrock	$\delta^{34}\text{S}(\text{\textperthousand})$	$\delta^{18}\text{O}_{\text{fluid}}(\text{\textperthousand})$	$\delta^{13}\text{C}(\text{\textperthousand})$	Reference
14	Simaoling	10t	Back-arc	High-T mesozonal	211.9 ± 1.5	Sericite Ar-A	Quartz vein Disseminated	4.9 ~ 8.2 (m=5.7, n=7) 4.6 ~ 9.0 (m=6.5, n=22)	Q: 10.7 ~ 13.4 (m=12.0, n=15) T=320°C		Wang et al. (2014)
15	Chaima	10t	Back-arc	High-T mesozonal	$210.8 \pm 2.4/$ 203.2 ± 1.6	Sphalerite Rb-Sr/ Carbonate Sm-Nd	Quartz vein Disseminated Wallrock	6.7 ~ 7.6 (m=7.4, n=4) 10.4 ~ 15.8 (m=14.4, n=8) 3.3 ~ 16.0 (m=14.0, n=4)	Q: 9.8 ~ 12.8 (m=12.1, n=13) T=320°C	-6.1 ~ +1.7 (m=-2.4, n=14)	Wang et al. (2018)/ Liu et al. (2014)
16	Baguamiao	>100t	Back-arc	High-T mesozonal	$209.5 \pm 1.4/$ $209.3 \pm 4.2 \sim$ 208.1 ± 3.1	Sericite Ar-Ar/ Carbonate Sm-Nd	Quartz vein Disseminated Wallrock	2.5 ~ 10.7 (m=7.2, n=61) 9.4 ~ 15.9 (m=12.9, n=23) -0.4 ~ +30.1 (m=12.3, n=16)	Q: 9.2 ~ 13.5 (m=12.4, n=40) T=320°C	-7.1 ~ +2.4 (m=-2.2, n=25)	Wang et al. (2020) / Zhang (2016)
17	Shuangwang	>50t	Back-arc	High-T mesozonal	<277.5 >214±2.7	Intrusion zircon U-Pb	Disseminated Wallrock	2.6 ~ 14.9 (m=9.9, n=56) -6.6 ~ +14.9 (m=5.7, n=13)	Q: 10.8 ~ 13.6 (m=12.4, n=12) C: 8.2 ~ 15.0 (m=13.1, n=44) T=340°C	-8.1 ~ +0.7 (m=-6.2, n=42)	Fan et al. (2018); Liu et al. (2016)
18	Ma'anqiao	>20t	Back-arc	Low-T mesozonal	<242.0±0.8	Intrusion zircon U-Pb	Quartz vein Disseminated	0.6 ~ 3.3 (m=1.9, n=3) 0.8 ~ 12.6 (m=9.3, n=19)	Q: 9.7 ~ 10.6 (m=10.0, n=3) C: 7.8 ~ 9.9 (m=8.9, n=4) T=300°C	-7.0 ~ +0.3 (m=-2.4, n=4)	Zhu et al. (2010)
19	Qiuling	10t	Back-arc	Low-T mesozonal	232.0 ± 4.0	Calcite Sm-Nd	Disseminated Wallrock	8.1 ~ 15.2 -27.1 ~ -7.6	Q: 14.0 ~ 14.2 (m=14.1, n=2) C: 12.3 ~ 13.2 (m=12.7, n=2) T=220°C	-4.0 ~ 0.0 (m= -1.9, n=3)	Chen et al. (2015) Hua (2015)
20	Jinlongshan	>20t	Back-arc	Low-T mesozonal	142.3 ± 0.8	Sericite Ar-Ar	Disseminated Wallrock	11.1 ~ 19.8 (m=14.0, n=12) -4.2 ~ 3.2 (m=0.7, n=6)	Q: 13.5 ~ 14.3 (m=13.9, n=2) C: 12.8 ~ 13.9 (m=13.3, n=2) T=210°C	-4.0 ~ +1.5 (m= -1.3, n=2)	Liu et al. (2016)
21	Xiaogouli	15t	Back-arc	Low-T mesozonal	197.5 ± 1.1	Quartz Ar-Ar	Quartz vein Wallrock	4.9 ~ 14.6 (m=10.6, n=10) -6.15 (n=1)	Q: 8.3 ~ 11.7 (m=11.0, n=5) T=270°C		Feng et al. (2002)

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22	Lu'erba	23t	Arc	Low-T mesozonal			Disseminated	2.7 ~ 11.1 (m=8.5, n=7)	Q: 8.7 ~ 11.5 (m=9.7, n=3) T=270°C		Li et al. (2019)
23	La'erma	>50t	Arc	Low-T mesozonal	~137	Quartz fluid inclusion Rb-Sr	Disseminated	1.6 ~ 13.3	Q: 7.0 ~ 15.1 (m=11.3, n=25) T=260°C		Yang and Yu (1997)
24	Qiongmo	5t	Arc	Low-T mesozonal	169.4±10.6	Quartz Rb-Sr	Disseminated		Q: 7.4 ~ 14.7 (m=10.7, n=5) T=270°C		Zheng et al. (1994)
25	Daqiao	67t	Arc	Low-T mesozonal	150.7±3.1~ 142.3±2.5; 130.8±3.1~ 127.2±0.6	Sericite Ar-Ar	Disseminated	-9.9 ~ +8.7 (m=2.8, n=44)	Q: 5.6 ~ 10.7 (m=6.1, n=10) T=310°C		Wu et al. (2018a, b)
26	Tianziping	6t	Arc	Low-T mesozonal	110.1±7.0	Hydrothermal zircon U-Pb					Liu et al. (2020)
27	Manaoke	40t	Suture zone	Epizonal	210 ± 35	Quartz Ar-Ar	Disseminated	-1.9 ~ +4.9 (m=2.0, n=4); 17.1 ~ 26.5 (m=21.2, n=13)	Q: 7.3 ~ 11.2 (m=9.7, n=5) C: 7.3 ~ 10.0 (m=9.2, n=20) T=200°C	-2.6 ~ 0.9 (m=0.1, n=20)	Fu et al. (2004)
28	Huachang-gou	90t	Suture zone	Low-T mesozonal	209.4 ± 2.3	Fuchsite Ar-Ar	Quartz vein Disseminated	-8.3 ~ +0.8 (m=-0.7, n=7) -3.1 ~ +4.6 (m=0.4, n=19)	Q: 8.5 ~ 12.1 (m=9.9, n=15) T=280°C	-2.8 ~ -0.2 (m=-1.6, n=12)	Lin et al. (2017)
29	Tangba	>5t	Suture zone	Low-T mesozonal			Quartz vein	-1.9 ~ +8.0 (m=2.0, n=10)	Q: 8.1 ~ 9.7 (m=8.9, n=5) T=280°C		Ma et al. (2020)
30	Jianchaling	52t	Suture zone	Low-T mesozonal	197.3 ± 2.0~ 194.3 ± 2.4	Fuchsite Ar-Ar	Disseminated Wallrock	6.3 ~ 15.4 (m=11.1, n=12) 5.4 ~ 18.6 (m=13.8, n=10)	Q: 5.7 ~ 9.0 (m=8.3, n=5) C: 5.0~12.2 (m=8.7, n=14) T=280°C	-4.4 ~ +2.2 (m=-1.1, n=15)	Yue et al. (2017)
31	Xinqu	7t	Suture zone	Epizonal	<200.7±0.8	Intrusion zircon U-Pb					Ma (2016)
32	Dashui	91t	Suture zone	Epizonal	< 202.9 ± 1.5/ 189.4 ± 1.4	Intrusion zircon U-Pb/ Calcite Sm-Nd	Disseminated	-1.8 ~ +4.1 (m=2.4, n=17)	C: 6.2 ~ 10.4 (m=8.9, n=13) T=200°C	-2.1 ~ +1.9 (m=0.3, n=13)	Yan et al. (2014)/ Li et al. (2019)

No.	Deposit	Gold tonnage	Tectonic unit	Deposit nature	Age (Ma)	Dating method	Ore type/wallrock	$\delta^{34}\text{S}(\text{\textperthousand})$	$\delta^{18}\text{O}_{\text{fluid}}(\text{\textperthousand})$	$\delta^{13}\text{C}(\text{\textperthousand})$	Reference
33	Yangshan	98t	Suture zone	Low-T mesozonal	$< 197.6 \pm 1.7 / 190 \pm 3$	Intrusion zircon U-Pb/ Monazite Th-U-Pb	Disseminated <i>Wallrock</i>	-4.2 ~ +3.0 (m=-0.6, n=24) 7.6 ~ 17.5 (m=11.7, n=6)	Q: 6.4 ~ 12.0 (m=9.5, n=16) T=250°C	-3.9 ~ -2.5 (m=-3.6, n=12)	Qi et al. (2005)/ Yang et al. (2006)
34	Changping-gou	>5t	Suture zone	Low-T mesozonal	$< 199.0 \pm 4.0$	Intrusion zircon U-Pb	Quartz vein	2.9 ~ 4.2 (m=3.0, n=4)	Q: 7.6 ~ 10.9 (m=8.8, n=6) T=250°C		Zhao (2013)
35	Changgou	10t	Suture zone	High-T mesozonal	178.4 ± 0.8	Biotite Ar-Ar	Quartz vein	1.4~6.3 (m=3.3, n=2)	Q: 5.0 ~ 10.1 (m=7.5, n=2) T=320°C		Han et al. (2020)
36	Yangping-wan	9t	Suture zone	High-T mesozonal	170.4 ± 0.9	Biotite Ar-Ar	Quartz vein	8.9~11.3 (m=10.1, n=4)	Q: 6.2 ~ 11.7 (m=8.3, n=5) T=340°C		Han et al. (2020)
37	Huanglong	5t	Suture zone	High-T mesozonal	168.4 ± 0.9	Biotite Ar-Ar					Han et al. (2020)
38	Dongbei-zhai	>50t	Suture zone	Epizonal			Disseminated <i>Wallrock</i>	-4.4 ~ +6.3 (m=0.3, n=11) -1.9 ~ +3.1 (m=3.0, n=4)	Q: 6.8 ~ 10.3 (m=7.9, n=4) C: 3.5 ~ 12.6 (m=10.7, n=26) T=180°C	-4.7 ~ 2.7 (m= -1.2, n=22)	Zheng et al. (1994) Zheng et al. (1992)
39	Qiaoqiao-shang	15t	Suture zone	Low-T mesozonal	167 ± 20	Sericite Rb-Sr	Disseminated	-7.0 ~ +4.0	C: 6.2 ~ 10.2 (m=8.2, n=5) T=230°C	-0.4 ~ -0.2 (m= -0.3, n=2)	Zheng et al. (1994); Yang et al. (2012)
40	Qingmu-chuan	>5t	Suture zone	High-T mesozonal			Quartz vein	-4.1 ~ +0.1 (m= -3.3, n=10)			Liao (2011)

Note: in the $\delta^{18}\text{O}_{\text{fluid}}$ column, m means median value; Q and C mean the values are calculated from ore quartz and carbonate mineral values, respectively. The calculation is based on oxygen isotopic equilibrium equations (Zheng, 1993). For all original data see Tables S3 and S4.

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Table S1 Isotopic age dataset for ophiolites, magmatic intrusions, and metamorphic and deformation events related to Triassic orogeny in the East Kunlun-West Qinling Orogen with corresponding references.

East Kunlun	Tectonic unit	Locality	Rock	Interpretation	Age (Ma)	Method	Reference
<i>Ophiolites</i>	Anemaqen suture	Delisitan	Gabbro	N-MOR	516 ± 6.3	LA-ICPMS zircon U-Pb	Liu et al. (2011)
	Anemaqen suture	Delisitan	Gabbro	N-MOR	467 ± 0.9	LA-ICPMS zircon U-Pb	Bian et al. (2004)
	Anemaqen suture	Harguole	Gabbro	N-MOR	333 ± 3.1	LA-ICPMS zircon U-Pb	Liu et al. (2011)
	Kunzhong suture	Wutuo	Gabbro	Subduction	243 ± 1.4	LA-ICPMS zircon U-Pb	Dong et al. (2018)
<i>Magmatic rocks</i>	Arc setting	Golmud	Granodiorite	Subduction	253.1 ± 4.7	LA-ICPMS zircon U-Pb	Dai et al. (2013)
	Arc setting	Golmud	Granite	Subduction	256 ± 1.2	LA-ICPMS zircon U-Pb	Qi (2015)
	Arc setting	Qinghai Lake	Granite	Subduction	251.4 ± 1.7	LA-ICPMS zircon U-Pb	Wu et al. (2016)
	Arc setting	Dashuigou	Tonalite	Collision	240 ± 0.9	LA-ICPMS zircon U-Pb	Li et al. (2015)
	Arc setting	Wulonggou	Granodiorite	Post-collision	220.6 ± 1.7	LA-ICPMS zircon U-Pb	Zhang et al. (2017)
	Arc setting	Wulonggou	Granite	Subduction	245 ± 2.0	LA-ICPMS zircon U-Pb	Ding et al. (2014)
	Arc setting	Dulan	Granite	Subduction	241 ± 1.3	LA-ICPMS zircon U-Pb	Xiong et al. (2014)
	Arc setting	Dulan	Granite	Subduction	249 ± 1.7	LA-ICPMS zircon U-Pb	Xiong et al. (2014)
	Arc setting	Dulan	Granite	Post-collision	232 ± 1.3	LA-ICPMS zircon U-Pb	Xiong et al. (2014)
	Arc setting	Wuchahan	Granite	Subduction	243 ± 1.0	LA-ICPMS zircon U-Pb	Xiong et al. (2014)
	Arc setting	Wuchahan	Granite	Post-collision	225 ± 1.3	LA-ICPMS zircon U-Pb	Xiong et al. (2014)
	Arc setting	Wuchahan	Granite	Post-collision	236 ± 1.5	LA-ICPMS zircon U-Pb	Xiong et al. (2014)
	Arc setting	Wuchahan	Granite	Post-collision	224 ± 1.1	LA-ICPMS zircon U-Pb	Xiong et al. (2014)
	Arc setting	Jirimai	Appinite	Subduction	250.4 ± 1.4	LA-ICPMS zircon U-Pb	Xin et al. (2019)
	Arc setting	Shuizhadonggou	Appinite	Subduction, slab rollback	248.1 ± 0.8	LA-ICPMS zircon U-Pb	Xin et al. (2019)
	Arc setting	Baidungou	Diorite	Initial collision, slab rollback	241.1 ± 0.9	LA-ICPMS zircon U-Pb	Xin et al. (2019)
	Arc setting	Huanglonggou	Diorite porphyry	Post-collision, delamination	218.4 ± 1.0	LA-ICPMS zircon U-Pb	Xin et al. (2019)
	Arc setting	Harizha	Granodiorite	Syn-collision, slab break-off	235.3 ± 1.5	LA-ICPMS zircon U-Pb	Xin et al. (2019)
	Arc setting	Harizha	Mafic enclave	Syn-collision, slab break-off	235.3 ± 1.5	LA-ICPMS zircon U-Pb	Xin et al. (2019)
	Arc setting	Bingou	Appinite	Post-collision, slab break-off	226.1 ± 1.9	SHRIMP zircon U-Pb	Liu et al. (2017)
	Arc setting	Bingou	Appinite	Post-collision, slab break-off	226.4 ± 3.5	LA-ICPMS zircon U-Pb	Liu et al. (2017)
	Arc setting	Xiao-Nuomuhong	Granodiorite	Post-collision	222 ± 0.9	LA-ICPMS zircon U-Pb	Xia et al. (2014)
	Arc setting	Xiao-Nuomuhong	Dioritic enclaves	Post-collision	220.2 ± 0.7	LA-ICPMS zircon U-Pb	Xia et al. (2014)

