

Table S4 Sulfur isotopic compositions of coexisting sulfide mineral phases in seafloor hydrothermal sulfide samples from the Iheya North hydrothermal fields, and corresponding temperature (°C) calculated by geothermometers based on equilibrium sulfur isotope fractionation factors (A) of sulfides with respect to H₂S (after Ohmoto and Rye, 1979).

H2-R1-2-a4				
Sample	Minerals	$\delta^{34}\text{S}_{\text{v-CDT}} (\text{\textperthousand})$	A	Temperature (°C)
10-4	pyrite	10.32	0.30	248
10-1	sphalerite	9.21		
H2-R1-2-b3				
Sample	Minerals	$\delta^{34}\text{S}_{\text{v-CDT}} (\text{\textperthousand})$	A	Temperature (°C)
19-1	pyrite	11.33	0.30	317
19-10	sphalerite	10.47		
19-10	sphalerite	10.47	0.15	273
19-11	chalcopyrite	8.46		
13-2	sphalerite	9.27	0.73	291
13-3	galena	7.05		
8-1	pyrite	10.59		

8-10	sphalerite	9.58	0.30	274
17-4	sphalerite	10.44	0.15	333
17-2	chalcopyrite	9.09		
Sample	H2-R1-2-d4			
Points	Minerals	$\delta^{34}\text{S}_{\text{v-CDT}} (\text{\textperthousand})$	A	Temperature (°C)
4-1	pyrite	11.04	0.30	253
4-6	sphalerite	9.95		
5-10	sphalerite	10.04	0.15	299
5-5	chalcopyrite	9.57		

Equation of sulfur isotope geothermometer is: $1000\ln\alpha = A/T^2 = \delta^{34}\text{S}_X - \delta^{34}\text{S}_Y$. $\delta^{34}\text{S}_X$ and $\delta^{34}\text{S}_Y$ are the $\delta^{34}\text{S}_{\text{v-CDT}}$ value of coexisting sulfide minerals.