Supplementary material:

1- Tables:

Carbon (carbonates) isotopic composition (see ref [64])

Carbon (organic matter and kerogen) isotopic composition

References	Age (Ma)	$\delta^{13}C_{org}$ (‰)
[36]	3850	-49.0
[36]	3850	-37.0
[36]	3850	-21.0
[36]	3800	-35.0
[36]	3800	-30.0
[36]	3800	-24.0
[67]	3800	-12.0
[67]	3800	-10.0
[51]	3779	-19.1
[51]	3779	-19.1
[51]	3779	-18.8
[51]	3779	-14.1
[51]	3779	-20.2
[51]	3779	-12.6
[51]	3779	-11.4
[20]. [21]	3700	-22.2
[20]. [21]	3700	-21.6
[20]. [21]	3700	-9.2
[20]. [21]	3700	-22.2
[20]. [21]	3700	-14.4
[20]. [21]	3700	-9.0
[20]. [21]	3700	-24.9
[20]. [21]	3700	-13.4
[20]. [21]	3700	-18.7
[20]. [21]	3700	-16.8
[20]. [21]	3700	-12.4
[20]. [21]	3700	-5.9
[20]. [21]	3700	-8.3
[20]. [21]	3700	-10.3
[20]. [21]	3700	-9.3
[20]. [21]	3700	-10.7
[20]. [21]	3700	-12.5
[20]. [21]	3700	-13.6
[20]. [21]	3700	-15.3
[20]. [21]	3700	-16.0
[20]. [21]	3700	-9.8
[20]. [21]	3700	-12.0
[20]. [21]	3700	-14.3
[20]. [21]	3700	-19.3
[20]. [21]	3700	-28.2
[20]. [21]	3700	-16.6
[20]. [21]	3700	-16.1
[20]. [21]	3700	-20.0
[20]. [21]	3700	-21.6
[20]. [21]	3700	-16.6
[63]. [64]	3550	-16.3

[63]. [64]	3550	-14.6
[20]. [21]	3550	-19.5
[20]. [21]	3550	-15.5
[20]. [21]	3550	-15.1
[20]. [21]	3550	-15.2
[20]. [21]	3550	-15.2
[20]. [21]	3550	-12.7
[16]	3458	-25.1
[16]	3458	-22.7
[16]	3458	-23.6
[63]. [64]	3450	-37.7
[63]. [64]	3450	-32.4
[63]. [64]	3450	-36.7
[63]. [64]	3450	-38.6
[63]. [64]	3450	-34.6
[20]. [21]	3450	-28.8
[20]. [21]	3450	-28.4
[20]. [21]	3450	-32.1
[20]. [21]	3450	-32.9
[20]. [21]	3450	-31.3
[20]. [21]	3450	-34.2
[20]. [21]	3450	-26.8
[63]. [64]	3435	-18.1
[63]. [64]	3435	-36.9
[63]. [64]	3435	-28.7
[63]. [64]	3435	-31.7
[63]. [64]	3435	-29.7
[63]. [64]	3435	-33.2
[63]. [64]	3435	-33.2
[63]. [64]	3435	-33.6
[63]. [64]	3435	-32.1
[20]. [21]	3435	-34.2
[20]. [21]	3435	-31.2
[20]. [21]	3435	-33.4
[20]. [21]	3435	-34.9
[20]. [21]	3435	-29.4
[20]. [21]	3435	-25.5
[20]. [21]	3435	-24.0
[20]. [21]	3435	-29.6
[20]. [21]	3435	-33.0
[20]. [21]	3435	-36.8
[20]. [21]	3435	-34.7
[34]	3400	-26.4
[39]	3400	-28.7
[63]. [64]	3400	-30.0
[63]. [64]	3400	-22.5
[63]. [64]	3400	-28.6
[20]. [21]	3400	-29.8
[20]. [21]	3400	-37.1
[16]	3375	-26.4
[16]	3375	-14.0
[63]. [64]	3350	-30.2
[63]. [64]	3350	-28.5
[63]. [64]	3350	-27.0
[63]. [64]	3350	-28.5
[63]. [64]	3350	-27.7

[63]. [64]	3350	-26.9
[63]. [64]	3350	-32.0
[63]. [64]	3350	-35.4
[20]. [21]	3350	-28.7
[20]. [21]	3350	-28.0
[20]. [21]	3350	-26.8
[20]. [21]	3350	-25.9
[20]. [21]	3350	-28.6
[20]. [21]	3350	-29.5
[20]. [21]	3350	-28.3
[20]. [21]	3350	-26.9
[20]. [21]	3350	-27.5
[20]. [21]	3350	-31.5
[20]. [21]	3350	-26.1
[20]. [21]	3350	-24.3
[20]. [21]	3350	-32.5
[20]. [21]	3350	-32.8
[20]. [21]	3350	-30.4
[20]. [21]	3350	-28.0
[20]. [21]	3350	-28.7
[12]	3300	-24.7
[12]	3300	-30.7
[12]	3300	-18.7
[34]	3300	-27.6
[39]	3300	-16.5
[63]. [64]	3300	-26.3
[63]. [64]	3300	-28.6
[63]. [64]	3300	-30.9
[63]. [64]	3300	-30.5
[63]. [64]	3300	-26.2
[63]. [64]	3300	-33.9
[63]. [64]	3300	-30.4
[63]. [64]	3300	-33.5
[63]. [64]	3300	-32.9
[63]. [64]	3300	-36.5
[63]. [64]	3300	-28.7
[20]. [21]	3300	-33.0
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[20]. [21]	3300	-30.6
[20]. [21]	3300	-26.1
[20]. [21]	3300	-26.2
[20]. [21]	3300	-26.1
[20]. [21]	3300	-32.4
[20]. [21]	3300	-27.1
[20]. [21]	3300	-31.5
[20]. [21]	3300	-28.8
[20]. [21]	3300	-25.2
[20]. [21]	3300	-26.3
[20]. [21]	3300	-37.0
[20]. [21]	3300	-26.1
[20]. [21]	3300	-26.4
[20]. [21]	3300	-14.8
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[36]	3250	-26.0
[36]	3250	-20.0
[50]	3235	-30.9

[50]	3235	-30.9
[50]	3235	-31.2
[50]	3235	-33.3
[50]	3235	-31.0
[50]	3235	-29.3
[50]	3235	-36.9
[63]. [64]	3200	-29.8
[20]. [21]	3200	-27.6
[20]. [21]	3200	-30.1
[20]. [21]	3200	-31.5
[20]. [21]	3200	-31.8
[20]. [21]	3200	-27.9
[71]	3000	-31.3
[63]. [64]	3000	-17.8
[63]. [64]	3000	-28.1
[20]. [21]	3000	-13.1
[20]. [21]	3000	-14.0
[20]. [21]	3000	-16.8
[20]. [21]	3000	-16.6
[20]. [21]	3000	-18.3
[20]. [21]	3000	-16.3
[20]. [21]	3000	-24.4
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[20]. [21]	3000	-25.6
[38]	2900	-24.2
[71]	2900	-31.5
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[71]	2800	-26.2
[71]	2800	-26.4
[71]	2800	-26.6
[71]	2800	-31.7
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[53]	2765	-51.0
[71]	2750	-31.7
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[13]	2720	-45.6
[13]	2720	-48.7
[13]	2720	-43.4
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[61]	2720	-44.1
[61]	2720	-42.5
[61]	2720	-23.8
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[13]	2720	-52.7
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[20]. [21]	2720	-50.6
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[20]. [21]	2720	-47.9
[20]. [21]	2720	-44.6
[20]. [21]	2720	-48.7
[20]. [21]	2720	-51.1
[20]. [21]	2720	-28.5
[20]. [21]	2720	-36.2
[20]. [21]	2720	-50.7
[20]. [21]	2720	-60.9
[20]. [21]	2720	-53.5
[20]. [21]	2720	-43.1
[20]. [21]	2720	-48.2
[20]. [21]	2720	-48.9
[20]. [21]	2720	-49.8
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[63]. [64]	2710	-24.3
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[59]	2700	-44.0
[59]	2700	-22.0
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[13]	2660	-43.6
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[13]	2660	-39.9
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[71]	2650	-30.6
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[13]	2630	-43.5
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[13]	2630	-32.1
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[13]	2630	-47.0
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[74]	2600	-45.3
[74]	2600	-48.9
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[74]	2600	-43.1
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[13]	2600	-43.6
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[13]	2600	-50.2
[13]	2600	-48.0
[13]	2600	-36.5
[13]	2600	-50.0
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[13]	2600	-37.2
[13]	2600	-43.2
[13]	2600	-45.1
[13]	2600	-43.1
[13]	2600	-42.8
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[13]	2600	-39.2
[13]	2600	-43.3
[13]	2600	-48.7
[13]	2600	-48.0
[13]	2600	-44.8
[13]	2600	-43.2
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[13]	2600	-44.1
[20]. [21]	2600	-37.8
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[20]. [21]	2600	-34.2
[35]	2600	-42.5
[35]	2600	-45.1
[35]	2600	-42.8
[35]	2600	-40.3
[35]	2600	-27.3
[35]	2600	-40.6
[35]	2600	-41.8
[63]	2600	-25.2
[60]	2600	-28.1
[60]	2600	-24.9
[60]	2600	-39.2
[60]	2600	-27.1
[60]	2600	-23.6
[60]	2600	-26.0
[60]	2600	-24.8
[60]	2600	-34.4
[60]	2600	-38.8