East Kunlun	Tectonic unit	Locality	Rock	Interpretation	Age (Ma)	Method	Reference
Magmatic rocks	Arc setting	Xiao-Nuomuhong	Gabbro enclave	Post-collision	222 ± 1.1	LA-ICPMS zircon U-Pb	Xia et al. (2014)
	Arc setting	Qimantage	K-feldspar granite	A-type affinity	210 ± 0.6	LA-ICPMS zircon U-Pb	Qian et al. (2015)
	Suture zone	Heganxilike	Granodiorite	Post-collision	225 ± 5.0	LA-ICPMS zircon U-Pb	Chen et al. (2013b)
	Suture zone	Heganxilike	Mafic enclave	Post-collision	225 ± 4.1	LA-ICPMS zircon U-Pb	Chen et al. (2013b)
	Suture zone	Kekealong	Quartz diorite	Post-collision	218 ± 1.4	LA-ICPMS zircon U-Pb	Chen et al. (2013a)
	Suture zone	Naj Tai	Granodiorite	Post-collision	197 ± 2.4	LA-ICPMS zircon U-Pb	Dai et al. (2013)
Metamorphism	Arc setting	Jinshukou	Gneiss	Regional granulite-amphibolite-facies	439.2 ± 7.3	LA-ICPMS zircon U-Pb	Liu et al. (2005)
	Arc setting	Xiaomiao	Gneiss	Regional granulite-amphibolite-facies	362.8 ± 6.5	LA-ICPMS zircon U-Pb	Liu et al. (2005)
	Kunzhong suture	Qingshuiquan	Granulite	Subduction-related high pressure	507.7 ± 8.3	SHRIMP zircon U-Pb	Li et al. (2006)
	Kunzhong suture	Wenquan	Eclogite	(Ultra) high pressure	428 ± 2	SHRIMP zircon U-Pb	Meng et al. (2013)
Deformation	Arc setting	Huashixia	Granite	Exhumation	197 ± 2.4	LA-ICPMS zircon U-Pb	Dai et al. (2013)
	Suture zone	Naj Tai	Syntectonic granite porphyry	Shearing	>196.4 ± 2.3	LA-ICPMS zircon U-Pb	Zhang et al. (2010)
West Qinling	Tectonic unit	Locality	Rock	Interpretation	Age (Ma)	Method	Reference
Ophiolites	Mianlue suture zone	Sanchazi, Mianxian	Dolerite	Subduction	264 ± 3	LA-ICPMS zircon U-Pb	Lai and Qin (2010)
	Mianlue suture zone	Nanping, Lueyang	Andesite	Subduction	246 ± 3	LA-ICPMS zircon U-Pb	Qin et al. (2008)
Magmatic rocks	Back-arc setting	Zhongchuan	Granite	Subduction	236 ± 2	LA-ICPMS zircon U-Pb	Zhu et al. (2012)
	Back-arc setting	Gaoqiaopu	Monzodiorite	Subduction to syn-collision	227 ± 3	LA-ICPMS zircon U-Pb	Qin et al. (2019)
	Back-arc setting	Gaoqiaopu	Mafic enclave	Syn-collision, slab break off	221 ± 3	LA-ICPMS zircon U-Pb	Qin et al. (2019)
	Back-arc setting	South Luoba	Granite	Subduction	225	LA-ICPMS zircon U-Pb	Feng et al. (2002)
	Back-arc setting	West Luoba	Granite	Syn-collision	218	LA-ICPMS zircon U-Pb	Feng et al. (2002)
	Back-arc setting	Northwest Luoba	Granite	Syn-collision	216	LA-ICPMS zircon U-Pb	Feng et al. (2002)
	Back-arc setting	Mishuling	Monzogranite	Syn-collision	213 ± 3	LA-ICPMS zircon U-Pb	Qin et al. (2009)
	Back-arc setting	Mishuling	Mafic enclave	Syn-collision	212 ± 5	LA-ICPMS zircon U-Pb	Qin et al. (2009)
	Back-arc setting	Mishuling	Monzogranite	Syn- to post-collision	212 ± 2	LA-ICPMS zircon U-Pb	Liang et al. (2015)
	Arc setting	Guangtoushan	Granodiorite	Subduction	230 ± 1	LA-ICPMS zircon U-Pb	Deng et al. (2016)
	Arc setting	Guangtoushan	Granodiorite	Subduction	229 ± 1	LA-ICPMS zircon U-Pb	Deng et al. (2016)
	Arc setting	Guangtoushan	Mafic enclave	Subduction	229 ± 1	LA-ICPMS zircon U-Pb	Deng et al. (2016)
	Arc setting	Guangtoushan	Granodiorite	Subduction	228 ± 1	LA-ICPMS zircon U-Pb	Deng et al. (2016)

West Qinling	Tectonic unit	Locality	Rock	Interpretation	Age (Ma)	Method	Reference
Magmatic rocks	Arc setting	Guangtoushan	Biotite monzogranite	Closure of the Mianlue ocean	224 ± 1	LA-ICPMS zircon U-Pb	Deng et al. (2016)
	Arc setting	Guangtoushan	Biotite monzogranite	Closure of the Mianlue ocean	218 ± 1	LA-ICPMS zircon U-Pb	Deng et al. (2016)
	Arc setting	Guangtoushan	Muscovite monzogranite	S-type; collision, slab break-off	215 ± 1	LA-ICPMS zircon U-Pb	Deng et al. (2016)
	Arc setting	Guangtoushan	Quartz diorite	Collision, slab break-off	215 ± 1	LA-ICPMS zircon U-Pb	Deng et al. (2016)
	Arc setting	Guangtoushan	Granite	Syn-collision	216 ± 2	LA-ICPMS zircon U-Pb	Sun et al. (2000)
	Arc setting	Yuhuangmiao	Granite	Syn-collision	215 ± 1	LA-ICPMS zircon U-Pb	Wu et al. (2014)
	Arc setting	Miba	Granitoid	Syn- to post-collision	211 ± 2	LA-ICPMS zircon U-Pb	Sun et al. (2000)
	Arc setting	Shahewan	Monzonite	I- to A-type	211 ± 2	LA-ICPMS zircon U-Pb	Wang et al. (2007)
	Mianlue suture zone	Puziba	Granite-granodiorite	Syn- to post-collision, slab break-off	213 ± 1	LA-ICPMS zircon U-Pb	Yang et al. (2015)
	Mianlue suture zone	Puziba	Granite-granodiorite	Syn- to post-collision, slab break-off	211 ± 4	LA-ICPMS zircon U-Pb	Yang et al. (2015)
Metamorphism	Mianlue suture zone	Foping	Granulite	Retrograde granulite-facies	221 ± 3.6	SHRIMP zircon U-Pb	Yang et al. (1999)
	Mianlue suture zone	Anzishan	Leucosome cutting granulite	Subduction-related high pressure	>215 ± 5	LA-ICPMS zircon U-Pb	Liang et al. (2013)
Deformation	Back-arc setting	Shagou	Augen granitic mylonite	Shear	220.8 ± 1.3	LA-ICPMS zircon U-Pb	Li et al. (2017)
	Back-arc setting	Shagou	Syntectonic granite vein	Shear	200 ± 2	LA-ICPMS zircon U-Pb	Li et al. (2017)
	Mianlue suture zone	Anzishan, Mianxian	Granulite	Exhumation	199.6 ± 1.7	Biotite $^{40}\text{Ar}/^{39}\text{Ar}$	Zhang et al. (2002)

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Table S3 Deposit geology and fluid inclusion dataset for the studied orogenic gold deposits in the East Kunlun-West Qinling Orogen with corresponding references.

No.	Deposit	Regional structure	Ore-controlling structure	Orebody trending	Host rock	Alteration	Ore mineralogy	Gold type	Fluid inclusion			Reference
									Component	Homogenization T (°C)	Salinity (wt%NaCl eq.)	
East Kunlun												
1	Dashigou	Strike-slip	Ductile shear zone	NWW	Proterozoic gneiss; Granites	Silicification, sericitization, carbonation	Pyrite, pyrrhotite, chalcopyrite, galena, sphalerite	Invisible-visible				Li et al. (2015)
2	Wulonggou	Strike-slip	Ductile shear zone	NW bedding-parallel	Proterozoic gneiss, schist	Silicification, sericitization, carbonation, chloritization kaolinization	Pyrite, pyrrhotite, arsenopyrite, chalcopyrite, galena, sphalerite	Visible	CO ₂ -H ₂ O-NaCl ±N ₂	190-395 (Peak 260-360)	1.7-13.4 (Peak 7.0-13.0)	Zhang (2018); Liu F (2017)
3	Shuizhadonggou	Strike-slip	Ductile shear zone	NW	Proterozoic gneiss	Silicification, sericitization, carbonation chloritization	Pyrite, pyrrhotite, löllingite, arsenopyrite, galena, sphalerite	Visible	CO ₂ -H ₂ O-NaCl ±N ₂ ±CH ₄	240-450 (Peak 300-380)	1.2-14.8 (Peak 2.8-12.6)	Zhang et al. (2017); You (2016); Zhao (2008)
4	Balong	Strike-slip	Shear zone	NWW	Proterozoic gneiss, schist	Silicification sericitization carbonation	Pyrite, arsenopyrite, galena, sphalerite, chalcopyrite,	Visible	CO ₂ -H ₂ O-NaCl	190~380	8.0~12.0	Huang (2017)
5	Asiha	Strike-slip	Shear zone	NW	Proterozoic gneiss	Silicification, sericitization, carbonation, chloritization, epidotization	Pyrite, pyrrhotite, arsenopyrite, chalcopyrite, galena, sphalerite	Visible	CO ₂ -H ₂ O-NaCl ±CH ₄ ±N ₂	170-430 (Peak 240-380)	0.2-14.8 (Peak 5.0-8.1)	Cha et al. (2013); Yue (2013); Li et al. (2012)
6	Jiawu	Strike-slip	Shear zone	NW	Triassic turbidites; Granites	Silicification, sericitization, carbonation, kaolinization	Pyrite, arsenopyrite, chalcopyrite, pyrrhotite, galena, sphalerite	Visible-invisible	CO ₂ -H ₂ O-NaCl	140~360 (Peak 180~300)	2.2~17.3 (Peak 4-9)	Yuan et al. (2010)
7	Guoluo-longwa	Strike-slip	Brittle-ductile shear zone	NW	Ordovician-Silurian phyllite	Silicification, sericitization, carbonation, chloritizationon	Pyrite, galena, sphalerite, chalcopyrite	Visible	CO ₂ -H ₂ O-NaCl ±CH ₄ ±H ₂	120-360 (Peak 160-280)	1.8-17.5 (Peak 3.0~10.0)	Xiao et al. (2014); Ding et al. (2013b); Yue (2013)

No.	Deposit	Regional structure	Ore-controlling structure	Orebody trending	Host rock	Alteration	Ore mineralogy	Gold type	Fluid inclusion			Reference
									Component	Homogenization T (°C)	Salinity (wt%NaCl eq.)	
8	Naomuhun	Strike-slip	Shear zone	NW	Proterozoic schist	Silicification, sericitization kaolinization	Pyrite, stibnite, arsenopyrite	Visible				Li (2017)
9	Manite	Strike-slip	Brittle-ductile shear zone	NW	Permian slate; Granites	Silicification, sericitization, carbonation	Pyrite, pyrrhotite, chalcopyrite, galena	Visible	CO ₂ -H ₂ O-NaCl	160-360 (Peak 180-320)	1.6-13.8 (Peak 3.0-7.7)	Zhao (2017)
10	Xizang-dagou	Strike-slip	Shear zone	NWW	Triassic turbidites; Granites	Silicification, sericitization, carbonation	Pyrite, arsenopyrite, galena, stibnite	Visible				Li et al. (2018)
11	Dachang	Strike-slip	Brittle-ductile shear zone	NWW	Triassic turbidites	Silicification, sericitization carbonation	Pyrite, stibnite, galena, chalcopyrite	Visible	CO ₂ -H ₂ O-NaCl ±CH ₄ ±H ₂ S±CO ±N ₂ ±H ₂ ±C ₂ -H ₂ -	160-340 (Peak 220-260)	0.2-8.3 (Peak 2.0-5.0)	Ding et al. (2010); Zhao et al. (2005)
West Qinling												
1	Laodou	Strike-slip	Brittle fault	NNW	Permian clastic rocks; Granites	Silicification, sericitization, potassic alteration	Pyrite, arsenopyrite, galena, sphalerite, chalcopyrite	Invisible-visible	CO ₂ -H ₂ O-NaCl	(Peak 250~300)		Jin et al. (2017)
2	Zaozigou	Thrust	high-angle normal faults	NE/NW	Triassic turbidites; Granites	silicification sericitization carbonation chloritization	Pyrite, arsenopyrite, stibnite, marcasite, chalcopyrite	Invisible	CO ₂ -H ₂ O-NaCl ±N ₂ ±CH ₄ ±C ₂ H ₆ ±H ₂ S	130-320 (Peak 140-280)	1.0-11.0 (Peak 4.0~9.0)	Chen et al. (2018)
3	Ludousou	Strike-slip	Reverse fault	NE/NW	Permian clastic rocks	silicification, sericitization, carbonation	Pyrite, arsenopyrite, stibnite, chalcopyrite	Invisible				Yu et al. (2020a)
4	Gangcha	Thrust	Thrust fault	NNW	Permian slate	silicification, sericitization, carbonation	pyrite, arsenopyrite, sphalerite, stibnite	Visible-invisible				Kong et al. (2018)
5	Yidi'nan	Thrust	Reverse fault	N-S	Permian clastic rocks	silicification, sericitization, carbonation	pyrite, arsenopyrite, stibnite, chalcopyrite	Invisible				Yu et al. (2020b)

