University of Arizona - PAS Building
1118 E. 4th Street
P.O. Box 210081

NSF-Arizona AMS Laboratory

Data Report (unofficial) - radiocarbon age BP

AA	lab #	sample ID	MASS	d13C	run date	F (d13C)	dF (d13C)	14C age BP	d14C age
AA99814	X24022	20110106-17	1.60mg	-26.5	N12-10-12	0.2477	0.0021	11,212	69
AA99815	X24023	20110107-13	1.43mg	-25.4	N11-13-12	0.2515	0.0020	11,088	64
AA99816	X24024	20110107-14	1.97mg	-26.3	N12-10-12	0.2496	0.0022	11,148	71
AA99817	X24025A	20110108-3	1.21mg	-24.5	N11-13-12	0.6178	0.0032	3,869	42
AA99818	X24026	20110108-5	0.07mg	-25.7	N12-10-12	<0.0230		>30,300	

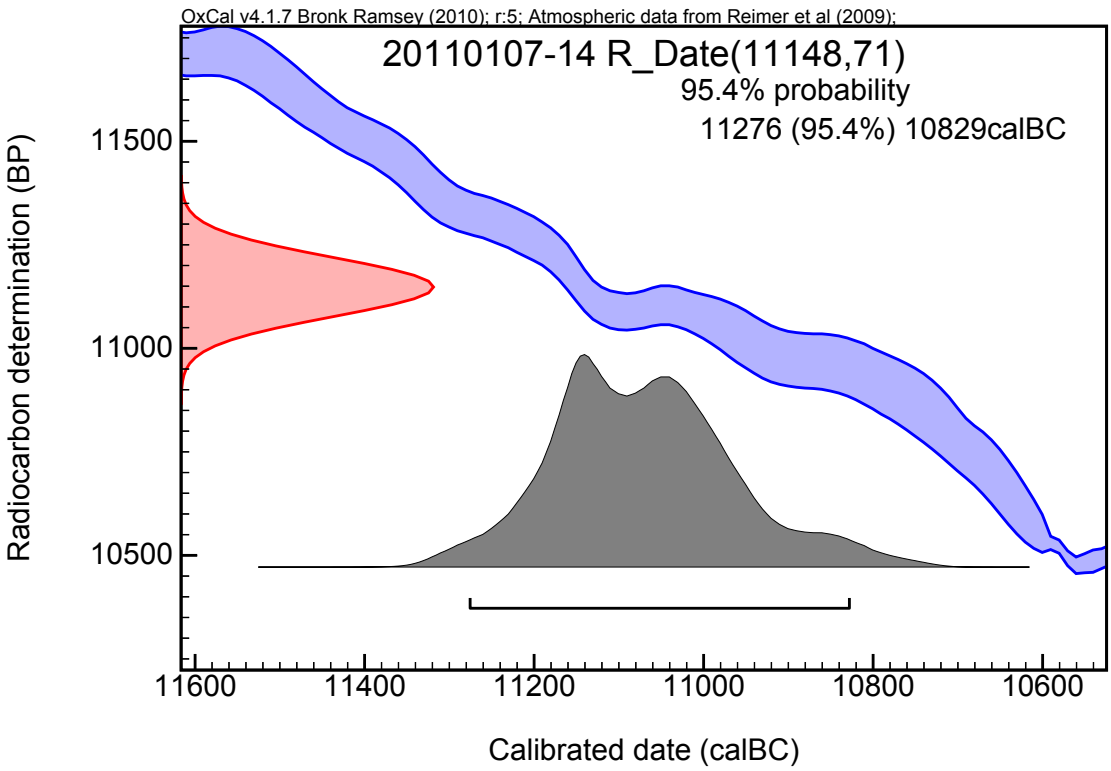
Contact: Davis, C.

AA #	Sample ID	Suite	Material	d13C	F	14C age BP
AA100630	2011 01 07.20	1 of 2	wood	-26.3	0.7688 +- 0.0038	2,112 +- 40
AA100631	2011 0107.2	2 of 2	wood	-26.0	0.2545 +- 0.0020	10,993 +- 62

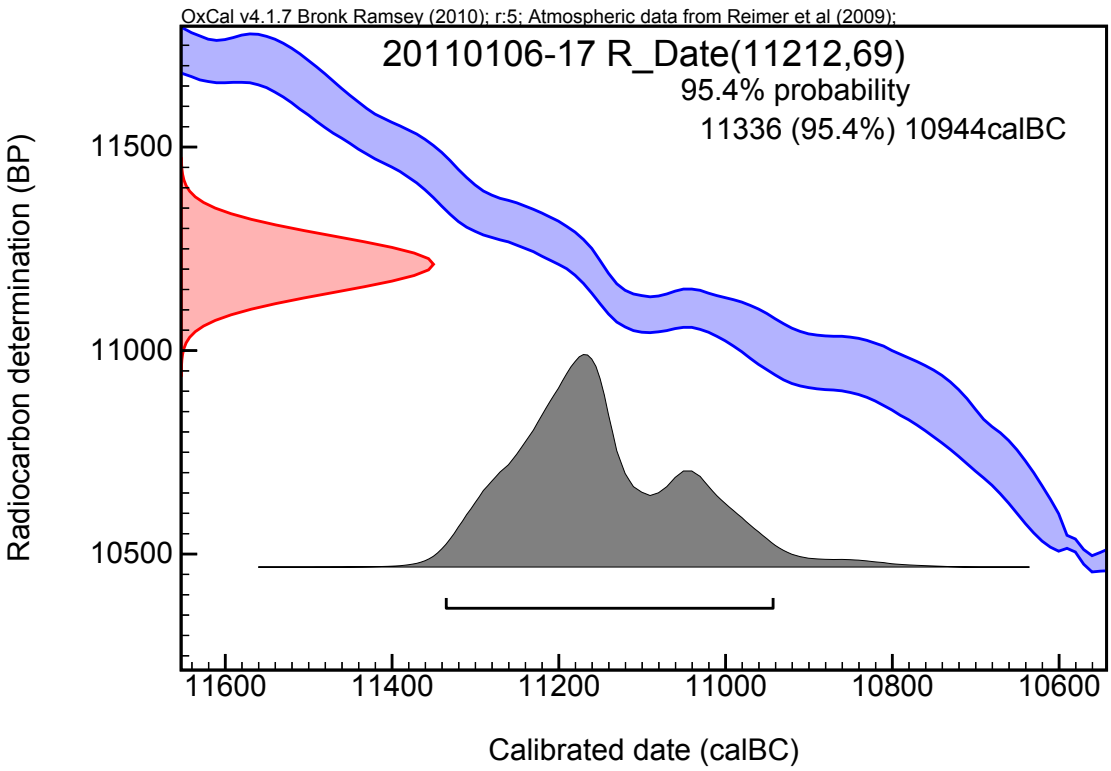
Reported by

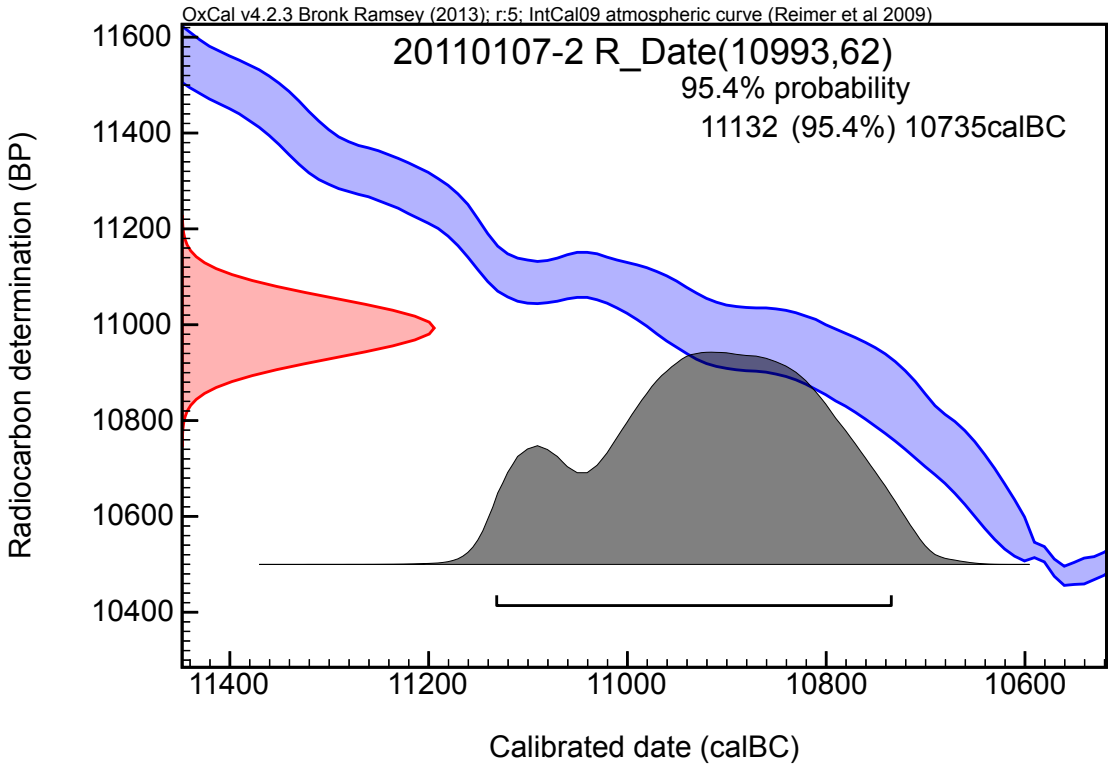
_____

Name		Unmodelled (BC/AD)			Select	
Show all Show structure		from	to	%	All Visible	Page break
R_Date 20110107-14		-11276	-10829	95.4	☑ 2	☐

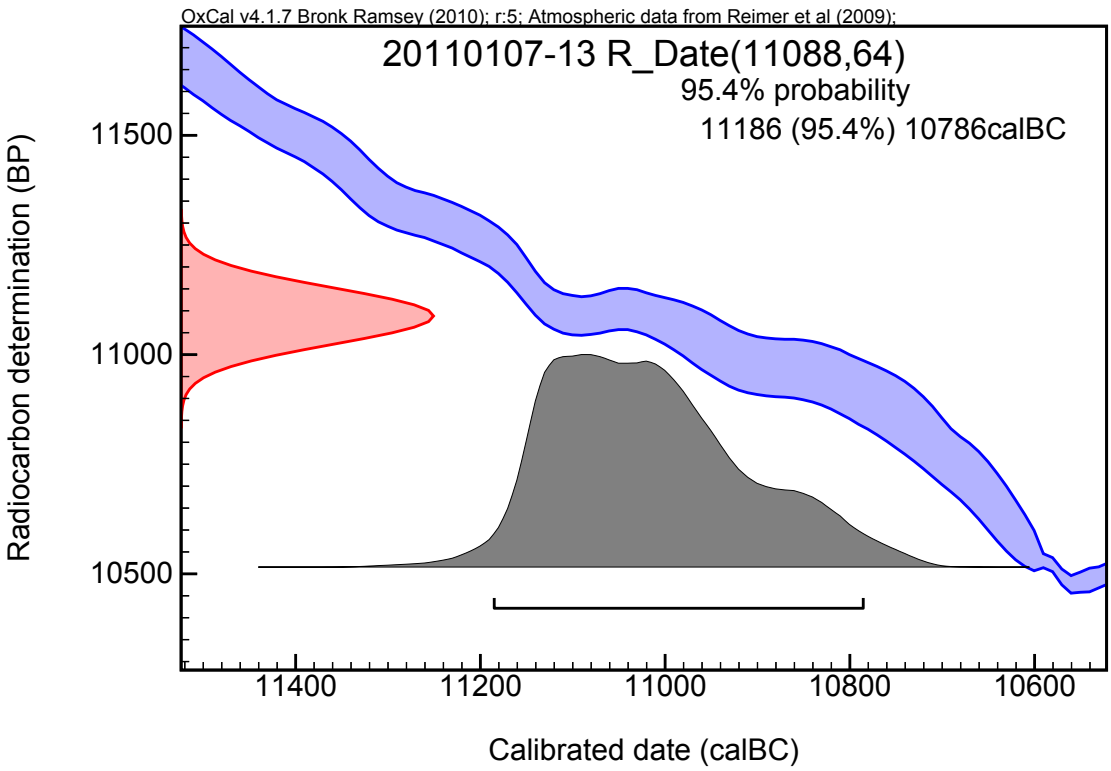

OxCal v4.1.7 Bronk Ramsey (2010); r:5; Atmospheric data from Reimer et al (2009);
20110107-14 R_Date(11148,71)
95.4% probability
11276 (95.4%) 10829calBC
Radiocarbon determination (BP)
11500
11000
10500
11600
11400
11200
11000
10800
10600
Calibrated date (calBC)