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[60]	2600	-30.0
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[71]	2600	-23.8
[71]	2600	-24.5
[71]	2600	-17.9
[12]	2600	-33.5
[12]	2600	-32.1
[12]	2600	-31.8
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[12]	2600	-30.6
[12]	2600	-33.5
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[12]	2600	-15.9
[12]	2600	-39.3
[12]	2600	-28.1
[12]	2600	-33.5
[12]	2600	-32.5
[12]	2600	-32.1
[12]	2600	-31.9
[12]	2600	-30.5
[12]	2600	-17.2
[12]	2600	-30.6
[12]	2600	-33.1
[20]. [21]	2600	-25.0
[20]. [21]	2600	-26.4
[20]. [21]	2600	-22.1
[20]. [21]	2600	-30.7
[20]. [21]	2600	-26.0
[20]. [21]	2600	-26.9
[71]	2570	-35.0
[71]	2570	-29.7
[71]	2570	-30.0
[71]	2570	-33.2
[71]	2570	-32.2
[71]	2570	-35.0
[71]	2570	-35.5
[71]	2570	-29.7
[71]	2570	-30.0
[71]	2570	-33.2
[71]	2570	-34.1
[62]	2557	-32.1
[62]	2557	-33.2
[62]	2557	-33.8
[62]	2557	-31.4
[62]	2557	-37.7

[62]	2557	-37.3
[62]	2557	-36.5
[74]	2550	-40.4
[74]	2550	-39.1
[74]	2550	-32.0
[13]	2550	-32.8
[13]	2550	-34.3
[13]	2550	-29.4
[13]	2550	-29.5
[13]	2550	-28.9
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[13]	2550	-30.4
[13]	2550	-27.6
[13]	2550	-40.8
[13]	2550	-29.0
[13]	2550	-29.2
[13]	2550	-39.1
[13]	2550	-29.1
[13]	2550	-28.7
[13]	2550	-27.6
[13]	2550	-27.8
[13]	2550	-30.1
[13]	2550	-30.1
[13]	2550	-27.7
[13]	2550	-27.9
[13]	2550	-30.0
[13]	2550	-30.4
[13]	2550	-28.4
[13]	2550	-30.3
[13]	2550	-29.9
[13]	2550	-30.4
[13]	2550	-28.3
[13]	2550	-28.4
[13]	2550	-29.6
[13]	2550	-29.4
[13]	2550	-33.4
[13]	2550	-39.6
[13]	2550	-41.5
[13]	2550	-43.1
[13]	2550	-38.3
[13]	2550	-43.4
[13]	2550	-40.0
[13]	2550	-36.2
[13]	2550	-33.2
[20]. [21]	2550	-33.4
[20]. [21]	2550	-29.3
[20]. [21]	2550	-31.4
[20]. [21]	2550	-31.1
[20]. [21]	2550	-30.9
[20]. [21]	2550	-33.2
[20]. [21]	2550	-31.1
[20]. [21]	2550	-30.8
[20]. [21]	2550	-33.2
[20]. [21]	2550	-21.1
[20]. [21]	2550	-22.3
[20]. [21]	2550	-21.4

[20]. [21]	2550	-18.0
[62]	2524	-37.4
[62]	2524	-36.1
[62]	2524	-33.8
[62]	2524	-39.1
[62]	2524	-33.2
[62]	2524	-37.0
[62]	2524	-37.0
[62]	2524	-36.1
[62]	2524	-26.7
[39]	2500	-29.0
[39]	2500	-31.2
[39]	2500	-30.2
[20]. [21]	2500	-29.1
[20]. [21]	2500	-34.2
[20]. [21]	2500	-32.8
[20]. [21]	2500	-43.0
[20]. [21]	2500	-32.1
[20]. [21]	2500	-36.0
[35]	2500	-25.8
[35]	2500	-20.7
[62]	2500	-41.4
[62]	2500	-43.2
[62]	2500	-43.4
[62]	2500	-38.1
[62]	2500	-38.6
[62]	2500	-38.1
[62]	2500	-38.0
[62]	2500	-40.1
[62]	2500	-38.3
[62]	2500	-40.2
[62]	2500	-40.9
[62]	2500	-39.5
[62]	2500	-41.5
[62]	2500	-41.5
[62]	2500	-41.9
[62]	2500	-42.7
[62]	2500	-41.7
[62]	2500	-37.1
[63]. [64]	2500	-24.1
[63]. [64]	2500	-15.3
[20]. [21]	2500	-17.3
[20]. [21]	2500	-13.6
[20]. [21]	2500	-16.0
[20]. [21]	2500	-32.7
[20]. [21]	2500	-32.1
[20]. [21]	2500	-9.4
[20]. [21]	2500	-21.7
[57]	2500	-23.2
[57]	2500	-25.9
[57]	2500	-22.5
[57]	2500	-26.9
[57]	2500	-24.6
[57]	2500	-21.0
[57]	2500	-25.5
[57]	2500	-35.5

[57]	2500	-38.3
[57]	2500	-43.8
[39]	2470	-33.4
[39]	2470	-29.3
[20]. [21]	2470	-31.4
[20]. [21]	2470	-31.1
[20]. [21]	2470	-30.9
[20]. [21]	2470	-33.2
[20]. [21]	2470	-31.1
[20]. [21]	2470	-30.8
[20]. [21]	2470	-33.2
[20]. [21]	2470	-21.1
[20]. [21]	2470	-22.3
[20]. [21]	2470	-21.4
[20]. [21]	2470	-18.0
[20]. [21]	2470	-32.4
[20]. [21]	2470	-38.5
[20]. [21]	2470	-34.2
[20]. [21]	2470	-35.5
[20]. [21]	2470	-35.2
[20]. [21]	2470	-29.8
[20]. [21]	2470	-18.6
[63]. [64]	2450	-34.5
[63]. [64]	2450	-26.5
[63]. [64]	2450	-36.2
[63]. [64]	2450	-32.2
[63]. [64]	2450	-32.8
[63]. [64]	2450	-34.8
[63]. [64]	2450	-35.5
[63]. [64]	2450	-33.1
[63]. [64]	2450	-35.0
[63]. [64]	2450	-34.4
[63]. [64]	2450	-32.2
[63]. [64]	2450	-33.1
[63]. [64]	2450	-34.0
[63]. [64]	2450	-34.2
[63]. [64]	2450	-36.3
[63]. [64]	2450	-40.5
[63]. [64]	2450	-37.5
[63]. [64]	2450	-39.3
[62]	2432	-26.0
[62]	2432	-32.9
[32]	2400	-36.9
[63]. [64]	2400	-32.0
[63]. [64]	2400	-29.0
[63]. [64]	2400	-31.4
[63]. [64]	2400	-26.1
[63]. [64]	2400	-25.6
[63]. [64]	2400	-28.7
[63]. [64]	2400	-30.5
[63]. [64]	2400	-35.1
[63]. [64]	2400	-25.5
[63]. [64]	2400	-29.5
[20]. [21]	2400	-28.7
[20]. [21]	2400	-32.8
[20]. [21]	2400	-30.0

[20]. [21]	2400	-33.6
[20]. [21]	2400	-33.1
[20]. [21]	2400	-33.8
[20]. [21]	2400	-34.4
[20]. [21]	2400	-31.1
[20]. [21]	2400	-33.1
[20]. [21]	2400	-32.4
[20]. [21]	2400	-34.2
[20]. [21]	2400	-33.5
[20]. [21]	2400	-13.0
[20]. [21]	2400	-14.9
[20]. [21]	2400	-30.4
[20]. [21]	2400	-30.9
[20]. [21]	2400	-31.1
[20]. [21]	2400	-32.3
[20]. [21]	2400	-34.4
[20]. [21]	2400	-34.9
[20]. [21]	2400	-31.2
[20]. [21]	2400	-13.8
[63]. [64]	2350	-34.1
[63]. [64]	2325	-38.5
[63]. [64]	2325	-36.8
[34]	2300	-19.5
[71]	2300	-30.0
[71]	2300	-26.7
[71]	2300	-32.2
[71]	2300	-32.6
[71]	2300	-31.0
[71]	2300	-30.0
[71]	2300	-31.3
[71]	2300	-31.9
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[71]	2300	-29.8
[71]	2300	-27.0
[71]	2300	-29.6
[71]	2300	-29.0
[71]	2300	-32.2
[63]. [64]	2300	-31.2
[63]. [64]	2300	-37.3
[63]. [64]	2300	-37.3
[63]. [64]	2300	-35.1
[63]. [64]	2300	-38.1
[63]. [64]	2300	-26.7
[63]. [64]	2300	-18.5
[55]	2300	-26.0
[55]	2300	-24.2
[55]	2300	-20.3
[55]	2300	-25.1
[55]	2300	-21.4
[12]	2300	-28.0
[12]	2300	-18.5
[12]	2300	-24.8
[12]	2300	-23.2
[12]	2300	-27.0
[12]	2300	-26.7

[12]	2300	-27.4
[12]	2300	-31.3
[12]	2300	-27.0
[12]	2300	-39.9
[12]	2300	-29.5
[12]	2300	-31.5
[12]	2300	-21.1
[12]	2300	-25.4
[12]	2300	-25.7
[12]	2300	-24.5
[12]	2300	-37.1
[12]	2300	-28.9
[12]	2300	-18.7
[62]	2150	-24.6
[62]	2150	-34.2
[62]	2150	-34.0
[62]	2150	-34.4
[62]	2150	-35.1
[24]	2100	-32.5
[24]	2100	-32.6
[24]	2100	-35.7
[24]	2100	-37.2
[24]	2100	-31.7
[24]	2100	-34.6
[24]	2100	-35.6
[24]	2100	-35.7
[24]	2100	-36.1
[24]	2100	-36.0
[24]	2100	-36.5
[24]	2100	-36.5
[24]	2100	-33.9
[24]	2100	-42.7
[24]	2100	-45.8