No.	Deposit	Regional structure	Ore-controlling structure	Orebody trending	Host rock	Alteration	Ore mineralogy	Gold type	Fluid inclusion			Reference
									Component	Homogenization T (°C)	Salinity (wt%NaCl eq.)	
6	Zhaishang	Thrust	Ductile-brittle shear zone	NWW	Permian phyllite, slate	Silicification, carbonation, sericitization	Pyrite, arsenopyrite, stibnite	Visible-invisible	CO ₂ -H ₂ O-NaCl ±CH ₄ ±CO	120-360 (Peak 150-300)	2.4-8.6 (Peak 6.0-7.0)	Lu et al. (2006b)
7	Mawu	Thrust	Brittle fault	NW	Devonian phyllite	Silicification, sericitization, carbonation	Pyrite, chalcopyrite, sphalerite, galena, arsenopyrite	Visible-invisible	CO ₂ -H ₂ O-NaCl ±CH ₄ ±CO	150-390 (Peak 220-340)	4.4-15.9 (Peak 5.0-10.0)	Liu et al. (2014)
8	Liba	Thrust	Shear zone	NW bedding-parallel	Devonian phyllite	Silicification, sericitization, chloritization, carbonation	Pyrite, pyrrhotite, arsenopyrite, galena, sphalerite	Visible	CO ₂ -H ₂ O-NaCl ±CH ₄ ±N ₂ ±H ₂ ±CO	210-380 (Peak 260-340)	1-12.5 (Peak 2.0-10.5)	Xie et al. (2018); Zhang et al. (2004)
9	Jinshan	Thrust	Shear zone	W-E	Devonian phyllite	Silicification, sericitization, carbonation	Pyrite, arsenopyrite, chalcopyrite, galena	Invisible-visible	CO ₂ -H ₂ O-NaCl	230~390 (Peak 240-330)	(Peak 7.5-9.3)	Zhang et al. (2004)
10	Maquan	Thrust	Shear zone	W-E	Devonian phyllite	Silicification, sericitization, carbonation	Pyrite, arsenopyrite, stibnite, chalcopyrite, galena	Invisible-visible	CO ₂ -H ₂ O-NaCl	250~390 (Peak 300-330)	(Peak 6.5-9.5)	Zhang et al. (2004)
11	Liziyuan	Strike-slip	Shear zone	NW bedding-parallel	Cambrian-Ordovician schists	Silicification, sericitization, epidotization, carbonation	Pyrite, chalcopyrite, galena, silver-tetrahedrite	Visible	CO ₂ -H ₂ O-NaCl ±CH ₄	160-320 (Peak 240-280)	2.2-9.1 (Peak 5.0-7.9)	Yang et al. (2012b)
12	Pangjiahe	Thrust	Ductile shear zone	W-E	Devonian phyllite	Silicification, sericitization	Pyrite, arsenopyrite	Visible				Ma et al. (2018)
13	Zuojia-zhuang	Thrust	Ductile-brittle shear zone	W-E	Devonian phyllite	Silicification, sericitization, chloritization	Pyrite, arsenopyrite, galena, sphalerite	Visible	CO ₂ -H ₂ O-NaCl	(Peak 160-310)	(Peak 1.2-11.8)	Ma et al. (2019)
14	Simaoling	Strike-slip	Anticline and shear zone	NWW bedding-parallel	Devonian phyllite	Silicification, sericitization, chloritization	Pyrite, pyrrhotite, arsenopyrite	Visible	CO ₂ -H ₂ O-NaCl ±N ₂ ±CH ₄ ±CO	140-380 (Peak 200-320)	1.0-15.5 (Peak 4-9.5)	Li et al. (2010)
15	Chaima	Strike-slip	Tight anticline, shear zone	NW bedding-parallel	Devonian phyllite	Silicification, sericitization, carbonation	Pyrite, pyrrhotite, chalcopyrite, sphalerite, galena	Visible	CO ₂ -H ₂ O-NaCl	160-360 (Peak 240-320)	2-14.5 (Peak 4.0-10.0)	Liu et al. (2015)

No.	Deposit	Regional structure	Ore-controlling structure	Orebody trending	Host rock	Alteration	Ore mineralogy	Gold type	Fluid inclusion			Reference	
									Component	Homogenization T (°C)	Salinity (wt%NaCl eq.)		
16	Baguamiao	Strike-slip	Brittle-ductile shear zone	NWW bedding-parallel	Devonian phyllite	Silicification, chloritization, Fe-dolomitization	Pyrite, pyrrhotite, sphalerite, galena, chalcopyrite, Te-minerals	Visible	CO ₂ -H ₂ O-CaCl ₂ -NaCl ±CO±CH ₄ ±N ₂ ±C ₂ H ₄	200-400 (250-320)	2.2-21.4 (Peak 6.7-11.8)	Cai (2019); Zhang (2016)	
17	Shuangwang	Strike-slip	Fault	NWW	Devonian phyllite; Granites	Albitization, carbonation	Pyrite, pyrrhotite, arsenopyrite	Visible	CO ₂ -H ₂ O-NaCl ±CH ₄ ±N ₂	200-420 (Peak 240-340)	0.5-22.7 (Peak 2.6-12.8)	Wang et al. (2015)	
18	Ma'anqiao	Thrust	Shear zone	W-E	Devonian phyllite; Granite	silicification sericitization carbonation	Pyrite, arsenopyrite, pyrrhotite	Invisible-visible	CO ₂ -H ₂ O-NaCl	(Peak 150-300)	<9.0	Zhu et al. (2009)	
19	Qiuling	Thrust	Brittle fault	NE/W-E	Devonian clastic rocks	silicification, sericitization, carbonation	Pyrite, arsenopyrite	Invisible-visible	CO ₂ -H ₂ O-NaCl	150-280 (Peak 180-220)	Chen et al. (2015)	Zhang et al. (2002)	
20	Jinlongshan	Thrust	Ductile shear zone	NNE	Carboniferous shale	Silicification, sericitization, carbonation	Pyrite, arsenopyrite, sphalerite	Invisible-visible	CO ₂ -H ₂ O-NaCl ±C ₂ H ₆ ±CH ₄	140-250 (Peak 160-210)	5.7-8.6 (Peak 7.9-8.3)	Zhang et al. (2002)	
21	Xiaogouli	Thrust	Brittle-ductile shear zone	NW/NE	Devonian phyllite	Silicification, sericitization, albitization, chloritization	Pyrite, arsenopyrite, galena, sphalerite, chalcopyrite	Visible	CO ₂ -H ₂ O-NaCl	135-335 (Peak 205-270)	7.5-11.5 (Peak 9.5)	Kang et al. (2011)	
	Jiagantan	Thrust	Fault	NWW	Triassic clastic rocks	Silicification carbonation	Pyrite, arsenopyrite, stibnite	Invisible				Dai et al. (2016)	
22	Lu'erba	Thrust	Fault	NWW~W-E	Triassic turbidites	Silicification, sericitization, carbonation	Pyrite, arsenopyrite	Visible	CO ₂ -H ₂ O-NaCl	150-300 (Peak 180-270)	Li (2019) Meng et al. (2007)		
23	La'erma	Thrust	Reverse fault	W-E	Cambrian slate	Silicification, carbonation	Pyrite, stibnite	Visible	CO ₂ -H ₂ O-NaCl	170-310 (Peak 200-260)	5.0-13.0 (Peak 7.0-10.0)	Qi et al. (2004)	Yao (1994)
24	Qiongmo	Thrust	Reverse fault	W-E	Cambrian slate	Silicification, carbonation	Pyrite, stibnite	Visible	CO ₂ -H ₂ O-NaCl	220-340 (Peak 260-270)	Liu et al. (2000)		

No.	Deposit	Regional structure	Ore-controlling structure	Orebody trending	Host rock	Alteration	Ore mineralogy	Gold type	Fluid inclusion			Reference
									Component	Homogenization T (°C)	Salinity (wt%NaCl eq.)	
25	Daqiao	Thrust	Reverse fault	NE	Triassic turbidites	Silicification, sericitization, carbonation	Pyrite, arsenopyrite, marcasite	Invisible	CO ₂ -H ₂ O-NaCl (Peak 240-310)	100-355	0.5-11.0	Wu et al. (2018a)
26	Tianziping	Thrust	Shear zone	NWW~W-E	Devonian slate	Silicification, sericitization, carbonation	Pyrite, chalcopyrite	Visible-invisible			0.4-11.2	Liu et al. (2020)
27	Manaoke	Thrust	Tight anticline ductile shear zone	NWW bedding-parallel	Triassic turbidites	Silicification, calcitization, Fe-dolomitization	Pyrite, stibnite, arsenopyrite, scheelite, realgar	Micro-visible	CO ₂ -H ₂ O-NaCl ±CH ₄ (Peak 170-200)	120-280	0.5-11.0 (Peak 4.0-8.0)	Wang et al. (2001)
28	Huachang-gou	Strike-slip	Brittle-ductile shear zone	NWW bedding-parallel	Devonian phyllite	Silicification, fuchsite-alteration, carbonation, albitionization	Pyrite, chalcopyrite, bornite, sphalerite, galena, arsenopyrite	Visible	CO ₂ -H ₂ O-NaCl ±N ₂ ±CH ₄ ±H ₂ S (Peak 260-300)	120-380	0.4-11.2 (Peak 1.1~4.9)	Zhou et al. (2011)
29	Tangba	Strike-slip	Shear zone	NE	Devonian phyllite	silicification sericitization carbonation	Pyrite, arsenopyrite, sphalerite	Visible-invisible	CO ₂ -H ₂ O-NaCl ±N ₂ (Peak 240-280)	150-310	1.8-15.7 (Peak 3.0~9.0)	Ma et al. (2020)
30	Jianchaling	Strike-slip	Brittle-ductile shear zone	NW bedding-parallel	Neo-proterozoic phyllite	Silicification, fuchsite-alteration, carbonation	Pyrite, pyrrhotite, chalcopyrite, sphalerite, galena, arsenopyrite	Visible	CO ₂ -H ₂ O-NaCl ±CH ₄ (Peak 200-330)	160-370	1.1-12.4 (Peak 4.3-6.3)	Yue et al. (2017)
31	Xinqu	Thrust	Reverse fault	NWW	Triassic turbidites	silicification, carbonation	Pyrite, limonite, hematite, galena	Invisible-visible			0.6-9.3	Ma XY (2016)
32	Dashui	Thrust	Shear zone	NWW bedding-parallel	Triassic turbidites; Granites	Silicification, carbonation	Pyrite, limonite, hematite, stibnite, arsenopyrite, marcasite	Visible	CO ₂ -H ₂ O-NaCl (Peak 130-200)	110-310	0.5-8.3 (Peak 3.2-5.3)	Liu HL (2017)
33	Yangshan	Strike-slip	Shear zone	NWW bedding-parallel	Devonian phyllite	Silicification, carbonation, kaolinization	Pyrite, stibnite, arsenopyrite	Micro-visible	CO ₂ -H ₂ O-NaCl ±H ₂ S (Peak 230-250)	120-330	0.6-9.3 (Peak 2.4-5.6)	Ma Q (2016)

No.	Deposit	Regional structure	Ore-controlling structure	Orebody trending	Host rock	Alteration	Ore mineralogy	Gold type	Fluid inclusion			Reference
									Component	Homogenization T (°C)	Salinity (wt%NaCl eq.)	
34	Changping-gou	Strike-slip	Brittle-ductile shear zone	N-S	Neo-Proterozoic phyllite	Silicification, sericitization, carbonation, chloritization	Pyrite, chalcopyrite	Micro-visible	CO ₂ -H ₂ O-NaCl	170-280 (Peak 220-250)	0.5-10.4 (Peak 3.0-7.0)	Zhao et al. (2013)
35	Changgou	Strike-slip	Brittle-ductile shear zone	NWW	Silurian schist	Silicification, biotitization, carbonation	Pyrite, pyrrhotite, chalcopyrite, and galena	Visible	CO ₂ -H ₂ O-NaCl	180-390 (Peak 220-320)	2.0-15.0 (Peak 5.0-11.0)	He et al. (2019); Yang et al. (2018)
36	Yangping-wan	Strike-slip	Brittle-ductile shear zone	NW	Silurian schist	Silicification, biotitization, carbonation	Pyrite, pyrrhotite, chalcopyrite, sphalerite, galena	Visible	CO ₂ -H ₂ O-NaCl	160-440 (Peak 260-340)	0.5-20.0 (Peak 6.0-6.7)	Han et al. (2020); Yang et al. (2016)
37	Huanglong	Strike-slip	Brittle-ductile shear zone	NWW	Silurian schist	Silicification, biotitization, carbonation	pyrite, pyrrhotite, sphalerite	Visible	CO ₂ -H ₂ O-NaCl	120-400 (Peak 200-340)	1.0-19.0 (Peak 8.0-11.0)	Han et al. (2020); Han (2017)
38	Dongbei-zhai	Thrust	Reverse fault	N-S	Triassic turbidites	Silicification, carbonation	Pyrite, realgar, stibnite	Visible	CO ₂ -H ₂ O-NaCl	120-220 (Peak 150-180)	(Peak 5.0-11.7)	Zheng et al. (1990)
39	Qiaoqiao-shang	Thrust	Reverse fault	W-E	Devonian slate	Silicification, carbonation e	Pyrite, chalcopyrite, stibnite, marcasite	Invisible	CO ₂ -H ₂ O-NaCl ±N ₂ ±H ₄	110~300 (Peak 180-230)	7.7-11.8 (Peak 9.8)	Yang et al. (2012)
40	Qingmu-chuan	Thrust	Ductile shear zone	NEE	Neo-Proterozoic schist, phyllite	silicification, sericitization, carbonation, albitization	Pyrite, chalcopyrite, pyrrhotite	Visible	CO ₂ -H ₂ O-NaCl	180-390 (Peak 260-340)	(Peak 10.2-12.3)	Liao (2011)

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Table S4 C-O-S isotope dataset for the studied orogenic gold deposits of the East Kunlun-West Qinling Orogen with corresponding references.

