

Re-entry of 2020-087A: 2020 Dec 16 UTC

Trajectory Analysis by Mike Loucks (<http://www.see.com>)

	Ground Track			Relative		Sky Track at Xitancun 2						
Time	Lat	Lon	Altitude	Earth's		AZ	EL - deg		Vang	Range	RA (2000.0)	Dec (2000.0)
UTC	deg N	deg E	km	Shadow	fracil	deg	LHor	Hor	deg/s	km	hh:mm:ss	deg
17:44:56.3	39.2551	99.9302	85.13	Umbra	0.00	107.5	68.4	69.7	4.61	90	07:40:49	30.170
17:44:57.0	39.2737	99.9892	85.14	Umbra	0.00	102.0	65.9	67.1	4.43	92	07:56:08	30.731
17:44:58.0	39.2987	100.0689	85.14	Umbra	0.00	96.5	62.3	63.5	4.16	94	08:16:05	31.285
17:44:59.0	39.3235	100.1483	85.15	Umbra	0.00	92.4	58.8	60.0	3.89	98	08:34:53	31.626
17:45:00.0	39.3482	100.2275	85.15	Umbra	0.00	89.3	55.5	56.7	3.60	101	08:52:28	31.786
17:45:01.0	39.3728	100.3066	85.16	Umbra	0.00	86.9	52.3	53.5	3.32	105	09:08:46	31.798
17:45:02.0	39.3973	100.3854	85.16	Umbra	0.00	84.9	49.4	50.6	3.06	110	09:23:44	31.693
17:45:03.0	39.4217	100.4643	85.16	Umbra	0.00	83.3	46.6	47.9	2.81	114	09:37:30	31.499
17:45:04.0	39.4460	100.5432	85.17	Umbra	0.00	82.0	44.1	45.3	2.58	119	09:50:05	31.238
17:45:05.0	39.4701	100.6218	85.17	Umbra	0.00	80.9	41.8	43.0	2.37	125	10:01:32	30.932
17:45:06.0	39.4940	100.7001	85.18	Umbra	0.00	79.9	39.6	40.9	2.17	130	10:11:57	30.596
17:45:07.0	39.5179	100.7784	85.18	Umbra	0.00	79.1	37.7	38.9	2.00	135	10:21:28	30.240
17:45:08.0	39.5417	100.8568	85.18	Umbra	0.00	78.4	35.8	37.1	1.84	141	10:30:11	29.872
17:45:09.0	39.5654	100.9349	85.18	Umbra	0.00	77.7	34.2	35.4	1.69	147	10:38:08	29.502
17:45:10.0	39.5890	101.0128	85.18	Umbra	0.00	77.2	32.6	33.8	1.56	153	10:45:24	29.135
17:45:11.0	39.6124	101.0907	85.18	Umbra	0.00	76.7	31.2	32.4	1.45	159	10:52:06	28.772
17:45:12.0	39.6356	101.1679	85.18	Umbra	0.00	76.2	29.8	31.0	1.34	165	10:58:12	28.419
17:45:13.0	39.6590	101.2461	85.18	Umbra	0.00	75.8	28.6	29.8	1.25	171	11:03:55	28.071
17:45:14.0	39.6820	101.3230	85.18	Umbra	0.00	75.5	27.4	28.6	1.16	177	11:09:07	27.738
17:45:15.0	39.7049	101.4002	85.18	Umbra	0.00	75.1	26.4	27.6	1.08	184	11:13:57	27.414
17:45:16.0	39.7278	101.4773	85.18	Umbra	0.00	74.8	25.3	26.6	1.01	190	11:18:27	27.102
17:45:17.0	39.7505	101.5542	85.17	Umbra	0.00	74.5	24.4	25.6	0.95	196	11:22:37	26.802
17:45:18.0	39.7732	101.6313	85.17	Umbra	0.00	74.3	23.5	24.7	0.89	203	11:26:32	26.512