Nitrogen (kerogen. micas. chert. BIF and shale) isotopic composition

References	Age (Ma)	$\delta^{15}N_{org}$ (‰)
kerogen		
[68]	3760	6.4
[68]	3760	-2.8
[4]	3500	5.9
[4]	3500	5.9
[4]	3500	-4.2
[4]	3500	-1.6
[4]	3500	-1.9
[4]	3500	-4.2
[4]	3500	-3.4
[4]	3500	-4.0
[4]	3500	13.0
[4]	3500	10.7
[4]	3500	-6.2
[4]	3500	-1.9
[4]	3500	2.9
[4]	3500	1.7
[4]	3500	1.4
[4]	3500	-4.5
[4]	3500	1.3
[4]	3500	-2.8
[4]	3500	2.3
[4]	3500	-0.2
[4]	3500	-2.0
[4]	3500	-3.1
[4]	3500	-1.7
[4]	3500	-4.9
[4]	3500	-6.2
[4]	3500	3.5
[4]	3500	3.1
[4]	3500	-4.4
[4]	3500	5.5
[4]	3500	4.3
[20]. [21]	3500	2.9
[20]. [21]	3500	3.2
[65]	3459	-4.1
[65]	3459	1.8
[65]	3459	4.0
[65]	3459	1.0
[65]	3459	-3.4
[65]	3459	-2.8
[4]	3400	-3.8
[4]	3400	-4.9
[4]	3400	-5.4
[20]. [21]	3400	1.6
[20]. [21]	3400	3.0
[4]	2700	24.4
[4]	2700	35.8
[4]	2700	29.7
[4]	2700	4.2
[4]	2700	1.9

[4]	2700	3.0
[4]	2700	5.0
[4]	2700	4.9
[4]	2700	7.6
[4]	2700	9.9
[26]	2700	15.9
[26]	2700	16.3
[26]	2700	18.7
[26]	2700	19.9
[26]	2700	15.7
[26]	2700	16.0
[26]	2700	14.9
[26]	2700	15.6
[26]	2700	17.9
[26]	2700	16.8
[26]	2700	17.5
[26]	2700	15.5
[26]	2700	15.9
[26]	2700	14.8
[26]	2700	15.2
[31]	2658	14.6
[31]	2658	14.1
[31]	2658	13.0
[31]	2658	11.8
[31]	2658	13.4
[31]	2658	11.4
[31]	2658	3.4
[31]	2658	3.1
[31]	2658	2.6
[31]	2658	4.7
[4]	2600	4.3
[4]	2600	5.8
[4]	2600	3.5
[4]	2600	1.2
[4]	2600	8.1
[4]	2600	10.6
[4]	2600	-4.1
[4]	2600	-2.0
[4]	2600	-1.3
[20]. [21]	2500	5.7
[20]. [21]	2500	0.8
[20]. [21]	2200	4.4
[26]	2150	10.9
[26]	2150	10.1
[26]	2150	11.6
[26]	2150	11.1
[26]	2150	9.3
[26]	2150	9.4
[26]	2150	10.0
[26]	2150	11.3
[26]	2150	10.8
[26]	2150	12.6
[26]	2150	12.0
[4]	2100	3.7
[4]	2100	1.6
[4]	2100	2.6

[4]	2000	2.2
[4]	2000	3.4
[4]	2000	2.2
[4]	2000	3.9
[4]	2000	5.3
[4]	2000	10.1
[4]	2000	4.7
[4]	2000	4.8
[4]	2000	4.7
[4]	2000	1.9
[4]	2000	6.3
[4]	2000	2.0
[4]	2000	3.0
[20]. [21]	2000	4.8
[20]. [21]	2000	3.3
[20]. [21]	2000	2.8
[20]. [21]	2000	7.2
[31]	1800	5.6
[31]	1800	5.9
[31]	1800	5.5
[31]	1800	6.4
[31]	1800	6.8
[31]	1800	3.8
[31]	1800	4.4
[31]	1800	4.1
[31]	1800	3.1
[31]	1800	4.0
[20]. [21]	1800	5.3
[20]. [21]	1800	7.1
[4]	1600	5.6
[4]	1600	0.3
[26]	1600	3.7
[26]	1600	3.7
[26]	1600	3.6
[26]	1600	4.5
[26]	1600	4.4
[20]. [21]	1600	8.0
[20]. [21]	1600	8.0
[20]. [21]	1600	8.5
[20]. [21]	1600	9.9
[20]. [21]	1600	4.8
[20]. [21]	1400	4.5
[20]. [21]	1400	2.8
[20]. [21]	1400	3.1
[20]. [21]	1400	3.0
[20]. [21]	900	7.4
[4]	800	3.4
[4]	800	0.9
[4]	800	3.3
[20]. [21]	800	5.1
[74]	3250	0.4
[74]	3250	0.4
[74]	3250	0.7
[74]	3250	0.6
[74]	3250	-0.2
[74]	3250	-0.8

micas		
[45]	3760	10.7
[45]	3760	12.7
[45]	3760	12.7
[45]	3760	-1.9
[49]	3760	10.7
[26]	2700	23.4
[26]	2700	23.2
[26]	2700	17.9
[26]	2700	18.2
[31]	2700	18.6
[31]	2700	16.3
[31]	2700	16.4
[31]	2700	12.4
[31]	2700	20.1
[31]	2700	18.4
[31]	2700	12.9
[31]	2700	19.4
[31]	2700	21.0
[31]	2700	13.7
[26]	2200	10.5
[26]	2200	9.9
[26]	2200	7.3
[26]	2200	9.3
[26]	2200	11.7
[26]	2200	9.1
[26]	2200	12.0
[26]	2200	11.5
[26]	2200	10.2
[45]	2075	19.7
[45]	2062	4.9
[45]	2062	7.8
Shale		
[76]	3500	7.1
[76]	3500	7.8
[76]	3500	2.1
[76]	3500	1.9
[74]	3250	3.0
[74]	3250	3.8
[74]	3250	3.9
[74]	3250	4.9
[74]	3250	4.4
[74]	3250	4.0
[74]	3250	3.7
[74]	3250	3.3
[74]	3250	2.8
[74]	3250	2.9
[74]	3250	3.8
[74]	3250	2.5
[74]	3250	2.7
[74]	3250	2.9
[74]	3250	2.9
[74]	2690	0.1
[74]	2690	0.0
[74]	2690	4.6

[74]	2690	5.4
[74]	2690	6.7
[74]	2650	4.7
[74]	2650	2.9
[74]	2650	1.2
[74]	2650	0.1
[76]	2600	38.9
[74]	2600	5.7
[74]	2600	6.1
[74]	2600	5.7
[74]	2600	0.4
[74]	2600	0.0
[74]	2560	1.6
[74]	2560	2.6
[76]	2500	7.9
[76]	2500	-4.6
[76]	2500	-5.2
[74]	2200	6.6
[74]	2200	5.2
[74]	2200	6.5
[74]	2200	5.9
[74]	2200	5.6
[74]	2200	5.7
[74]	2200	5.6
[74]	2200	5.7
[74]	2200	5.7
[74]	2200	5.8
[74]	2200	6.9
[74]	2200	6.0
chert and BIF		
[68]	3760	1.8
[68]	3760	1.6
[68]	3760	1.0
[68]	3760	1.6
[68]	3760	2.6
[68]	3760	-3.7
[49]	3760	0.9
[49]	3760	5.8
[49]	3760	7.3
[49]	3760	8.7
[49]	3760	0.8
[49]	3760	12.6
[49]	3760	9.2
[49]	3760	7.6
[49]	3760	12.2
[49]	3760	3.1
[49]	3760	3.8
[49]	3760	3.6
[49]	3760	3.1
[49]	3490	-3.8
[49]	3490	5.2
[49]	3459	6.9
[49]	2500	11.5
[49]	2500	1.9
[18]	2470	-1.4

[54]	2470	-0.1
[49]	2470	7.2
[18]	2470	1.3

Iron (Fe sulfides. Fe oxides. shale. BIF and carbonates) isotopic composition

References	Age (Ma)	δ^{56}Fe (‰)
Fe sulfides		
[52]	2720	-1.8
[52]	2720	-1.4
[52]	2720	-1.3
[52]	2720	-1.9
[52]	2720	-1.9
[52]	2720	-1.9
[52]	2720	-1.9
[52]	2720	-1.9
[52]	2720	-1.4
[52]	2720	-1.4
[2]	2700	-1.2
[2]	2700	-1.1
[2]	2700	-1.2
[2]	2700	-1.3
[2]	2700	-0.9
[2]	2700	-1.5
[2]	2700	-1.6
[2]	2700	-2.5
[2]	2700	-2.6
[2]	2700	-2.6
[2]	2700	-2.4
[2]	2700	-2.0
[2]	2700	-2.1
[2]	2700	-2.4
[2]	2700	-2.4
[2]	2700	-2.0
[2]	2700	-2.4
[2]	2700	-1.1
[2]	2700	-2.0
[2]	2700	-1.9
[2]	2700	-1.9
[2]	2700	-2.1
[2]	2700	-2.1
[2]	2700	-2.7
[2]	2700	-2.6
[2]	2700	-2.2
[2]	2700	-2.3
[2]	2700	-2.5
[2]	2700	-2.4
[2]	2700	-2.2
[2]	2700	-2.0
[2]	2700	-1.9
[2]	2700	-2.0
[2]	2700	-2.1
[2]	2700	-2.0
[52]	2650	-0.8
[52]	2650	-0.7
[52]	2630	-1.3
[52]	2630	-1.3
[52]	2630	-1.7