Name		Unmodelled (BC/AD)			Select	
Show all Show structure		from	to	%	All Visible	Page break
R_Date 20110106-17		-11336	-10944	95.4	☑ 2	☐

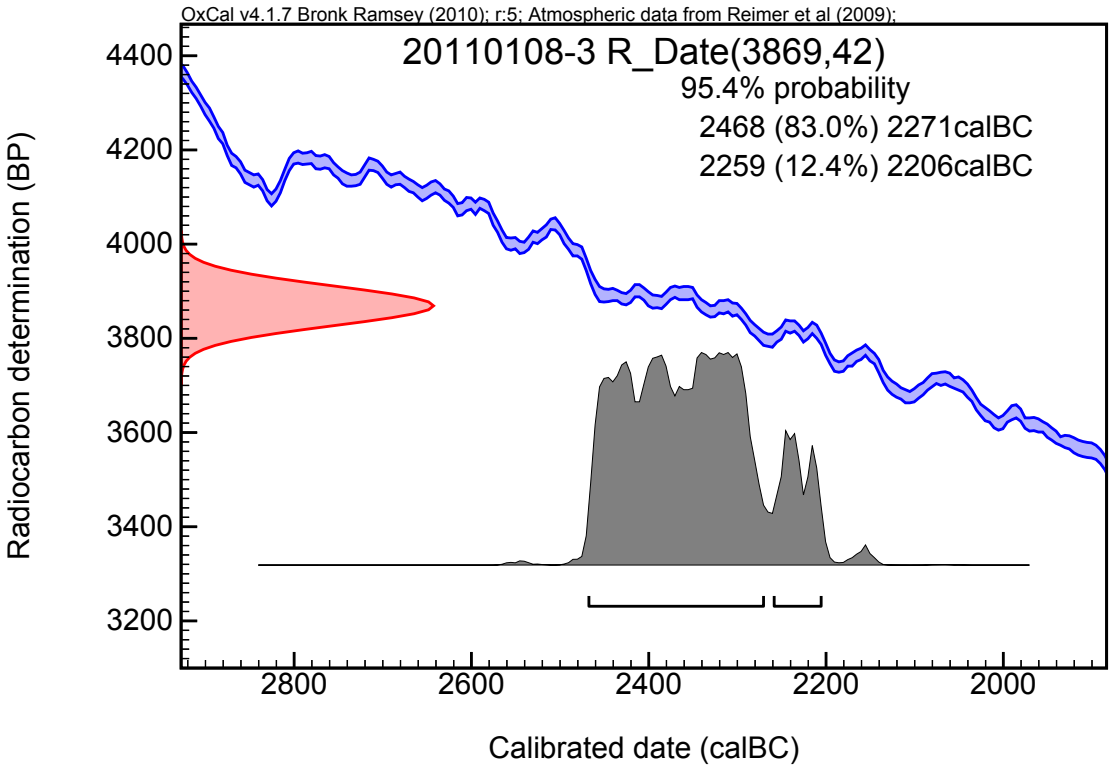

OxCal v4.1.7 Bronk Ramsey (2010); r:5; Atmospheric data from Reimer et al (2009);
20110106-17 R_Date(11212,69)
95.4% probability
11336 (95.4%) 10944calBC
Radiocarbon determination (BP)
11500
11000
10500
11600
11400
11200
11000
10800
10600
Calibrated date (calBC)


OxCal v4.2.3 Bronk Ramsey (2013); r:5; IntCal09 atmospheric curve (Reimer et al 2009)
20110107-2 R_Date(10993,62)
95.4% probability
11132 (95.4%) 10735calBC
Radiocarbon determination (BP)
11600
11400
11200
11000
10800
10600
10400
11400
11200
11000
10800
10600
Calibrated date (calBC)

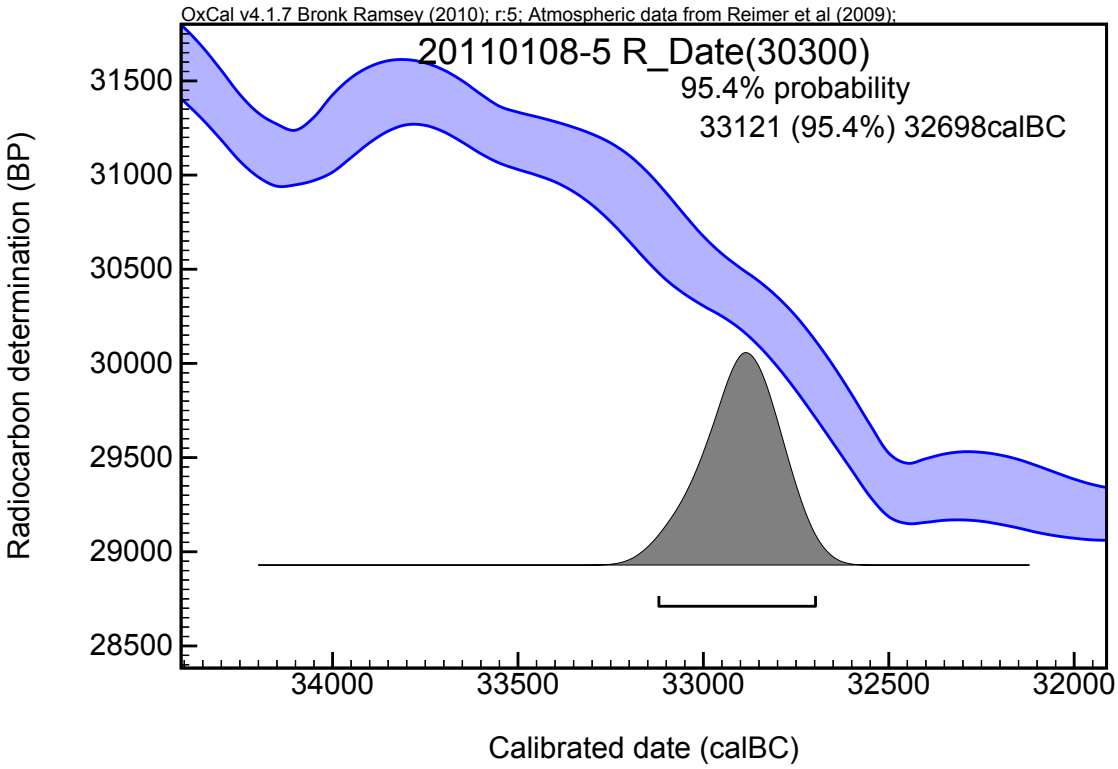
Name		Unmodelled (BC/AD)			Select	
Show all Show structure		from	to	%	All Visible	Page break
R_Date 20110107-13		-11186	-10786	95.4	[2]	


OxCal v4.1.7 Bronk Ramsey (2010); r:5; Atmospheric data from Reimer et al (2009);
20110107-13 R_Date(11088,64)
95.4% probability
11186 (95.4%) 10786calBC
Radiocarbon determination (BP)
11500
11000
10500
11400
11200
11000
10800
10600
Calibrated date (calBC)

Name	Unmodelled (BC/AD)			Select	
Show all Show structure	from	to	%	All Visible	Page break
R_Date 20110108-3	-2468	-2206	95.4	☑ 2	☐


OxCal v4.1.7 Bronk Ramsey (2010); r:5; Atmospheric data from Reimer et al (2009);
20110108-3 R_Date(3869,42)
95.4% probability
2468 (83.0%) 2271calBC
2259 (12.4%) 2206calBC
Radiocarbon determination (BP)
4400
4200
4000
3800
3600
3400
3200
2800
2600
2400
2200
2000
Calibrated date (calBC)

Name	Unmodelled (BC/AD)			Select	
Show all Show structure	from	to	%	All Visible	Page break
R_Date 20110108-5	-33121	-32698	95.4	☑ 2	☐


OxCal v4.1.7 Bronk Ramsey (2010); r:5; Atmospheric data from Reimer et al (2009);
20110108-5 R_Date(30300)
95.4% probability
33121 (95.4%) 32698calBC
Radiocarbon determination (BP)
31500
31000
30500
30000
29500
29000
28500
34000
33500
33000
32500
32000
Calibrated date (calBC)

Location: W054 10, S02 03

Rise and Set for the Sun for 2010

Zone: 3h West of Greenwich

Astronomical Applications Dept.
U. S. Naval Observatory
Washington, DC 20392-5420

Day	Jan. Rise	Jan. Set	Feb. Rise	Feb. Set	Mar. Rise	Mar. Set	Apr. Rise	Apr. Set	May Rise	May Set	June Rise	June Set	July Rise	July Set	Aug. Rise	Aug. Set	Sept. Rise	Sept. Set	Oct. Rise	Oct. Set	Nov. Rise	Nov. Set	Dec. Rise	Dec. Set
	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
01	0633	1848	0644	1856	0645	1853	0638	1843	0633	1835	0634	1835	0640	1841	0642	1844	0635	1839	0623	1830	0615	1826	0619	1833
02	0634	1848	0644	1856	0644	1853	0638	1843	0632	1835	0634	1835	0641	1841	0642	1844	0634	1838	0622	1830	0615	1826	0619	1833
03	0634	1848	0645	1856	0644	1853	0637	1842	0632	1835	0635	1835	0641	1841	0642	1844	0634	1838	0622	1830	0615	1826	0619	1834
04	0635	1849	0645	1856	0644	1853	0637	1842	0632	1835	0635	1835	0641	1841	0642	1844	0633	1838	0622	1829	0615	1826	0620	1834
05	0635	1849	0645	1856	0644	1852	0637	1842	0632	1834	0635	1835	0641	1841	0642	1844	0633	1838	0621	1829	0615	1826	0620	1834
06	0635	1850	0645	1856	0644	1852	0637	1841	0632	1834	0635	1836	0641	1842	0642	1844	0633	1837	0621	1829	0614	1826	0621	1835
07	0636	1850	0645	1856	0644	1852	0636	1841	0632	1834	0635	1836	0641	1842	0641	1843	0632	1837	0620	1829	0614	1826	0621	1835
08	0636	1850	0645	1856	0643	1851	0636	1841	0632	1834	0636	1836	0642	1842	0641	1843	0632	1837	0620	1828	0615	1826	0621	1836
09	0637	1851	0645	1856	0643	1851	0636	1840	0632	1834	0636	1836	0642	1842	0641	1843	0632	1837	0620	1828	0615	1827	0622	1836
10	0637	1851	0645	1856	0643	1851	0636	1840	0632	1834	0636	1836	0642	1842	0641	1843	0631	1836	0619	1828	0615	1827	0622	1837
11	0638	1852	0645	1856	0643	1850	0636	1840	0632	1834	0636	1836	0642	1842	0641	1843	0631	1836	0619	1828	0615	1827	0623	1837
12	0638	1852	0645	1856	0643	1850	0635	1839	0632	1834	0636	1837	0642	1843	0641	1843	0630	1836	0619	1828	0615	1827	0623	1838
13	0639	1852	0646	1856	0642	1850	0635	1839	0632	1834	0637	1837	0642	1843	0640	1843	0630	1835	0619	1827	0615	1827	0624	1838
14	0639	1853	0646	1856	0642	1849	0635	1839	0632	1834	0637	1837	0642	1843	0640	1843	0629	1835	0618	1827	0615	1827	0624	1839
15	0639	1853	0646	1856	0642	1849	0635	1839	0632	1834	0637	1837	0642	1843	0640	1843	0629	1835	0618	1827	0615	1828	0625	1839
16	0640	1853	0646	1856	0642	1849	0635	1838	0632	1834	0637	1838	0642	1843	0640	1842	0629	1834	0618	1827	0615	1828	0625	1840
17	0640	1854	0646	1856	0642	1848	0634	1838	0632	1834	0638	1838	0642	1843	0639	1842	0628	1834	0617	1827	0615	1828	0626	1840
18	0640	1854	0646	1856	0641	1848	0634	1838	0633	1834	0638	1838	0643	1843	0639	1842	0628	1834	0617	1827	0615	1828	0626	1841
19	0641	1854	0645	1855	0641	1848	0634	1837	0633	1834	0638	1838	0643	1843	0639	1842	0627	1834	0617	1826	0616	1829	0626	1841
20	0641	1854	0645	1855	0641	1847	0634	1837	0633	1834	0638	1838	0643	1844	0639	1842	0627	1833	0617	1826	0616	1829	0627	1842
21	0641	1855	0645	1855	0641	1847	0634	1837	0633	1834	0638	1839	0643	1844	0638	1841	0627	1833	0616	1826	0616	1829	0627	1842
22	0642	1855	0645	1855	0640	1847	0634	1837	0633	1834	0639	1839	0643	1844	0638	1841	0626	1833	0616	1826	0616	1829	0628	1843
23	0642	1855	0645	1855	0640	1846	0633	1837	0633	1834	0639	1839	0643	1844	0638	1841	0626	1832	0616	1826	0616	1830	0628	1843
24	0642	1855	0645	1855	0640	1846	0633	1836	0633	1834	0639	1839	0643	1844	0637	1841	0625	1832	0616	1826	0617	1830	0629	1844
25	0643	1855	0645	1854	0640	1846	0633	1836	0633	1834	0639	1839	0643	1844	0637	1841	0625	1832	0616	1826	0617	1830	0629	1844
26	0643	1856	0645	1854	0639	1845	0633	1836	0633	1834	0639	1840	0643	1844	0637	1840	0625	1831	0615	1826	0617	1831	0630	1845
27	0643	1856	0645	1854	0639	1845	0633	1836	0633	1834	0640	1840	0643	1844	0636	1840	0624	1831	0615	1826	0617	1831	0630	1845
28	0643	1856	0645	1854	0639	1845	0633	1835	0634	1834	0640	1840	0643	1844	0636	1840	0624	1831	0615	1826	0618	1832	0631	1846
29	0644	1856			0639	1844	0633	1835	0634	1834	0640	1840	0642	1844	0636	1840	0623	1831	0615	1826	0618	1832	0631	1846
30	0644	1856			0638	1844	0633	1835	0634	1835	0640	1841	0642	1844	0635	1839	0623	1830	0615	1826	0618	1832	0632	1846
31	0644	1856			0638	1843			0634	1835			0642	1844	0635	1839			0615	1826			0632	1847

