## Datashare 125

Tectonic and paleogeographic controls on development of the Early–Middle Ordovician Shanganning Carbonate Platform, Ordos Basin, North China

## Zhonghong Chen, Zhi Chai, Bin Cheng, Hua Liu, Yingchang Cao, Zicheng Cao, and Jiangxiu Qu

AAPG Bulletin, v. 105, no. 1 (January 2021), pp. 65–107 Copyright ©2021. The American Association of Petroleum Geologists. All rights reserved.

Table S1	Absol	ute Cc	ncent	ations	of n-A	Ikanes	of the	Oils ir	ו the C	)rdovic	ian Cal	rbonat	e Rock	s Usec	l in Th	is Stud	٨									
<i>n</i> -Alkanes	=	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
SHB1	0.39	1.55	2.85	3.52	3.75	3.53	3.28	2.89	2.66	2.44	2.17	1.91	1.73	1.56	1.42	1.33	1.17	0.98	0.83 (	).63 (	.43 (	0.33	0.23	0.15	0.11	0.06
SHB1-1H	0.98	2.06	2.95	3.28	3.18	2.97	2.67	2.36	2.05	1.82	1.55	1.34	1.20	1.02	0.87	0.73	0.61	0.49	0.35 (	0.27 (	.19 (	0.13	0.10	0.06	0.05	0.03
SHB1-2H	0.05	0.53	1.59	2.39	2.93	2.88	2.70	2.44	2.14	1.90	1.64	1.39	1.20	0.99	0.83	0.61	0.42	0.31	0.21 (	0.14 (	0.09	0.06	0.04	0.02	0.01	0.00
SHB1-3CH	0.04	0.60	1.70	2.30	2.38	2.32	2.15	1.97	1.66	1.44	1.24	1.04	0.89	0.74	0.58	0.45	0.32	0.23	0.14 (	0.11	0.07	0.05	0.04	0.03	0.02	0.01
SHB1-9	0.76	1.77	2.80	3.23	3.25	3.00	2.74	2.36	2.14	1.92	1.64	1.42	1.25	1.08	0.97	0.84	0.73	0.63	0.47 (	0.40	0.29	0.22	0.17	0.11	0.07	0.04
SHBICX	1.13	2.60	3.79	4.18	4.17	3.64	3.32	3.02	2.59	2.32	1.95	1.69	1.49	1.26	1.12	1.01	0.83	0.70	0.52 (	0.46 (	34 (	0.27	0.21	0.16	0.12	0.09
SHBP1H	1.80	2.94	3.67	3.95	3.88	3.41	3.21	2.84	2.51	2.24	1.95	1.71	1.56	1.39	1.23	1.04	0.94	0.82	0.63 (	).53 (	39 (	0.29	0.21	0.15	0.11	0.07
SHB3	0.88	1.76	2.67	3.21	3.27	3.07	3.09	2.81	2.57	2.49	2.35	2.27	2.15	2.12	1.95	1.78	1.55	1.36	1.13 (	0.82 (	.60	0.43	0.30	0.18	0.13	0.07
																										l

Table S2. Absolute Concentrations of Terpanes of the Oils in the Ordovician Carbonate Rocks Used in This Study