17:45:19.0	39.7958	101.7080	85.16	Umbra	0.00	74.0	22.7	23.9	0.84	209	11:30:11	26.234
17:45:20.0	39.8181	101.7845	85.15	Umbra	0.00	73.8	21.9	23.1	0.79	216	11:33:35	25.967
17:45:21.0	39.8405	101.8612	85.15	Umbra	0.00	73.6	21.2	22.4	0.74	222	11:36:47	25.709
17:45:22.0	39.8627	101.9374	85.14	Umbra	0.00	73.4	20.5	21.7	0.70	229	11:39:47	25.462
17:45:23.0	39.8848	102.0136	85.13	Umbra	0.00	73.3	19.8	21.0	0.66	235	11:42:36	25.224
17:45:24.0	39.9069	102.0900	85.12	Umbra	0.00	73.1	19.2	20.4	0.63	242	11:45:17	24.995

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UTC	deg N	deg E	km	Shadow	fracil	deg	LHor	Hor	deg/s	km	hh:mm:ss	deg
17:45:25.0	39.9287	102.1659	85.11	Umbra	0.00	72.9	18.6	19.8	0.60	248	11:47:48	24.775
17:45:26.0	39.9505	102.2416	85.09	Umbra	0.00	72.8	18.1	19.3	0.57	255	11:50:10	24.564
17:45:27.0	39.9722	102.3174	85.08	Umbra	0.00	72.6	17.5	18.7	0.54	261	11:52:26	24.359
17:45:28.0	39.9937	102.3930	85.06	Umbra	0.00	72.5	17.0	18.2	0.51	268	11:54:35	24.162
17:45:29.0	40.0153	102.4687	85.05	Umbra	0.00	72.4	16.5	17.7	0.49	274	11:56:37	23.972
17:45:30.0	40.0366	102.5438	85.03	Umbra	0.00	72.3	16.1	17.3	0.47	281	11:58:33	23.790
17:45:31.0	40.0579	102.6192	85.01	Umbra	0.00	72.2	15.6	16.8	0.45	287	12:00:24	23.612
17:45:32.0	40.0791	102.6945	84.99	Umbra	0.00	72.1	15.2	16.4	0.43	294	12:02:10	23.441
17:45:33.0	40.1001	102.7693	84.97	Umbra	0.00	72.0	14.8	16.0	0.41	301	12:03:50	23.276
17:45:34.0	40.1210	102.8441	84.94	Umbra	0.00	71.9	14.4	15.6	0.39	307	12:05:27	23.117
17:45:35.0	40.1419	102.9189	84.92	Umbra	0.00	71.8	14.0	15.2	0.38	314	12:06:59	22.962
17:45:36.0	40.1627	102.9937	84.89	Umbra	0.00	71.7	13.7	14.9	0.36	320	12:08:28	22.811
17:45:37.0	40.1833	103.0681	84.86	Umbra	0.00	71.6	13.3	14.5	0.35	327	12:09:53	22.666
17:45:38.0	40.2038	103.1423	84.83	Umbra	0.00	71.5	13.0	14.2	0.34	333	12:11:14	22.525
17:45:39.0	40.2243	103.2168	84.80	Umbra	0.00	71.5	12.7	13.9	0.33	340	12:12:33	22.388
17:45:40.0	40.2446	103.2908	84.77	Umbra	0.00	71.4	12.4	13.6	0.31	346	12:13:48	22.255
17:45:41.0	40.2649	103.3648	84.74	Umbra	0.00	71.3	12.1	13.3	0.30	353	12:15:01	22.126
17:45:42.0	40.2850	103.4386	84.70	Umbra	0.00	71.3	11.8	13.0	0.29	359	12:16:11	22.000
17:45:43.0	40.3050	103.5123	84.66	Umbra	0.00	71.2	11.5	12.7	0.28	366	12:17:19	21.878
17:45:44.0	40.3250	103.5860	84.62	Umbra	0.00	71.1	11.2	12.4	0.27	372	12:18:24	21.758