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MONTE ALEGRE
o , o ,
W 54 10, S 2 03

Altitude and Azimuth of the Sun
Jan 26, 2010

Zone: 3h West of Greenwich

h m	Altitude o	Azimuth (E of N) o
06:00	-11.0	109.5
06:10	-8.6	109.3
06:20	-6.2	109.1
06:30	-3.9	108.9
06:40	-1.5	108.8
06:50	1.2	108.7
07:00	3.4	108.6
07:10	5.7	108.6
07:20	8.1	108.6
07:30	10.4	108.6
07:40	12.8	108.7
07:50	15.1	108.8
08:00	17.5	108.9
08:10	19.8	109.1
08:20	22.2	109.3
08:30	24.5	109.6
08:40	26.9	109.9
08:50	29.2	110.3
09:00	31.6	110.7
09:10	33.9	111.2
09:20	36.2	111.8
09:30	38.5	112.4
09:40	40.8	113.1
09:50	43.1	113.9
10:00	45.4	114.8
10:10	47.6	115.8
10:20	49.9	117.0
10:30	52.1	118.3
10:40	54.3	119.9
10:50	56.4	121.6
11:00	58.5	123.7
11:10	60.6	126.0
11:20	62.6	128.7
11:30	64.5	131.8
11:40	66.3	135.5
11:50	68.0	139.8
12:00	69.5	144.8
12:10	70.8	150.6
12:20	71.9	157.1
12:30	72.8	164.4
12:40	73.3	172.4

12:50	73.4	180.6
13:00	73.2	188.9
13:10	72.7	196.7
13:20	71.8	203.9
13:30	70.7	210.4
13:40	69.3	216.0
13:50	67.7	220.9
14:00	66.0	225.1
14:10	64.2	228.7
14:20	62.3	231.8
14:30	60.3	234.4
14:40	58.2	236.7
14:50	56.1	238.7
15:00	54.0	240.4
15:10	51.8	241.9
15:20	49.6	243.3
15:30	47.3	244.4
15:40	45.1	245.4
15:50	42.8	246.3
16:00	40.5	247.1
16:10	38.2	247.8
16:20	35.9	248.4
16:30	33.5	249.0
16:40	31.2	249.4
16:50	28.9	249.9
17:00	26.5	250.2
17:10	24.2	250.5
17:20	21.8	250.8
17:30	19.5	251.0
17:40	17.1	251.2
17:50	14.8	251.3
18:00	12.4	251.4
18:10	10.0	251.5
18:20	7.7	251.5
18:30	5.4	251.5
18:40	3.1	251.5
18:50	0.9	251.4
19:00	-1.9	251.3
19:10	-4.3	251.2
19:20	-6.6	251.1
19:30	-9.0	250.9
19:40	-11.3	250.6

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MONTE ALEGRE
o , o ,
W 54 10, S 2 03

Altitude and Azimuth of the Sun
Feb 11, 2010

Zone: 3h West of Greenwich

h m	Altitude o	Azimuth (E of N) o
06:00	-11.8	104.8
06:10	-9.4	104.6
06:20	-7.0	104.4
06:30	-4.6	104.2
06:40	-2.1	104.1
06:50	0.7	104.0
07:00	2.9	103.9
07:10	5.3	103.9
07:20	7.7	103.8
07:30	10.1	103.8
07:40	12.5	103.9
07:50	14.9	103.9
08:00	17.3	104.0
08:10	19.7	104.1
08:20	22.1	104.3
08:30	24.6	104.4
08:40	27.0	104.6
08:50	29.4	104.9
09:00	31.8	105.2
09:10	34.2	105.5
09:20	36.6	105.9
09:30	39.0	106.4
09:40	41.4	106.9
09:50	43.8	107.4
10:00	46.2	108.1
10:10	48.5	108.9
10:20	50.9	109.8
10:30	53.2	110.8
10:40	55.6	112.0
10:50	57.9	113.3
11:00	60.1	114.9
11:10	62.4	116.8
11:20	64.6	119.1
11:30	66.8	121.8
11:40	68.8	125.1
11:50	70.8	129.1
12:00	72.7	134.0
12:10	74.4	140.1
12:20	75.9	147.7
12:30	77.1	156.8
12:40	77.8	167.4

12:50	78.1	178.9
13:00	77.9	190.6
13:10	77.2	201.5
13:20	76.1	210.9
13:30	74.7	218.7
13:40	73.0	225.0
13:50	71.2	230.2
14:00	69.2	234.3
14:10	67.2	237.7
14:20	65.0	240.5
14:30	62.8	242.9
14:40	60.6	244.8
14:50	58.3	246.5
15:00	56.0	247.9
15:10	53.7	249.1
15:20	51.3	250.2
15:30	49.0	251.1
15:40	46.6	251.9
15:50	44.2	252.6
16:00	41.8	253.2
16:10	39.4	253.7
16:20	37.0	254.1
16:30	34.6	254.5
16:40	32.2	254.9
16:50	29.8	255.2
17:00	27.4	255.4
17:10	25.0	255.7
17:20	22.6	255.8
17:30	20.2	256.0
17:40	17.7	256.1
17:50	15.3	256.2
18:00	12.9	256.3
18:10	10.5	256.3
18:20	8.1	256.3
18:30	5.7	256.3
18:40	3.4	256.3
18:50	1.1	256.2
19:00	-1.7	256.1
19:10	-4.1	256.0
19:20	-6.6	255.8
19:30	-9.0	255.7
19:40	-11.4	255.5

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o , o ,
W 54 10, S 2 03

Altitude and Azimuth of the Sun
Mar 15, 2010

Zone: 3h West of Greenwich

h m	Altitude o	Azimuth (E of N) o
05:58	-11.8	92.6
05:59	-11.6	92.6
06:00	-11.3	92.6
06:01	-11.1	92.6
06:02	-10.8	92.5
06:03	-10.6	92.5
06:04	-10.3	92.5
06:05	-10.1	92.5
06:06	-9.8	92.5
06:07	-9.6	92.5
06:08	-9.3	92.5
06:09	-9.1	92.5
06:10	-8.8	92.5
06:11	-8.6	92.4
06:12	-8.3	92.4
06:13	-8.1	92.4
06:14	-7.8	92.4
06:15	-7.6	92.4
06:16	-7.3	92.4
06:17	-7.1	92.4
06:18	-6.8	92.4
06:19	-6.6	92.4
06:20	-6.3	92.4
06:21	-6.1	92.3
06:22	-5.8	92.3
06:23	-5.6	92.3
06:24	-5.3	92.3
06:25	-5.1	92.3
06:26	-4.8	92.3
06:27	-4.6	92.3
06:28	-4.3	92.3
06:29	-4.1	92.3
06:30	-3.8	92.3
06:31	-3.6	92.2
06:32	-3.3	92.2
06:33	-3.1	92.2
06:34	-2.8	92.2
06:35	-2.6	92.2
06:36	-2.3	92.2
06:37	-2.1	92.2
06:38	-1.8	92.2

06:39	-1.6	92.2
06:40	-1.3	92.2
06:41	-1.1	92.1
06:42	-0.8	92.1
06:43	-0.0	92.1
06:44	0.2	92.1
06:45	0.4	92.1
06:46	0.6	92.1
06:47	0.8	92.1
06:48	1.1	92.1
06:49	1.3	92.1
06:50	1.5	92.1
06:51	1.7	92.1
06:52	2.0	92.0
06:53	2.2	92.0
06:54	2.4	92.0
06:55	2.7	92.0
06:56	2.9	92.0
06:57	3.1	92.0
06:58	3.4	92.0
06:59	3.6	92.0
07:00	3.9	92.0
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18:09	9.3	268.4
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18:26	5.1	268.3
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18:57	-2.8	268.0
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18:59	-3.3	268.0
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19:01	-3.8	268.0
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19:05	-4.8	267.9
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19:07	-5.3	267.9
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19:14	-7.1	267.8
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19:18	-8.0	267.8
19:19	-8.3	267.8
19:20	-8.5	267.8
19:21	-8.8	267.8
19:22	-9.0	267.8
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19:25	-9.8	267.7
19:26	-10.0	267.7
19:27	-10.3	267.7
19:28	-10.5	267.7
19:29	-10.8	267.7
19:30	-11.0	267.7
19:31	-11.3	267.7
19:32	-11.5	267.6
19:33	-11.8	267.6

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Astronomical Applications Dept.
U.S. Naval Observatory
Washington, DC 20392-5420

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W 54 10, S 2 03

Altitude and Azimuth of the Sun
Jun 21, 2010

Zone: 3h West of Greenwich

	Altitude	Azimuth (E of N)
h m	o	o
05:50	-11.9	66.5
05:51	-11.7	66.5
05:52	-11.5	66.5
05:53	-11.2	66.5
05:54	-11.0	66.5
05:55	-10.8	66.5
05:56	-10.5	66.5
05:57	-10.3	66.5
05:58	-10.1	66.6
05:59	-9.9	66.6
06:00	-9.6	66.6
06:01	-9.4	66.6
06:02	-9.2	66.6
06:03	-8.9	66.6
06:04	-8.7	66.6
06:05	-8.5	66.6
06:06	-8.3	66.6
06:07	-8.0	66.6
06:08	-7.8	66.6
06:09	-7.6	66.6
06:10	-7.3	66.6
06:11	-7.1	66.6
06:12	-6.9	66.6
06:13	-6.6	66.6
06:14	-6.4	66.6
06:15	-6.2	66.6
06:16	-6.0	66.6
06:17	-5.7	66.6
06:18	-5.5	66.6
06:19	-5.3	66.6
06:20	-5.0	66.6
06:21	-4.8	66.6
06:22	-4.6	66.6
06:23	-4.4	66.6
06:24	-4.1	66.6
06:25	-3.9	66.6
06:26	-3.7	66.6
06:27	-3.4	66.6
06:28	-3.2	66.6
06:29	-3.0	66.6
06:30	-2.7	66.6

06:31	-2.5	66.6
06:32	-2.3	66.6
06:33	-2.1	66.6
06:34	-1.8	66.6
06:35	-1.6	66.6
06:36	-1.4	66.6
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06:39	-0.1	66.6
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07:31	11.3	65.6