[52]	2630	-1.7
[52]	2630	-1.4
[52]	2630	-1.4
[52]	2630	-1.9
[52]	2630	-1.9
[52]	2630	-1.9
[52]	2630	-2.0
[52]	2630	-2.4
[52]	2630	-2.5
[52]	2630	-2.3
[52]	2630	-2.8
[52]	2630	-2.7
[52]	2630	-3.1
[52]	2630	-3.1
[52]	2630	-2.6
[52]	2630	-2.6
[52]	2630	-1.1
[52]	2630	-1.1
[52]	2630	-1.2
[52]	2630	-1.1
[52]	2630	-1.2
[52]	2630	-1.1
[52]	2630	-1.4
[52]	2630	-1.4
[52]	2630	-1.9
[52]	2630	-1.9
[52]	2630	-2.1
[52]	2630	-2.1
[52]	2630	-2.1
[52]	2630	-1.7
[52]	2630	-1.8
[52]	2630	-1.5
[52]	2630	-1.5
[52]	2630	-1.2
[52]	2630	-1.1
[52]	2630	-0.2
[52]	2630	-0.2
[52]	2630	-0.8
[52]	2630	-0.7
[52]	2630	-1.7
[52]	2630	-1.6
[52]	2630	-1.6
[52]	2630	-1.4
[52]	2630	-1.5
[52]	2630	-1.5
[52]	2630	-1.3
[52]	2630	-1.3
[52]	2630	-1.7
[52]	2630	-1.6
[52]	2630	-1.9
[52]	2630	-1.9
[52]	2630	-1.7
[52]	2630	-1.7
[52]	2630	-0.6
[52]	2630	-0.6
[52]	2630	-1.0

[52]	2630	-1.0
[52]	2630	-0.9
[52]	2630	-0.9
[52]	2600	-3.5
[52]	2600	-3.4
[52]	2600	-3.3
[52]	2600	-3.4
[52]	2600	-3.4
[52]	2600	-3.3
[52]	2600	-3.4
[52]	2600	-3.2
[52]	2600	-3.0
[52]	2600	-3.0
[52]	2600	-2.9
[52]	2600	-3.0
[52]	2600	-2.9
[52]	2600	-2.9
[52]	2600	-2.9
[52]	2600	-2.0
[52]	2600	-2.0
[52]	2600	-3.1
[52]	2600	-3.0
[52]	2600	-2.9
[52]	2600	-2.8
[52]	2600	-2.8
[52]	2600	-2.8
[52]	2600	-0.1
[52]	2600	-0.2
[52]	2600	0.1
[52]	2600	0.1
[52]	2600	0.0
[52]	2600	0.0
[52]	2600	0.1
[52]	2600	0.2
[52]	2600	0.1
[52]	2600	0.2
[52]	2600	0.2
[52]	2600	0.1
[52]	2600	0.2
[52]	2520	0.0
[52]	2520	0.0
[52]	2520	0.5
[52]	2520	0.4
[52]	2520	0.4
[52]	2520	0.5
[52]	2520	0.1
[52]	2520	0.1
[52]	2520	-0.7
[52]	2520	-0.8
[52]	2520	-0.9
[52]	2520	-0.7
[52]	2520	-0.9
[52]	2520	-1.0
[52]	2520	-0.9
[52]	2520	-0.8
[52]	2520	-2.4

[52]	2520	-2.8
[52]	2520	-2.7
[52]	2520	-2.5
[52]	2520	-2.5
[52]	2520	-2.5
[52]	2520	-2.4
[52]	2520	-1.9
[52]	2520	-1.8
[52]	2520	-1.8
[52]	2520	-2.1
[52]	2520	-2.1
[52]	2520	-2.1
[52]	2520	-1.3
[52]	2520	-1.2
[52]	2520	-1.2
[52]	2520	-1.3
[52]	2520	-1.2
[52]	2520	-1.4
[52]	2520	-1.4
[52]	2520	-1.4
[52]	2520	-1.3
[52]	2520	-1.5
[52]	2520	-1.4
[52]	2520	-2.1
[52]	2520	-2.2
[52]	2520	-2.2
[52]	2520	-2.0
[52]	2520	-2.0
[52]	2520	-2.2
[52]	2520	-2.2
[52]	2520	-2.1
[52]	2520	-2.2
[52]	2500	-2.0
[52]	2500	-2.1
[52]	2500	-2.1
[52]	2500	-2.0
[52]	2500	-1.8
[52]	2500	-1.7
[52]	2500	-1.5
[52]	2500	-1.6
[52]	2500	-1.6
[52]	2500	-1.4
[52]	2500	-1.4
[52]	2500	-1.7
[52]	2500	-1.6
[52]	2500	-2.0
[52]	2500	-1.9
[52]	2500	-1.3
[52]	2500	-1.3
[52]	2500	-1.4
[52]	2500	-1.4
[52]	2500	-1.6
[52]	2500	-1.6
[52]	2500	-1.2
[52]	2500	-1.2
[52]	2500	-1.5

[52]	2500	-1.5
[52]	2500	-1.6
[52]	2500	-1.5
[52]	2500	-1.5
[52]	2500	-1.5
[52]	2500	-1.1
[52]	2500	-1.1
[52]	2500	-1.9
[52]	2500	-1.9
[52]	2500	-1.9
[52]	2320	0.5
[52]	2320	0.6
[52]	2320	0.9
[52]	2320	1.1
[52]	2320	-1.2
[52]	2320	-1.4
[52]	2320	-1.3
[52]	2320	-1.2
[52]	2320	0.7
[52]	2320	0.8
[52]	2320	-1.7
[52]	2320	-1.7
[52]	2320	-1.0
[52]	2320	-1.0
[52]	2320	-0.9
[52]	2320	-0.9
[52]	2320	-1.4
[52]	2320	-1.4
[52]	2320	-1.3
[52]	2320	-1.4
[52]	2320	-1.1
[52]	2320	-1.1
[52]	2320	-0.8
[52]	2320	-0.7
[52]	2320	-1.1
[52]	2320	-1.3
[52]	2320	-0.2
[52]	2320	-0.3
[52]	2320	-1.3
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[52]	2150	-0.3
[52]	2150	-0.3
[52]	2150	-0.3
[52]	2150	-0.4
[52]	2150	-0.3
[52]	2150	-0.3
[52]	2150	0.3
[52]	2150	0.3
[52]	2050	0.4
[52]	2050	0.5
[52]	2050	0.5
[52]	2050	0.8
[52]	2050	0.7
[52]	2050	0.9
[52]	2050	0.1
[52]	2050	-0.2

[52]	2050	-0.2
[52]	2050	-0.1
[52]	2050	0.7
[52]	2050	-0.1
[52]	2050	-0.1
[52]	2050	0.1
[52]	2050	0.0
[52]	2050	-0.2
[52]	2050	-0.1
[52]	2050	0.9
[52]	2050	1.0
[52]	2050	-0.2
[52]	2050	-0.3
Fe oxides		
[72]	3810	-0.1
[72]	3810	-0.5
[72]	3810	1.5
[72]	3810	1.6
[72]	3810	1.5
[72]	3810	1.4
[72]	3810	0.9
[72]	3810	0.7
[72]	3810	0.0
[72]	3810	1.8
[72]	3810	0.8
[72]	3810	1.4
[72]	3810	1.4
[72]	3750	1.3
[72]	3750	0.2
[72]	3750	0.5
[72]	3750	0.9
[72]	3750	0.6
[72]	3750	2.1
[72]	3750	0.4
[72]	3750	1.3
[72]	3750	-0.1
[72]	3750	1.8
[72]	3750	1.4
[72]	3750	0.5
[72]	3750	2.7
[72]	3750	-0.1
[72]	3750	0.3
[72]	3750	-0.8
[72]	3750	2.3
[72]	3750	1.7
[72]	3750	1.5
[72]	3750	1.2
[72]	3750	1.2
[72]	3750	2.0
[72]	3750	1.8
[72]	3750	1.6
[72]	3750	1.8
[72]	3750	1.1
[8]	3750	0.5
[8]	3750	0.6

[8]	3750	0.4
[8]	3750	0.6
[8]	3750	0.6
[8]	3750	0.6
[8]	3750	0.6
[8]	3750	0.4
[8]	3750	0.6
[8]	3750	0.5
[8]	3750	0.5
[8]	3750	0.8
[8]	3750	0.5
[8]	3750	0.5
[8]	3750	0.5
[8]	3750	0.6
[8]	3750	0.6
[8]	3750	0.6
[8]	3750	0.8
[8]	3750	0.7
[8]	3750	0.5
[8]	3750	0.7
[8]	3750	0.6
[8]	3750	0.6
[8]	3750	0.6
[52]	2720	-1.3
[52]	2720	-1.3
[52]	2720	-0.8
[52]	2720	-0.7
[52]	2720	-0.7
[52]	2720	-0.9
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[52]	2700	1.1
[52]	2700	1.2
[52]	2700	1.2
[52]	2700	1.6
[52]	2470	0.5
[52]	2470	0.5
[52]	2470	0.4
[52]	2470	0.7
[52]	2470	0.6
[52]	2470	0.3
[28]	2470	-0.2
[28]	2470	-0.2
[28]	2470	0.3
[28]	2470	0.4
[28]	2470	-0.3
[28]	2470	-0.4
[28]	2470	0.0
[28]	2470	-0.5
[28]	2470	0.3
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[28]	2470	-0.1
[28]	2470	-0.1
[28]	2470	-0.2
[28]	2470	-1.1
[28]	2470	-1.1