17:45:45.0	40.3449	103.6595	84.58	Umbra	0.00	71.1	11.0	12.2	0.27	379	12:19:27	21.642
17:45:46.0	40.3646	103.7329	84.54	Umbra	0.00	71.0	10.7	11.9	0.26	385	12:20:28	21.529
17:45:47.0	40.3843	103.8061	84.49	Umbra	0.00	71.0	10.5	11.7	0.25	392	12:21:27	21.419
17:45:48.0	40.4038	103.8790	84.45	Umbra	0.00	70.9	10.2	11.4	0.24	398	12:22:24	21.311
17:45:49.0	40.4233	103.9521	84.40	Umbra	0.00	70.9	10.0	11.2	0.24	405	12:23:20	21.206
17:45:50.0	40.4426	104.0248	84.35	Umbra	0.00	70.8	9.8	11.0	0.23	411	12:24:13	21.103
17:45:51.0	40.4619	104.0976	84.29	Umbra	0.00	70.8	9.6	10.8	0.22	417	12:25:05	21.003
17:45:52.0	40.4810	104.1701	84.24	Umbra	0.00	70.7	9.3	10.6	0.22	424	12:25:56	20.905
17:45:53.0	40.5000	104.2424	84.18	Umbra	0.00	70.7	9.1	10.3	0.21	430	12:26:45	20.809

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UTC	deg N	deg E	km	Shadow	fracil	deg	LHor	Hor	deg/s	km	hh:mm:ss	deg
17:45:54.0	40.5190	104.3147	84.13	Umbra	0.00	70.7	8.9	10.1	0.21	437	12:27:33	20.715
17:45:55.0	40.5379	104.3871	84.06	Umbra	0.00	70.6	8.7	10.0	0.20	443	12:28:20	20.623
17:45:56.0	40.5566	104.4589	84.00	Umbra	0.00	70.6	8.6	9.8	0.20	449	12:29:05	20.533
17:45:57.0	40.5753	104.5309	83.94	Umbra	0.00	70.5	8.4	9.6	0.19	456	12:29:49	20.444
17:45:58.0	40.5939	104.6026	83.87	Umbra	0.00	70.5	8.2	9.4	0.19	462	12:30:32	20.358
17:45:59.0	40.6124	104.6742	83.80	Umbra	0.00	70.5	8.0	9.2	0.18	468	12:31:14	20.273
17:46:00.0	40.6307	104.7456	83.73	Umbra	0.00	70.4	7.8	9.0	0.18	475	12:31:54	20.189
17:46:01.0	40.6490	104.8169	83.66	Umbra	0.00	70.4	7.7	8.9	0.17	481	12:32:34	20.108
17:46:02.0	40.6673	104.8884	83.58	Umbra	0.00	70.4	7.5	8.7	0.17	487	12:33:13	20.027
17:46:03.0	40.6853	104.9591	83.50	Umbra	0.00	70.3	7.3	8.5	0.17	493	12:33:51	19.948
17:46:04.0	40.7033	105.0300	83.42	Umbra	0.00	70.3	7.2	8.4	0.16	500	12:34:28	19.871
17:46:05.0	40.7212	105.1006	83.34	Umbra	0.00	70.3	7.0	8.2	0.16	506	12:35:04	19.795
17:46:06.0	40.7390	105.1712	83.25	Umbra	0.00	70.3	6.9	8.1	0.16	512	12:35:40	19.720
17:46:07.0	40.7567	105.2416	83.17	Umbra	0.00	70.2	6.7	7.9	0.15	518	12:36:14	19.646
17:46:08.0	40.7742	105.3117	83.08	Umbra	0.00	70.2	6.6	7.8	0.15	524	12:36:48	19.573
17:46:09.0	40.7918	105.3819	82.98	Umbra	0.00	70.2	6.4	7.6	0.15	531	12:37:22	19.502
17:46:10.0	40.8092	105.4518	82.89	Umbra	0.00	70.2	6.3	7.5	0.14	537	12:37:54	19.432