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11:56	62.5	21.5
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11:58	62.7	20.6
11:59	62.8	20.1
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12:02	63.0	18.7
12:03	63.1	18.2
12:04	63.2	17.7
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12:09	63.5	15.3
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16:25	29.4	298.5
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17:09	19.6	295.8
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18:55	-4.6	293.4
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18:59	-5.5	293.4
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19:07	-7.3	293.4
19:08	-7.6	293.4
19:09	-7.8	293.4
19:10	-8.0	293.4
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19:12	-8.5	293.4
19:13	-8.7	293.4
19:14	-8.9	293.4
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19:16	-9.4	293.4
19:17	-9.6	293.4
19:18	-9.9	293.4
19:19	-10.1	293.4
19:20	-10.3	293.5
19:21	-10.6	293.5
19:22	-10.8	293.5
19:23	-11.0	293.5
19:24	-11.2	293.5
19:25	-11.5	293.5
19:26	-11.7	293.5
19:27	-11.9	293.5

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Astronomical Applications Dept.
U.S. Naval Observatory
Washington, DC 20392-5420

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Altitude and Azimuth of the Sun
Sep 28, 2010

Zone: 3h West of Greenwich

	Altitude	Azimuth (E of N)
h m	o	o
05:40	-11.8	92.5
05:41	-11.5	92.5
05:42	-11.3	92.5
05:43	-11.0	92.5
05:44	-10.8	92.5
05:45	-10.5	92.5
05:46	-10.3	92.4
05:47	-10.0	92.4
05:48	-9.8	92.4
05:49	-9.5	92.4
05:50	-9.3	92.4
05:51	-9.0	92.4
05:52	-8.8	92.4
05:53	-8.5	92.4
05:54	-8.3	92.4
05:55	-8.0	92.4
05:56	-7.8	92.3
05:57	-7.5	92.3
05:58	-7.3	92.3
05:59	-7.0	92.3
06:00	-6.8	92.3
06:01	-6.5	92.3
06:02	-6.3	92.3
06:03	-6.0	92.3
06:04	-5.8	92.3
06:05	-5.5	92.3
06:06	-5.3	92.2
06:07	-5.0	92.2
06:08	-4.8	92.2
06:09	-4.5	92.2
06:10	-4.3	92.2
06:11	-4.0	92.2
06:12	-3.8	92.2
06:13	-3.5	92.2
06:14	-3.3	92.2
06:15	-3.0	92.2
06:16	-2.8	92.1
06:17	-2.5	92.1
06:18	-2.3	92.1
06:19	-2.0	92.1
06:20	-1.8	92.1

06:21	-1.5	92.1
06:22	-1.3	92.1
06:23	-1.0	92.1
06:24	-0.8	92.1
06:25	0.0	92.1
06:26	0.2	92.1
06:27	0.5	92.1
06:28	0.7	92.0
06:29	0.9	92.0
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06:35	2.3	92.0
06:36	2.5	92.0
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06:38	3.0	92.0
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06:40	3.4	91.9
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06:45	4.6	91.9
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06:47	5.1	91.9
06:48	5.4	91.9
06:49	5.6	91.9
06:50	5.9	91.9
06:51	6.1	91.9
06:52	6.4	91.8
06:53	6.6	91.8
06:54	6.8	91.8
06:55	7.1	91.8
06:56	7.3	91.8
06:57	7.6	91.8
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07:01	8.6	91.8
07:02	8.8	91.8
07:03	9.1	91.8
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07:21	13.5	91.6

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07:23	14.0	91.6
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08:22	28.7	91.2

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09:52	51.2	90.8
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19:09	-10.4	267.3
19:10	-10.6	267.3
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19:12	-11.1	267.3
19:13	-11.4	267.3
19:14	-11.6	267.3
19:15	-11.9	267.3

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Astronomical Applications Dept.
U.S. Naval Observatory
Washington, DC 20392-5420

MONTE ALEGRE
o , o ,
W 54 10, S 2 03

Altitude and Azimuth of the Sun
Oct 31, 2009

Zone: 3h West of Greenwich

h m	Altitude o	Azimuth (E of N) o
05:30	-11.7	104.9
05:40	-9.3	104.7
05:50	-6.8	104.6
06:00	-4.4	104.4
06:10	-2.0	104.3
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06:30	3.1	104.1
06:40	5.4	104.1
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08:30	31.9	105.5
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10:40	62.4	117.6
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19:00	-9.1	255.1
19:10	-11.5	254.9

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MONTE ALEGRE
o , o ,
W 54 10, S 2 03

Altitude and Azimuth of the Sun
Nov 17, 2009

Zone: 3h West of Greenwich

h m	Altitude o	Azimuth (E of N) o
05:30	-11.5	109.9
05:40	-9.2	109.7
05:50	-6.8	109.5
06:00	-4.4	109.3
06:10	-2.1	109.2
06:20	0.7	109.1
06:30	2.9	109.0
06:40	5.2	109.0
06:50	7.5	109.0
07:00	9.8	109.0
07:10	12.2	109.1
07:20	14.5	109.2
07:30	16.9	109.3
07:40	19.2	109.5
07:50	21.6	109.7
08:00	23.9	110.0
08:10	26.2	110.3
08:20	28.6	110.7
08:30	30.9	111.1
08:40	33.2	111.6
08:50	35.6	112.1
09:00	37.9	112.7
09:10	40.2	113.4
09:20	42.4	114.2
09:30	44.7	115.1
09:40	47.0	116.2
09:50	49.2	117.3
10:00	51.4	118.7
10:10	53.6	120.2
10:20	55.7	121.9
10:30	57.8	123.9
10:40	59.8	126.2
10:50	61.8	128.8
11:00	63.7	131.9
11:10	65.5	135.4
11:20	67.2	139.5
11:30	68.8	144.3
11:40	70.1	149.8
11:50	71.3	156.1
12:00	72.1	163.1
12:10	72.7	170.7

12:20	72.9	178.6
12:30	72.8	186.6
12:40	72.4	194.4
12:50	71.6	201.6
13:00	70.5	208.1
13:10	69.2	213.9
13:20	67.8	218.9
13:30	66.1	223.2
13:40	64.3	226.9
13:50	62.5	230.2
14:00	60.5	232.9
14:10	58.5	235.3
14:20	56.4	237.4
14:30	54.3	239.2
14:40	52.1	240.8
14:50	49.9	242.2
15:00	47.7	243.4
15:10	45.5	244.4
15:20	43.2	245.4
15:30	40.9	246.2
15:40	38.6	247.0
15:50	36.3	247.6
16:00	34.0	248.2
16:10	31.7	248.7
16:20	29.4	249.1
16:30	27.0	249.5
16:40	24.7	249.8
16:50	22.3	250.1
17:00	20.0	250.3
17:10	17.7	250.5
17:20	15.3	250.7
17:30	13.0	250.8
17:40	10.6	250.9
17:50	8.3	250.9
18:00	6.0	250.9
18:10	3.7	250.9
18:20	1.4	250.8
18:30	-1.3	250.8
18:40	-3.6	250.6
18:50	-6.0	250.5
19:00	-8.3	250.3
19:10	-10.7	250.0

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o , o ,
W 54 10, S 2 03

Altitude and Azimuth of the Sun
Dec 21, 2010

Zone: 3h West of Greenwich

	Altitude	Azimuth (E of N)
h m	o	o
05:39	-11.9	114.5
05:40	-11.7	114.4
05:41	-11.4	114.4
05:42	-11.2	114.4
05:43	-11.0	114.4
05:44	-10.8	114.3
05:45	-10.5	114.3
05:46	-10.3	114.3
05:47	-10.1	114.2
05:48	-9.9	114.2
05:49	-9.6	114.2
05:50	-9.4	114.2
05:51	-9.2	114.1
05:52	-8.9	114.1
05:53	-8.7	114.1
05:54	-8.5	114.1
05:55	-8.3	114.0
05:56	-8.0	114.0
05:57	-7.8	114.0
05:58	-7.6	114.0
05:59	-7.3	113.9
06:00	-7.1	113.9
06:01	-6.9	113.9
06:02	-6.7	113.9
06:03	-6.4	113.9
06:04	-6.2	113.8
06:05	-6.0	113.8
06:06	-5.7	113.8
06:07	-5.5	113.8
06:08	-5.3	113.8
06:09	-5.1	113.7
06:10	-4.8	113.7
06:11	-4.6	113.7
06:12	-4.4	113.7
06:13	-4.1	113.7
06:14	-3.9	113.7
06:15	-3.7	113.6
06:16	-3.5	113.6
06:17	-3.2	113.6
06:18	-3.0	113.6
06:19	-2.8	113.6

06:20	-2.5	113.6
06:21	-2.3	113.6
06:22	-2.1	113.6
06:23	-1.9	113.5
06:24	-1.6	113.5
06:25	-1.4	113.5
06:26	-1.2	113.5
06:27	-0.9	113.5
06:28	-0.1	113.5
06:29	0.1	113.5
06:30	0.3	113.5
06:31	0.5	113.5
06:32	0.7	113.4
06:33	0.9	113.4
06:34	1.1	113.4
06:35	1.3	113.4
06:36	1.5	113.4
06:37	1.7	113.4
06:38	1.9	113.4
06:39	2.1	113.4
06:40	2.3	113.4
06:41	2.5	113.4
06:42	2.7	113.4
06:43	3.0	113.4
06:44	3.2	113.4
06:45	3.4	113.4
06:46	3.6	113.4
06:47	3.8	113.4
06:48	4.1	113.4
06:49	4.3	113.4
06:50	4.5	113.4
06:51	4.7	113.4
06:52	5.0	113.4
06:53	5.2	113.4
06:54	5.4	113.4
06:55	5.6	113.4
06:56	5.9	113.4
06:57	6.1	113.4
06:58	6.3	113.4
06:59	6.5	113.4
07:00	6.8	113.4
07:01	7.0	113.4
07:02	7.2	113.4
07:03	7.4	113.4
07:04	7.7	113.4
07:05	7.9	113.4
07:06	8.1	113.4
07:07	8.3	113.4
07:08	8.6	113.4
07:09	8.8	113.4
07:10	9.0	113.4
07:11	9.2	113.4
07:12	9.5	113.4
07:13	9.7	113.4
07:14	9.9	113.4
07:15	10.1	113.4
07:16	10.4	113.5
07:17	10.6	113.5
07:18	10.8	113.5
07:19	11.1	113.5
07:20	11.3	113.5

07:21	11.5	113.5
07:22	11.7	113.5
07:23	12.0	113.5
07:24	12.2	113.5
07:25	12.4	113.6
07:26	12.7	113.6
07:27	12.9	113.6
07:28	13.1	113.6
07:29	13.3	113.6
07:30	13.6	113.6
07:31	13.8	113.6
07:32	14.0	113.7
07:33	14.2	113.7
07:34	14.5	113.7
07:35	14.7	113.7
07:36	14.9	113.7
07:37	15.2	113.7
07:38	15.4	113.8
07:39	15.6	113.8
07:40	15.8	113.8
07:41	16.1	113.8
07:42	16.3	113.8
07:43	16.5	113.9
07:44	16.8	113.9
07:45	17.0	113.9
07:46	17.2	113.9
07:47	17.4	113.9
07:48	17.7	114.0
07:49	17.9	114.0
07:50	18.1	114.0
07:51	18.3	114.0
07:52	18.6	114.1
07:53	18.8	114.1
07:54	19.0	114.1
07:55	19.3	114.1
07:56	19.5	114.2
07:57	19.7	114.2
07:58	19.9	114.2
07:59	20.2	114.3
08:00	20.4	114.3
08:01	20.6	114.3
08:02	20.8	114.3
08:03	21.1	114.4
08:04	21.3	114.4
08:05	21.5	114.4
08:06	21.8	114.5
08:07	22.0	114.5
08:08	22.2	114.5
08:09	22.4	114.6
08:10	22.7	114.6
08:11	22.9	114.6
08:12	23.1	114.7
08:13	23.3	114.7
08:14	23.6	114.7
08:15	23.8	114.8
08:16	24.0	114.8
08:17	24.2	114.9
08:18	24.5	114.9
08:19	24.7	114.9
08:20	24.9	115.0
08:21	25.1	115.0