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
	East Kunlun													
2	Wulong-gou	Disseminated	Pyrite	0.4		Zhang (2018)	Quartz	12.1	6.3	360	Zhang (2018)	Qt FLINC	-7.8	Xu et al. (2018)
		Disseminated	Pyrite	0.8			Quartz	12.4	6.6	360		Qt FLINC	-6.8	
		Disseminated	Pyrite	3.3			Quartz	12.9	7.1	360				
		Disseminated	Pyrite	6.5			Quartz	13.9	8.1	360				
		Disseminated	Pyrite	3.9		Li (2017)	Quartz	14.4	8.6	360				
		Disseminated	Pyrite	4.5										
		Disseminated	Pyrite	4.5										
		Disseminated	Pyrite	4.5										
		Disseminated	Pyrite	6.3										
		Disseminated	Pyrite	1.0		Liu F (2017)								
		Disseminated	Pyrite	3.7										
		Disseminated	Pyrite	4.2										
		Disseminated	Pyrite	4.4										
		Disseminated	Pyrite	5.4										
		Disseminated	Pyrite	5.9										
3	Shuihua-donggou	Disseminated	Pyrite	1.0		Zhang et al. (2017)	Quartz	10.1	4.7	380	Zhang (2018)			
		Disseminated	Pyrite	2.3			Quartz	11.0	5.6	380				
		Disseminated	Pyrite	3.4			Quartz	11.9	6.5	380				
		Disseminated	Pyrite	3.6			Quartz	12.0	6.6	380				
		Disseminated	Pyrite	4.1			Quartz	13.1	7.7	380				
		Disseminated	Pyrite	4.8			Quartz	10.8	5.4	380	Zhang et al. (2017)			
		Disseminated	Pyrite	5.0			Quartz	11.3	5.9	380				
		Disseminated	Pyrite	5.0			Quartz	11.6	6.2	380				
		Disseminated	Pyrite	5.4			Quartz	11.7	6.3	380				

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V}-\text{CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
3	Shuizha-donggou	Disseminated	Pyrite	6.9		Zhang et al. (2017)	Quartz	13.2	7.8	380	Zhang et al. (2017)			
		Disseminated	Pyrite	7.9			Quartz	15.1	9.7	380				
		Disseminated	Arsenopyrite	2.7										
		Disseminated	Arsenopyrite	2.7										
		Disseminated	Arsenopyrite	2.7										
		Disseminated	Arsenopyrite	3.1										
4	Balong	Quartz vein	Pyrite	0.7~										Huang (2017)
5	Asiha	Quartz vein	Pyrite	4.9		Li (2017)	Quartz	11.3	5.9	380	Shen (2012)			
		Quartz vein	Pyrite	5.0			Quartz	12.2	6.8	380				
		Quartz vein	Pyrite	5.1			Quartz	12.4	7.0	380				
		Quartz vein	Pyrite	5.2			Quartz	12.8	7.4	380				
		Quartz vein	Pyrite	5.6			Quartz	13.1	7.7	380				
		Quartz vein	Pyrite	6.2			Quartz	15.1	9.7	380				
		Quartz vein	Pyrite	6.3										
		Quartz vein	Pyrite	6.18		Yue (2013)								
		Quartz vein	Pyrite	6.19										
		Quartz vein	Pyrite	6.43										
		Quartz vein	Pyrite	6.45										
		Quartz vein	Pyrite	6.58										
		Quartz vein	Pyrite	6.93										
		Quartz vein	Pyrite	7.00										
		Quartz vein	Pyrite	7.07										
		Quartz vein	Pyrite	7.10										
		Quartz vein	Pyrite	7.22										
		Quartz vein	Pyrite	7.66										

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V}-\text{CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
5	Asiha	Quartz vein	Pyrite	5.0		Li et al. (2012)								
		Quartz vein	Pyrite	5.3										
		Quartz vein	Pyrite	5.7										
		Quartz vein	Pyrite	6.0										
		Quartz vein	Pyrite	7.4										
6	Jiawu	Quartz vein	Pyrite	-4.7~		Yuan et al. (2010)	Quartz	15.0~	7.5~	300	Yuan et al. (2010)			
		Quartz vein	Pyrite	-0.1			Quartz	16.7	9.2	300				
7	Guoluo-longwa	Quartz vein	Pyrite	-5.82		Yue (2013)	Quartz	14.8	6.5	280	Ding et al. (2013a)			
		Quartz vein	Pyrite	-5.24			Quartz	14.9	6.6	280				
		Quartz vein	Pyrite	-2.48			Quartz	15.1	6.8	280				
		Quartz vein	Pyrite	-1.56			Quartz	15.5	7.2	280				
		Quartz vein	Pyrite	-1.47			Quartz	15.6	7.3	280				
		Quartz vein	Pyrite	0.07			Quartz	15.7	7.4	280				
		Quartz vein	Pyrite	1.14			Quartz	15.7	7.4	280				
		Quartz vein	Pyrite	1.27			Quartz	15.8	7.5	280				
		Quartz vein	Pyrite	1.33			Quartz	15.8	7.5	280				
		Quartz vein	Pyrite	1.56			Quartz	16	7.7	280				
		Quartz vein	Pyrite	1.70			Quartz	16.2	7.9	280				
		Quartz vein	Pyrite	1.79			Quartz	16.2	7.9	280				
		Quartz vein	Pyrite	2.11			Quartz	16.2	7.9	280				
		Quartz vein	Pyrite	3.09			Quartz	16.5	8.2	280				
		Quartz vein	Pyrite	3.11			Quartz	16.6	8.3	280				
		Quartz vein	Pyrite	3.51			Quartz	16.6	8.3	280				
		Quartz vein	Pyrite	3.52			Quartz	16.7	8.4	280				
		Quartz vein	Pyrite	3.90			Quartz	16.9	8.6	280				
		Quartz vein	Pyrite	4.40			Quartz	17.2	8.9	280				

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$										
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference								
7	Guoluo-longwa	Quartz vein	Pyrite	4.42		Yue (2013)																
		Quartz vein	Pyrite	4.53																		
		Quartz vein	Pyrite	5.23																		
		Disseminated	Pyrite	-5.22																		
		Disseminated	Pyrite	-1.80																		
		Disseminated	Pyrite	-1.53																		
		Disseminated	Pyrite	0.83																		
		Disseminated	Pyrite	3.81																		
		Disseminated	Pyrite	4.14																		
		Disseminated	Pyrite	4.50																		
		Quartz vein	Pyrite	1.23		Hu et al. (2010)																
		Quartz vein	Pyrite	1.66																		
		Quartz vein	Pyrite	2.77																		
		Quartz vein	Pyrite	3.51																		
		Disseminated	Pyrite	0.20																		
		Disseminated	Pyrite	3.88																		
8	Naomu-hun	Quartz vein	Pyrite	3.0		Li (2017)																
		Quartz vein	Pyrite	3.5																		
		Quartz vein	Pyrite	4.6																		
		Quartz vein	Arsenopyrite	4.2																		
11	Dachang	Quartz vein	Pyrite	-7.7		Ding et al. (2013a)	Quartz	16.9	7.8	260		Calcite	-6.87	Wang (2013)								
		Quartz vein	Pyrite	-5.7			Quartz	17.8	8.7	260		Calcite	-6.82									
		Quartz vein	Pyrite	-5.5			Quartz	18	8.9	260		Calcite	-6.30									
		Quartz vein	Pyrite	-4.8			Quartz	19	9.9	260		Calcite	-6.10									
		Quartz vein	Pyrite	-4.2			Quartz	19	9.9	260		Calcite	-6.00									

No.	Gold deposit	$\delta^{34}\text{S}$ v-CDT (‰)					$\delta^{18}\text{O}$ SMOW (‰)					$\delta^{13}\text{C}$ PDB (‰)		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
11	Dachang	Quartz vein	Pyrite	-3.7		Ding et al. (2013a)	Quartz	19.3	10.2	260	Ding et al. (2013a)	Calcite	-5.99	Wang (2013)
		Quartz vein	Pyrite	-2.8			Quartz	19.5	10.4	260		Calcite	-5.28	
		Quartz vein	Pyrite	-1.0			Quartz	19.6	10.5	260				
		Quartz vein	Arsenopyrite	-8.8			Quartz	20	10.9	260				
		Quartz vein	Arsenopyrite	-5.9			Quartz	21.2	12.1	260				
		Quartz vein	Arsenopyrite	-5.2										
		Quartz vein	Arsenopyrite	-2.4										
		Quartz vein	Arsenopyrite	-2.3										
		Quartz vein	Arsenopyrite	6.5	Anomalous									
		Quartz vein	Pyrite	-4.7		Feng et al. (2003)								
		Quartz vein	Pyrite	-4.7										
		Quartz vein	Pyrite	-3.3										
		Quartz vein	Pyrite	-3.2										
		Quartz vein	Pyrite	-5.02		Wang (2013)								
		Quartz vein	Pyrite	-4.83										
		Quartz vein	Pyrite	-4.52										
		Quartz vein	Pyrite	-4.21										
		Quartz vein	Pyrite	-3.98										
		Quartz vein	Pyrite	-3.54										
		Quartz vein	Pyrite	-0.73										
		Quartz vein	Arsenopyrite	-5.78										
		Quartz vein	Arsenopyrite	-3.74										
		Wallrock	Pyrite	8.09										
		Wallrock	Pyrite	9.16										

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
	West Qinling													
1	Laodou	Quartz vein	Pyrite	-5.9	Jin et al. (2017)	Quartz	12.9	5.4	300	Jin et al.				
		Quartz vein	Arsenopyrite	-3.6		Quartz	13.5	6	300	(2017)				
		Quartz vein	Pyrite	4.2		Quartz	8.5	5.9	300					
		Disseminated	Pyrite	0		Quartz	12.3	9.7	300					
		Disseminated	Pyrite	2.9		Quartz	11.3	5.8	300					
2	Zaozigou	Disseminated	Pyrite	-4.9	Liu et al. (2012)	Quartz	13.7	5.4	280	Liu et al.	Dolomite	-6.9	Sui et al.	
		Disseminated	Pyrite	-5		Quartz	14.4	6.1	280	(2019)	Dolomite	-4.1	(2013)	
		Disseminated	Pyrite	-6.5		Quartz	18.3	10.0	280					
		Disseminated	Pyrite	-6.6		Quartz	19	10.7	280					
		Disseminated	Pyrite	-7.5	Jiang et al. (2010)	Quartz	20.3	12.0	280					
		Disseminated	Pyrite	-8.2		Quartz	20.3	12.0	280					
		Disseminated	Pyrite	-8.3										
		Disseminated	Pyrite	-9.3										
4	Gangcha	Disseminated	Pyrite	0.6	Kong et al. (2018)									
		Disseminated	Pyrite	0.9										
		Disseminated	Pyrite	1.1										
		Disseminated	Pyrite	1.3										
6	Zhai-shang	Quartz vein	Pyrite	3.1	Lu et al. (2006b)	Quartz	15.8	8.3	300	Lu et al.	Calcite	-2.1	Mu and Liu (2010)	
		Quartz vein	Pyrite	3.7		Quartz	19.8	12.3	300	(2006b)	Calcite	0.9		
		Quartz vein	Pyrite	4.5		Quartz	19.9	12.4	300		Calcite	-2.08	Liu et al.	
		Quartz vein	Pyrite	7.5		Quartz	20	12.5	300		Calcite	-2.04	(2015)	
		Quartz vein	Pyrite	9.2		Quartz	20.2	12.7	300		Calcite	-0.43		

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
6	Zhai-shang	Quartz vein	Pyrite	7.5		Liu et al. (2015)	Quartz	20.5	13.0	300	Lu et al. (2006b)	Calcite	-0.36	Liu et al. (2015)
		Quartz vein	Pyrite	7.6			Quartz	20.7	13.2	300		Calcite	-0.27	
		Quartz vein	Pyrite	8			Quartz	21.3	13.8	300		Calcite	-0.15	
		Quartz vein	Pyrite	8.6			Quartz	22.1	14.6	300		Calcite	-0.09	
		Quartz vein	Pyrite	9.7			Quartz	20.5	13.0	300	Liu et al. (2015)	Calcite	0.02	
		Quartz vein	Pyrite	10.3			Quartz	20.7	13.2	300		Calcite	0.85	
		Quartz vein	Arsenopyrite	5.6			Quartz	20.9	13.4	300		Calcite	1.05	
							Quartz	21	13.5	300				
							Quartz	21.1	13.6	300				
							Quartz	22	14.5	300				
							Calcite	17.48	11.2	300				
							Calcite	17.63	11.3	300				
							Calcite	18.02	11.7	300				
							Calcite	18.27	12.0	300				
							Calcite	18.52	12.2	300				
							Calcite	19.18	12.9	300				
							Calcite	19.36	13.9	300				
							Calcite	19.38	13.9	300				
							Calcite	19.6	14.1	300				
							Calcite	19.63	14.1	300				
7	Mawu	Quartz vein	Pyrite	7.1		Zhao et al. (2009)	Quartz	15.4	9.1	340	Zhao et al. (2009)			
		Quartz vein	Pyrite	7.8			Quartz	18	11.7	340				
		Quartz vein	Pyrite	7.8			Quartz	18.3	12.0	340				
		Quartz vein	Pyrite	7.9			Quartz	19.1	12.8	340				
							Quartz	19.9	13.6	340				
							Quartz	20.2	13.9	340				

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$				$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$			
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
8	Liba	Quartz vein	Pyrite	2.5		Feng et al. (2004)	Quartz	17.3	11.0	340	Feng et al. (2004)	Calcite	-5.93	Chen (1994)
		Quartz vein	Pyrite	2.5			Quartz	17.6	11.3	340		Calcite	-3.67	
		Quartz vein	Pyrite	3.0			Quartz	17.6	11.3	340		Calcite	-1.71	
		Quartz vein	Pyrite	4.0			Quartz	17.7	11.4	340				
		Quartz vein	Pyrite	4.3			Quartz	17.8	11.5	340				
		Quartz vein	Pyrite	4.4			Quartz	17.9	11.6	340				
		Quartz vein	Pyrite	5.1			Quartz	17.9	11.6	340				
		Quartz vein	Pyrite	6.3			Quartz	18.0	11.7	340				
		Quartz vein	Pyrite	7.0										
		Quartz vein	Pyrite	7.0										
		Quartz vein	Pyrite	7.1										
		Quartz vein	Pyrite	7.1										
		Quartz vein	Pyrite	7.3										
		Quartz vein	Pyrite	7.5										
		Quartz vein	Pyrite	7.5										
		Quartz vein	Pyrite	8.4										
		Quartz vein	Pyrite	8.6										
		Quartz vein	Pyrite	8.7										
		Quartz vein	Pyrite	9.9										
		Quartz vein	Pyrite	10.3										
		Disseminated	Pyrite	6.9										
		Disseminated	Pyrite	7.1										
		Disseminated	Pyrite	8.2										
		Disseminated	Pyrite	8.9										
		Disseminated	Pyrite	10.3										
		Disseminated	Pyrite	10.6										
		Wallrock	Pyrite	-0.7										