				-															
Well	C19TT	C20TT	C21TT	С22П	С23П	C24TT	C25TT	C24TeT	C26TT	C28TT	С29П	Ts	Tm	C30TT	C29H	C29Ts	C30H	C31H(22S)	C31H(22R)
SHB1	13.0	34.8	24.5	10.1	55.8	36.4	34.4	10.0	27.5	27.9	40.6	14.2	5.2	36.0	9.2	5.4	17.1	14.9	20.4
SHB1-1H	8.8	14.8	5.6	3.3	13.1	7.1	9.9	3.8	7.1	6.4	10.7	5.3	4.8	6.7	7.2	1.9	13.2	2.6	5.9
SHB1-2H	6.6	13.1	3.9	2.1	9.1	5.4	4.2	1.7	4.8	4.5	6.1	1.3	1.5	5.5	/	/	/	/	/
SHB1-3CH	5.2	12.8	3.2	1.6	0.6	5.1	4.2	2.1	6.7	3.5	5.1	1.8	1.4	4.7	/	/	/	/	/
SHB1-9	7.6	19.6	5.9	2.2	11.3	6.6	5.9	2.1	4.4	5.8	11.0	3.6	2.3	7.9	2.4	1.3	4.8	/	/
SHBICX	9.5	19.9	7.0	3.8	16.2	7.3	6.7	3.9	7.1	5.7	12.5	2.4	2.3	<i>T.T</i>	1.5	1.2	2.7	/	/
SHBP1H	8.1	19.8	15.0	6.0	32.8	22.1	18.4	2.1	16.2	17.5	25.2	4.7	3.0	20.8	2.6	0.8	6.3	7.4	10.4
Abbreviation	:: / = no d	ata; H = hc	pane; TeT	= tetracycli	ic terpane;	$Tm = 17\alpha($	(H)-trisnorho	opane; Ts =	1800(H)-tris	norneohop	ane; TT = t	ricyclic te	rpane.						