08:22	25.4	115.1
08:23	25.6	115.1
08:24	25.8	115.1
08:25	26.1	115.2
08:26	26.3	115.2
08:27	26.5	115.3
08:28	26.7	115.3
08:29	27.0	115.4
08:30	27.2	115.4
08:31	27.4	115.4
08:32	27.6	115.5
08:33	27.9	115.5
08:34	28.1	115.6
08:35	28.3	115.6
08:36	28.5	115.7
08:37	28.8	115.7
08:38	29.0	115.8
08:39	29.2	115.8
08:40	29.4	115.9
08:41	29.7	115.9
08:42	29.9	116.0
08:43	30.1	116.1
08:44	30.3	116.1
08:45	30.5	116.2
08:46	30.8	116.2
08:47	31.0	116.3
08:48	31.2	116.3
08:49	31.4	116.4
08:50	31.7	116.5
08:51	31.9	116.5
08:52	32.1	116.6
08:53	32.3	116.6
08:54	32.6	116.7
08:55	32.8	116.8
08:56	33.0	116.8
08:57	33.2	116.9
08:58	33.5	117.0
08:59	33.7	117.0
09:00	33.9	117.1
09:01	34.1	117.2
09:02	34.3	117.2
09:03	34.6	117.3
09:04	34.8	117.4
09:05	35.0	117.4
09:06	35.2	117.5
09:07	35.4	117.6
09:08	35.7	117.7
09:09	35.9	117.7
09:10	36.1	117.8
09:11	36.3	117.9
09:12	36.6	118.0
09:13	36.8	118.0
09:14	37.0	118.1
09:15	37.2	118.2
09:16	37.4	118.3
09:17	37.7	118.4
09:18	37.9	118.4
09:19	38.1	118.5
09:20	38.3	118.6
09:21	38.5	118.7
09:22	38.7	118.8

09:23	39.0	118.9
09:24	39.2	119.0
09:25	39.4	119.0
09:26	39.6	119.1
09:27	39.8	119.2
09:28	40.1	119.3
09:29	40.3	119.4
09:30	40.5	119.5
09:31	40.7	119.6
09:32	40.9	119.7
09:33	41.1	119.8
09:34	41.4	119.9
09:35	41.6	120.0
09:36	41.8	120.1
09:37	42.0	120.2
09:38	42.2	120.3
09:39	42.4	120.4
09:40	42.7	120.5
09:41	42.9	120.6
09:42	43.1	120.8
09:43	43.3	120.9
09:44	43.5	121.0
09:45	43.7	121.1
09:46	43.9	121.2
09:47	44.2	121.3
09:48	44.4	121.4
09:49	44.6	121.6
09:50	44.8	121.7
09:51	45.0	121.8
09:52	45.2	121.9
09:53	45.4	122.0
09:54	45.6	122.2
09:55	45.8	122.3
09:56	46.1	122.4
09:57	46.3	122.6
09:58	46.5	122.7
09:59	46.7	122.8
10:00	46.9	123.0
10:01	47.1	123.1
10:02	47.3	123.2
10:03	47.5	123.4
10:04	47.7	123.5
10:05	47.9	123.7
10:06	48.1	123.8
10:07	48.4	124.0
10:08	48.6	124.1
10:09	48.8	124.3
10:10	49.0	124.4
10:11	49.2	124.6
10:12	49.4	124.7
10:13	49.6	124.9
10:14	49.8	125.0
10:15	50.0	125.2
10:16	50.2	125.4
10:17	50.4	125.5
10:18	50.6	125.7
10:19	50.8	125.9
10:20	51.0	126.0
10:21	51.2	126.2
10:22	51.4	126.4
10:23	51.6	126.6

10:24	51.8	126.7
10:25	52.0	126.9
10:26	52.2	127.1
10:27	52.4	127.3
10:28	52.6	127.5
10:29	52.8	127.7
10:30	53.0	127.9
10:31	53.2	128.1
10:32	53.4	128.3
10:33	53.6	128.5
10:34	53.8	128.7
10:35	54.0	128.9
10:36	54.2	129.1
10:37	54.4	129.3
10:38	54.6	129.5
10:39	54.8	129.7
10:40	55.0	129.9
10:41	55.1	130.2
10:42	55.3	130.4
10:43	55.5	130.6
10:44	55.7	130.8
10:45	55.9	131.1
10:46	56.1	131.3
10:47	56.3	131.5
10:48	56.5	131.8
10:49	56.7	132.0
10:50	56.8	132.3
10:51	57.0	132.5
10:52	57.2	132.8
10:53	57.4	133.0
10:54	57.6	133.3
10:55	57.8	133.5
10:56	57.9	133.8
10:57	58.1	134.1
10:58	58.3	134.4
10:59	58.5	134.6
11:00	58.6	134.9
11:01	58.8	135.2
11:02	59.0	135.5
11:03	59.2	135.8
11:04	59.3	136.1
11:05	59.5	136.4
11:06	59.7	136.7
11:07	59.9	137.0
11:08	60.0	137.3
11:09	60.2	137.6
11:10	60.4	137.9
11:11	60.5	138.2
11:12	60.7	138.5
11:13	60.9	138.9
11:14	61.0	139.2
11:15	61.2	139.5
11:16	61.4	139.9
11:17	61.5	140.2
11:18	61.7	140.5
11:19	61.8	140.9
11:20	62.0	141.3
11:21	62.1	141.6
11:22	62.3	142.0
11:23	62.5	142.3
11:24	62.6	142.7

11:25	62.8	143.1
11:26	62.9	143.5
11:27	63.1	143.9
11:28	63.2	144.3
11:29	63.3	144.6
11:30	63.5	145.0
11:31	63.6	145.4
11:32	63.8	145.9
11:33	63.9	146.3
11:34	64.0	146.7
11:35	64.2	147.1
11:36	64.3	147.5
11:37	64.5	148.0
11:38	64.6	148.4
11:39	64.7	148.8
11:40	64.8	149.3
11:41	65.0	149.7
11:42	65.1	150.2
11:43	65.2	150.7
11:44	65.3	151.1
11:45	65.5	151.6
11:46	65.6	152.1
11:47	65.7	152.5
11:48	65.8	153.0
11:49	65.9	153.5
11:50	66.0	154.0
11:51	66.1	154.5
11:52	66.2	155.0
11:53	66.3	155.5
11:54	66.4	156.0
11:55	66.6	156.5
11:56	66.6	157.1
11:57	66.7	157.6
11:58	66.8	158.1
11:59	66.9	158.7
12:00	67.0	159.2
12:01	67.1	159.7
12:02	67.2	160.3
12:03	67.3	160.8
12:04	67.4	161.4
12:05	67.4	162.0
12:06	67.5	162.5
12:07	67.6	163.1
12:08	67.7	163.7
12:09	67.7	164.2
12:10	67.8	164.8
12:11	67.9	165.4
12:12	67.9	166.0
12:13	68.0	166.6
12:14	68.0	167.2
12:15	68.1	167.8
12:16	68.1	168.4
12:17	68.2	169.0
12:18	68.2	169.6
12:19	68.3	170.2
12:20	68.3	170.8
12:21	68.4	171.4
12:22	68.4	172.0
12:23	68.4	172.6
12:24	68.5	173.3
12:25	68.5	173.9

12:26	68.5	174.5
12:27	68.5	175.1
12:28	68.6	175.7
12:29	68.6	176.4
12:30	68.6	177.0
12:31	68.6	177.6
12:32	68.6	178.2
12:33	68.6	178.9
12:34	68.6	179.5
12:35	68.6	180.1
12:36	68.6	180.8
12:37	68.6	181.4
12:38	68.6	182.0
12:39	68.6	182.6
12:40	68.6	183.3
12:41	68.6	183.9
12:42	68.5	184.5
12:43	68.5	185.1
12:44	68.5	185.8
12:45	68.5	186.4
12:46	68.4	187.0
12:47	68.4	187.6
12:48	68.4	188.2
12:49	68.3	188.9
12:50	68.3	189.5
12:51	68.3	190.1
12:52	68.2	190.7
12:53	68.2	191.3
12:54	68.1	191.9
12:55	68.1	192.5
12:56	68.0	193.1
12:57	68.0	193.7
12:58	67.9	194.3
12:59	67.8	194.8
13:00	67.8	195.4
13:01	67.7	196.0
13:02	67.6	196.6
13:03	67.6	197.2
13:04	67.5	197.7
13:05	67.4	198.3
13:06	67.3	198.8
13:07	67.2	199.4
13:08	67.2	199.9
13:09	67.1	200.5
13:10	67.0	201.0
13:11	66.9	201.6
13:12	66.8	202.1
13:13	66.7	202.6
13:14	66.6	203.2
13:15	66.5	203.7
13:16	66.4	204.2
13:17	66.3	204.7
13:18	66.2	205.2
13:19	66.1	205.7
13:20	66.0	206.2
13:21	65.9	206.7
13:22	65.8	207.2
13:23	65.6	207.7
13:24	65.5	208.1
13:25	65.4	208.6
13:26	65.3	209.1

13:27	65.2	209.5
13:28	65.0	210.0
13:29	64.9	210.5
13:30	64.8	210.9
13:31	64.7	211.3
13:32	64.5	211.8
13:33	64.4	212.2
13:34	64.3	212.6
13:35	64.1	213.1
13:36	64.0	213.5
13:37	63.8	213.9
13:38	63.7	214.3
13:39	63.6	214.7
13:40	63.4	215.1
13:41	63.3	215.5
13:42	63.1	215.9
13:43	63.0	216.3
13:44	62.8	216.7
13:45	62.7	217.1
13:46	62.5	217.4
13:47	62.4	217.8
13:48	62.2	218.2
13:49	62.1	218.5
13:50	61.9	218.9
13:51	61.8	219.2
13:52	61.6	219.6
13:53	61.4	219.9
13:54	61.3	220.3
13:55	61.1	220.6
13:56	61.0	221.0
13:57	60.8	221.3
13:58	60.6	221.6
13:59	60.5	221.9
14:00	60.3	222.2
14:01	60.1	222.6
14:02	60.0	222.9
14:03	59.8	223.2
14:04	59.6	223.5
14:05	59.4	223.8
14:06	59.3	224.1
14:07	59.1	224.4
14:08	58.9	224.6
14:09	58.7	224.9
14:10	58.6	225.2
14:11	58.4	225.5
14:12	58.2	225.8
14:13	58.0	226.0
14:14	57.9	226.3
14:15	57.7	226.6
14:16	57.5	226.8
14:17	57.3	227.1
14:18	57.1	227.3
14:19	56.9	227.6
14:20	56.8	227.8
14:21	56.6	228.1
14:22	56.4	228.3
14:23	56.2	228.6
14:24	56.0	228.8
14:25	55.8	229.0
14:26	55.6	229.3
14:27	55.4	229.5

14:28	55.3	229.7
14:29	55.1	229.9
14:30	54.9	230.2
14:31	54.7	230.4
14:32	54.5	230.6
14:33	54.3	230.8
14:34	54.1	231.0
14:35	53.9	231.2
14:36	53.7	231.4
14:37	53.5	231.6
14:38	53.3	231.8
14:39	53.1	232.0
14:40	52.9	232.2
14:41	52.7	232.4
14:42	52.5	232.6
14:43	52.3	232.8
14:44	52.1	233.0
14:45	51.9	233.2
14:46	51.7	233.3
14:47	51.5	233.5
14:48	51.3	233.7
14:49	51.1	233.9
14:50	50.9	234.0
14:51	50.7	234.2
14:52	50.5	234.4
14:53	50.3	234.5
14:54	50.1	234.7
14:55	49.9	234.9
14:56	49.7	235.0
14:57	49.5	235.2
14:58	49.3	235.3
14:59	49.1	235.5
15:00	48.9	235.7
15:01	48.7	235.8
15:02	48.5	236.0
15:03	48.3	236.1
15:04	48.1	236.3
15:05	47.9	236.4
15:06	47.6	236.5
15:07	47.4	236.7
15:08	47.2	236.8
15:09	47.0	237.0
15:10	46.8	237.1
15:11	46.6	237.2
15:12	46.4	237.4
15:13	46.2	237.5
15:14	46.0	237.6
15:15	45.8	237.8
15:16	45.5	237.9
15:17	45.3	238.0
15:18	45.1	238.1
15:19	44.9	238.3
15:20	44.7	238.4
15:21	44.5	238.5
15:22	44.3	238.6
15:23	44.1	238.7
15:24	43.8	238.8
15:25	43.6	239.0
15:26	43.4	239.1
15:27	43.2	239.2
15:28	43.0	239.3