[28]	2470	-0.2
[28]	2470	-0.2
[28]	2470	-0.2
[28]	2470	-0.2
[28]	2470	-0.3
[28]	2470	-0.2
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[28]	2470	-0.3
[28]	2470	-0.2
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[28]	2470	-0.6
[28]	2470	-0.4
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[28]	2470	0.3
[28]	2470	0.2
[28]	2470	0.1
[28]	2470	0.1
[28]	2470	0.4
[28]	2470	0.9
[28]	2470	0.9
[28]	2470	0.9
[28]	2470	0.9
[28]	2470	0.8
[28]	2470	0.7
[28]	2470	0.8
[28]	2470	0.4
[28]	2470	0.4
[28]	2470	0.3
[28]	2470	0.4
[28]	2470	0.5
[28]	2470	0.1
[28]	2470	0.1
[28]	2470	0.1
[28]	2470	0.2
[28]	2470	0.2
[28]	2470	1.3
[28]	2470	1.2
[28]	2470	-1.0
[28]	2470	-0.1
[28]	2470	0.1
[28]	2470	0.1
[28]	2470	0.1
[28]	2470	0.1
[28]	2470	0.0
[27]	2432	0.5
[27]	2432	-0.4
[27]	2432	-0.4
[27]	2432	-0.4
[27]	2432	-0.5
[27]	2432	-0.3
[27]	2432	-0.6
[27]	2432	0.3
[27]	2432	0.0

[27]	2432	0.8
[27]	2432	0.4
[27]	2432	0.0
[27]	2432	0.1
[27]	2432	0.0
[27]	2432	0.1
[27]	2432	-0.1
[27]	2432	-0.1
[27]	2432	0.5
[27]	2432	1.2
[27]	2432	0.7
[27]	2432	0.7
[27]	2432	0.7
[27]	2400	0.3
[27]	2400	0.4
carbonates		
[69]	3350	-0.6
[69]	2825	-0.5
[69]	2825	-0.8
[69]	2825	-0.6
[69]	2825	-0.8
[69]	2521	-1.2
[69]	2521	-1.1
[69]	2521	-1.9
[69]	2521	-2.1
[69]	2521	-1.3
[69]	2521	-0.6
[69]	2521	-1.0
[69]	2521	-1.3
[69]	2521	-1.4
[69]	2521	-1.1
[28]	2470	-0.1
[28]	2470	-0.1
[28]	2470	-0.6
[28]	2470	-0.5
[28]	2470	-0.6
[28]	2470	-1.0
[28]	2470	-1.0
[28]	2470	-1.0
[28]	2470	-1.1
[28]	2470	-1.0
[28]	2470	-1.0
[28]	2470	-1.0
[28]	2470	-0.2
[28]	2470	-1.1
[28]	2470	-1.3
[28]	2470	-1.3
[28]	2470	-1.2
[28]	2470	-2.0
[28]	2470	-2.0
[28]	2470	-1.4
[28]	2470	-1.5
[28]	2470	-1.5
[28]	2470	-1.1
[28]	2470	-1.0

[28]	2470	-0.5
[28]	2470	-1.0
[28]	2470	-0.8
[28]	2470	-0.8
[28]	2470	-1.0
[28]	2470	-1.0
[28]	2470	-0.8
[28]	2470	-0.9
[28]	2470	-1.0
[28]	2470	-0.8
[28]	2470	-0.4
[28]	2470	-0.8
[28]	2470	0.1
[28]	2470	0.4
[28]	2470	0.2
[28]	2470	0.0
[28]	2470	0.0
[28]	2470	0.5
[28]	2470	0.5
[28]	2470	-0.7
[28]	2470	-0.8
[28]	2470	-0.7
[28]	2470	-0.7
[28]	2470	-0.7
[28]	2470	-0.6
[28]	2470	-0.4
[28]	2470	-0.5
[28]	2470	-0.6
[28]	2470	-0.7
[28]	2470	-0.6
[28]	2470	0.1
[28]	2470	0.7
[28]	2470	1.1
[28]	2470	-0.8
[28]	2470	-0.1
[28]	2470	-1.1
[28]	2470	0.1
[28]	2470	-0.8
[28]	2470	-0.8
[28]	2470	-1.0
[28]	2470	-1.1
[28]	2470	-1.0
[28]	2470	-0.2
[28]	2470	0.0
[28]	2470	-0.8
[28]	2470	-0.1
[28]	2470	-0.5
[28]	2470	-0.6
[28]	2470	-0.1
[27]	2432	0.1
[27]	2432	-0.5
[27]	2432	-0.9
[27]	2432	-0.6
[27]	2432	-0.5
[27]	2432	-0.5
[27]	2432	-0.6

[27]	2432	0.1
[27]	2432	-0.1
[27]	2432	-1.9
[27]	2432	-0.8
[27]	2432	-0.4
[27]	2432	-0.5
[27]	2432	-0.6
[27]	2432	0.0
[27]	2432	-0.2
[27]	2432	0.2
[27]	2432	-0.1
[27]	2432	-0.4
[27]	2432	-0.1
[27]	2432	-0.2
[27]	2432	-0.1
[27]	2432	0.1
[27]	2432	-0.3
[27]	2432	-0.2
[27]	2432	-0.8
[27]	2400	-0.7
[27]	2400	-0.7
[27]	2400	-0.5
[27]	2400	-0.5
[27]	2400	-0.4
[27]	2400	-0.4
shales		
[9]	3800	0.0
[9]	3800	0.3
[8]	3750	-0.1
[8]	3750	0.0
[8]	3750	-0.1
[8]	3750	0.0
[8]	3750	-0.2
[75]	3250	0.2
[75]	3250	0.0
[75]	3250	0.0
[75]	3250	0.1
[75]	3250	0.2
[75]	3250	0.1
[75]	3250	0.2
[75]	3250	0.2
[75]	3250	0.3
[75]	3250	-0.2
[75]	3250	-0.3
[75]	3250	-0.2
[75]	3250	0.0
[75]	3250	0.2
[75]	3250	0.0
[75]	3250	0.4
[75]	3250	0.2
[75]	3250	-0.1
[75]	3250	0.1
[75]	3250	0.1
[75]	3250	0.2
[75]	3250	0.1

[75]	3250	-0.1
[75]	3250	-0.2
[75]	3250	-0.3
[75]	2960	-0.2
[75]	2960	-0.3
[75]	2960	-0.4
[75]	2960	-0.3
[75]	2960	-0.4
[75]	2960	-0.3
[75]	2960	-0.4
[75]	2960	0.1
[75]	2960	-0.5
[75]	2960	-0.2
[75]	2960	0.2
[75]	2960	0.1
[75]	2960	0.2
[75]	2960	0.1
[75]	2960	0.1
[75]	2900	-1.3
[75]	2900	-1.2
[75]	2900	-1.0
[75]	2900	-1.2
[75]	2900	-1.1
[75]	2900	-1.2
[75]	2900	-1.2
[75]	2900	-1.1
[75]	2900	-0.9
[75]	2900	-0.9
[75]	2900	-1.1
[75]	2900	-1.0
[75]	2900	-1.0
[75]	2900	-1.0
[75]	2900	-1.1
[75]	2720	0.4
[75]	2720	0.4
[75]	2720	0.4
[75]	2720	0.0
[75]	2710	0.1
[75]	2710	0.0
[75]	2710	0.1
[75]	2710	-0.6
[75]	2710	0.1
[75]	2710	0.1
[75]	2710	0.0
[75]	2690	-1.5
[75]	2690	-0.6
[75]	2690	-0.7
[75]	2690	-0.9
[75]	2690	-0.6
[75]	2690	0.5
[75]	2690	0.1
[75]	2690	-0.2
[75]	2690	0.1
[75]	2690	0.5
[75]	2690	0.2
[75]	2690	0.1

[75]	2690	0.5
[75]	2690	0.4
[75]	2640	-0.3
[75]	2640	-0.4
[75]	2640	-0.6
[75]	2640	0.4
[75]	2630	-0.5
[75]	2630	0.2
[75]	2630	0.2
[75]	2630	0.4
[75]	2600	-0.4
[75]	2600	-0.5
[75]	2600	-0.7
[75]	2600	-1.8
[75]	2600	-1.9
[75]	2600	-2.2
[75]	2600	-1.3
[75]	2600	-0.7
[75]	2600	-0.3
[75]	2560	0.4
[75]	2560	0.7
[75]	2560	0.7
[75]	2350	0.2
[75]	2350	0.3
[75]	2350	0.1
[75]	2350	0.1
[75]	2350	0.2
[75]	2350	0.1
[75]	2350	-0.4
[75]	2350	0.2
[75]	2350	0.2
[75]	2350	0.2
[75]	2350	0.1
[75]	2350	0.1
[75]	2200	0.3
[75]	2200	0.1
[75]	2200	0.2
[75]	2200	0.3
[75]	2200	0.2
[75]	2200	0.2
[75]	2200	0.1
[75]	2200	-0.1
BIF		
[9]	3800	0.3
[9]	3800	0.2
[9]	3800	0.9
[9]	3800	0.4
[9]	3800	0.4
[9]	3800	0.6
[9]	3800	0.6
[9]	3800	0.5
[9]	3800	1.0
[9]	3800	0.8
[9]	3800	1.0
[10]	3800	1.0