DBI MDBI DMDBI IMDBI FL MFL D 63 289 581 341 35 120	TMP DBT MDBT DMDBT TMDBT FL MFL D 295 63 289 581 341 35 120	C2-P TMP DBT MDBT DMDBT TMDBT FL MFL D	MP C2-P TMP DBT MDBT DMDBT TMDBT FL MFL D	P MP C2-P TMP DBT MDBT DMDBT TMDBT FL MFL D	TEMN P MP C2-P TMP DBT MDBT DMDBT TMDBT FL MFL D	TIMN TEMN P MP C2-P TIMP DBT MDBT DMDBT TIMDBT FL MFL D	DMN TMN TEMN P MP C2-P TMP DBT MDBT DMDBT TMDBT FL MFL C	M-FN DMN TMN TANN P MP C2-P TMP DRT MDRT DMDRT TMDRT FI MF P	EN M-EN DMN TMN TAMN P MP (7-P TMP DRT MDRT DMDRT TMDRT ET MET P		NI NANI ENI MAENI PANNI TANNI TANNI DI MADI CO DI TANDI COTI NANDI TANNDI TANNDI TANNDI TANNDI TANNDI TANN
63 289 581 341 35 12	295 63 289 581 341 35 12									win en men uwin iwin iennin famin fan de inden umudei imudei flami.	N MIN EN M'EIN DIVIN I IMIN I EININ Y MIY CZ-Y IMIY DBI MUBI DIVIDBI IMUBI FL MI
		519 295 63 289 581 341 35 120	357 519 295 63 289 581 341 35 120	96 357 519 295 63 289 581 341 35 120	125 96 357 519 295 63 289 581 341 35 120	219 125 96 357 519 295 63 289 581 341 35 120	55 219 125 96 357 519 295 63 289 581 341 35 120	145 55 219 125 96 357 519 295 63 289 581 341 35 120	0.5 145 55 219 125 96 357 519 295 63 289 581 341 35 120	0.9 0.5 145 55 219 125 96 357 519 295 63 289 581 341 35 120	0.1 0.9 0.5 145 55 219 125 96 357 519 295 63 289 581 341 35 120
85 297 483 242 35 133	163 85 297 483 242 35 133	314 163 85 297 483 242 35 133	243 314 163 85 297 483 242 35 133	76 243 314 163 85 297 483 242 35 133	62 76 243 314 163 85 297 483 242 35 133	105 62 76 243 314 163 85 297 483 242 35 133	16 105 62 76 243 314 163 85 297 483 242 35 133	47 16 105 62 76 243 314 163 85 297 483 242 35 133	0.2 47 16 105 62 76 243 314 163 85 297 483 242 35 133	0.7 0.2 47 16 105 62 76 243 314 163 85 297 483 242 35 133	0.0 0.7 0.2 47 16 105 62 76 243 314 163 85 297 483 242 35 133
65 246 434 239 32 127 232	182 65 246 434 239 32 127 232	345 182 65 246 434 239 32 127 232	255 345 182 65 246 434 239 32 127 232	75 255 345 182 65 246 434 239 32 127 232	72 75 255 345 182 65 246 434 239 32 127 232	163 72 75 255 345 182 65 246 434 239 32 127 232	95 163 72 75 255 345 182 65 246 434 239 32 127 232	143 95 163 72 75 255 345 182 65 246 434 239 32 127 232	0.2 143 95 163 72 75 255 345 182 65 246 434 239 32 127 232	1.1 0.2 143 95 163 72 75 255 345 182 65 246 434 239 32 127 232	0.0 1.1 0.2 143 95 163 72 75 255 345 182 65 246 434 239 32 127 232
94 321 489 242 37 139	147 94 321 489 242 37 139	299     147     94     321     489     242     37     139	243 299 147 94 321 489 242 37 139	80 243 299 147 94 321 489 242 37 139	62     80     243     299     147     94     321     489     242     37     139	152 62 80 243 299 147 94 321 489 242 37 139	81 152 62 80 243 299 147 94 321 489 242 37 139	119     81     152     62     80     243     299     147     94     321     489     242     37     139	0.2 119 81 152 62 80 243 299 147 94 321 489 242 37 139	1.1     0.2     119     81     152     62     80     243     299     147     94     321     489     242     37     139	0.1 1.1 0.2 119 81 152 62 80 243 299 147 94 321 489 242 37 139
94 321 489 242 37 82 286 466 234 34	14/ 94 321 489 242 37 171 82 286 466 234 34	299 14/ 94 521 489 242 57 317 171 82 286 466 234 34	243 299 14/ 94 321 489 242 37 238 317 171 82 286 466 234 34	80 243 299 147 94 321 489 242 37 72 238 317 171 82 286 466 234 34	02 80 243 299 147 94 321 489 242 37 73 72 238 317 171 82 286 466 234 34	152 62 60 245 299 147 94 521 489 242 57 177 73 72 238 317 171 82 286 466 234 34	81 152 62 80 245 299 147 94 521 489 242 57 320 177 73 72 238 317 171 82 286 466 234 34	119 81 152 62 80 243 299 147 94 521 489 242 57 160 320 177 73 72 238 317 171 82 286 466 234 34	0.2 119 81 152 62 80 243 299 147 94 521 489 242 57 8.7 160 320 177 73 72 238 317 171 82 286 466 234 34	1.1 0.2 119 81 132 62 80 243 299 147 94 321 489 242 37 24.4 8.7 160 320 177 73 72 238 317 171 82 286 466 234 34	0.1 1.1 0.2 119 81 152 62 80 245 299 147 94 521 489 242 57 0.2 24.4 8.7 160 320 177 73 72 238 317 171 82 286 466 234 34