15:29	42.8	239.4
15:30	42.6	239.5
15:31	42.3	239.6
15:32	42.1	239.7
15:33	41.9	239.8
15:34	41.7	239.9
15:35	41.5	240.0
15:36	41.3	240.1
15:37	41.0	240.2
15:38	40.8	240.3
15:39	40.6	240.4
15:40	40.4	240.5
15:41	40.2	240.6
15:42	40.0	240.7
15:43	39.7	240.8
15:44	39.5	240.9
15:45	39.3	241.0
15:46	39.1	241.1
15:47	38.9	241.2
15:48	38.7	241.3
15:49	38.4	241.3
15:50	38.2	241.4
15:51	38.0	241.5
15:52	37.8	241.6
15:53	37.6	241.7
15:54	37.3	241.8
15:55	37.1	241.8
15:56	36.9	241.9
15:57	36.7	242.0
15:58	36.5	242.1
15:59	36.2	242.2
16:00	36.0	242.2
16:01	35.8	242.3
16:02	35.6	242.4
16:03	35.4	242.5
16:04	35.1	242.5
16:05	34.9	242.6
16:06	34.7	242.7
16:07	34.5	242.7
16:08	34.2	242.8
16:09	34.0	242.9
16:10	33.8	242.9
16:11	33.6	243.0
16:12	33.4	243.1
16:13	33.1	243.1
16:14	32.9	243.2
16:15	32.7	243.3
16:16	32.5	243.3
16:17	32.2	243.4
16:18	32.0	243.5
16:19	31.8	243.5
16:20	31.6	243.6
16:21	31.3	243.6
16:22	31.1	243.7
16:23	30.9	243.7
16:24	30.7	243.8
16:25	30.5	243.9
16:26	30.2	243.9
16:27	30.0	244.0
16:28	29.8	244.0
16:29	29.6	244.1

16:30	29.3	244.1
16:31	29.1	244.2
16:32	28.9	244.2
16:33	28.7	244.3
16:34	28.4	244.3
16:35	28.2	244.4
16:36	28.0	244.4
16:37	27.8	244.5
16:38	27.5	244.5
16:39	27.3	244.6
16:40	27.1	244.6
16:41	26.9	244.7
16:42	26.6	244.7
16:43	26.4	244.8
16:44	26.2	244.8
16:45	26.0	244.8
16:46	25.7	244.9
16:47	25.5	244.9
16:48	25.3	245.0
16:49	25.1	245.0
16:50	24.8	245.0
16:51	24.6	245.1
16:52	24.4	245.1
16:53	24.1	245.2
16:54	23.9	245.2
16:55	23.7	245.2
16:56	23.5	245.3
16:57	23.2	245.3
16:58	23.0	245.3
16:59	22.8	245.4
17:00	22.6	245.4
17:01	22.3	245.4
17:02	22.1	245.5
17:03	21.9	245.5
17:04	21.7	245.5
17:05	21.4	245.6
17:06	21.2	245.6
17:07	21.0	245.6
17:08	20.7	245.7
17:09	20.5	245.7
17:10	20.3	245.7
17:11	20.1	245.8
17:12	19.8	245.8
17:13	19.6	245.8
17:14	19.4	245.8
17:15	19.2	245.9
17:16	18.9	245.9
17:17	18.7	245.9
17:18	18.5	245.9
17:19	18.2	246.0
17:20	18.0	246.0
17:21	17.8	246.0
17:22	17.6	246.0
17:23	17.3	246.1
17:24	17.1	246.1
17:25	16.9	246.1
17:26	16.7	246.1
17:27	16.4	246.2
17:28	16.2	246.2
17:29	16.0	246.2
17:30	15.7	246.2

17:31	15.5	246.2
17:32	15.3	246.2
17:33	15.1	246.3
17:34	14.8	246.3
17:35	14.6	246.3
17:36	14.4	246.3
17:37	14.1	246.3
17:38	13.9	246.4
17:39	13.7	246.4
17:40	13.5	246.4
17:41	13.2	246.4
17:42	13.0	246.4
17:43	12.8	246.4
17:44	12.6	246.4
17:45	12.3	246.5
17:46	12.1	246.5
17:47	11.9	246.5
17:48	11.6	246.5
17:49	11.4	246.5
17:50	11.2	246.5
17:51	11.0	246.5
17:52	10.7	246.5
17:53	10.5	246.5
17:54	10.3	246.5
17:55	10.1	246.6
17:56	9.8	246.6
17:57	9.6	246.6
17:58	9.4	246.6
17:59	9.1	246.6
18:00	8.9	246.6
18:01	8.7	246.6
18:02	8.5	246.6
18:03	8.2	246.6
18:04	8.0	246.6
18:05	7.8	246.6
18:06	7.6	246.6
18:07	7.3	246.6
18:08	7.1	246.6
18:09	6.9	246.6
18:10	6.7	246.6
18:11	6.4	246.6
18:12	6.2	246.6
18:13	6.0	246.6
18:14	5.8	246.6
18:15	5.5	246.6
18:16	5.3	246.6
18:17	5.1	246.6
18:18	4.9	246.6
18:19	4.6	246.6
18:20	4.4	246.6
18:21	4.2	246.6
18:22	4.0	246.6
18:23	3.7	246.6
18:24	3.5	246.6
18:25	3.3	246.6
18:26	3.1	246.6
18:27	2.9	246.6
18:28	2.7	246.6
18:29	2.4	246.6
18:30	2.2	246.6
18:31	2.0	246.6

18:32	1.8	246.6
18:33	1.6	246.6
18:34	1.4	246.6
18:35	1.2	246.6
18:36	1.0	246.6
18:37	0.8	246.6
18:38	0.6	246.6
18:39	0.4	246.5
18:40	0.2	246.5
18:41	-0.0	246.5
18:42	-0.8	246.5
18:43	-1.0	246.5
18:44	-1.3	246.5
18:45	-1.5	246.5
18:46	-1.7	246.5
18:47	-2.0	246.5
18:48	-2.2	246.4
18:49	-2.4	246.4
18:50	-2.6	246.4
18:51	-2.9	246.4
18:52	-3.1	246.4
18:53	-3.3	246.4
18:54	-3.6	246.4
18:55	-3.8	246.3
18:56	-4.0	246.3
18:57	-4.2	246.3
18:58	-4.5	246.3
18:59	-4.7	246.3
19:00	-4.9	246.3
19:01	-5.2	246.2
19:02	-5.4	246.2
19:03	-5.6	246.2
19:04	-5.8	246.2
19:05	-6.1	246.2
19:06	-6.3	246.1
19:07	-6.5	246.1
19:08	-6.8	246.1
19:09	-7.0	246.1
19:10	-7.2	246.1
19:11	-7.4	246.0
19:12	-7.7	246.0
19:13	-7.9	246.0
19:14	-8.1	246.0
19:15	-8.4	246.0
19:16	-8.6	245.9
19:17	-8.8	245.9
19:18	-9.0	245.9
19:19	-9.3	245.9
19:20	-9.5	245.8
19:21	-9.7	245.8
19:22	-10.0	245.8
19:23	-10.2	245.7
19:24	-10.4	245.7
19:25	-10.6	245.7
19:26	-10.9	245.7
19:27	-11.1	245.6
19:28	-11.3	245.6
19:29	-11.5	245.6
19:30	-11.8	245.5
19:31	-12.0	245.5

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Painel Pilao Excavation Material Catalog .xlsx

Site	Unit	Level	Prov.Orig	Prov. New	Total Weight (grams)	Total number of pieces	Catalog photo numbers
Painel Do Pilão	1	1	20111	20110101	1422	1	103-0067-72
Painel Do Pilão	1	1	20111	20110101	341	1	103-0074-79
Painel Do Pilão	1	1	20111	20110101	92	1	103-0081-84
Painel Do Pilão	1	1	20111	20110101	41	7	103-0086-89
Painel Do Pilão	1	1	20111	20110101			
Painel Do Pilão	1	2	20112	20110102	3311	56	101-0001to101-0006
Painel Do Pilão	1	3	20113	20110103	45	3	103-0211-4
Painel Do Pilão	1	3	20113	20110103	563	1	103-0091-94
Painel Do Pilão	1	3	20113	20110103	402	4	103-0096-100
Painel Do Pilão	1	3	20113	20110103	480	2	103-0102-5, 103-0108-11
Painel Do Pilão	1	3	20113	20110103	82	1	103-0124-7
Painel Do Pilão	1	3	20113	20110103	31	1	103-0176-9
Painel Do Pilão	1	3	20113	20110103	81	1	103-0201-4
Painel Do Pilão	1	3	20113	20110103	65	1	103-0134-7
Painel Do Pilão	1	3	20113	20110103	295	1	103-0112-5
Painel Do Pilão	1	3	20113	20110103	58	1	103-0181-6
Painel Do Pilão	1	3	20113	20110103	66	3	103-0149-52
Painel Do Pilão	1	3	20113	20110103	66	1	103-0139-42
Painel Do Pilão	1	3	20113	20110103	86	1	103-0193-6
Painel Do Pilão	1	3	20113	20110103	88	1	103-0171-4
Painel Do Pilão	1	3	20113	20110103	39	1	103-0144-7
Painel Do Pilão	1	3	20113	20110103	65	1	103-0161-4
Painel Do Pilão	1	3	20113	20110103	599	1	103-0117-22
Painel Do Pilão	1	3	20113	20110103	43	1	103-0187-91
Painel Do Pilão	1	3	20113	20110103	151	1	103-0206-9
Painel Do Pilão	1	3	20113	20110103	62	1	103-0166-9
Painel Do Pilão	1	3	20113	20110103	319	1	103-0129-32
Painel Do Pilão	1	3	20113	20110103	52	1	103-0198-9
Painel Do Pilão	1	3	20113	20110103	118	6	103-0216-9

Painel Pilao Excavation Material Catalog .xlsx

Site	Unit	Level	Prov.Orig	Prov. New	Total Weight (grams)	Total number of pieces	Catalog photo numbers
Painel Do Pilão	1	3	20113	20110103	80	1	103-0154-8
Painel Do Pilão	1	3	20113	20110103	2237	243	101-0008-11,14-17
Painel Do Pilão	1	4	20115	20110104	336	1	103-0250-6
Painel Do Pilão	1	4	20115	20110104	741	1	103-0229-38
Painel Do Pilão	1	4	20115	20110104	1069	1	103-0245-8
Painel Do Pilão	1	4	20115	20110104	248	2	103-0258-63
Painel Do Pilão	1	4	20115	20110104	302	1	103-0240-3
Painel Do Pilão	1	4	20115	20110104	2512	121	101-0020-23
Painel Do Pilão	1	5	20116	20110105	524	1	103-0300-7
Painel Do Pilão	1	5	20116	20110105	683	1	103-0325-34
Painel Do Pilão	1	5	20116	20110105	260	1	103-0316-23
Painel Do Pilão	1	5	20116	20110105	326	1	103-0309-14
Painel Do Pilão	1	5	20116	20110105	249	1	103-0278-83
Painel Do Pilão	1	5	20116	20110105	433	1	103-0285-90
Painel Do Pilão	1	5	20116	20110105	120	1	103-0271-6
Painel Do Pilão	1	5	20116	20110105	402	1	103-0292-7
Painel Do Pilão	1	5	20116	20110105	2100	1	103-0336-43
Painel Do Pilão	1	5	20116	20110105	109	2	103-0265-9
Painel Do Pilão	1	5	20116	20110105	51	1	103-0346-9
Painel Do Pilão	1	5	20116	20110105	110	1	103-0351-4
Painel Do Pilão	1	5	20116	20110105	151	1	103-0356-9
Painel Do Pilão	1	5	20116	20110105	510	1	103-0368-73
Painel Do Pilão	1	5	20116	20110105	9	1	103-0361-6
Painel Do Pilão	1	5	20116	20110105	154	1	103-0382-9
Painel Do Pilão	1	5	20116	20110105	341	1	103-0375-80
Painel Do Pilão	1	5	20116	20110105	122	1	103-0391-9
Painel Do Pilão	1	5	20116	20110105	86	1	103-0401-6
Painel Do Pilão	1	5	20116	20110105	3696	133	101-0025-29,31-35
Painel Do Pilão	1	6	20117	20110106	134	1	103-0412-19