No.	Gold deposit	$\delta^{34}\text{S}$ v-CDT (‰)					$\delta^{18}\text{O}$ SMOW (‰)					$\delta^{13}\text{C}$ PDB (‰)		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
8	Liba	Wallrock	Pyrite	5.6		Feng et al. (2004)								
		Wallrock	Pyrite	6.7										
9	Jinshan	Disseminated	Pyrite	-0.9		Yang and Chen (2004)								
		Disseminated	Pyrite	3.5										
		Disseminated	Arsenopyrite	5.5										
		Disseminated	Arsenopyrite	7.7										
10	Maquan	Quartz vein	Pyrite	4.4		Jiang et al. (2009)	Quartz	17.4	10.8	330	Jiang et al. (2009)			
		Quartz vein	Pyrite	7.6			Quartz	17.4	10.8	330				
							Quartz	20	13.4	330				
							Quartz	20.6	14.0	330				
							Quartz	23.2	16.6	330				
11	Liziyuan	Quartz vein	Pyrite	3.90		Yang et al. (2012b)								
		Quartz vein	Pyrite	5.32										
		Quartz vein	Pyrite	5.66										
		Quartz vein	Pyrite	7.28										
		Quartz vein	Pyrite	7.44										
		Quartz vein	Pyrite	7.48										
		Quartz vein	Pyrite	7.85										
		Disseminated	Pyrite	7.49										
		Disseminated	Pyrite	7.49										
		Disseminated	Pyrite	8.13										
		Quartz vein	Pyrite	5.7		Ye and Han (2005)								
		Quartz vein	Pyrite	6.3										
		Quartz vein	Pyrite	7.9										
		Disseminated	Pyrite	7.0										
		Disseminated	Pyrite	7.7										

No.	Gold deposit	$\delta^{34}\text{S}$ v-CDT (‰)					$\delta^{18}\text{O}$ SMOW (‰)					$\delta^{13}\text{C}$ PDB (‰)		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
12	Pangjiahe	Quartz vein	Pyrite	5.9	<i>in situ</i>	Ma et al. (2018)								
		Quartz vein	Pyrite	6.8	<i>in situ</i>									
		Quartz vein	Pyrite	7.9	<i>in situ</i>									
		Quartz vein	Pyrite	8.0	<i>in situ</i>									
		Quartz vein	Pyrite	8.1	<i>in situ</i>									
		Quartz vein	Pyrite	8.1	<i>in situ</i>									
		Quartz vein	Pyrite	8.3	<i>in situ</i>									
		Quartz vein	Pyrite	8.4	<i>in situ</i>									
		Quartz vein	Pyrite	8.6	<i>in situ</i>									
		Quartz vein	Pyrite	8.6	<i>in situ</i>									
		Quartz vein	Pyrite	8.8	<i>in situ</i>									
		Quartz vein	Pyrite	9.0	<i>in situ</i>									
		Quartz vein	Pyrite	9.1	<i>in situ</i>									
		Quartz vein	Pyrite	9.3	<i>in situ</i>									
		Quartz vein	Pyrite	9.7	<i>in situ</i>									
		Quartz vein	Pyrite	9.8	<i>in situ</i>									
		Quartz vein	Pyrite	9.9	<i>in situ</i>									
		Quartz vein	Pyrite	10.2	<i>in situ</i>									
		Quartz vein	Pyrite	11.8	<i>in situ</i>									
		Quartz vein	Pyrite	12.0	<i>in situ</i>									
		Disseminated	Pyrite	7.0	<i>in situ</i>									
		Disseminated	Pyrite	7.2	<i>in situ</i>									
		Disseminated	Pyrite	7.3	<i>in situ</i>									
		Disseminated	Pyrite	7.4	<i>in situ</i>									
		Disseminated	Pyrite	7.4	<i>in situ</i>									
		Disseminated	Pyrite	7.9	<i>in situ</i>									

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
12	Pangjiahe	Disseminated	Pyrite	8.0	<i>in situ</i>	Ma et al. (2018)								
		Disseminated	Pyrite	8.0	<i>in situ</i>									
		Disseminated	Pyrite	8.0	<i>in situ</i>									
		Disseminated	Pyrite	8.1	<i>in situ</i>									
		Disseminated	Pyrite	8.1	<i>in situ</i>									
		Disseminated	Pyrite	8.2	<i>in situ</i>									
		Disseminated	Pyrite	8.2	<i>in situ</i>									
		Disseminated	Pyrite	8.3	<i>in situ</i>									
		Disseminated	Pyrite	8.4	<i>in situ</i>									
		Disseminated	Pyrite	8.4	<i>in situ</i>									
		Disseminated	Pyrite	8.5	<i>in situ</i>									
		Disseminated	Pyrite	8.5	<i>in situ</i>									
		Disseminated	Pyrite	8.5	<i>in situ</i>									
		Disseminated	Pyrite	8.5	<i>in situ</i>									
		Disseminated	Pyrite	8.6	<i>in situ</i>									
		Disseminated	Pyrite	8.6	<i>in situ</i>									
		Disseminated	Pyrite	8.7	<i>in situ</i>									
		Disseminated	Pyrite	8.7	<i>in situ</i>									
		Disseminated	Pyrite	8.8	<i>in situ</i>									
		Disseminated	Pyrite	8.8	<i>in situ</i>									
		Disseminated	Pyrite	9.0	<i>in situ</i>									
		Disseminated	Pyrite	9.2	<i>in situ</i>									
		Disseminated	Pyrite	9.4	<i>in situ</i>									
		Disseminated	Pyrite	9.4	<i>in situ</i>									
		Disseminated	Pyrite	9.4	<i>in situ</i>									
		Disseminated	Pyrite	9.6	<i>in situ</i>									
		Disseminated	Pyrite	9.6	<i>in situ</i>									

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
12	Pangjiahe	Disseminated	Pyrite	9.8	<i>in situ</i>	Ma et al. (2018)								
		Disseminated	Pyrite	9.9	<i>in situ</i>									
		Disseminated	Pyrite	9.9	<i>in situ</i>									
		Disseminated	Pyrite	10.0	<i>in situ</i>									
		Disseminated	Pyrite	10.1	<i>in situ</i>									
		Disseminated	Pyrite	10.3	<i>in situ</i>									
		Disseminated	Pyrite	10.7	<i>in situ</i>									
		Disseminated	Pyrite	10.8	<i>in situ</i>									
		Disseminated	Pyrite	11.0	<i>in situ</i>									
		Disseminated	Pyrite	11.5	<i>in situ</i>									
		Disseminated	Pyrite	11.7	<i>in situ</i>									
		Disseminated	Pyrite	11.8	<i>in situ</i>									
		Wallrock	Pyrite	-1.5	<i>in situ</i>									
		Wallrock	Pyrite	-0.7	<i>in situ</i>									
		Wallrock	Pyrite	-0.5	<i>in situ</i>									
		Wallrock	Pyrite	-0.2	<i>in situ</i>									
		Wallrock	Pyrite	0.9	<i>in situ</i>									
		Wallrock	Pyrite	1.1	<i>in situ</i>									
		Wallrock	Pyrite	1.6	<i>in situ</i>									
		Wallrock	Pyrite	1.6	<i>in situ</i>									
		Wallrock	Pyrite	1.9	<i>in situ</i>									
		Wallrock	Pyrite	2.2	<i>in situ</i>									
		Wallrock	Pyrite	2.4	<i>in situ</i>									
		Wallrock	Pyrite	2.4	<i>in situ</i>									
		Wallrock	Pyrite	2.6	<i>in situ</i>									
		Wallrock	Pyrite	2.8	<i>in situ</i>									

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V}-\text{CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
12	Pangjiahe	Wallrock	Pyrite	3.1	<i>in situ</i>	Ma et al. (2018)								
		Wallrock	Pyrite	3.1	<i>in situ</i>									
		Wallrock	Pyrite	3.2	<i>in situ</i>									
		Wallrock	Pyrite	3.6	<i>in situ</i>									
		Wallrock	Pyrite	3.6	<i>in situ</i>									
		Wallrock	Pyrite	3.8	<i>in situ</i>									
		Wallrock	Pyrite	3.8	<i>in situ</i>									
		Wallrock	Pyrite	4.0	<i>in situ</i>									
		Wallrock	Pyrite	4.1	<i>in situ</i>									
		Wallrock	Pyrite	4.2	<i>in situ</i>									
		Wallrock	Pyrite	4.3	<i>in situ</i>									
		Wallrock	Pyrite	4.4	<i>in situ</i>									
		Wallrock	Pyrite	4.6	<i>in situ</i>									
		Wallrock	Pyrite	4.9	<i>in situ</i>									
		Wallrock	Pyrite	4.9	<i>in situ</i>									
		Wallrock	Pyrite	5.0	<i>in situ</i>									
		Wallrock	Pyrite	5.1	<i>in situ</i>									
		Wallrock	Pyrite	5.3	<i>in situ</i>									
		Wallrock	Pyrite	5.9	<i>in situ</i>									
		Wallrock	Pyrite	6.5	<i>in situ</i>									
		Wallrock	Pyrite	7.1	<i>in situ</i>									
		Wallrock	Pyrite	7.2	<i>in situ</i>									
		Wallrock	Pyrite	7.3	<i>in situ</i>									
		Wallrock	Pyrite	7.6	<i>in situ</i>									
		Wallrock	Pyrite	7.8	<i>in situ</i>									
		Wallrock	Pyrite	8.5	<i>in situ</i>									

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V}-\text{CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
12	Pangjiahe	Wallrock	Pyrite	9.2	<i>in situ</i>	Ma et al. (2018)								
		Wallrock	Pyrite	9.4	<i>in situ</i>									
		Wallrock	Arsenopyrite	7.2	<i>in situ</i>									
		Wallrock	Arsenopyrite	8.0	<i>in situ</i>									
		Wallrock	Arsenopyrite	8.1	<i>in situ</i>									
13	Zuojia-zhuang	Quartz vein	Pyrite	11.4		Ma et al. (2019)	Quartz	14.2	7.0	310	Ma et al. (2019)			
		Quartz vein	Pyrite	11.5			Quartz	15.8	8.6	310				
		Quartz vein	Pyrite	11.6			Quartz	16.1	8.9	310				
		Quartz vein	Pyrite	12.3			Quartz	18.1	10.9	310				
		Quartz vein	Pyrite	12.7										
		Quartz vein	Pyrite	12.8										
		Quartz vein	Pyrite	12.9										
14	Simaoling	Quartz vein	Pyrite	4.9		Li et al. (2010)	Quartz	17.6	10.7	320	Li et al. (2010)			
		Quartz vein	Pyrite	5.3			Quartz	17.9	11.0	320				
		Quartz vein	Pyrite	5.6			Quartz	18.1	11.2	320				
		Quartz vein	Pyrite	5.7			Quartz	18.5	11.6	320				
		Quartz vein	Pyrite	5.8			Quartz	18.5	11.6	320				
		Quartz vein	Pyrite	5.9			Quartz	18.8	11.9	320				
		Quartz vein	Pyrite	8.2			Quartz	18.8	11.9	320				
		Quartz vein	Pyrite	14.8	Anomalous		Quartz	18.9	12.0	320				
		Disseminated	Pyrite	7.8			Quartz	19.1	12.2	320				
		Disseminated	Pyrite	4.6			Quartz	19.3	12.4	320				
		Disseminated	Pyrite	5.0			Quartz	19.7	12.8	320				
		Disseminated	Pyrite	5.5			Quartz	19.8	12.9	320				
		Disseminated	Pyrite	5.5			Quartz	20	13.1	320				

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$				$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$			
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
14	Simaoling	Disseminated	Pyrite	5.5		Li et al. (2010)	Quartz	20.2	13.3	320	Li et al. (2010)			
		Disseminated	Pyrite	5.9			Quartz	20.3	13.4	320				
		Disseminated	Pyrite	6.1										
		Disseminated	Pyrite	6.1										
		Disseminated	Pyrite	6.2										
		Disseminated	Pyrite	6.3										
		Disseminated	Pyrite	6.4										
		Disseminated	Pyrite	6.6										
		Disseminated	Pyrite	6.8										
		Disseminated	Pyrite	6.9										
		Disseminated	Pyrite	7.0										
		Disseminated	Pyrite	7.1										
		Disseminated	Pyrite	7.1										
		Disseminated	Pyrite	7.5										
		Disseminated	Pyrite	7.6										
		Disseminated	Pyrite	7.7										
		Disseminated	Pyrite	9.0										
15	Chaima	Quartz vein	Pyrite	6.7		Liu et al. (2015)	Quartz	16.7	9.8	320	Liu et al. (2015)	Calcite	-6.1	Liu et al. (2015)
		Quartz vein	Pyrite	7.2			Quartz	17.3	10.4	320		Calcite	-6.0	
		Quartz vein	Pyrite	7.5			Quartz	17.7	10.8	320		Calcite	-2.8	
		Quartz vein	Pyrite	7.6			Quartz	18.5	11.6	320		Calcite	-0.7	
		Disseminated	Pyrrhotite	10.4			Quartz	18.8	11.9	320		Calcite	-0.3	
		Disseminated	Pyrite	13.2			Quartz	18.9	12.0	320		Calcite	-0.1	
		Disseminated	Pyrite	13.5			Quartz	19	12.1	320		Calcite	1.6	
		Disseminated	Pyrite	14.3			Quartz	19.1	12.2	320		Calcite	1.6	
		Disseminated	Pyrite	14.5			Quartz	19.1	12.2	320		Calcite	1.7	