82 286 466 234 95 337 534 264	171 82 286 466 234 158 95 337 534 264	317 171 82 286 466 234 310 158 95 337 534 264	238 317 171 82 286 466 234 243 310 158 95 337 534 264	72 238 317 171 82 286 466 234 79 243 310 158 95 337 534 264	73 72 238 317 171 82 286 466 234 66 79 243 310 158 95 337 534 264	177 73 72 238 317 171 82 286 466 234 162 66 79 243 310 158 95 337 534 264	320 177 73 72 238 317 171 82 286 466 234 112 162 66 79 243 310 158 95 337 534 264	160 320 177 73 72 238 317 171 82 286 466 234 139 112 162 66 79 243 310 158 95 337 534 264	8.7 160 320 177 73 72 238 317 171 82 286 466 234 0.5 139 112 162 66 79 243 310 158 95 337 534 264	24.4 8.7 160 320 177 73 72 238 317 171 82 286 466 234 1.6 0.5 139 112 162 66 79 243 310 158 95 337 534 264	0.2 24.4 8.7 160 320 177 73 72 238 317 171 82 286 466 234 0.1 1.6 0.5 139 112 162 66 79 243 310 158 95 337 534 264
82 286 466 95 337 534	1/1 82 286 466 158 95 337 534 222 23 237 534	31/ 1/1 82 286 466 310 158 95 337 534 	238 51/ 1/1 82 286 466 243 310 158 95 337 534 	72 238 517 171 82 286 466 79 243 310 158 95 337 534 00 200 200 200 200 200 200	/3 /2 238 51/ 1/1 82 286 466 66 79 243 310 158 95 337 534 00 00 100 100 100 100 000 000	1// /3 /2 238 31/ 1/1 82 286 466 162 66 79 243 310 158 95 337 534 202 202 202 202 202 202 202 202 202 202	320 1// /3 /2 238 31/ 1/1 82 286 466 112 162 66 79 243 310 158 95 337 534 	160 520 1// /3 /2 238 51/ 1/1 82 286 466 139 112 162 66 79 243 310 158 95 337 534 200 201 201 201 201 201 201 201 201 201	8./ 160 5.20 1// /3 /2 2.38 51/ 1/1 82 2.86 466 0.5 139 112 162 66 79 2.43 310 158 95 337 534 0.7 200 00 00 00 00 00 00 00 000 000 000 0	24.4 8./ 160 520 1// /3 /2 238 31/ 1/1 82 286 466   1.6 0.5 139 112 162 66 79 243 310 158 95 337 534   2.7 2.2 2.6 2.4 310 158 95 337 534	0.2 24.4 8.7 160 520 177 73 72 238 317 171 82 286 466 0.1 1.6 0.5 139 112 162 66 79 243 310 158 95 337 534 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 00 0.0 00 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000 000
65 246 94 321 82 286 95 337	182     65     246       147     94     321       171     82     286       158     95     337	345     182     65     246       299     147     94     321       317     171     82     286       310     158     95     337	255     345     182     65     246       243     299     147     94     321       238     317     171     82     286       243     310     158     95     337	75     255     345     182     65     246       80     243     299     147     94     321       72     238     317     171     82     286       79     243     310     158     95     337	72     75     255     345     182     65     246       62     80     243     299     147     94     321       73     72     238     317     171     82     286       66     79     243     310     158     95     337	163     72     75     255     345     182     65     246       152     62     80     243     299     147     94     321       177     73     72     238     317     171     82     286       162     66     79     243     310     158     95     337	95 163 72 75 255 345 182 65 246   81 152 62 80 243 299 147 94 321   320 177 73 72 238 317 171 82 286   112 162 66 79 243 310 158 95 337	143   95   163   72   75   255   345   182   65   246     119   81   152   62   80   243   299   147   94   321     160   320   177   73   72   238   317   171   82   286     139   112   162   66   79   243   310   158   95   337	0.2 143 95 163 72 75 255 345 182 65 246   0.2 119 81 152 62 80 243 299 147 94 321   8.7 160 320 177 73 72 238 317 171 82 286   0.5 139 112 162 66 79 243 310 158 95 337	1.1   0.2   143   95   163   72   75   255   345   182   65   246     1.1   0.2   119   81   152   62   80   243   299   147   94   321     24.4   8.7   160   320   177   73   72   238   317   171   82   286     1.6   0.5   139   112   162   66   79   243   310   158   95   337	0.0 1.1 0.2 143 95 163 72 75 255 345 182 65 246   0.1 1.1 0.2 119 81 152 62 80 243 299 147 94 321   0.2 24.4 8.7 160 320 177 73 72 238 317 171 82 286   0.1 1.6 0.5 139 112 162 66 79 243 310 158 95 337
