

1 *Supplement of*

2 **Formation and origin of Fe-Si oxyhydroxide deposits at the ultra-slow spreading**  
3 **Southwest Indian Ridge**

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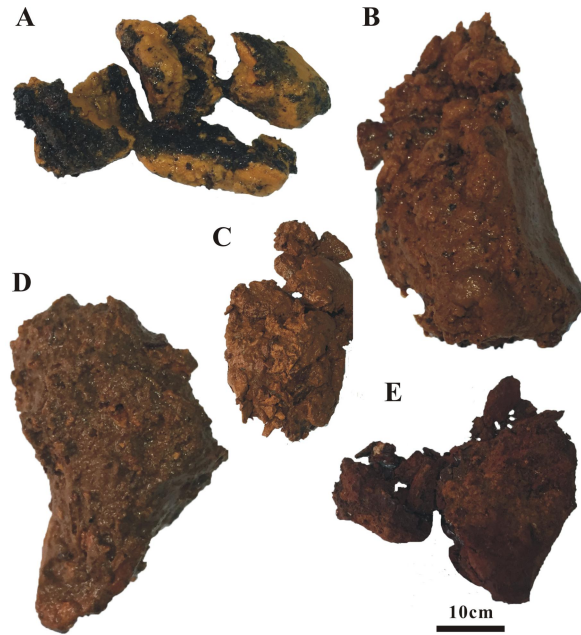
18 Supplementary Figure S1: Hydrothermal Fe-Si deposits were recovered from the  
19 ultra-slow spreading SWIR. (a) DIV95, (b) 21V-T7, (c) 21V-T1, (d) 20V-T8, (e)  
20 34II-T22.

21 Supplementary Figure S2: XRD patterns of hydrothermal Fe-Si deposits at the SWIR.  
22 S1-S6 showing samples DIV95-1, DIV95-2, 34II-T22, 21V-T7, 21V-T1, 20V-T8,  
23 respectively.

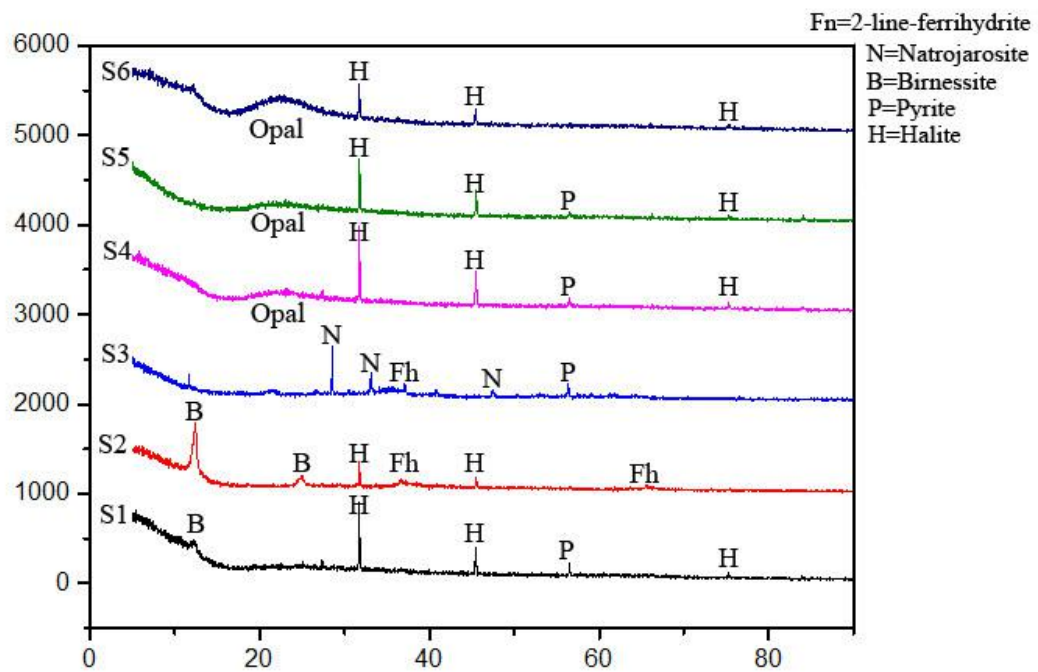
24 Supplementary Table S1: Investigated hydrothermal Fe-Si deposits from the SWIR.

25 Supplementary Table S2: . Sequential extraction procedure of iron speciation studies  
26 and targeted minerals.

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Supplementary Figure S1. Hydrothermal Fe-Si deposits were recovered from the ultra-slow spreading SWIR. (a) DIV95, (b) 21V-T7, (c) 21V-T1, (d) 20V-T8, (e) 34II-T22.



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65 Supplementary Table S1. Investigated hydrothermal Fe-Si deposits from the SWIR.

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<b>Sample#</b>	<b>Latitude (E)</b>	<b>Longitude (N)</b>	<b>Depth (m)</b>	<b>Hand sample description</b>
DIV95-1	49.6482°	37.7794°	2764.3	Orange-yellowish layer of deposits collected by Jiaolong human occupied vehicle (HOV) during the cruise of XYH09 in Feb 2015
DIV95-2	49.6482°	37.7794°	2764.3	Black layer of deposits collected by Jiaolong HOV during the cruise of XYH09 in Feb 2015
34II-T22	49.2580°	37.9425°	1499	Purple-red deposits collected by a TV-grabber during the cruise of R/V DaYang One in Jan 2015
21V-T1	49.3888°	37.4697°	2784	Yellowish deposits collected by a TV-grabber during the cruise of R/V DaYang One in Jan 2010
21V-T7	49.3894°	37.4699°	2746	Brown deposits containing volcanic glass shards collected by a TV-grabber during the cruise of R/V DaYang One in Jan 2010
20V-T8	50.2803°	37.3952°	1740	Brown deposits collected by a TV-grabber during the cruise of R/V DaYang One in Nov 2008

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80 Supplementary Table S2. Sequential extraction procedure of iron speciation studies  
81 and targeted minerals.

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	<b>Pool</b>	<b>Extraction Agent</b>	<b>Fe Fractions</b>
1	Fe <sub>carb</sub>	25 mL, 1 M Na-acetate, pH 4.5, 24 h 50 °C	Carbonate iron and siderite
2	Fe <sub>ox1</sub>	25 mL, 1 M hydroxylamine-HCl, 48 h	Poorly crystalline Fe (oxyhydr)oxides, ferrihydrite and lepidocrocite
3	Fe <sub>ox2</sub>	25 mL, 0.28 M Na-dithionite, pH 4.8, 2 h	Goethite, hematite, and akaganeite
4	Fe <sub>PRS</sub>	30mL, 12M HCl, 1 min boiling	Poorly reactive sheet silicate iron

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