

## Data Repository Item DR2009077

**Table DR1: Geochemical data of Honghuayuan section**

Sample No.	Formation	Stage	Graptolite zone	Height (m)	$\delta^{13}\text{C}_{\text{org}}$ (‰)	$\delta^{34}\text{S}$ (‰)	Org.C (%)
GZ157	Lungmachi	Rhuddanian	C. vesiculosus	16.30	-28.32	9.74	0.38
GZ156	Lungmachi	Rhuddanian	C. vesiculosus	16.10	-27.82	9.96	0.34
GZ155	Lungmachi	Rhuddanian	P. acuminatus	15.90	-27.97	8.73	0.30
GZ154	Lungmachi	Rhuddanian	P. acuminatus	15.70	-28.09	7.71	0.31
GZ153	Lungmachi	Rhuddanian	P. acuminatus	15.55	-28.58	0.57	0.70
GZ152	Kuanyichiao	Rhuddanian	P. acuminatus	15.40	-27.73	9.15	0.10
GZ151	Kuanyichiao	Rhuddanian	P. acuminatus	15.20	-28.51	4.98	0.51
GZ150	Kuanyichiao	Rhuddanian	A. ascensus	14.90	-28.57	9.58	0.83
GZ149	Kuanyichiao	Rhuddanian	A. ascensus	14.70	-28.48	14.76	2.38
GZ148	Kuanyichiao	Rhuddanian	A. ascensus	14.50	-28.58	15.94	4.31
GZ142	Kuanyichiao	Hirnantian	N. persculptus	13.80	-28.05	20.41	0.45
GZ141	Kuanyichiao	Hirnantian	N. persculptus	13.55	-27.79	19.78	0.36
GZ140	Kuanyichiao	Hirnantian	N. persculptus	13.27	-27.76	18.97	0.38
GZ139	Kuanyichiao	Hirnantian	N. persculptus	13.07	-27.49	19.15	0.30
GZ138	Kuanyichiao	Hirnantian	N. persculptus	12.87	-27.35	19.70	0.39
GZ137	Kuanyichiao	Hirnantian	N. persculptus	12.72	-27.54	19.84	0.40
GZ136	Kuanyichiao	Hirnantian	N. persculptus	12.54	-28.22	17.47	0.56
GZ135	Kuanyichiao	Hirnantian	N. persculptus	12.46	-28.42	14.33	0.52

GZ134	Kuanyichiao	Hirnantian	N. persculptus	12.36	-28.39	16.38	0.77
GZ133	Kuanyichiao	Hirnantian	N. persculptus	12.31	-28.52	15.71	0.63
GZ132	Kuanyichiao	Hirnantian	N. extraordiarius	12.20	-28.89	18.59	1.64
GZ131	Kuanyichiao	Hirnantian	N. extraordiarius	12.12	-28.90	18.61	1.79
GZ130	Kuanyichiao	Hirnantian	N. extraordiarius	12.04	-28.93	17.85	1.88
GZ129	Kuanyichiao	Hirnantian	N. extraordiarius	11.95	-28.94	18.25	3.35
GZ128	Kuanyichiao	Hirnantian	N. extraordiarius	11.87	-28.92	18.78	3.26
GZ127	Kuanyichiao	Hirnantian	N. extraordiarius	11.78	-28.95	18.96	3.26
GZ126	Kuanyichiao	Hirnantian	N. extraordiarius	11.70	-28.94	16.53	3.42
GZ125	Kuanyichiao	Hirnantian	N. extraordiarius	11.61	-28.90	18.73	4.17
GZ124	Kuanyichiao	Hirnantian	N. extraordiarius	11.53	-28.95	18.84	3.68
GZ123	Kuanyichiao	Hirnantian	N. extraordiarius	11.44	-28.91	18.97	3.11
GZ122	Kuanyichiao	Hirnantian	N. extraordiarius	11.36	-28.92	18.92	3.15
GZ121	Kuanyichiao	Hirnantian	N. extraordiarius	11.27	-28.93	18.94	3.22
GZ120	Kuanyichiao	Hirnantian	N. extraordiarius	11.18	-28.97	18.78	2.90
GZ119	Kuanyichiao	Hirnantian	N. extraordiarius	11.10	-28.96	19.08	2.75
GZ118	Kuanyichiao	Hirnantian	N. extraordiarius	11.01	-28.99	16.81	2.28
GZ117	Kuanyichiao	Hirnantian	N. extraordiarius	10.93	-28.49	18.46	2.16
GZ116	Kuanyichiao	Hirnantian	N. extraordiarius	10.86	-28.73	18.39	1.32
GZ115	Kuanyichiao	Hirnantian	N. extraordiarius	10.76	-28.85	16.97	1.46
GZ114	Kuanyichiao	Hirnantian	N. extraordiarius	10.66	-28.90	16.48	2.04