85 65 94 82 95	163 85 182 65 147 94 171 82 158 95	314     163     85       345     182     65       399     147     94       317     171     82       310     158     95	243 314 163 85   255 345 182 65   243 299 147 94   238 317 171 82   243 310 158 95	76     243     314     163     85       75     255     345     182     65       80     243     299     147     94       72     238     317     171     82       79     243     310     158     95	62     76     243     314     163     85       72     75     255     345     182     65       62     80     243     299     147     94       73     72     238     317     171     82       73     72     238     317     171     82       66     79     243     310     158     95	105     62     76     243     314     163     85       163     72     75     255     345     182     65       152     62     80     243     299     147     94       177     73     72     238     317     171     82       162     66     79     243     310     158     95	16     105     62     76     243     314     163     85       95     163     72     75     255     345     182     65       81     152     62     80     243     299     147     94       320     177     73     72     238     317     171     82       112     162     66     79     243     310     158     95	47 16 105 62 76 243 314 163 85   143 95 163 72 75 255 345 182 65   119 81 152 62 80 243 299 147 94   160 320 177 73 72 238 317 171 82   139 112 162 66 79 243 310 158 95	0.2 47 16 105 62 76 243 314 163 85   0.2 143 95 163 72 75 255 345 182 65   0.2 119 81 152 62 80 243 299 147 94   8.7 160 320 177 73 72 238 317 171 82   0.5 139 112 162 66 79 243 310 158 95	0.7 0.2 47 16 105 62 76 243 314 163 85   1.1 0.2 143 95 163 72 75 255 345 182 65   1.1 0.2 119 81 152 62 80 243 299 147 94   24.4 8.7 160 320 177 73 72 238 317 171 82   1.6 0.5 139 112 162 66 79 243 310 158 95	0.0     0.7     0.2     47     16     105     62     76     243     314     163     85       0.0     1.1     0.2     143     95     163     72     75     255     345     182     65       0.1     1.1     0.2     119     81     152     62     80     243     299     147     94       0.1     1.1     0.2     119     81     152     62     80     243     299     147     94       0.2     24.4     8.7     160     320     177     73     72     238     317     171     82       0.1     1.6     0.5     139     112     162     66     79     243     310     158     95
	163 182 147 171 171 158	314 163   345 182   345 182   299 147   317 171   310 158	243 314 163   255 345 182   255 345 182   243 299 147   238 317 171   243 310 158	76     243     314     163       75     255     345     182       80     243     299     147       72     238     317     171       79     243     310     158	62 76 243 314 163   72 75 255 345 182   62 80 243 299 147   73 72 238 317 171   66 79 243 310 158   65 79 243 310 158	105 62 76 243 314 163   163 72 75 255 345 182   152 62 80 243 299 147   177 73 72 238 317 171   162 66 79 243 310 158   162 66 79 243 310 158	16     105     62     76     243     314     163       95     163     72     75     255     345     182       81     152     62     80     243     299     147       320     177     73     72     238     317     171       112     162     66     79     243     310     158	47 16 105 62 76 243 314 163   143 95 163 72 75 255 345 182   119 81 152 62 80 243 299 147   160 320 177 73 72 238 317 171   139 112 162 66 79 243 310 158	0.2 47 16 105 62 76 243 314 163   0.2 143 95 163 72 75 255 345 182   0.2 119 81 152 62 80 243 299 147   8.7 160 320 177 73 72 238 317 171   0.5 139 112 162 66 79 243 310 158	0.7 0.2 47 16 105 62 76 243 314 163   1.1 0.2 143 95 163 72 75 255 345 182   1.1 0.2 119 81 152 62 80 243 299 147   24.4 8.7 160 320 177 73 72 238 317 171   1.6 0.5 139 112 162 66 79 243 310 158	0.0 0.7 0.2 47 16 105 62 76 243 314 163   0.0 1.1 0.2 143 95 163 72 75 255 345 182   0.1 1.1 0.2 119 81 152 62 80 243 299 147   0.1 1.1 0.2 119 81 152 62 80 243 299 147   0.2 24.4 8.7 160 320 177 73 72 238 317 171   0.1 1.6 0.5 139 112 162 66 79 243 310 158   0.1 1.6 0.5 139 112 162 66 79 243 310 158