No.	Gold deposit	$\delta^{34}\text{S}$ v-CDT (‰)					$\delta^{18}\text{O}$ SMOW (‰)				$\delta^{13}\text{C}$ PDB (‰)			
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
15	Chaima	Disseminated	Pyrite	15.1		Liu et al. (2015)	Quartz	19.2	12.3	320	Liu et al. (2015)	Dolomite	-6.0	Liu et al. (2015)
		Disseminated	Pyrite	15.4			Quartz	19.2	12.3	320		Dolomite	-6.0	
		Disseminated	Pyrite	15.8			Quartz	19.4	12.5	320		Dolomite	-5.1	
		Wallrock	Pyrite	3.3			Quartz	19.7	12.8	320		Dolomite	-4.0	
		Wallrock	Pyrite	12.3								Dolomite	-2.0	
		Wallrock	Pyrite	15.6										
		Wallrock	Pyrite	16.0										
16	Bagua-miao	Quartz vein	Pyrrhotite	2.5	<i>in situ</i>	Cai (2019)	Quartz	16.1	9.2	320	Zhang (2016)	Calcite	-7.1	Zhang (2016)
		Quartz vein	Pyrrhotite	5.2			Quartz	16.8	9.9	320		Calcite	-6.8	
		Quartz vein	Pyrrhotite	6.4			Quartz	17.1	10.2	320		Calcite	-6.2	
		Quartz vein	Pyrrhotite	6.6			Quartz	17.3	10.4	320		Calcite	-6.0	
		Quartz vein	Pyrrhotite	7.2			Quartz	17.6	10.7	320		Calcite	-2.5	
		Quartz vein	Pyrrhotite	7.2			Quartz	17.7	10.8	320		Calcite	-1.7	
		Quartz vein	Pyrrhotite	7.3			Quartz	17.8	10.9	320		Calcite	0.4	
		Quartz vein	Pyrrhotite	7.4			Quartz	17.9	11.0	320		Calcite	2.3	
		Quartz vein	Pyrrhotite	7.4			Quartz	18.2	11.3	320		Calcite	2.4	
		Quartz vein	Pyrrhotite	7.6			Quartz	18.2	11.3	320		Dolomite	-5.3	
		Quartz vein	Pyrrhotite	7.7			Quartz	18.3	11.4	320		Dolomite	-5.0	
		Quartz vein	Pyrrhotite	7.7			Quartz	18.4	11.5	320		Ankerite	-4.3	
		Quartz vein	Pyrrhotite	7.7			Quartz	18.8	11.9	320		Ankerite	-3.5	
		Quartz vein	Pyrrhotite	7.8			Quartz	19.1	12.2	320		Ankerite	0.6	
		Quartz vein	Pyrrhotite	7.9			Quartz	19.2	12.3	320		Ankerite	0.6	
		Quartz vein	Pyrrhotite	7.9			Quartz	19.2	12.3	320		Ankerite	1.5	
		Quartz vein	Pyrrhotite	8.0			Quartz	19.3	12.4	320		Ankerite	-2.33	Zheng et al. (1994)
		Quartz vein	Pyrrhotite	8.0			Quartz	19.3	12.4	320		Ankerite	-2.31	Zheng et al. (1994)
		Quartz vein	Pyrrhotite	8.3			Quartz	19.3	12.4	320		Ankerite	-2.28	

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$				$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$			
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
16	Bagua-miao	Quartz vein	Pyrite	3.0	<i>in situ</i>	Cai (2019)	Quartz	19.4	12.5	320	Zhang (2016)	Ankerite	-2.24	Zheng et al. (1994)
		Quartz vein	Pyrite	3.6	<i>in situ</i>		Quartz	19.4	12.5	320	(2016)	Ankerite	-2.22	
		Quartz vein	Pyrite	3.9	<i>in situ</i>		Quartz	19.6	12.7	320		Ankerite	-2.14	
		Quartz vein	Pyrite	4.0	<i>in situ</i>		Quartz	19.7	12.8	320		Ankerite	-2.01	
		Quartz vein	Pyrite	7.2	<i>in situ</i>		Quartz	20.4	13.5	320		Ankerite	-1.93	
		Quartz vein	Pyrite	7.9	<i>in situ</i>		Quartz	18.3	11.4	320	Feng et al. (2004)	Ankerite	-1.85	
		Quartz vein	Pyrite	8.4	<i>in situ</i>		Quartz	18.8	11.9	320				
		Quartz vein	Pyrite	8.7	<i>in situ</i>		Quartz	19.4	12.5	320				
		Quartz vein	Pyrite	9.2	<i>in situ</i>		Quartz	19.5	12.6	320				
		Quartz vein	Pyrite	9.3	<i>in situ</i>		Quartz	19.5	12.6	320				
		Quartz vein	Pyrite	9.6	<i>in situ</i>		Quartz	19.5	12.6	320				
		Quartz vein	Pyrite	10.1	<i>in situ</i>		Quartz	19.6	12.7	320				
		Disseminated	Pyrrhotite	11.0	<i>in situ</i>		Quartz	19.6	12.7	320				
		Disseminated	Pyrite	11.1	<i>in situ</i>		Quartz	19.6	12.7	320				
		Disseminated	Pyrite	14.0	<i>in situ</i>		Quartz	19.7	12.8	320				
		Disseminated	Pyrite	14.1	<i>in situ</i>		Quartz	19.9	13.0	320				
		Disseminated	Pyrite	14.5	<i>in situ</i>		Quartz	20	13.1	320				
		Disseminated	Pyrite	15.0	<i>in situ</i>		Quartz	20.1	13.2	320				
		Disseminated	Pyrite	15.1	<i>in situ</i>		Quartz	20.1	13.2	320				
		Disseminated	Pyrite	15.3	<i>in situ</i>		Quartz	20.4	13.5	320				
		Disseminated	Pyrite	15.9	<i>in situ</i>		Quartz	20.4	13.5	320				
		Wallrock	Pyrrhotite	11.6	<i>in situ</i>									
		Wallrock	Pyrrhotite	12.0	<i>in situ</i>									
		Wallrock	Pyrrhotite	12.2	<i>in situ</i>									
		Wallrock	Pyrrhotite	12.3	<i>in situ</i>									
		Wallrock	Pyrrhotite	12.3	<i>in situ</i>									
		Wallrock	Pyrrhotite	12.4	<i>in situ</i>									

No.	Gold deposit	$\delta^{34}\text{S}$ v-CDT (‰)					$\delta^{18}\text{O}$ SMOW (‰)					$\delta^{13}\text{C}$ PDB (‰)		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
16	Bagua-miao	Wallrock	Pyrrhotite	12.5	<i>in situ</i>	Cai (2019)								
		Wallrock	Pyrrhotite	12.6	<i>in situ</i>									
		Wallrock	Pyrrhotite	12.8	<i>in situ</i>									
		Wallrock	Pyrrhotite	13.0	<i>in situ</i>									
		Quartz vein	Pyrrhotite	2.9		Zhang (2016)								
		Quartz vein	Pyrrhotite	3.6										
		Quartz vein	Pyrrhotite	4.2										
		Quartz vein	Pyrrhotite	4.5										
		Quartz vein	Pyrrhotite	4.8										
		Quartz vein	Pyrrhotite	5.3										
		Quartz vein	Pyrrhotite	6.2										
		Quartz vein	Pyrrhotite	6.5										
		Quartz vein	Pyrrhotite	7.0										
		Quartz vein	Pyrrhotite	7.8										
		Quartz vein	Pyrrhotite	7.8										
		Quartz vein	Pyrrhotite	8.3										
		Quartz vein	Pyrrhotite	8.6										
		Quartz vein	Pyrrhotite	8.6										
		Quartz vein	Pyrrhotite	9.1										
		Quartz vein	Pyrrhotite	9.7										
		Quartz vein	Pyrite	4.0										
		Quartz vein	Pyrite	4.3										
		Quartz vein	Pyrite	7.6										
		Quartz vein	Pyrite	10.0										
		Quartz vein	Pyrite	10.7										
		Quartz vein	Pyrrhotite	7.4		Wei (2003)								
		Quartz vein	Pyrrhotite	9.3										

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V}-\text{CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
16	Bagua-miao	Quartz vein	Pyrite	6.8		Wei (2003)								
		Quartz vein	Pyrite	8.4										
		Disseminated	Pyrrhotite	15.4										
		Disseminated	Pyrite	14.5										
		Disseminated	Pyrite	15.4										
		Quartz vein	Pyrrhotite	5.82		Wang et al. (1996)								
		Quartz vein	Pyrite	6.80										
		Wallrock	Pyrite	-0.38										
		Wallrock	Pyrite	4.70										
		Wallrock	Pyrite	8.40										
		Wallrock	Pyrite	14.50										
		Disseminated	Pyrrhotite	10.1		Zheng et al. (1994)								
		Disseminated	Pyrrhotite	12.0										
		Disseminated	Pyrrhotite	12.1										
		Disseminated	Pyrrhotite	12.4										
		Disseminated	Pyrrhotite	12.7										
		Disseminated	Pyrrhotite	13.9										
		Disseminated	Pyrite	9.4										
		Disseminated	Pyrite	12.7										
		Disseminated	Pyrite	12.8										
		Disseminated	Pyrite	14.6										
		Quartz vein	Pyrrhotite	8.61		Chen (1992)								
		Quartz vein	Pyrrhotite	8.63										
		Quartz vein	Pyrite	5.03										
		Disseminated	Pyrite	13.56										
		Wallrock	Pyrrhotite	30.52										
		Wallrock	Pyrite	6.41										

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
17	Shuang-wang	Disseminated	Pyrite	2.6	Wang et al. (2015)	Quartz	17.1	10.8	340	Wang et al. (2015)				
		Disseminated	Pyrite	4.4		Quartz	17.5	11.2	340					
		Disseminated	Pyrite	4.4		Quartz	17.8	11.5	340					
		Disseminated	Pyrite	4.8		Quartz	18.2	11.9	340					
		Disseminated	Pyrite	4.8		Quartz	18.4	12.1	340					
		Disseminated	Pyrite	6.5		Quartz	18.6	12.3	340					
		Disseminated	Pyrite	7.1		Quartz	18.8	12.5	340					
		Disseminated	Pyrite	7.4		Quartz	19.3	13.0	340					
		Disseminated	Pyrite	7.6		Quartz	19.5	13.2	340					
		Disseminated	Pyrite	7.8		Quartz	19.6	13.3	340					
		Disseminated	Pyrite	7.9		Quartz	19.6	13.3	340					
		Disseminated	Pyrite	8		Quartz	19.9	13.6	340					
		Disseminated	Pyrite	8.3		Ankerite	15.1	9.9	340	Wang et al. (2015)	Ankerite	-8.1	Wang et al. (2015)	
		Disseminated	Pyrite	8.3		Ankerite	15.4	10.2	340		Ankerite	-7.9		
		Disseminated	Pyrite	8.5		Ankerite	16	10.8	340		Ankerite	-7.8		
		Disseminated	Pyrite	8.7		Ankerite	16.3	11.1	340		Ankerite	-7.5		
		Disseminated	Pyrite	8.7		Ankerite	16.4	11.2	340		Ankerite	-7.4		
		Disseminated	Pyrite	8.7		Ankerite	16.5	11.3	340		Ankerite	-7.3		
		Disseminated	Pyrite	8.75		Ankerite	16.5	11.3	340		Ankerite	-7.2		
		Disseminated	Pyrite	8.8		Ankerite	16.7	11.5	340		Ankerite	-7.2		
		Disseminated	Pyrite	9.3		Ankerite	16.9	11.7	340		Ankerite	-7.1		
		Disseminated	Pyrite	9.3		Ankerite	17.5	12.3	340		Ankerite	-7		
		Disseminated	Pyrite	9.5		Ankerite	17.6	12.4	340		Ankerite	-6.9		
		Disseminated	Pyrite	9.5		Ankerite	17.8	12.6	340		Ankerite	-6.9		
		Disseminated	Pyrite	9.5		Ankerite	17.9	12.7	340		Ankerite	-6.8		
		Disseminated	Pyrite	9.7		Ankerite	17.9	12.7	340		Ankerite	-6.7		

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$				$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$
17	Shuang-wang	Disseminated	Pyrite	9.7	Wang et al. (2015)	Ankerite	17.9	12.7	340	Wang et al. (2015)	Ankerite	-6.5	Wang et al. (2015)
		Disseminated	Pyrite	9.8		Ankerite	18	12.8	340		Ankerite	-6.5	
		Disseminated	Pyrite	10		Ankerite	18.1	12.9	340		Ankerite	-6.4	
		Disseminated	Pyrite	10.5		Ankerite	18.1	12.9	340		Ankerite	-6.3	
		Disseminated	Pyrite	10.5		Ankerite	18.2	13.0	340		Ankerite	-6.3	
		Disseminated	Pyrite	10.5		Ankerite	18.2	13.0	340		Ankerite	-6.2	
		Disseminated	Pyrite	10.8		Ankerite	18.3	13.1	340		Ankerite	-6.2	
		Disseminated	Pyrite	10.8		Ankerite	18.3	13.1	340		Ankerite	-6.2	
		Disseminated	Pyrite	10.8		Ankerite	18.3	13.1	340		Ankerite	-6.2	
		Disseminated	Pyrite	10.8		Ankerite	18.3	13.1	340		Ankerite	-6.2	
		Disseminated	Pyrite	10.8		Ankerite	18.5	13.3	340		Ankerite	-6.1	
		Disseminated	Pyrite	11.2		Ankerite	18.5	13.3	340		Ankerite	-6.1	
		Disseminated	Pyrite	11.3		Ankerite	18.6	13.4	340		Ankerite	-6	
		Disseminated	Pyrite	11.4		Ankerite	18.7	13.5	340		Ankerite	-6	
		Disseminated	Pyrite	11.5		Ankerite	18.7	13.5	340		Ankerite	-5.9	
		Disseminated	Pyrite	11.5		Ankerite	18.7	13.5	340		Ankerite	-5.8	
		Disseminated	Pyrite	11.6		Ankerite	18.7	13.5	340		Ankerite	-5.6	
		Disseminated	Pyrite	11.6		Ankerite	18.8	13.6	340		Ankerite	-5.2	
		Disseminated	Pyrite	11.9		Ankerite	18.8	13.6	340		Ankerite	-5.2	
		Disseminated	Pyrite	12		Ankerite	18.8	13.6	340		Ankerite	-4.7	
		Disseminated	Pyrite	12		Ankerite	19	13.8	340		Ankerite	-4.5	
		Disseminated	Pyrite	12.3		Ankerite	19	13.8	340		Ankerite	-4.4	
		Disseminated	Pyrite	12.9		Ankerite	19	13.8	340		Ankerite	0.7	
		Disseminated	Pyrite	12.9		Ankerite	19.4	14.2	340		Calcite	-6.7	
		Disseminated	Pyrite	13		Ankerite	20.2	15.0	340		Calcite	-4.7	
		Disseminated	Pyrite	13.5		Calcite	13.4	8.2	340		Calcite	-6.4	
		Disseminated	Pyrite	13.8		Calcite	14.2	9.0	340		Calcite	-4.6	