[10]	3800	0.8
[10]	3800	0.4
[10]	3800	0.3
[10]	3800	1.0
[10]	3800	0.1
[10]	3800	0.6
[9]	3800	0.2
[9]	3800	0.3
[9]	3800	0.5
[9]	3800	-0.7
[9]	3800	0.8
[9]	3800	0.4
[9]	3800	0.3
[9]	3800	0.3
[9]	3800	0.2
[9]	3800	-0.9
[9]	3800	-0.7
[8]	3750	0.1
[8]	3750	0.5
[8]	3750	0.6
[8]	3750	0.6
[8]	3750	0.7
[17]	1900	-0.4
[17]	1900	-0.8
[17]	1900	0.5
[17]	1900	0.1
[17]	1900	0.3
[17]	1900	0.8
[17]	1900	0.7
[17]	1900	0.1
[66]	1900	0.4
[66]	1900	0.4
[66]	1900	0.3
[66]	1900	0.1
[66]	1900	0.5
[66]	1900	0.4
[66]	1900	0.4
[66]	1900	0.2
[66]	1900	0.2
[66]	1900	-0.2
[66]	1900	0.3
[66]	1900	0.1
[66]	1900	0.3
[66]	1900	0.2
[66]	1900	0.1
[66]	1900	-0.2
[66]	1900	0.1
[66]	1900	0.4
[66]	1900	0.1
[66]	1900	0.4
[66]	1900	0.3
[66]	1900	0.5
[66]	1900	0.3
[66]	1900	0.5
[66]	1900	0.3
[66]	1900	0.7

[66]	1900	0.7
[66]	1900	0.5
[66]	1900	0.7
[66]	1900	0.4
[66]	1900	0.1
[66]	1900	-0.2
[66]	1900	0.2
[66]	1900	-0.3
[66]	1900	0.8
[66]	1900	0.3
[66]	1900	0.6
[66]	1900	0.4

Sulfur (sulfides. sulfates and barite) multiple isotopic compositions

References	Age (Ma)	$\delta^{34}S$ (‰)	$\Delta^{33}S$ (‰)
Sulfides			
[14]	3920	1.3	0.1
[37]	3830	-0.7	0.4
[29]	3830	0.3	3.0
[29]	3830	0.4	3.0
[14]	3800	-4.2	0.0
[25]	3800	-3.1	-0.1
[14]	3800	0.8	-0.7
[25]	3800	1.1	-0.9
[25]	3800	2.1	-0.9
[25]	3800	5.8	-0.9
[37]	3770	0.1	1.2
[37]	3770	1.3	1.5
[43]	3715	-1.3	1.2
[43]	3715	-1.2	1.3
[43]	3715	-0.7	0.2
[43]	3715	-0.2	0.8
[43]	3715	0.2	2.3
[73]	3715	0.3	-0.1
[43]	3715	1.1	1.4
[73]	3715	1.2	-0.1
[73]	3715	1.2	3.2
[43]	3715	1.4	0.3
[43]	3715	1.6	2.9
[43]	3715	1.8	1.3
[43]	3715	2.1	1.3
[43]	3715	2.2	2.0
[25]	3500	0.8	-0.3
[25]	3500	0.8	-0.3
[25]	3500	1.0	-0.3
[25]	3500	1.1	-0.4
[25]	3500	1.4	-0.3
[25]	3500	1.8	-0.3
[48]	3490	-2.4	0.7
[48]	3490	-2.5	0.7
[48]	3490	-2.8	0.9
[48]	3490	-3.0	0.7
[48]	3490	3.5	0.5
[48]	3490	2.7	0.8
[48]	3490	1.6	0.8
[48]	3490	-0.9	1.8
[48]	3490	1.1	1.1
[48]	3490	0.9	-0.5
[48]	3490	-1.6	1.2
[48]	3490	-5.0	1.0
[48]	3490	-5.4	1.6
[48]	3490	-3.1	1.3
[48]	3490	-4.1	1.7
[48]	3490	-1.7	1.8
[48]	3490	-2.2	1.4
[48]	3490	-2.4	1.1

[48]	3490	-1.5	0.9
[48]	3490	-1.8	0.7
[48]	3490	0.8	1.2
[48]	3490	-0.8	2.1
[48]	3490	-4.1	-0.3
[48]	3490	-3.2	-0.6
[48]	3490	-3.3	-0.5
[48]	3490	-1.8	-0.4
[48]	3490	-2.8	-1.1
[48]	3490	-4.7	0.0
[48]	3490	-1.7	-0.2
[48]	3490	-4.6	0.4
[48]	3490	-2.3	0.3
[48]	3490	-4.3	0.4
[48]	3490	-2.8	0.6
[48]	3490	-3.1	0.1
[48]	3490	-2.7	0.0
[48]	3490	-1.7	0.5
[48]	3490	-2.1	0.6
[48]	3490	-2.8	0.7
[48]	3490	-2.1	0.5
[48]	3490	-2.2	0.5
[48]	3490	-3.2	2.1
[48]	3490	-3.6	0.8
[48]	3490	-4.8	-0.2
[48]	3490	-2.9	-0.4
[48]	3490	-19.1	-0.5
[48]	3490	-1.8	0.4
[48]	3490	-3.1	0.5
[48]	3490	-2.6	1.6
[48]	3490	-3.1	1.7
[48]	3490	-5.3	3.6
[48]	3490	-2.3	1.2
[48]	3490	-2.1	0.9
[48]	3490	-2.8	1.5
[48]	3490	-9.4	3.4
[48]	3490	-10.8	0.8
[48]	3490	-10.1	3.4
[48]	3490	-19.2	0.2
[48]	3490	-22.6	2.9
[48]	3490	-22.4	3.7
[48]	3490	-8.5	4.0
[48]	3490	-16.0	6.1
[48]	3490	-5.2	2.8
[48]	3490	-5.6	0.4
[48]	3490	-7.9	5.0
[48]	3490	-17.5	4.5
[15]	3450	3.3	-1.3
[14]	3350	1.0	0.2
[15]	3350	1.7	0.9
[14]	3350	2.0	0.8
[37]	3250	2.9	0.0
[15]	3200	1.1	0.3
[14]	3200	4.2	0.4
[14]	3200	5.0	0.0
[15]	3000	0.8	0.5

[14]	3000	-5.6	-0.3
[15]	2965	-0.5	-0.1
[41]	2965	1.8	-0.5
[41]	2965	2.1	0.4
[41]	2965	2.1	0.2
[41]	2965	2.7	-0.2
[41]	2965	3.1	0.1
[15]	2965	3.1	1.3
[15]	2965	3.3	1.3
[41]	2965	3.4	0.2
[41]	2965	4.0	0.1
[41]	2965	6.5	0.2
[41]	2965	7.2	-0.1
[15]	2958	-3.7	0.0
[15]	2958	-0.5	0.1
[15]	2958	1.0	-0.1
[15]	2958	1.4	0.0
[15]	2958	1.7	0.0
[15]	2958	1.7	-0.2
[15]	2958	1.7	0.1
[15]	2958	1.8	0.1
[15]	2958	1.9	-0.1
[15]	2958	1.9	0.0
[15]	2958	2.3	0.2
[15]	2958	2.5	-0.1
[15]	2958	2.6	0.2
[15]	2958	2.6	-0.1
[15]	2958	2.6	-0.3
[15]	2958	3.0	-0.1
[15]	2958	3.0	-0.1
[15]	2958	3.0	0.1
[15]	2958	3.0	0.0
[15]	2958	3.1	0.6
[15]	2958	3.1	-0.1
[15]	2958	3.2	0.0
[15]	2958	3.3	-0.1
[15]	2958	3.4	-0.1
[15]	2958	3.5	-0.1
[15]	2958	3.5	0.0
[15]	2958	3.6	0.0
[15]	2958	5.1	-0.1
[15]	2958	5.4	-0.5
[40]	2920	1.4	-0.5
[40]	2920	2.1	0.2
[40]	2920	3.1	-0.3
[40]	2920	3.6	-0.2
[40]	2920	4.6	-0.2
[40]	2920	4.7	-0.3
[40]	2920	4.8	-0.2
[40]	2920	5.1	-0.3
[40]	2920	5.2	-0.1
[40]	2920	5.2	-0.2
[40]	2920	5.2	-0.2
[40]	2920	5.5	-0.2
[40]	2920	5.8	-0.2
[40]	2920	5.9	-0.2