17:46:11.0	40.8265	105.5216	82.79	Umbra	0.00	70.1	6.2	7.4	0.14	543	12:38:26	19.362
17:46:12.0	40.8437	105.5911	82.69	Umbra	0.00	70.1	6.0	7.2	0.14	549	12:38:57	19.294
17:46:13.0	40.8608	105.6608	82.59	Umbra	0.00	70.1	5.9	7.1	0.14	555	12:39:28	19.227
17:46:14.0	40.8778	105.7299	82.48	Umbra	0.00	70.1	5.8	7.0	0.13	561	12:39:58	19.161
17:46:15.0	40.8948	105.7991	82.37	Umbra	0.00	70.0	5.6	6.8	0.13	567	12:40:27	19.095
17:46:16.0	40.9116	105.8679	82.26	Umbra	0.00	70.0	5.5	6.7	0.13	573	12:40:56	19.031
17:46:17.0	40.9283	105.9366	82.15	Umbra	0.00	70.0	5.4	6.6	0.13	579	12:41:25	18.967
17:46:18.0	40.9449	106.0053	82.03	Umbra	0.00	70.0	5.3	6.5	0.13	585	12:41:53	18.905
17:46:19.0	40.9614	106.0736	81.92	Umbra	0.00	70.0	5.1	6.3	0.12	591	12:42:20	18.843
17:46:20.0	40.9779	106.1419	81.79	Umbra	0.00	70.0	5.0	6.2	0.12	597	12:42:47	18.782
17:46:21.0	40.9943	106.2101	81.67	Umbra	0.00	69.9	4.9	6.1	0.12	603	12:43:13	18.721
17:46:22.0	41.0105	106.2778	81.54	Umbra	0.00	69.9	4.8	6.0	0.12	609	12:43:39	18.662

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UTC	deg N	deg E	km	Shadow	fracil	deg	LHor	Hor	deg/s	km	hh:mm:ss	deg
17:46:23.0	41.0266	106.3453	81.41	Umbra	0.00	69.9	4.7	5.9	0.12	615	12:44:05	18.603
17:46:24.0	41.0426	106.4128	81.28	Umbra	0.00	69.9	4.6	5.8	0.11	621	12:44:30	18.545
17:46:25.0	41.0586	106.4802	81.15	Umbra	0.00	69.9	4.5	5.7	0.11	627	12:44:55	18.487
17:46:26.0	41.0744	106.5471	81.01	Umbra	0.00	69.8	4.4	5.6	0.11	633	12:45:19	18.430
17:46:27.0	41.0901	106.6139	80.87	Umbra	0.00	69.8	4.2	5.5	0.11	639	12:45:43	18.374
17:46:28.0	41.1058	106.6806	80.72	Umbra	0.00	69.8	4.1	5.3	0.11	644	12:46:07	18.319
17:46:29.0	41.1213	106.7470	80.58	Umbra	0.00	69.8	4.0	5.2	0.11	650	12:46:30	18.264
17:46:30.0	41.1367	106.8132	80.42	Umbra	0.00	69.8	3.9	5.1	0.10	656	12:46:53	18.209
17:46:31.0	41.1521	106.8792	80.27	Umbra	0.00	69.8	3.8	5.0	0.10	662	12:47:15	18.156
17:46:32.0	41.1673	106.9449	80.12	Umbra	0.00	69.8	3.7	4.9	0.10	668	12:47:38	18.102
17:46:33.0	41.1824	107.0105	79.96	Umbra	0.00	69.8	3.6	4.9	0.10	673	12:48:00	18.050
17:46:34.0	41.1974	107.0758	79.79	Umbra	0.00	69.7	3.5	4.8	0.10	679	12:48:21	17.998
17:46:35.0	41.2123	107.1408	79.63	Umbra	0.00	69.7	3.5	4.7	0.10	685	12:48:42	17.946
17:46:36.0	41.2271	107.2056	79.46	Umbra	0.00	69.7	3.4	4.6	0.10	690	12:49:03	17.895