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
17	Shuang-wang	Disseminated	Pyrite	13.9		Wang et al. (2015)	Calcite	14.8	9.6	340	Wang et al. (2015)	Calcite	-0.5	Wang et al. (2015)
		Disseminated	Pyrite	14.8			Calcite	15	9.8	340				
		Disseminated	Pyrite	14.9			Calcite	15.3	10.1	340				
		Wallrock	Pyrite	-6.6										
		Wallrock	Pyrite	-1.7										
		Wallrock	Pyrite	-2.1										
		Wallrock	Pyrite	3.8										
		Wallrock	Pyrite	4.8										
		Wallrock	Pyrite	5.3										
		Wallrock	Pyrite	5.7										
		Wallrock	Pyrite	6.1										
		Wallrock	Pyrite	9.9										
		Wallrock	Pyrite	10.3										
		Wallrock	Pyrite	13.5										
		Wallrock	Pyrite	13.8										
		Wallrock	Pyrite	14.9										
18	Ma'an-qiao	Quartz vein	Pyrite	3.3		Zhu et al. (2009)	Quartz	17.2	9.7	300	Zhu et al. (2009)	Calcite	-7	Zhu et al. (2009)
		Quartz vein	Pyrrhotite	0.6			Quartz	17.3	9.8	300		Calcite	-4.7	
		Quartz vein	Pyrrhotite	1.9			Quartz	18.1	10.6	300		Calcite	1.9	
		Disseminated	Pyrite	0.8			Calcite	14.1	7.8	300		Calcite	0.3	
		Disseminated	Pyrite	2.1			Calcite	15.2	8.9	300				
		Disseminated	Pyrite	2.4			Calcite	15.3	9.0	300				
		Disseminated	Pyrite	2.7			Calcite	16.2	9.9	300				
		Disseminated	Pyrite	4.3										
		Disseminated	Pyrite	4.6										
		Disseminated	Pyrite	6.2										

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
18	Ma'an-qiao	Disseminated	Pyrite	8.4		Zhu et al. (2009)								
		Disseminated	Pyrite	8.4										
		Disseminated	Pyrite	9.3										
		Disseminated	Pyrite	10.0										
		Disseminated	Pyrite	11.2										
		Disseminated	Pyrite	12.3										
		Disseminated	Pyrite	12.6										
		Disseminated	Pyrrhotite	4.4										
		Disseminated	Pyrrhotite	7.7										
		Disseminated	Pyrrhotite	8.6										
		Disseminated	Pyrrhotite	9.8										
		Disseminated	Pyrrhotite	10.6										
19	Qiuling	Disseminated	Pyrite	8.1		Chen et al. (2015)	Quartz	25.1	14.0	220	Shen (1996)	Calcite	-4	Shen (1996)
		Disseminated	Pyrite	15.2			Quartz	25.3	14.2	220		Calcite	-1.9	
		<i>wallrock</i>	<i>Pyrite</i>	-27.1			Calcite	21.8	12.3	220		Calcite	0	
		<i>wallrock</i>	<i>Pyrite</i>	-7.6			Calcite	22.7	13.2	220				
20	Jinlong-shan	<i>wallrock</i>	<i>Pyrite</i>	-4.2	(median=0.7 n=6)	Yang et al. (2012a)	Quartz	25.1	13.5	210	Zhang et al. (2002)	Calcite	-4	Zhang et al. (2002)
		<i>wallrock</i>	<i>Pyrite</i>	3.2			Quartz	25.9	14.3	210		Calcite	1.5	
		Disseminated	Pyrite	11.1	(median=14.0 n=12)		Calcite	22.7	12.8	210				
		Disseminated	Pyrite	19.8			Calcite	24.3	13.9	210				
21	Xiaogouli	Quartz vein	Pyrite	5.16		Kang et al. (2011)	Quartz	17.0	8.3	270	Feng et al. (2004)			
		Quartz vein	Pyrite	13.63			Quartz	19.7	11.0	270				
		<i>Wallrock</i>	<i>Pyrite</i>	-6.15			Quartz	19.7	11.0	270				

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
21	Xiaogouli	Quartz vein	Pyrite	8.3		Feng et al. (2004)	Quartz	20.2	11.5	270	Feng et al. (2004)			
		Quartz vein	Pyrite	8.8			Quartz	20.4	11.7	270				
		Quartz vein	Pyrite	9.9										
		Quartz vein	Pyrite	12.6										
		Quartz vein	Pyrite	14.1										
		Quartz vein	Pyrite	14.6										
		Quartz vein	Arsenopyrite	9.9										
		Quartz vein	Arsenopyrite	11.3										
22	Lu'erba	Disseminated	Pyrite	8.7		Li et al. (2019)	Quartz	18.4	9.7	270	Meng et al. (2007)			
		Disseminated	Pyrite	8.5			Quartz	20.2	11.5	270				
		Disseminated	Pyrite	10.3			Quartz	17.4	8.7	270				
		Disseminated	Pyrite	11.1										
		Disseminated	Arsenopyrite	2.7										
		Disseminated	Arsenopyrite	3.9										
		Disseminated	Arsenopyrite	6.4										
23	La'erma	Disseminated	Pyrite	1.6~		Wang and Cui(1995)	Quartz	16.1	7.0	260	Liu et al. (1998)			
		Disseminated	Pyrite	13.3			Quartz	16.2	7.1	260				
							Quartz	16.3	7.2	260				
							Quartz	17.2	8.1	260				
							Quartz	18.2	9.1	260				
							Quartz	19.4	10.3	260				
							Quartz	19.7	10.6	260	Zhang (1993)			
							Quartz	19.7	10.6	260				
							Quartz	19.8	10.7	260				

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
23	La'erma						Quartz	20	10.9	260	Zhang (1993)			
							Quartz	20.1	11.0	260				
							Quartz	20.1	11.0	260				
							Quartz	20.4	11.3	260				
							Quartz	20.6	11.5	260				
							Quartz	20.9	11.8	260				
							Quartz	21.2	12.1	260				
							Quartz	21.4	12.3	260				
							Quartz	21.5	12.4	260				
							Quartz	22	12.9	260				
							Quartz	22.2	13.1	260				
							Quartz	22.8	13.7	260				
							Quartz	23.4	14.3	260				
							Quartz	23.8	14.7	260				
							Quartz	23.9	14.8	260				
							Quartz	24.2	15.1	260				
24	Qiongmo						Quartz	16.05	7.4	270	Zheng et al. (1994)			
							Quartz	16.25	7.6	270				
							Quartz	19.4	10.7	270				
							Quartz	21.2	12.5	270				
							Quartz	23.4	14.7	270				
25	Daqiao	Disseminated	Pyrite	-9.9	<i>in situ</i>	Wu et al. (2018b)	Ore silica	12.8	5.6	310	Liu et al. (2018)			
		Disseminated	Pyrite	-9.8	<i>in situ</i>		Ore silica	12.9	5.7	310				
		Disseminated	Pyrite	-9.3	<i>in situ</i>		Ore silica	13	5.8	310				

No.	Gold deposit	$\delta^{34}\text{S}$ v-CDT (‰)					$\delta^{18}\text{O}$ SMOW (‰)					$\delta^{13}\text{C}$ PDB (‰)		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
25	Daqiao	Disseminated	Pyrite	-9.1	<i>in situ</i>	Wu et al. (2018b)	Ore silica	13.2	6.0	310	Liu et al. (2018)			
		Disseminated	Pyrite	-7.9	<i>in situ</i>		Ore silica	13.3	6.1	310				
		Disseminated	Pyrite	-7.5	<i>in situ</i>		Ore silica	13.4	6.2	310				
		Disseminated	Pyrite	-6.2	<i>in situ</i>		Ore silica	14.1	6.9	310				
		Disseminated	Pyrite	-5.8	<i>in situ</i>		Ore silica	14.1	6.9	310				
		Disseminated	Pyrite	-5.5	<i>in situ</i>		Ore silica	14.4	7.2	310				
		Disseminated	Pyrite	-5.2	<i>in situ</i>		Ore silica	17.9	10.7	310				
		Disseminated	Pyrite	-4.8	<i>in situ</i>									
		Disseminated	Pyrite	-3.5	<i>in situ</i>									
		Disseminated	Pyrite	-3.1	<i>in situ</i>									
		Disseminated	Pyrite	-2.2	<i>in situ</i>									
		Disseminated	Pyrite	-0.7	<i>in situ</i>									
		Disseminated	Pyrite	0.4	<i>in situ</i>									
		Disseminated	Pyrite	0.5	<i>in situ</i>									
		Disseminated	Pyrite	1.2	<i>in situ</i>									
		Disseminated	Pyrite	1.4	<i>in situ</i>									
		Disseminated	Pyrite	2.1	<i>in situ</i>									
		Disseminated	Pyrite	2.3	<i>in situ</i>									
		Disseminated	Pyrite	2.7	<i>in situ</i>									
		Disseminated	Pyrite	3	<i>in situ</i>									
		Disseminated	Pyrite	3.2	<i>in situ</i>									
		Disseminated	Pyrite	3.3	<i>in situ</i>									
		Disseminated	Pyrite	3.3	<i>in situ</i>									
		Disseminated	Pyrite	3.6	<i>in situ</i>									
		Disseminated	Pyrite	3.8	<i>in situ</i>									
		Disseminated	Pyrite	4	<i>in situ</i>									
		Disseminated	Pyrite	4.1	<i>in situ</i>									

No.	Gold deposit	$\delta^{34}\text{S}$ v-CDT (‰)					$\delta^{18}\text{O}$ SMOW (‰)					$\delta^{13}\text{C}$ PDB (‰)		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
25	Daqiao	Disseminated	Pyrite	4.4	<i>in situ</i>	Wu et al. (2018b)								
		Disseminated	Pyrite	4.5	<i>in situ</i>									
		Disseminated	Pyrite	4.6	<i>in situ</i>									
		Disseminated	Pyrite	4.7	<i>in situ</i>									
		Disseminated	Pyrite	5.1	<i>in situ</i>									
		Disseminated	Pyrite	5.7	<i>in situ</i>									
		Disseminated	Pyrite	6.2	<i>in situ</i>									
		Disseminated	Pyrite	6.5	<i>in situ</i>									
		Disseminated	Pyrite	6.6	<i>in situ</i>									
		Disseminated	Pyrite	7	<i>in situ</i>									
		Disseminated	Pyrite	7.9	<i>in situ</i>									
		Disseminated	Pyrite	7.9	<i>in situ</i>									
		Disseminated	Pyrite	8.3	<i>in situ</i>									
		Disseminated	Pyrite	8.7	<i>in situ</i>									
27	Manaoke	Disseminated	Pyrite	17.05	<i>in situ</i> , core	Li (2018)	Quartz	19.6	7.3	200	Wang et al. (2001)	Calcite	-2.62	Chen et al. 2012
		Disseminated	Pyrite	18.79	<i>in situ</i> , core		Quartz	21.5	9.2	200		Calcite	-1.43	
		Disseminated	Pyrite	18.93	<i>in situ</i> , core		Quartz	22.0	9.7	200		Calcite	-1.14	
		Disseminated	Pyrite	19.10	<i>in situ</i> , core		Quartz	22.5	10.2	200		Calcite	-0.84	
		Disseminated	Pyrite	20.50	<i>in situ</i> , core		Quartz	23.5	11.2	200		Calcite	-0.78	
		Disseminated	Pyrite	20.80	<i>in situ</i> , core		Calcite	17.64	7.3	200	Chen (2012)	Calcite	-0.71	
		Disseminated	Pyrite	21.18	<i>in situ</i> , core		Calcite	17.68	7.3	200		Calcite	-0.69	
		Disseminated	Pyrite	21.71	<i>in situ</i> , core		Calcite	18.78	8.4	200		Calcite	-0.55	
		Disseminated	Pyrite	22.90	<i>in situ</i> , core		Calcite	19.03	8.6	200		Calcite	-0.21	
		Disseminated	Pyrite	23.70	<i>in situ</i> , core		Calcite	19.09	8.7	200		Calcite	0.06	
		Disseminated	Pyrite	24.20	<i>in situ</i> , core		Calcite	19.18	8.8	200		Calcite	0.08	
		Disseminated	Pyrite	26.35	<i>in situ</i> , core		Calcite	19.2	8.8	200		Calcite	0.09	

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$				$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$			
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
27	Manaoke	Disseminated	Pyrite	26.45	<i>in situ</i> , core	Li (2018)	Calcite	19.23	8.8	200	Chen (2012)	Calcite	0.12	Chen et al. 2012
		Disseminated	Pyrite	-29.63	Anomalous		Calcite	19.46	9.1	200		Calcite	0.13	
		Disseminated	Pyrite	-1.88	<i>in situ</i> , rim		Calcite	19.59	9.2	200		Calcite	0.20	
		Disseminated	Pyrite	0.41	<i>in situ</i> , rim		Calcite	19.63	9.2	200		Calcite	0.21	
		Disseminated	Pyrite	3.67	<i>in situ</i> , rim		Calcite	19.63	9.2	200		Calcite	0.23	
		Disseminated	Pyrite	4.91	<i>in situ</i> , rim		Calcite	19.68	9.3	200		Calcite	0.50	
							Calcite	19.76	9.4	200		Calcite	0.79	
							Calcite	19.88	9.5	200		Calcite	0.87	
							Calcite	19.91	9.5	200				
							Calcite	19.98	9.6	200				
							Calcite	19.99	9.6	200				
							Calcite	20.04	9.7	200				
							Calcite	20.35	10.0	200				
28	Hua-changgou	Quartz vein	Pyrite	-8.3		Liu et al. (2016)	Quartz	16.8	9.3	300	Liu et al. (2016)	Calcite	-2.76	Liu et al. (2016)
		Quartz vein	Pyrite	-8.0			Quartz	17.3	9.8	300		Calcite	-2.64	
		Quartz vein	Pyrite	-3.0			Quartz	17.6	10.1	300		Calcite	-2.42	
		Quartz vein	Pyrite	-0.7			Quartz	17.7	10.2	300		Calcite	-2.39	
		Quartz vein	Pyrite	-0.6			Quartz	17.9	10.4	300		Calcite	-2.20	
		Quartz vein	Pyrite	-0.5			Quartz	18.0	10.5	300		Calcite	-1.68	
		Quartz vein	Pyrite	0.8			Quartz	18.1	10.6	300		Calcite	-1.60	
		Disseminated	Pyrite	-3.1			Quartz	18.2	10.7	300		Calcite	-1.52	
		Disseminated	Pyrite	-2.4			Quartz	18.5	11.0	300		Calcite	-1.49	
		Disseminated	Pyrite	-1.8			Quartz	18.5	11.0	300		Calcite	-1.18	
		Disseminated	Pyrite	-1.2			Quartz	18.6	11.1	300		Calcite	-0.37	
		Disseminated	Pyrite	-0.6			Quartz	19.1	11.6	300		Calcite	-0.24	