[40]	2920	6.0	-0.1
[40]	2920	6.2	-0.2
[40]	2920	6.3	-0.2
[40]	2920	6.3	-0.3
[40]	2920	6.3	-0.1
[40]	2920	6.5	-0.1
[40]	2920	6.8	-0.2
[40]	2920	7.1	-0.2
[40]	2920	7.7	-0.1
[40]	2920	7.7	-0.2
[15]	2916	-0.8	0.1
[15]	2916	-0.3	0.6
[15]	2916	0.7	0.2
[15]	2916	1.0	0.4
[15]	2916	1.2	0.3
[15]	2916	1.5	-0.4
[15]	2916	4.0	0.0
[15]	2916	4.0	0.0
[15]	2916	4.2	0.0
[15]	2900	-0.4	0.1
[15]	2900	-0.1	-0.3
[15]	2900	1.7	-0.2
[15]	2900	5.9	0.0
[15]	2875	0.5	-0.1
[15]	2875	0.8	0.1
[15]	2875	0.8	0.0
[15]	2875	0.8	0.2
[15]	2875	0.9	-0.1
[15]	2875	1.1	-0.1
[15]	2800	1.7	-0.1
[40]	2760	-2.7	0.1
[15]	2760	-2.7	0.3
[40]	2760	-2.2	0.0
[40]	2760	-1.7	-0.1
[40]	2760	-0.9	0.1
[40]	2760	-0.7	-0.1
[40]	2760	-0.7	0.0
[40]	2760	-0.6	0.3
[40]	2760	-0.6	-0.2
[40]	2760	-0.5	0.2
[40]	2760	-0.3	0.1
[40]	2760	0.1	0.1
[40]	2760	0.1	0.1
[40]	2760	0.2	0.1
[40]	2760	0.4	0.1
[40]	2760	0.7	0.1
[40]	2760	0.9	-0.2
[40]	2760	0.9	0.2
[40]	2760	1.2	0.1
[40]	2760	1.2	0.2
[40]	2760	1.7	0.2
[14]	2740	-0.8	0.8
[15]	2720	-1.8	0.8
[61]	2720	2.8	0.4
[61]	2720	-2.3	1.6
[61]	2720	-1.3	0.9

[61]	2720	0.2	0.5
[61]	2720	1.6	0.5
[61]	2720	0.9	1.0
[61]	2720	0.6	0.1
[61]	2720	0.1	0.7
[61]	2720	0.9	0.2
[61]	2720	0.1	0.1
[61]	2720	-0.2	0.4
[61]	2720	0.8	0.1
[61]	2720	1.2	0.4
[61]	2720	-3.2	0.2
[61]	2720	-4.8	-0.3
[61]	2720	-1.9	0.1
[61]	2720	-0.7	0.0
[61]	2720	1.1	2.0
[61]	2720	0.5	0.1
[61]	2720	-1.0	0.8
[61]	2720	-0.5	0.8
[61]	2720	-2.4	0.4
[61]	2720	-1.1	0.4
[61]	2720	2.1	0.2
[61]	2720	-0.8	_
[61]	2720	-5.7	0.6
[61]	2720	2.1	0.5
[61]	2720	0.8	0.9
[61]	2720	-1.0	0.7
[61]	2720	-1.0	0.2
[61]	2720	-0.8	0.5
[61]	2720	-1.6	0.5
[61]	2720	-1.1	0.8
[61]	2720	0.8	0.1
[15]	2715	-1.2	-0.1
[15]	2715	-0.1	0.7
[15]	2715	0.3	0.8
[15]	2715	1.8	0.9
[15]	2714	-2.1	-0.5
[15]	2714	0.6	0.2
[15]	2714	5.0	0.3
[14]	2710	6.0	0.1
[14]	2705	3.0	0.7
[37]	2700	-4.6	0.0
[19]	2700	-19.9	_
[19]	2700	16.8	_
[19]	2700	-6.9	_
[19]	2700	5.4	_
[19]	2700	-2.6	_
[14]	2670	2.1	-0.1
[42]	2650	-0.7	1.6
[42]	2650	-0.4	1.9
[42]	2650	0.1	2.3
[42]	2650	0.3	1.9
[42]	2650	1.5	3.2
[42]	2650	2.2	-0.1
[42]	2650	2.2	-0.1
[42]	2650	2.4	0.4
[42]	2650	2.6	0.1

[42]	2650	3.2	-2.5
[42]	2650	3.2	2.3
[42]	2650	3.3	0.1
[42]	2650	4.0	6.2
[42]	2650	4.4	3.0
[42]	2650	4.5	3.6
[42]	2650	4.6	2.5
[42]	2650	5.1	-2.5
[42]	2650	5.5	-2.4
[42]	2650	5.7	3.0
[42]	2650	6.3	4.4
[42]	2650	6.3	4.6
[42]	2650	6.5	2.2
[42]	2650	9.3	-0.5
[42]	2650	9.7	8.1
[42]	2650	9.8	-0.5
[42]	2650	9.8	-0.4
[42]	2650	15.8	-2.0
[42]	2650	16.2	-1.0
[25]	2642	-8.5	-1.5
[25]	2642	-1.7	0.1
[25]	2642	9.6	2.9
[25]	2642	9.6	3.0
[25]	2642	10.9	2.2
[46]	2600	1.5	2.7
[46]	2600	-1.1	1.3
[46]	2600	-1.5	1.4
[46]	2600	2.1	-1.9
[46]	2600	2.0	-2.0
[46]	2600	2.4	-1.2
[46]	2600	2.4	-1.7
[46]	2600	7.6	5.6
[46]	2600	7.8	6.0
[46]	2600	7.5	4.0
[46]	2600	7.0	3.8
[46]	2570	-8.2	-1.0
[46]	2570	-8.9	-0.9
[46]	2570	-8.5	-0.8
[46]	2570	-8.3	-0.9
[46]	2570	-7.2	-0.8
[46]	2570	-7.9	-0.7
[46]	2570	1.1	0.6
[46]	2570	0.8	1.2
[46]	2570	0.6	0.9
[46]	2570	-11.5	-1.2
[46]	2570	-12.2	-1.2
[46]	2570	0.0	3.1
[46]	2570	-0.8	2.7
[46]	2570	0.1	3.3
[46]	2570	1.4	2.5
[46]	2570	1.8	2.8
[46]	2570	1.1	3.0
[44]	2516	2.8	4.5
[29]	2510	-8.3	-0.7
[29]	2510	-7.5	-0.5
[29]	2510	-6.8	-0.8

[29]	2510	-5.9	3.5
[29]	2510	-5.6	3.5
[29]	2510	-5.5	3.8
[29]	2510	-5.2	3.7
[29]	2510	-5.0	3.5
[29]	2510	-4.7	0.9
[29]	2510	-4.6	-0.2
[29]	2510	-4.3	-0.6
[29]	2510	-4.1	2.0
[29]	2510	-3.8	-0.7
[29]	2510	-3.7	5.4
[29]	2510	-3.6	0.6
[29]	2510	-3.5	-0.9
[29]	2510	-3.3	2.1
[29]	2510	-3.2	-0.5
[29]	2510	-2.8	3.4
[29]	2510	-2.7	4.4
[29]	2510	-1.6	6.7
[29]	2510	-1.4	1.5
[29]	2510	-1.3	1.5
[29]	2510	-1.3	1.5
[29]	2510	-1.2	1.5
[29]	2510	-1.1	6.6
[29]	2510	-0.5	-0.9
[29]	2510	-0.4	-0.3
[29]	2510	-0.2	-0.5
[29]	2510	-0.1	-0.6
[29]	2510	0.0	7.0
[29]	2510	0.4	2.1
[29]	2510	0.5	-0.6
[29]	2510	0.5	2.0
[29]	2510	0.6	7.1
[29]	2510	0.6	1.8
[29]	2510	1.0	0.0
[29]	2510	1.0	6.1
[29]	2510	1.1	-0.6
[29]	2510	1.5	-0.4
[29]	2510	1.6	-0.5
[29]	2510	1.9	0.5
[29]	2510	2.2	7.2
[29]	2510	2.6	4.1
[29]	2510	3.4	-0.9
[29]	2510	3.8	7.2
[29]	2510	4.1	-0.7
[29]	2510	5.0	7.6
[29]	2510	5.6	2.7
[29]	2510	6.1	3.7
[29]	2510	6.8	9.2
[29]	2510	8.1	9.5
[29]	2510	8.2	8.7
[29]	2510	8.5	9.5
[29]	2510	8.6	4.4
[29]	2510	13.8	1.4
[29]	2510	14.1	1.7
[29]	2510	14.3	0.2
[29]	2510	14.6	1.6

[29]	2510	15.0	1.9
[29]	2510	15.9	1.2
[29]	2510	22.9	0.2
[30]	2500	10.5	9.4
[30]	2500	13.3	11.2
[30]	2500	5.7	0.5
[30]	2500	3.4	3.5
[30]	2500	4.9	4.9
[42]	2500	-5.7	-1.8
[42]	2500	-5.0	-1.9
[37]	2500	-4.1	-0.8
[42]	2500	-2.1	0.7
[42]	2500	-0.3	-1.0
[42]	2500	1.6	1.0
[42]	2500	1.9	0.2
[42]	2500	4.3	3.1
[42]	2500	4.3	3.6
[42]	2500	4.5	4.5
[42]	2500	4.5	4.4
[42]	2500	5.6	5.5
[42]	2500	8.4	6.9
[46]	2500	3.9	0.5
[46]	2500	4.5	0.9
[46]	2500	12.2	10.1
[46]	2500	21.1	10.5
[46]	2500	11.9	10.9
[46]	2500	1.2	3.0
[46]	2500	0.9	2.8
[46]	2500	1.2	2.8
[30]	2500	0.8	-1.5
[30]	2500	-6.1	0.6
[30]	2500	-5.6	0.5
[30]	2500	-2.4	1.0
[30]	2500	-0.2	-1.6
[30]	2500	-0.5	1.0
[30]	2500	-2.5	0.8
[30]	2500	-2.0	0.0
[30]	2500	-4.4	2.3
[30]	2500	-3.6	2.2
[30]	2500	0.0	4.2
[30]	2500	-3.2	2.0
[30]	2500	-2.9	2.3
[30]	2500	-2.1	3.1
[30]	2500	2.4	0.2
[30]	2500	-1.7	2.4
[30]	2500	-0.9	4.0
[30]	2500	-2.5	2.5
[30]	2500	-0.1	1.8
[30]	2500	-1.2	-0.6
[30]	2500	-3.3	6.5
[30]	2500	-1.6	1.0
[30]	2500	-5.6	0.9
[30]	2500	-3.3	1.5
[30]	2500	-3.2	1.8
[30]	2500	-4.2	1.5
[30]	2500	-0.6	-1.6

