

Supplement 1: Core images with colour transition from 19-32.5 m



Supplement 4: Mössbauer Data

Fitting results of Mössbauer spectroscopy. CS – center shift, QS – quadrupole splitting, S(QS) – standard deviation of QS, Qshift – quadrupole shift, H – hyperfine magnetic field, S(H) – standard deviation of H, R.A. – Relative abundance determined by integration under the curve. The goodness of fit (χ^2) was below 1 for all fitted spectra. *Phase identification is a best guess and is open to interpretation. Lep – lepidocrocite, Fh – ferrihydrite, Gt – goethite, Hem – hematite, Phyl – phyllosilicate, pSxt – poorly ordered sextet

T	Phase*	CS	QS	S(QS)	Qshift	H	S(H)	R.A.	±
K		mm/s	mm/s	mm/s	mm/s	T	T	%	
Lep/Fh +									
19.7 m	77	Phyl?	0.49	0.63	0.29			43.2	0.9
		Fe(II)	1.32	2.74	0.20			4.0	0.4
		Gt	0.48		-0.12	46.3	5.0	52.8	1.0
Lep/Fh +									
21.3 m	77	Phyl?	0.48	0.62	0.32			14.8	1.4
		Fe(II)	1.25	2.82	0.30			11.5	1.3
		Gt	0.47		-0.13	47.5	2.2	48.9	3.7
		pSxt	0.57		-0.12	37.4	16.7	24.8	5.4
5	Fe(II)-Phyl?	1.30	2.95	0.24				4.8	1.1
		Fe(III)-Phyl?	0.48	0.65	0.33			5.5	1.3
		Gt	0.50		-0.14	49.7	0.7	37.4	3.5
		Lep/Fh	0.46		-0.06	49.4	3.3	30.1	3.5
		pSxt/Phyl	1.64		1.43	17.3	13.1	22.3	3.7
Lep/Fh +									
30 m	77	Phyl?	0.41	0.78	0.43			31.9	3.3
		Fe(II)	1.53	2.48	0.05			4.8	5.2
		Fe(II)	1.21	2.81	0.21			12.6	5.1
		Gt	0.47		-0.13	47.5	2.7	22.1	3.4
		Hem	0.48		-0.09	53.2	0.4	13.2	2.4
5		pSxt	0.28		-0.57	25.9	14.7	15.5	3.5
		Fe(II)-Phyl?	1.27	2.90	0.16			9.6	0.9
		Fe(III)-Phyl?	0.45	0.75	0.45			17.9	1.6
		Hem	0.48		-0.11	53.0	0.5	12.7	1.5

		Gt	0.49		-0.14	49.7	0.6	16.1	2.5
		Lep/Fh	0.47		-0.03	49.5	3.6	19.8	3.3
		pSxt/Phyl	0.89		0.64	13.9	10.5	23.9	2.1
		Lep/Fh + Phyl?	0.46	0.74	0.37			32.4	3.3
36.4 m	77	Fe(II)	1.24	2.95	0.23			10.7	1.4
		Gt	0.48		-0.13	46.5	2.4	24.2	3.2
		Hem	0.48		-0.09	53.2	0.3	8.9	1.4
		pSxt	0.98		0.31	35.8	20.4	23.8	7.0
5		Fe(III)-Phyl?	0.45	0.77	0.41			26.2	5.3
		Fe(II)-Phyl?	1.24	2.94	0.20			7.7	2.2
		Hem	0.49		-0.13	53.3	0.0	7.1	2.5
		Gt	0.48		-0.15	49.6	0.9	20.9	5.1
		Lep/Fh	0.42		0.02	48.3	3.9	15.1	6.0
		pSxt/Phyl	1.74		0.75	35.2	23.5	23.0	13.0