Painel Pilao Excavation Material Catalog .xlsx

Site	Unit	Level	Prov.Orig	Prov. New	Total Weight (grams)	Total number of pieces	Catalog photo numbers
Painel Do Pilão	1	6	20117	20110106	132	1	103-0422-7
Painel Do Pilão	1	6	20117	20110106	88	1	103-0430-3
Painel Do Pilão	1	6	20117	20110106	76	1	103-0435-8
Painel Do Pilão	1	6	20117	20110106	57	1	103-0440=7
Painel Do Pilão	1	6	20117	20110106	1240	1	103-0487-93
Painel Do Pilão	1	6	20117	20110106	1000	1	103-0495-504
Painel Do Pilão	1	6	20117	20110106	181	1	103-0449-56
Painel Do Pilão	1	6	20117	20110106	420	1	103-0506-16
Painel Do Pilão	1	6	20117	20110106	380	2	103-0458-73
Painel Do Pilão	1	6	20117	20110106	125	1	103-0475-80
Painel Do Pilão	1	6	20117	20110106	43	1	103-0482-5
Painel Do Pilão	1	6	20117 (2013	20110106	253	13	101-0134-9
Painel Do Pilão	1	6	20117 (2013	20110106	657	13	101-0141-6
Painel Do Pilão	1	6	20117 (2013	20110106	581	7	103-0002-7
Painel Do Pilão	1	6	20117 (2012	20110106.1	2342	74	101-0045-50
Painel Do Pilão	1	6	20117 (2012	20110106.2	1492	78	101--0052-58
Painel Do Pilão	1	6	20117	20110106	2718	38	101-0037-43
Painel Do Pilão	1	7	20118	20110107	1530	1	103-0518-32
Painel Do Pilão	1	7	20118	20110107	1100	1	103-0611-4; 103-6742-9
Painel Do Pilão	1	7	20118	20110107	14	1	103-0591-5; 103-6659-64
Painel Do Pilão	1	7	20118	20110107	15	3	103-0550-7; 103-6665-7
Painel Do Pilão	1	7	20118	20110107	74	1	103-0598-603; 103-6668-
Painel Do Pilão	1	7	20118	20110107	16	1	103-0559-62; 103-6677-8
Painel Do Pilão	1	7	20118	20110107	63	1	103-0606-9; 103-6684-91
Painel Do Pilão	1	7	20118	20110107	1233	1	103-0534-41
Painel Do Pilão	1	7	20118	20110107	23	1	103-0564-7103-6692-9
Painel Do Pilão	1	7	20118	20110107	176	1	103-0569-74
Painel Do Pilão	1	7	20118	20110107	90	1	103-0576-9; 103-6700-5
Painel Do Pilão	1	7	20118	20110107	2350	1	103-0543-48

Painel Pilao Excavation Material Catalog .xlsx

Site	Unit	Level	Prov.Orig	Prov. New	Total Weight (grams)	Total number of pieces	Catalog photo numbers
Painel Do Pilão	1	7	20118	20110107	855	2	103-0616-22; 103-6734-4
Painel Do Pilão	1	7	20118	20110107	154	1	103-0581-9; 103-6715-33
Painel Do Pilão	1	7	20118 (2012	20110107.1	3502	48	101-0067-72
Painel Do Pilão	1	7	20118 (2013	20110107	1207	4	103-0010-15
Painel Do Pilão	1	7	20118 (2013	20110107	2686	19	103-0018-23
Painel Do Pilão	1	7	20118 (2013	20110107	1070	37	103-0026-31
Painel Do Pilão	1	7	20118 (2013	20110107	1557	4	103-0034-38
Painel Do Pilão	1	7	20118 (2012	20110107		124	103-0057-61
Painel Do Pilão	1	7	20118 (2012	20110107.2	1788	109	101-0074-79
Painel Do Pilão	1	7	20118 (2012	20110107.4	314	79	101-0091-94
Painel Do Pilão	1	7	20118 (2012	20110107.3	2113	91	101-0081-86
Painel Do Pilão	1	7	20118	20110107	3215	67	101-0060-65
Painel Do Pilão	1	8	20119	20110108	215	1	103-0625-32
Painel Do Pilão	1	8	20119	20110108	1202	1	103-0634-41
Painel Do Pilão	1	8	20119	20110108	775	2	103-0643-8
Painel Do Pilão	1	8	20119	20110108	75	1	103-0658-67
Painel Do Pilão	1	8	20119	20110108	65	2	103-0669-73
Painel Do Pilão	1	8	20119	20110108	782	1	103-0651-6
Painel Do Pilão	1	8	20119	20110108	743	1	103-0686-91
Painel Do Pilão	1	8	20119	20110108	20	2	103-0675-8
Painel Do Pilão	1	8	20119	20110108	80	3	103-0680-4
Painel Do Pilão	1	8	20119	20110108	4288	26	101-0097-103
Painel Do Pilão	1	8	20119	20110108	1354	111	101-0105-110
Painel Do Pilão	1	8	20119 (2014	20110108	2386	20	103-0041-46
Painel Do Pilão	1	8	20119 (2014	20110108	2312	9	103-0049-54
Painel Do Pilão	1	9	20119 (2012	20110109	1506	36	101-0127-32
Painel Do Pilão	1	3b	20114	20110103.1	171	3	103-0221-4
Painel Do Pilão	1	cave wall	20110 (2012	20110100.3	1442	4	101-0120-125
Painel Do Pilão	1	slip wall	20110 (2012	20110100.2	822	14	101-0112-18

Painel Pilao Excavation Material Catalog .xlsx

Site	Unit	Level	Prov.Orig	Prov. New	Total Weight (grams)	Total number of pieces	Catalog photo numbers
					80430	1688	

Painel Pilao Excavation Material Catalog .xlsx

Level	Catalog Video Nu	Object #
1	103-0073	1
1	103-0080	2
1	103-0085	3
1	103-0090	-
1		
2	101-0007	
3	103-0215	1
3	103-0095	3
3	103-0101	4
3	103-0106-7	5
3	103-0128	6
3	103-0180	7
3	103-0205	8
3	103-0138	9
3	103-0116	10
3	103-0187	11
3	103-0153	12
3	103-0143	13
3	103-0197	14
3	103-0175	15
3	103-0148	16
3	103-0165	17
3	103-0123	18
3	103-0192	19
3	103-0210	20
3	103-0170	21
3	103-0133	22
3	103-0200	23
3	103-0220	24

Painel Pilao Excavation Material Catalog .xlsx

Level	Catalog Video Nu	Object #
3	103-0159-60	26
3	101-0012,13,18,19	
4	103-0257	5
4	103-0239	6
4	103-0249	9
4	103-0264	10
4	103-0244	11
4	101-0024	
5	103-0308	1
5	103-0335	2
5	103-0324	3
5	103-0315	4
5	103-0284	5
5	103-0291	6
5	103-0277	7
5	103-0298-9	8
5	103-0344-5	9
5	103-0270	10
5	103-0350	11
5	103-0355	12
5	103-0360	13
5	103-0374	14
5	103-0367	15
5	103-0390	16
5	103-0381	17
5	103-0400	18
5	103-0407	21
5	101-0030,36	
6	103-0420-1	1

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Level	Catalog Video Nu	Object #
6	103-0428-9	2
6	103-0434	3
6	103-0439	5
6	103-0448	6
6	103-0494	7
6	103-0505	9
6	103-0457	10
6	103-0517	11
6	103-0474	13
6	103-0481	14
6	103-0486	16
6	101-0140	f1
6	101-0147-8, 103	f3
6	103-0008-9	f4
6	101-0051	T region
6	101-0059	UVWZ regior
6	101-0044	
7	103-0533	1
7	103-0615	3
7	103-0596-7	4
7	103-0558	5
7	103-0604-5	6
7	103-0563	7
7	103-0610	8
7	103-0542	9
7	103-0568	11
7	103-0575	12
7	103-0580	15
7	103-0549	16

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Level	Catalog Video Nu	Object #
7	103-0623-4; 103	18
7	103-0590	19
7	101-0073	EFG region
7	103-0016-17	f5
7	103-0024-25	f6
7	103-0032-33	f7
7	103-0039-40	f9
7	103-0062	fragiles (leve
7	101-0080	M region
7	101-0095-96	Screened eas
7	101-0087-90	X,Y region
7	101-0066	
8	103-0633	1
8	103-0642	2
8	103-0649-50	4
8	103-0668	6
8	103-0674	7
8	103-0657	8
8	103-0692	10
8	103-0679	11
8	103-0685	12
8	101-0104	(macroliths)
8	101-0111	(microliths)
8	103-0047-48	f10
8	103-0055-56	f11
9	101-0133	base of level
3b	103-0227-8	-
cave wall	101-0126	cave wall pro
slip wall	101-0119	slip wall prof

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Level	Catalog Video Nu	Object #

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Level	
1	large flake bulb with 3 or 4 front bore holes- in form of stalactite. Silicified sandstone- almost mistaken for limestone
1	re-shaped quartz breccia wedge with right angles
1	polished pink chalcedony hand axe
1	screened lithic objects included 1 broken sandstone flake, 1 silicified dagger flake, 1 curved quartz scoop flake, 1 dark feathered flake, 1 dark rectang
1	
2	
3	2 grey/white lunate-shaped blades and 1 short triangle wedge (chalcedony-like)
3	left-handed quartz breccia hand axe
3	a single sandstone object at first but broke into 4 pieces. Had shape similar to a hip bone
3	orange sandstone hand axe. Fragments broke off. Also includes a bizarre burned or melted "sap" or jutaiça
3	pink quartz breccia curved triangular flake with linear scar and top cortex
3	white hand-held knife?
3	flat thin orange sandstone (axe or planar scraper/polisher) right thumb impression
3	white quartz breccia knife blade with black spot
3	long grey sickle made from quartz breccia
3	white hand-held (left-handed) "shank" knife
3	3 different pieces of red rock- possible pigment source- hardened clay or tabatinga or carbonized iron. One piece is smooth and melted-looking. Oth
3	white silicified sandstone long edge knife with short edge grip- left hand
3	pink quartz breccia with green tong- hafted end scraper (that's why tong end is greenish)
3	pinkish quartz breccia- long thin sidescraper. Slightly curved
3	white silicified sandstone triangle point. The edges down to the point have been thinned on one side, tapering with only about 2mm. Also a little bit
3	grey/tan quartz breccia hand-held (right-handed) sidescraper (probably wood)
3	white quartz crystal spade- could just be a broken rock
3	grey/white silicified sandstone thin blade notched (or possibly side scraper). Darkside seems a bit polished
3	pale white coarse sandstone/breccia (scraper or chopper?) left-handed
3	polished white quartz breccia "knee-cap" stone. Maybe for scraping or polishing
3	white long axe with red bar mark. Silicified sandstone. Red mark is about 15mm by 34mm. Also has horizontal linear feature on same red mark side,
3	grey coarse sandstone (abraider?)
3	all silicified sandstones: 2 unknown tabulars, 2 projectile points, 1 blade broken in 2 pieces