GZ113	Kuanyichiao	Hirnantian	N. extraordiarius	10.56	-28.76	18.85	2.54
GZ112	Kuanyichiao	Hirnantian	N. extraordiarius	10.46	-28.83	18.77	3.47
GZ111	Kuanyichiao	Hirnantian	N. extraordiarius	10.36	-28.73	18.45	4.73
GZ110	Kuanyichiao	Hirnantian	N. extraordiarius	10.26	-28.65	18.65	4.62
GZ109	Kuanyichiao	Hirnantian	N. extraordiarius	10.16	-28.73	18.21	5.87
GZ108	Kuanyichiao	Hirnantian	N. extraordiarius	10.06	-28.72	17.26	7.30
GZ107	Kuanyichiao	Hirnantian	N. extraordiarius	9.96	-28.73	18.01	7.48
GZ106	Kuanyichiao	Hirnantian	N. extraordiarius	9.86	-28.91	18.16	8.95
GZ105	Kuanyichiao	Hirnantian	N. extraordiarius	9.71	-28.83	17.97	8.87
GZ104	Wufeng	Hirnantian	N. extraordiarius	9.56	-30.00	15.72	5.41
GZ103	Wufeng	Hirnantian	N. extraordiarius	9.39	-29.97	12.53	5.04
GZ102	Wufeng	Hirnantian	N. extraordiarius	9.22	-29.84	12.27	4.47
GZ101	Wufeng	Hirnantian	N. extraordiarius	9.05	-29.95	13.42	4.87
GZ100	Wufeng	Hirnantian	N. extraordiarius	8.80	-29.97	11.88	4.69
GZ99	Wufeng	Hirnantian	N. extraordiarius	8.46	-30.32	11.37	4.18
GZ98	Wufeng	Hirnantian	N. extraordiarius	8.21	-30.33	11.60	4.46
GZ97	Wufeng	Hirnantian	N. extraordiarius	8.04	-30.30	10.85	4.47
GZ96	Wufeng	Katian	P. pacificus	7.78	-30.26	11.59	4.78
GZ95	Wufeng	Katian	P. pacificus	7.44	-30.23	9.55	4.81
GZ94	Wufeng	Katian	P. pacificus	7.28	-30.32	8.85	4.27
GZ93	Wufeng	Katian	P. pacificus	6.77	-30.26	8.34	3.68

GZ92	Wufeng	Katian	P. pacificus	6.43	-30.31	7.40	4.16
GZ91	Wufeng	Katian	P. pacificus	5.58	-30.30	8.27	4.68
GZ90	Wufeng	Katian	P. pacificus	4.91	-30.35	9.22	5.00
GZ89	Wufeng	Katian	P. pacificus	4.40	-30.33	9.07	3.98
GZ88	Wufeng	Katian	D. complexus	3.38	-30.29	9.39	3.63
GZ87	Wufeng	Katian	D. complexus	2.88	-30.26	9.04	5.00
GZ86	Wufeng	Katian	D. complexus	2.54	-30.28	8.15	4.84
GZ85	Wufeng	Katian	D. complexus	2.03	-30.36	9.59	5.25
GZ84	Wufeng	Katian	D. complexus	1.52	-30.45	9.45	5.00
GZ83	Wufeng	Katian	D. complexus	1.02	-30.39	9.36	5.86
GZ82	Wufeng	Katian	D. complexus	0.68	-30.15	6.64	5.75
GZ81	Wufeng	Katian	D. complexus	0.34	-30.52	8.62	5.48
GZ80	Wufeng	Katian	D. complexus	0.25	-30.48	8.72	5.25
GZ79	Wufeng	Katian	D. complexus	0.17	-30.39	9.61	5.12

### Methods:

$C_{org}$  and  $\delta^{13}C_{org}$ : Approximately 1g of whole rock powder was weighed and then acidified with 6 M HCl. Residues were washed with deionized  $H_2O$ , centrifuged, dried. Total organic carbon ( $C_{org}$ ) abundance was measured by elemental analyzer. Standard deviations of the measured values were usually better than  $\pm 0.1\%$ .  $\delta^{13}C_{org}$  was measured on a continuous-flow GV Isoprime mass spectrometer. Results are reported as  $\delta^{13}C_{org}$  values relative to the Peedee belemnite (PDB) standard. Standard deviations of the measured values were usually better than  $\pm 0.1\%$ .

$\delta^{34}S$  of pyrite: Pyrite was extracted by the chromium reduction method of Canfield et al. (1986) (Chemical Geology, 54: 149–155). S isotope analyses were performed on a continuous-flow GV Isoprime mass spectrometer. The  $\delta^{34}S$  results are reported relative to the CDT standard with reproducibility better than  $\pm 0.3\%$ .

Fig.S1