**Table 53.** Absolute Concentrations of Aromatic Hydrocarbons of the Oils in the Ordovician Carbonate Bocks Used in This Study

Abbreviations: / = no data; BNT = benzonaphthothiophene; C2-DBF = dimethyl and ethyl dibenzofurans; C2P = dimethyl and ethyl phenanthrenes; DBF = dibenzofuran; DBT = dibenzothiophene; DMDBT = dimethyl di-benzothiophene; DMFL = dimethyl fluorene; DMN = dimethyl naphthalene; EL = fluorene; MDBF = methyl dibenzofuran; MDBT = methyl dibenzothiophene; M-EN = methyl naphthalene; MFL = methyl fluorene; MN = methyl naphthalene; MP = methylphenanthrenes; N = naphthalene; P = phenanthrene; TAS = triaromatic steroid; TeMN = tetramethyl naphthalene; TMN = trimethyl naphthalene; TMP = trimethylphenanthrenes.



Figure S1. Distribution of absolute concentration of n-alkanes in the Ordovician oils from the Shuntuoguole low uplift in the Tarim Basin.



**Figure S2.** Absolute concentrations of terpanes (A), steranes (B), and aromatic hydrocarbons (C) of the oils in the Ordovician carbonate rocks used in this study. Ave = average; BNT = benzonaphthothiophene; C2-DBF = dimethyl and ethyl dibenzofuran; C2P = dimethyl and ethyl phenanthrene; DBF = dibenzofuran; DBT = dibenzothiophene; Dia = diasterane; DMDBT = dimethyl dibenzothiophene; DMFL = dimethyl fluorene; DMN = dimethyl naphthalene; EN = ethyl naphthalene; FL = fluorene; H = hopane; Max = maximum; MDBF = methyl dibenzofuran; MDBT = methyl dibenzothiophene; N = methyl-ethyl naphthalene; MFL = methyl fluorene; Min = minimum; MN = methyl naphthalene; MP = methylphenanthrene; N = naphthalene; P = phenanthrene; TAS = triaromatic steroid; TeMN = tetramethyl naphthalene; TMP = trimethylphenanthrene; TT = tricyclic terpane.



**Figure S3.** An oil–source rock correlation using the triaromatic steroid (TAS) parameters  $C_{28}$ -/( $C_{26} + C_{27}$ ) TAS,  $C_{27}$ -20R/ $C_{28}$ -20R TAS, and  $C_{26}$ -20S/ $C_{28}$ -20S TAS and a set of source data based on the previous study (Chen et al., 2018b). (A) Crossplot of the triaromatic steroid parameters  $C_{28}$  /( $C_{26} + C_{27}$ ) TAS versus  $C_{27}$ -20R/ $C_{28}$ -20R TAS. (B) Crossplot of the triaromatic steroid parameters  $C_{28}$  /( $C_{26} + C_{27}$ ) TAS versus  $C_{27}$ -20R/ $C_{28}$ -20R TAS. (B) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20S TAS versus  $C_{27}$ -20R/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20S TAS versus  $C_{27}$ -20R/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20S TAS versus  $C_{27}$ -20R/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20S TAS versus  $C_{27}$ -20R/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20S TAS versus  $C_{27}$ -20R/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20S TAS versus  $C_{27}$ -20R/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20S TAS versus  $C_{27}$ -20R/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20S TAS versus  $C_{27}$ -20R/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20R TAS. (C) Crossplot of the triaromatic steroid parameters  $C_{26}$ -20S/ $C_{28}$ -20R TAS. (C) Crossplot cr



**Figure S4.** Statistical results of the API (A), viscosity (B), sulfur content (C), and ratio of saturate to aromatic hydrocarbon contents (D) of Ordovician crude oils from the Shunbei no. 1 fault belt and Shunbei no. 5 fault belt in the SLU in comparison.



**Figure S5.** The drilling cores (A) and petroscopic photographs (B, C) showing that microscale sutures and fractures (F) are also well developed in the Ordovician carbonate rocks in the Tarim Basin. (A) The drilling cores of the Ordovician Yijianfang Formation at 7443.9m of the well SB2 showing that sutures are well developed and filled by solid bitumen (SB). (B, C) The microscopic photographs of the Ordovician Yingshan Formation in the Xikel Grand Canyon in Bachu area showing that transverse F (B) vertical F (C) are both developed. SV = solution void.



**Figure S6.** Plot of the absolute concentration of (3-+4-) methyldiamantane (MD) versus diamantane of the Ordovician crude oils from the Shunbei and Tahe oilfields in the Tarim basins.

## **REFERENCES CITED**

Chen, Z., T.-G. Wang, M. Li, F. Yang, and B. Cheng, 2018b, Biomarker geochemistry of crude oils and Lower Paleozoic source rocks in the Tarim Basin, western China: An oil-source rock correlation study: Marine and Petroleum Geology, v. 96, p. 94–112, doi:10.1016 /j.marpetgeo.2018.05.023.