[30]	2500	-0.8	0.4
[30]	2500	-0.5	1.4
[30]	2500	-3.2	0.6
[30]	2500	0.6	0.2
[30]	2500	1.0	0.1
[30]	2500	0.7	2.0
[30]	2500	1.4	-1.1
[30]	2500	1.9	-0.5
[30]	2500	0.6	-0.8
[30]	2500	0.3	-0.7
[30]	2500	1.2	-0.7
[30]	2500	-1.5	0.1
[30]	2500	-1.8	0.5
[30]	2500	-4.3	-0.1
[30]	2500	-4.4	-0.4
[30]	2500	-4.3	-0.5
[30]	2500	-2.4	-1.2
[30]	2500	-1.5	-0.4
[30]	2500	0.3	-1.5
[28]	2500	0.7	1.6
[30]	2500	0.7	-1.1
[30]	2500	-1.5	-1.0
[30]	2500	-1.9	-1.2
[30]	2500	1.4	-1.1
[30]	2500	0.7	0.7
[30]	2500	1.6	-0.2
[30]	2500	2.6	1.7
[30]	2500	3.0	1.2
[30]	2500	4.3	3.4
[30]	2500	2.43	-1.27
[30]	2500	0.7	-1.2
[30]	2500	1.1	-0.4
[30]	2500	0.3	-2.0
[30]	2500	2.3	0.0
[30]	2500	3.0	1.3
[30]	2500	3.3	1.8
[30]	2500	2.7	2.5
[30]	2500	1.7	1.3
[30]	2500	2.6	1.3
[30]	2500	7.7	6.1
[30]	2500	2.9	0.4
[30]	2500	9.3	8.2
[30]	2500	2.7	1.9
[30]	2500	9.2	8.2
[30]	2500	5.3	3.6
[30]	2500	7.8	6.1
[30]	2500	3.7	2.1
[30]	2500	5.4	3.9
[30]	2500	10.7	9.5
[30]	2500	6.0	4.8
[30]	2500	1.0	-0.1
[30]	2500	3.7	2.9
[30]	2500	1.1	0.7
[30]	2500	2.0	1.0
[30]	2500	0.7	-0.1
[30]	2500	0.5	0.2

[30]	2500	-0.8	-0.8
[30]	2500	-0.4	-0.7
[30]	2500	-0.4	-0.2
[30]	2500	0.1	-0.4
[30]	2500	0.3	0.5
[30]	2500	5.1	2.6
[30]	2500	0.6	-32.0
[30]	2500	1.5	0.8
[30]	2500	2.4	1.3
[30]	2500	-5.0	2.3
[30]	2500	-0.2	1.9
[30]	2500	-1.3	2.5
[30]	2500	-1.9	0.8
[30]	2500	5.1	2.0
[30]	2500	11.5	2.0
[30]	2500	-4.4	1.7
[30]	2500	-3.1	3.7
[30]	2500	-2.8	2.4
[30]	2500	-2.1	1.2
[30]	2500	0.8	4.1
[30]	2500	0.6	0.3
[30]	2500	-2.3	1.2
[30]	2500	0.5	2.6
[30]	2500	-6.3	1.9
[30]	2500	-0.4	0.2
[30]	2500	-1.0	-0.4
[30]	2500	-1.4	2.4
[46]	2480	0.2	-0.4
[46]	2480	0.5	-0.1
[46]	2480	0.1	-0.5
[46]	2480	0.7	-0.3
[46]	2480	0.0	-0.8
[46]	2480	1.4	-0.6
[46]	2480	3.2	-0.6
[46]	2480	3.2	-0.4
[46]	2480	-0.2	-0.5
[46]	2480	-0.5	-0.9
[46]	2480	1.6	-1.0
[46]	2480	1.6	-0.7
[46]	2480	3.8	-0.8
[46]	2480	4.5	-0.9
[46]	2480	-2.2	-0.8
[46]	2480	-2.2	-1.1
[46]	2480	0.8	-1.0
[46]	2480	0.4	-0.9
[46]	2480	-1.9	-0.9
[46]	2480	-1.6	-1.0
[46]	2480	0.0	-1.2
[46]	2480	-0.1	-1.2
[46]	2480	1.2	-0.7
[46]	2480	1.4	-0.6
[46]	2460	-0.4	0.2
[46]	2460	-0.3	0.3
[46]	2460	8.6	-1.0
[46]	2460	10.1	-1.0
[46]	2460	5.0	0.0

[46]	2460	5.0	-0.1
[46]	2460	7.9	0.0
[46]	2460	22.2	-0.3
[46]	2460	22.2	-0.3
[46]	2460	22.7	0.1
[46]	2460	23.3	0.1
[46]	2460	30.6	0.3
[46]	2460	35.2	0.0
[46]	2460	35.8	0.0
[46]	2460	13.8	-0.1
[46]	2460	13.9	-0.1
[46]	2460	13.2	0.2
[46]	2460	3.7	0.4
[46]	2460	2.8	0.2
[46]	2460	-4.2	-0.2
[46]	2460	-4.4	0.1
[46]	2460	-4.8	0.2
[46]	2460	7.1	0.2
[46]	2460	6.7	0.4
[14]	2450	-1.4	2.0
[44]	2350	-5.2	0.1
[5]	2322	-34.7	0.1
[5]	2322	-33.5	0.1
[5]	2322	-33.4	0.2
[5]	2322	-33.3	0.1
[5]	2322	-32.6	-0.1
[5]	2322	-31.1	-0.1
[5]	2322	-31.1	-0.1
[5]	2322	-30.0	0.1
[5]	2322	-29.9	-0.1
[5]	2322	-29.6	0.1
[5]	2322	-29.1	0.2
[5]	2322	-28.9	0.2
[5]	2322	-26.9	0.2
[5]	2322	-26.2	0.1
[5]	2322	-25.8	0.3
[5]	2322	-25.6	0.1
[5]	2322	-25.6	0.1
[5]	2322	-25.5	0.4
[5]	2322	-25.3	0.3
[5]	2322	-23.9	0.2
[44]	2150	-0.8	0.0
[14]	2090	-9.0	0.3
[14]	2090	6.3	0.0
[44]	2075	6.2	0.0
[44]	2075	6.7	0.0
[44]	2075	7.1	0.1
[44]	2075	7.3	0.0
[44]	2075	8.3	0.0
[44]	2075	9.7	0.0
[44]	2075	11.5	0.0
[44]	2075	11.9	0.1
[44]	2075	13.0	0.0
[44]	2075	13.6	0.1
[44]	2075	13.6	0.0
[44]	2075	14.2	0.0

[44]	2075	15.0	0.0
[44]	2075	15.6	0.0
[44]	2075	16.1	0.1
[44]	2075	19.7	0.0
[44]	2010	-7.5	0.1
[44]	2000	-7.7	0.0
[X] SF6			
[X] SO2			
barite and sulfate			
[33]*	3500	2.7	_
[33]**	3500	3.9	_
[33]***	3500	3.3	_
[58]*	3490	3.2	_
[58]**	3490	8.7	_
[58]***	3490	4.6	_
[64]*	3460	4.0	_
[64]**	3460	6.3	_
[64]***	3460	5.4	_
[14]	3435	5.2	-1.2
[14]	3435	4.2	-0.5
[14]	3435	3.5	-1.3
[14]	3435	5.2	-1.0
[14]	3435	4.6	-1.0
[33]*	3400	3.0	_
[33]**	3400	6.0	_
[33]***	3400	3.9	_
[14]	3350	4.3	-0.4
[14]	3350	3.6	-0.6
[14]	3350	3.6	-0.6
[14]	3350	4.2	-0.5
[14]	3350	0.7	1.1
[14]	3350	1.1	0.6
[11]. [23]*	3300	4.0	_
[11]. [23]**	3300	7.5	_
[11]. [23]***	3300	5.4	_
[47]*	3200	3.1	_
[47]**	3200	3.8	_
[47]***	3200	3.4	_
[64]***	3200	4.5	_
[3]	3200	3.7	-0.3
[3]	3200	6.2	-0.7
[3]	3200	4.8	-0.6
[14]	3000	4.3	-0.5
[14]	2740	-1.3	1.0
[14]	2650	0.3	1.9
[14]	2500	14.8	0.1
[14]	2500	1.3	-0.7
[14]	2450	-0.4	1.2
[14]	2400	3.0	0.0
[14]	2250	2.7	0.2
[14]	2250	2.8	0.3
[14]	2250	5.8	0.1
[11]**	2000	17.1	_
[11]**	2000	21.4	_
[11]***	2000	18.8	_

* min
** max
*** average

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