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
28	Hua-changgou	Disseminated	Pyrite	0.3		Liu et al. (2016)	Quartz	20.0	12.5	300	Liu et al. (2016)			
		Disseminated	Pyrite	0.4			Quartz	20.1	12.6	300				
		Disseminated	Pyrite	-2.74		Feng (2000)	Quartz	20.4	12.9	300				
		Disseminated	Pyrite	-1.06										
		Disseminated	Pyrite	-0.30										
		Disseminated	Pyrite	0.60										
		Disseminated	Pyrite	1.00										
		Disseminated	Pyrite	1.30										
		Disseminated	Pyrite	1.40										
		Disseminated	Pyrite	1.51										
		Disseminated	Pyrite	2.00										
		Disseminated	Pyrite	3.09										
29	Tangba	Quartz vein		-1.9		Ma et al. (2020)	Quartz	16.4	8.1	280				
		Quartz vein		-1.3			Quartz	16.9	8.6	280				
		Quartz vein		-0.2			Quartz	17.2	8.9	280				
		Quartz vein		0.4			Quartz	17.5	9.2	280				
		Quartz vein		0.8			Quartz	18	9.7	280				
		Quartz vein		3.2										
		Quartz vein		4.2										
		Quartz vein		4.5										
		Quartz vein		5.4										
		Quartz vein		8										

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$			
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference	
30	Jiancha-ling	Disseminated	Pyrrhotite	8.2		Yue et al. (2018)	Quartz	14.0	7.4	330	Yue et al. (2018)	Dolomite	-4.4	Yue et al. (2018)	
		Disseminated	Pyrite	6.3			Quartz	16.6	10.0	330		Dolomite	-0.3		
		Disseminated	Pyrite	8.5			Quartz	17.0	10.4	330		Dolomite	0.6		
		Disseminated	Pyrite	8.7			Quartz	17.3	10.7	330		Calcite	-2.9	Yue et al. (2013)	
		Disseminated	Pyrite	10.0	Yue et al. (2013)		Dolomite	18.9	13.3	330		Calcite	-1.7		
		Disseminated	Pyrite	10.8			Dolomite	19.1	13.5	330		Calcite	-0.6		
		Disseminated	Pyrite	11.3			Calcite	16.5	10.9	330		Dolomite	-4.4		
		Disseminated	Pyrite	13.2			Calcite	17.0	11.4	330		Dolomite	-4.1		
		Disseminated	Pyrite	14.3			Calcite	19.0	13.4	330		Dolomite	-1.6		
		Disseminated	Pyrite	14.3			Dolomite	11.9	6.3	330		Dolomite	-1.2		
		Disseminated	Pyrite	15.3			Dolomite	13.1	7.5	330		Dolomite	-1.1		
		Disseminated	Pyrite	15.4			Dolomite	13.8	8.2	330		Dolomite	-0.4		
		Wallrock	Pyrrhotite	10.5			Dolomite	13.8	8.2	330		Dolomite	0.6		
		Wallrock	Pyrrhotite	16.5			Dolomite	14.6	9.0	330		Dolomite	1.6		
		Wallrock	Pyrrhotite	18.6			Dolomite	14.8	9.2	330		Dolomite	2.2		
		Wallrock	Pyrite	5.4			Dolomite	14.9	9.3	330					
		Wallrock	Pyrite	10.3			Dolomite	16.4	10.8	330					
		Wallrock	Pyrite	10.6			Dolomite	17.5	11.9	330					
		Wallrock	Pyrite	12.5		Liu HL (2017)	Quartz	16.3	9.7	330					
		Wallrock	Pyrite	15.0											
		Wallrock	Pyrite	16.4											
		Wallrock	Pyrite	18.5											
32	Dashui	Disseminated	Pyrite	2.4		Liu HL (2017)	Calcite	18.4	8.0	200	Liu HL (2017)	Calcite	-1.4	Liu HL (2017)	
		Disseminated	Pyrite	4.0			Calcite	19.2	8.8	200		Calcite	-0.6		

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
32	Dashui	Disseminated	Arsenopyrite	-0.7		Liu HL (2017)	Calcite	19.5	9.1	200	Liu HL (2017)	Calcite	0.4	Liu HL (2017)
		Disseminated	Arsenopyrite	1.4			Calcite	19.6	9.2	200		Calcite	0.8	
		Disseminated	Pyrite	-1.8		Han et al. (2004)	Calcite	19.6	9.2	200		Calcite	1.7	
		Disseminated	Pyrite	1.6			Calcite	16.58	6.2	200	Yang (2015)	Calcite	-2.1	Yang (2015)
		Disseminated	Pyrite	1.8			Calcite	16.88	6.5	200		Calcite	-0.8	
		Disseminated	Pyrite	2.1			Calcite	17.4	7.0	200		Calcite	-0.5	
		Disseminated	Pyrite	2.1			Calcite	18.64	8.3	200		Calcite	0.1	
		Disseminated	Pyrite	2.2			Calcite	19.26	8.9	200		Calcite	0.3	
		Disseminated	Pyrite	2.8			Calcite	19.56	9.2	200		Calcite	0.7	
		Disseminated	Pyrite	2.8			Calcite	19.77	9.4	200		Calcite	0.8	
		Disseminated	Pyrite	3.1			Calcite	20.8	10.4	200		Calcite	1.9	
		Disseminated	Pyrite	3.2										
		Disseminated	Pyrite	3.4										
		Disseminated	Pyrite	3.8										
		Disseminated	Pyrite	4.1										
33	Yangshan	Disseminated	Pyrite	-2.1	Group 1	Yang et al. (2016)	Quartz	15.9	6.4	250	Yang et al. (2016)	Qt FLINC	-3.9	Yang et al. (2016)
		Disseminated	Pyrite	-2.1	Group 1		Quartz	17.0	7.5	250		Qt FLINC	-3.8	
		Disseminated	Pyrite	-1.7	Group 1		Quartz	17.6	8.1	250		Qt FLINC	-3.8	
		Disseminated	Pyrite	-1.6	Group 1		Quartz	18.1	8.6	250		Qt FLINC	-3.7	
		Disseminated	Pyrite	-0.7	Group 1		Quartz	18.3	8.8	250		Qt FLINC	-3.7	
		Disseminated	Pyrite	-0.3	Group 1		Quartz	18.4	8.9	250		Qt FLINC	-3.6	
		Disseminated	Pyrite	0.7	Group 1		Quartz	18.5	9.0	250		Qt FLINC	-3.6	
		Disseminated	Pyrite	0.8	Group 1		Quartz	18.8	9.3	250		Qt FLINC	-3.6	
		Disseminated	Pyrite	1.2	Group 1		Quartz	19.2	9.7	250		Qt FLINC	-3.4	
		Disseminated	Arsenopyrite	-4.2	Group 1		Quartz	19.3	9.8	250		Qt FLINC	-3.3	
		Disseminated	Arsenopyrite	-3.7	Group 1		Quartz	19.5	10.0	250		Qt FLINC	-2.6	

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V-CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
33	Yangshan	Disseminated	Arsenopyrite	-2.5	Group 1	Yang et al. (2016)	Quartz	19.7	10.2	250	Yang et al. (2016)	Qt FLINC	-2.5	Yang et al. (2016)
		Disseminated	Arsenopyrite	-1.7	Group 1		Quartz	20	10.5	250				
		Disseminated	Arsenopyrite	-1.4	Group 1		Quartz	21	11.5	250				
		Disseminated	Arsenopyrite	-1.3	Group 1		Quartz	21.1	11.6	250				
		Disseminated	Arsenopyrite	-0.7	Group 1		Quartz	21.5	12.0	250				
		Disseminated	Arsenopyrite	-0.5	Group 1									
		Disseminated	Arsenopyrite	0.0	Group 1									
		Disseminated	Arsenopyrite	0.1	Group 1									
		Disseminated	Arsenopyrite	0.1	Group 1									
		Disseminated	Arsenopyrite	1.4	Group 1									
		Disseminated	Arsenopyrite	1.5	Group 1									
		Disseminated	Arsenopyrite	2.0	Group 1									
		Disseminated	Arsenopyrite	3.0	Group 1									
		Wallrock	Pyrite	7.6	Group 2									
		Wallrock	Pyrite	12.5	Group 2	Yang (2006)								
		Wallrock	Pyrite	15.3	Group 2									
		Wallrock	Pyrite	17.5	Group 2									
		Wallrock	Pyrite	10.9	Group 2	Luo et al. (2004)								
		Wallrock	Pyrite	10.1	Group 2	Yan et al. (2010)								
34	Chang-pinggou	Quartz vein	Pyrite	2.5		Zhao (2013)	Quartz	17.1	7.6	250	Zhao (2013)			
		Quartz vein	Pyrite	2.9			Quartz	17.1	7.6	250				
		Quartz vein	Pyrite	3.0			Quartz	17.8	8.3	250				
		Quartz vein	Pyrite	4.2			Quartz	18.9	9.4	250				
							Quartz	19.3	9.8	250				
							Quartz	20.4	10.9	250				

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V}-\text{CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
35	Chang-gou	Quartz vein	Pyrite	1.4		Wang et al. (2016)	Quartz	11.9	5.0	320	Wang et al. (2016)			
36	Yangping wan	Quartz vein	Pyrite	8.9		Ren et al. (2015)	Quartz	14.5	8.2	340	Yang et al. (2016)			
		Quartz vein	Pyrite	11.7			Quartz	14.6	8.3	340				
		Quartz vein	Pyrrhotite	7.5			Quartz	17.8	11.5	340				
		Quartz vein	Pyrrhotite	11.3			Quartz	18	11.7	340				
							Quartz	12.5	6.2	340	Ren et al. (2015)			
38	Dongbei-zhai	Disseminated	Pyrite	-4.4		Zheng et al. (1992)	Quartz	20.5	6.8	180	Zheng et al. (1992)	Calcite	-4.7	Zheng et al. (1992)
		Disseminated	Pyrite	-4.3			Quartz	21.5	7.8	180		Calcite	-3.6	
		Disseminated	Pyrite	-4.2			Quartz	21.7	8.0	180		Calcite	-3.6	
		Disseminated	Pyrite	-4.1			Quartz	24	10.3	180		Calcite	-3.4	
		Disseminated	Pyrite	-3.3			Calcite	15.1	3.5	180		Calcite	-3.4	
		Disseminated	Pyrite	0.3			Calcite	15.9	4.3	180		Calcite	-2.3	
		Disseminated	Pyrite	1.9			Calcite	18.1	6.5	180		Calcite	-2.3	
		Disseminated	Pyrite	2.7			Calcite	18.3	6.7	180		Calcite	-2	
		Disseminated	Pyrite	2.7			Calcite	18.9	7.3	180		Calcite	-1.5	
		Disseminated	Pyrite	2.8			Calcite	19.2	7.1	180		Calcite	-1.4	
		Disseminated	Pyrite	6.3			Calcite	19.2	6.6	180		Calcite	-1.3	
		Wallrock	Pyrite	-1.9			Calcite	21.9	9.3	180		Calcite	-1.2	
		Wallrock	Pyrite	2.9			Calcite	22	9.4	180		Calcite	-1.1	
		Wallrock	Pyrite	3			Calcite	23	10.4	180		Calcite	-1	
		Wallrock	Pyrite	3.1			Calcite	23.1	10.5	180		Calcite	-0.9	
							Calcite	23.1	10.5	180		Calcite	-0.3	
							Calcite	23.2	10.6	180		Calcite	0.6	

No.	Gold deposit	$\delta^{34}\text{S}_{\text{V}-\text{CDT}} (\text{\textperthousand})$					$\delta^{18}\text{O}_{\text{SMOW}} (\text{\textperthousand})$					$\delta^{13}\text{C}_{\text{PDB}} (\text{\textperthousand})$		
		Ore type /wallrock	Mineral	$\delta^{34}\text{S}$	Note	Reference	Mineral	$\delta^{18}\text{O}_{\text{mineral}}$	$\delta^{18}\text{O}_{\text{H}_2\text{O}}$	T(°C)	Reference	Mineral	$\delta^{13}\text{C}$	Reference
38	Dongbei-zhai						Calcite	23.5	10.9	180	Zheng et al. (1992)	Calcite	2	Zheng et al. (1992)
							Calcite	24	11.4	180		Calcite	2.2	
							Calcite	24.2	11.6	180		Calcite	2.4	
							Calcite	24.7	12.1	180		Calcite	2.7	
							Calcite	24.9	12.3	180		Calcite	2.7	
							Calcite	25.1	12.5	180				
							Calcite	25.2	12.6	180				
							Calcite	26.2	13.6	180				
							Calcite	27.2	14.6	180				
							Calcite	23.2	10.6	180				
							Calcite	23.5	10.9	180				
							Calcite	25.1	12.5	180				
							Calcite	25.2	12.6	180				
39	Qiaoqiao-shang	Disseminated	Pyrite	-7		Yang et al. (2012)	Calcite	14.5	6.2	230	Yang et al. (2012)	Calcite	-0.4	Yang et al. (2012)
		Disseminated	Pyrite	4			Calcite	18.6	10.2	230		Calcite	-0.2	
40	Qingmu-chuan	Quartz vein		-4.1		Liao (2011)								
		Quartz vein		-0.2										
		Disseminated		-4.1										
		Disseminated		-3.7										
		Disseminated		-3.5										
		Disseminated		-2.2										
		<i>wallrock</i>		-3.1										
		<i>wallrock</i>		-2.8										
		<i>wallrock</i>		-2.7										
		<i>wallrock</i>		0.1										

Note: Qt FLINC means quartz fluid inclusion.

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