17:46:37.0	41.2418	107.2701	79.29	Umbra	0.00	69.7	3.3	4.5	0.10	696	12:49:24	17.845
17:46:38.0	41.2564	107.3344	79.11	Umbra	0.00	69.7	3.2	4.4	0.09	701	12:49:45	17.795
17:46:39.0	41.2709	107.3985	78.94	Umbra	0.00	69.7	3.1	4.3	0.09	707	12:50:05	17.745
17:46:40.0	41.2853	107.4623	78.76	Umbra	0.00	69.7	3.0	4.2	0.09	713	12:50:25	17.696
17:46:41.0	41.2996	107.5258	78.57	Umbra	0.00	69.7	2.9	4.1	0.09	718	12:50:44	17.647
17:46:42.0	41.3138	107.5890	78.38	Umbra	0.00	69.6	2.8	4.0	0.09	724	12:51:04	17.599
17:46:43.0	41.3279	107.6520	78.19	Umbra	0.00	69.6	2.7	3.9	0.09	729	12:51:23	17.551
17:46:44.0	41.3418	107.7146	78.00	Umbra	0.00	69.6	2.7	3.9	0.09	734	12:51:42	17.504
17:46:45.0	41.3556	107.7770	77.80	Umbra	0.00	69.6	2.6	3.8	0.09	740	12:52:00	17.457
17:46:46.0	41.3694	107.8390	77.60	Umbra	0.00	69.6	2.5	3.7	0.09	745	12:52:19	17.411
17:46:47.0	41.3830	107.9008	77.40	Umbra	0.00	69.6	2.4	3.6	0.09	751	12:52:37	17.365
17:46:48.0	41.3965	107.9623	77.19	Umbra	0.00	69.6	2.3	3.5	0.08	756	12:52:55	17.319
17:46:49.0	41.4099	108.0235	76.98	Umbra	0.00	69.6	2.2	3.4	0.08	761	12:53:12	17.274
17:46:50.0	41.4232	108.0842	76.77	Umbra	0.00	69.6	2.2	3.4	0.08	766	12:53:30	17.229
17:46:51.0	41.4363	108.1446	76.55	Umbra	0.00	69.6	2.1	3.3	0.08	772	12:53:47	17.185

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UTC	deg N	deg E	km	Shadow	fracil	deg	LHor	Hor	deg/s	km	hh:mm:ss	deg
17:46:52.0	41.4494	108.2047	76.33	Umbra	0.00	69.6	2.0	3.2	0.08	777	12:54:04	17.141
17:46:53.0	41.4623	108.2646	76.11	Umbra	0.00	69.5	1.9	3.1	0.08	782	12:54:21	17.097
17:46:54.0	41.4751	108.3240	75.88	Umbra	0.00	69.5	1.9	3.1	0.08	787	12:54:38	17.054
17:46:55.0	41.4878	108.3830	75.65	Umbra	0.00	69.5	1.8	3.0	0.08	792	12:54:54	17.011
17:46:56.0	41.5004	108.4417	75.42	Umbra	0.00	69.5	1.7	2.9	0.08	797	12:55:11	16.968
17:46:57.0	41.5129	108.5000	75.18	Umbra	0.00	69.5	1.6	2.8	0.08	802	12:55:27	16.926
17:46:58.0	41.5252	108.5579	74.94	Umbra	0.00	69.5	1.6	2.8	0.08	807	12:55:43	16.884
17:46:59.0	41.5374	108.6154	74.70	Umbra	0.00	69.5	1.5	2.7	0.07	812	12:55:58	16.843
17:47:00.0	41.5495	108.6725	74.45	Umbra	0.00	69.5	1.4	2.6	0.07	817	12:56:14	16.802
17:47:01.0	41.5615	108.7292	74.20	Umbra	0.00	69.5	1.3	2.6	0.07	822	12:56:29	16.761
17:47:02.0	41.5733	108.7854	73.95	Umbra	0.00	69.5	1.3	2.5	0.07	827	12:56:45	16.721