Level	
3	grey silicified sandstone/quartz border-blade. Sidescraper (probably wood) tappered on one side for ~2mm then thick middle, then long non-sharp c
3	
4	large quartz breccia flake, could have been broken-off from something bigger. Tappers down to what appears like a tang in the middle. Potential reu
4	sandstone conglomerate - beige: hafted or right-handed (unsure) could be side scraper but most likely used against other stone.
4	large biface silicified sandstone with vertical scar and oval-triangle impact
4	long sandstone sickle (broke into 2 pieces). Was orangeish but now sand colored. Interior edge sharp
4	silicified sandstone endscraper (or axe head) hafted or handheld (right hand)
4	
5	large blue-ish when moist, silicified sandstone flake with scar at bulb of percussion. Cortex surface has right-handheld features (left possible but less
5	large beige silicified sandstone one-end bottom reduced, top tapered (2cm) wedge (endscraper or handaxe- left or right hand) flake with dual vertic
5	silicified sandstone, some breccia, small hafted axe head. (No signs of endscraper use). Bulb of percussion has signs of hafting articulation. Also corte
5	large triangular silicified sandstone flake with central vertical scar and triangular bulb of percussion. Evidence of pale beige clay or mud splashes on s
5	pinkish-beige quartz breccia teardrop flake with vertical scar greatly truncated on one side, tapered to a sharp edge on other side (possible right-ha
5	large beige silicified sandstone ~360° retouched leaflet flake (spade). Evidence of hafting or left-handheld.
5	pinkish-beige silicified sandstone tear drop flake with vertical scar. (perforator, side scraper, or saw. Evidence for hafting on bulb (left-handed if han
5	large beige silicified sandstone one-edge retouched (6cm) wedge flake with vertical scar nearly at edge. Evidence of vertical hafting scar toward cent
5	Grand triangular bulb stalactite-like flake. Beige silicified sandstone. Vertical center scar reworkd, signs of chipping at endpoint. Side flaked off a mic
5	pink sandstone was smoothed on all sides but pinched in the middle. Now broke into 2 pieces and of little value
5	pinkish-beige silicified sandstone leaflet flake with center vertical scar interrupted by center pentagonal surface. Double-edge sharp with broken off
5	medium brown medium-coarse sandstone (limace-shaped or jaguar-paw) abraider/polisher? With two vertical linear grooves
5	red and yellow (and dark brown) compacted sandstone tablet with border design and rim shaping (strange- seems almost like a piece of a large cera
5	dirt brown quartz breccia cleaver. Single edge but dual use-top for cleaving, bottom for cutting. Dark lines drawn could be termite trails or human m
5	dirty brown silicified sandstone triangular blade projectile point with retouch for hafting, and vertical center scar
5	
5	beige (slight pink) quartz breccia axe head. Either hafting broke off or was left-handheld. Dark line on surface could be guidemark or termite trail
5	dirt brown semi silicified and semi quartz breccia elongated perforator/chisel/wedge blade. Signs of mud splash at chisel end. Slight signs of squashi
5	dirt brown/beige elongated leaflet flake with vertical scar and flattened double edges. Forked tang is sharper than projectile end (suggests heavily u
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6	pale brown silicified sandstone wedge flake polished on one side with reducing scars and possible hafting smudges, but use unverifiable. Gradual tap

Level	
6	pale brown quartz breccia wedge flake smoothed surface right-angle edges except sharp edge. opposite sharp edge has trough dugout but not taper
6	dark brown (still wet) silicified sandstone/conglomerate round axe, probably hafted but if not, righthanded with thumb impression
6	yellowish-orangeish brown compacted sandstone blade. Thinned on all sides, thick where vertical flake scar should be, but removed. Uncertain how
6	tan/orange brown pick axe flake. Articulates best with a small left hand, perhaps a kid or small female. Bulb of percussion is angled and therefore no
6	Large orange sandstone bulbous flake with vertical groove + indentation, and horizontal groove + indentation until vertical groove. Back end also gro
6	large red and yellow quadrangular tablet- sandstone
6	medium brown silicified hand axe right or left hand but left more comfortable. Evidence of retouch on bottom edge. Chopping edge has signs of chip
6	large dirt to medium brown silicified sandstone core with hints of melting or polishing (heat treated?) on one pentagonal surface. Bottom of base fa
6	pale to dirt to medium brown pair. One large horizontal axe head with backing retouch suggesting heavy lashing during hafting. Small piece also sho
6	
6	pale to dirt brown silicified sandstone slight flake scare near straight edge, opposite edge serrated. Groove on bottom and indentation, narrowing or
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7	tan-orange compacted, slightly silicified sandstone quadrangular brick with nearly square notch. Opposite side of notch was smoothed, but now splo
7	
7	yellowish tan silicified sandstone projectile point reduced or retouched on all sides and symmetric top with underside. Notched backing and pinched
7	three small pieces of orange, red and slight yellow clay-like sandstone or shale. Potentially used as pigment
7	
7	coarse-grained medium brown sandstone interior concave groove. Seems like a re-formed handle or adorno of a vessel
7	
7	
7	pale to medium brown silicified sandstone projectile point, retouched almost all around, seemingly broken and worn down at one corner now. Simil
7	
7	tan-beige silicified sandstone hook blade (potentially heat-treated). All edges retouched and tapered about 2 to 1 cm all around. Linear dark mark ne
7	Jaguar paw - large pale brown quartz breccia flake with at least 6 chiseled or grooved vertical marks. End tapers to axe-like edge. Heavy to wield, hea

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7	t corner
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8	pinkish-beige silicified sandstone with orange-ish coating, either polished, burnished or painted. Concave curved axe-like flake with vertical flake sca
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8	
8	was red but now orange with slight reddish tinge, rectangular slab of sandy clay. Presumably used as paint. One edge and platform bottom is very sr
8	orangeish coating pinkish silicified sandstone trangular flake with retouch on one side, underside is angularized and leveled flat. Tip broke off, so nov
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8	pale beige sandstone with one side well polished or vitrified. Also contains purple mark. Rectangular ovoid but broken in two pieces. Edges rounded
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9	8 lithics
3b	
cave wall	file lithics
slip wall	ile lithics

Level	

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1	ar flake and 1 possible agate pebble									
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3	is a red small dagger flake. Other is red and yellow core from which stems were removed									
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3	backing. The oval side has signs of lashing either from rope or wood									
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3	d vertical linear scar on other side									
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4	later as a digging tool. Articulates best with left hand and point facing down and inward									
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5	kely) but use unknown. Perhaps side scraper or terminus broke off									
5	scar Probable reuse from axe or wedge to sidescraper									
5	has evidence of dried mud or clay backsplash									
5	ır. Could be left-handheld dagger/perforator/digger but otherwise unknown. Bulb is angular hook									
5	ed if handheld)									
5										
5	ıeld)									
5	. Also left-handheld. Probable reuse from axe or wedge to sidescraper									
5	blade at a place that has a linear fracture along a dark surface line. A second dark line on the surface suggests the mason drew lines w									
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5	ɔint and tang perhaps for hafting									
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5	ic container but made of lithic, not clay, material. Similar to material from 15 de Março). Still has wet mark in video									
5	kings. Top well worked. Probably left-handheld but right not ruled out									
5										
5	l retouch. Convex contouring on top edge perhaps for hafting. In truth 3 edges could have been used. End for cleaving, long side for c									
5										
5	at hammer end. Articulates well with full-lefthand grip									
5	d). Probable hafted spearhead									
5										
6	ring to a sharp back edge but narrow and fragile. Perhaps had dual use, best described like a medieval warhammer									

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Level										
6	d. Possibly hafted? probable left-handed end scraper. alternatively axe or intended axe, but also could have been backblade when haf									
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6	is was formed. Consider heat-treated sandstone. Probably was a hafted spear head									
6	a chisel, while the interior concave surface is not smooth with signs of scraper use. Best explanation is pick axe for digging small holes									
6	ved lengthwise. One sharp edge and one dull edge. Signs of hafting. Point not so sharp. Use unknown.									
6										
6	ing or notching									
6	also smooth with very linear band. Some mud splashing at one corner. Smoothing smudges on bottom. Probably used as a sander (as									
6	backing retouch of strong lashing with opposite edge bing cutting edge and top end having been a piercing point. Large axe has smoo									
6	ight have splashing. Could have been right or left handed single-edge knife. Side scraper not likely because no smooth underside. Pot									
6	entral wide end- probable hafting. Point end reinforced to indicate projectile point. Almost certainly a throwing spear									
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7	hy from chipping during transit									
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7	t middle of flake indicates hafting for projectile.									
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7	right side from the back end suggests hafting or lashing, but to the left side from backing edge is thickest. Piece is asymetrical. No sign									
7	ons possibly caused by repeated stabbing motion. Either edge is dulled, could have been a hammerstone drill against other stones. M									
7	appearance to a folsom point. Tapering at broad end suggests hafted spear point.									
7	cates strong stabbing or perhaps twisting. Tip of point not sharp, probably broken off. Surface near base has linear dark mark across r									
7	r hook, indentation on underside, both suggest possibly mounted . Also articulates with right hand. Either back of hook or front of hoo									
7	er to haft. Numerous black streaks on surface. Axe edge and corner significantly whiter, perhaps from impacts?									

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8	Could have been a curved sidescraper with endscraper use for scraping large wooden logs. Articulates best with left hand. Or could ha									
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8	oth as though was rubbed against something to relese its color.									
8	2 pieces. Could have been hafted. Scraper capability less likely due to underside levelling Perhaps projectile flake or cutting tool.									
8	borehole flakes, whose crystals seem melted together. Also flake has retouch and dark linear marks radiationg more or less from off									
8	ge. Retouch along all top-side surface. Back edge reworked at three angles to make tang. Underside reinforced at bulb of percussion f									
8	ith all edges tapered sharp and back end thinned and fluted as if for hafting, but lacks projectile point on other end. could be evidence									
8	nd smooth. Rock probably was ornamental									
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3b										
cave wall										
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5	here they wanted to break or cut the rock next									
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5	utting, short side for scraping, but underside shows no real signs of abrasion. Cleaving edge has most evidence for uses because has sr									
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6	ted
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6	in dirt or cutting small things
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6	opposed to a scraper)
6	othed surface
6	entially burin as well. triangular bulb of percussion has a notch on chipped edge and indentation suggesting it could have been hafted
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7	g because there are two removal scars one superpositioning the other at the thick breccia edge of the flake. Also termite soot at very
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7	as reinforced. Vertical flake scar was worked several times. Underside has slight rippling. Other half probably was sheered off from op
7	
7	ns of scraping, therfore probably cutting tool, and probably a point initially but repeated retouch reduced it to a blunt edge, or used as
7	ost of top is a bit smoothed, not from artisanry but probably from use. Remnants of dark lines but here could have been termite trails
7	
7	etouched edge to vert. scar and over to other side. Indicates probable hafting. Other dark line near reinforced tip. Underside of point
7	ok had use. Well made.
7	

Level	
7	de to the inside, but at an angle. blown out from the other side (concave side) but that side has sharp edges well-straightened and alr
7	edge of lithic is narrowed perhaps from hafting? but also more red, including what appears to be internal red color as well as red pain
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8	ave been a hafted axe head, though curvature makes this less likely
8	lling no doubt, also elevated and trapezoidal to form a handle. A gouge was made on one side of the trapezoidal center for either thu
8	not very level and most of edges are broken or blunted, but much of surface was well retouched to reduce, narrow, or taper ends. Sec
8	
8	
8	-center. These marks or more likely remnants of lashing marks. This flake probably was hafted, but of course it is broken diagonally no
8	or retouch, with smudging on bublbous part where lashing might have occurred. Indentations near projectile point on top side. cuttin
8	e of secondary reuse after initial flake broke, or this was artisan- a work of art or ornamentation. Or part of a larger structure like the b
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3b	s on one edge, and a third in a notch position. Could have been a hafted side-scraper. It is maroon-colored and made of unknown but
cave wall	
slip wall	

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6	at one point. Potential spearhead.									
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7	edge where piece was removed. In this case it is hard to determine if the smudge was intentionally placed there to mark the next pla									
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7	posite end (i.e. broke after impact) left side flake kept, and articulates well with left hand as a perforator perhaps. Was lashed at redu									
7										
7	s a slicing tool.									
7	. trapezoidal angling on this rock indicates intentional design									
7										
7	has indentations perhaps from handle but also comforms well with right hand, not really with left hand.									
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Level										
7	most 90 degree rectangular angles, but no signs of rework. The other smaller half though, has been later smoothed even more becaus									
7	t. Red feathers off toward opposite end, which might have been a point but broke off in ancient times because the break is not fresh.									
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8	mb or palm support. dark linear marks reflect termite trails or perhaps lashing marks. despite what seems like obvious wooden shaft s									
8	ond piece is small mostly sandstone or silicified sandstone with orange coating, vertical scar to a sharp point but broken edges. best e									
8										
8										
8	w. seems like soft punctured retouch along all but back edge									
8	g edge has been dulled or blunted now. As a hafted weapon this was probably more of a naginata or halberd									
8	ore hole flakes									
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3b	probably silicified sandstone material. The largest is flat on one side but that side curves. It has some features similar to a large side s									
cave wall										
slip wall										

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7	e brown silicified sandstone with quartz breccia at thicker part. Also some orangeish-yellowish staining at edge where flake was remov									
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7	silicified sandstone with very well polished or perhaps vitrified on one side. Two pieces combine to one piece with large smoothed ar									
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8	edium brown silicified sandstone flake bulb. Numerous alterations include a backend tang usually for hafting, a front edge reinforced									
8	s found together and perhaps related but probably not. Large piece is beige quartz breccia with orangeish coating. A large flake with v									
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7	ved, therefore not likely patina for this or previous level 7 flakes. Also the large flake was most likely a wall piece, and did not fall from									
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8	ertical flake scar and flattened on one end. Concave underside with some smudging suggests it was a sidescraper of wood, but under									
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