17:47:03.0	41.5850	108.8412	73.69	Umbra	0.00	69.5	1.2	2.4	0.07	832	12:57:00	16.681
17:47:04.0	41.5966	108.8965	73.43	Umbra	0.00	69.5	1.1	2.4	0.07	836	12:57:15	16.641
17:47:05.0	41.6080	108.9514	73.17	Umbra	0.00	69.5	1.1	2.3	0.07	841	12:57:29	16.602
17:47:06.0	41.6193	109.0058	72.90	Umbra	0.00	69.5	1.0	2.2	0.07	846	12:57:44	16.563
17:47:07.0	41.6305	109.0598	72.63	Umbra	0.00	69.5	0.9	2.2	0.07	850	12:57:58	16.524
17:47:08.0	41.6415	109.1132	72.36	Umbra	0.00	69.4	0.9	2.1	0.07	855	12:58:12	16.486
17:47:09.0	41.6524	109.1662	72.09	Umbra	0.00	69.4	0.8	2.0	0.07	859	12:58:26	16.448
17:47:10.0	41.6632	109.2186	71.81	Umbra	0.00	69.4	0.8	2.0	0.07	864	12:58:40	16.411
17:47:11.0	41.6738	109.2706	71.53	Umbra	0.00	69.4	0.7	1.9	0.07	868	12:58:54	16.373
17:47:12.0	41.6843	109.3219	71.24	Umbra	0.00	69.4	0.6	1.8	0.07	873	12:59:07	16.337
17:47:13.0	41.6947	109.3728	70.96	Umbra	0.00	69.4	0.6	1.8	0.06	877	12:59:21	16.300
17:47:14.0	41.7049	109.4230	70.67	Umbra	0.00	69.4	0.5	1.7	0.06	881	12:59:34	16.264
17:47:15.0	41.7149	109.4727	70.38	Umbra	0.00	69.4	0.4	1.7	0.06	886	12:59:47	16.228
17:47:16.0	41.7249	109.5219	70.08	Umbra	0.00	69.4	0.4	1.6	0.06	890	13:00:00	16.193
17:47:17.0	41.7346	109.5704	69.78	Umbra	0.00	69.4	0.3	1.5	0.06	894	13:00:13	16.158
17:47:18.0	41.7442	109.6183	69.48	Umbra	0.00	69.4	0.3	1.5	0.06	898	13:00:25	16.123
17:47:19.0	41.7537	109.6656	69.18	Umbra	0.00	69.4	0.2	1.4	0.06	902	13:00:37	16.088
17:47:20.0	41.7630	109.7123	68.88	Umbra	0.00	69.4	0.2	1.4	0.06	906	13:00:50	16.055

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	Ground Track			Relative		Sky Track at Xitancun 2						
Time	Lat	Lon	Altitude	Earth's		AZ	EL - deg		Vang	Range	RA (2000.0)	Dec (2000.0)
UTC	deg N	deg E	km	Shadow	fracil	deg	LHor	Hor	deg/s	km	hh:mm:ss	deg
17:47:21.0	41.7722	109.7583	68.57	Umbra	0.00	69.4	0.1	1.3	0.06	910	13:01:02	16.021
17:47:22.0	41.7812	109.8037	68.26	Umbra	0.00	69.4	0.0	1.3	0.06	914	13:01:14	15.988
17:47:23.0	41.7901	109.8485	67.95	Umbra	0.00	69.4	0.0	1.2	0.06	918	13:01:26	15.955
17:47:24.0	41.7988	109.8925	67.63	Umbra	0.00	69.4	-0.1	1.1	0.06	921	13:01:37	15.922
17:47:25.0	41.8073	109.9359	67.32	Umbra	0.00	69.4	-0.1	1.1	0.06	925	13:01:49	15.890
17:47:26.0	41.8157	109.9785	67.00	Umbra	0.00	69.4	-0.2	1.0	0.06	929	13:02:00	15.858
17:47:27.0	41.8239	110.0205	66.68	Umbra	0.00	69.4	-0.2	1.0	0.05	932	13:02:11	15.827
17:47:28.0	41.8320	110.0618	66.36	Umbra	0.00	69.4	-0.3	0.9	0.05	936	13:02:22	15.796
17:47:29.0	41.8399	110.1023	66.04	Umbra	0.00	69.4	-0.3	0.9	0.05	939	13:02:33	15.765
17:47:30.0	41.8476	110.1422	65.72	Umbra	0.00	69.4	-0.4	0.8	0.05	943	13:02:44	15.735
17:47:31.0	41.8552	110.1813	65.39	Umbra	0.00	69.4	-0.4	0.8	0.05	946	13:02:54	15.705
17:47:32.0	41.8626	110.2197	65.06	Umbra	0.00	69.4	-0.5	0.7	0.05	949	13:03:05	15.676
17:47:33.0	41.8699	110.2573	64.74	Umbra	0.00	69.4	-0.5	0.7	0.05	952	13:03:15	15.647
17:47:34.0	41.8770	110.2942	64.41	Umbra	0.00	69.3	-0.6	0.7	0.05	955	13:03:25	15.618
17:47:35.0	41.8840	110.3303	64.08	Umbra	0.00	69.3	-0.6	0.6	0.05	958	13:03:35	15.590
17:47:36.0	41.8907	110.3657	63.75	Umbra	0.00	69.3	-0.6	0.6	0.05	961	13:03:45	15.562
17:47:37.0	41.8974	110.4002	63.42	Umbra	0.00	69.3	-0.7	0.5	0.05	964	13:03:54	15.535
17:47:38.0	41.9038	110.4341	63.09	Umbra	0.00	69.3	-0.7	0.5	0.05	967	13:04:04	15.508
17:47:39.0	41.9101	110.4672	62.76	Umbra	0.00	69.3	-0.8	0.4	0.05	970	13:04:13	15.481
17:47:40.0	41.9163	110.4994	62.43	Umbra	0.00	69.3	-0.8	0.4	0.05	973	13:04:23	15.455
17:47:41.0	41.9223	110.5310	62.10	Umbra	0.00	69.3	-0.9	0.3	0.04	975	13:04:32	15.429
17:47:42.0	41.9281	110.5618	61.76	Umbra	0.00	69.3	-0.9	0.3	0.04	978	13:04:41	15.403
17:47:43.0	41.9338	110.5918	61.43	Umbra	0.00	69.3	-0.9	0.3	0.04	980	13:04:49	15.378
17:47:44.0	41.9393	110.6211	61.10	Umbra	0.00	69.3	-1.0	0.2	0.04	983	13:04:58	15.354
17:47:45.0	41.9446	110.6496	60.77	Umbra	0.00	69.3	-1.0	0.2	0.04	985	13:05:06	15.329
17:47:46.0	41.9499	110.6774	60.44	Umbra	0.00	69.3	-1.1	0.2	0.04	988	13:05:15	15.305
17:47:47.0	41.9549	110.7044	60.11	Umbra	0.00	69.3	-1.1	0.1	0.04	990	13:05:23	15.282
17:47:48.0	41.9599	110.7307	59.78	Umbra	0.00	69.3	-1.1	0.1	0.04	992	13:05:31	15.259
17:47:49.0	41.9646	110.7563	59.45	Umbra	0.00	69.3	-1.2	0.0	0.04	994	13:05:39	15.236

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	Ground Track			Relative		Sky Track at Xitancun 2						
Time	Lat	Lon	Altitude	Earth's		AZ	EL - deg		Vang	Range	RA (2000.0)	Dec (2000.0)
UTC	deg N	deg E	km	Shadow	fracil	deg	LHor	Hor	deg/s	km	hh:mm:ss	deg
17:47:50.0	41.9693	110.7811	59.13	Umbra	0.00	69.3	-1.2	0.0	0.04	996	13:05:47	15.214