

NASA GRANT NAG5-1021: LASER RANGING DATA ANALYSIS

FINAL REPORT FOR 1988

In the period from November 1987 through 1988, Center for Space Research efforts under NASA Grant NAG5-1021 have focused on the near real-time analysis of Lageos laser ranging data. The data is analysed in terms of range bias, time bias, and internal precision, and estimates for the Earth orientation parameters X_p , Y_p and UT1 are obtained. The results of these analyses are reported in a variety of formats. Each week, a summary of the quick look data and Earth orientation parameters are posted on the GE Mark III system, and electronically mailed to a number of researchers worldwide using BITNET and SPAN. Any results of the weekly analysis that point to anomalous station performance, and which may be previously unknown to the station personnel, are raised and discussed by UT/CSR representatives at the bi-weekly NASA Crustal Dynamics Project Telecon. This rapid feedback enables identification and correction of the problem's source with as little delay as possible. The results are also reported in monthly bins which are sent using conventional mail, though at some delay compared with the weekly solutions. Sample copies of the weekly summaries from the second half of 1988 are included as Appendix 1. An annotated distribution list of the weekly summaries is included as Appendix II. Annual summaries for 1987 and 1988 are included as Appendix III.

(NASA-CR-184847) LASER RANGING DATA
ANALYSIS Final Report, 1988 (Texas Univ.)
25 p C S C L 08E

N89-24754

Unclas
G3/46 0198633

APPENDIX I

UNIVERSITY OF TEXAS AT AUSTIN/CENTER FOR SPACE RESEARCH
 LAGEOS QUICK-LOOK ANALYSIS REPORT
 JUNE 8, 1988

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THE FOLLOWING TABLE CONTAINS THE EARTH ROTATION SOLUTION REPORTED ON MARK III AS SWCSR*. THESE RESULTS ARE 5-DAY AVERAGES IN SYSTEM CSR 86 L 01.

88052898447308358	1800	3172	1536		69	10	11	73	10	-9	-42	15	500	88:
88060298447314296	1741	3050	1337		65	12	13	85	19	-8	-17	15	517	988:

THE FOLLOWING TABLES CONTAIN INFORMATION FOR EACH PASS USED IN THE UT/CSR WEEKLY ANALYSIS. THE RESIDUALS SUMMARIZED BELOW ARE IN THE NEW UT/CSR SYSTEM CSR 86 L 01. THE RESULTS ARE REPORTED IN THE MARK III FILE SLRQL*.

 LAGEOS ARC 881: 88/ 5/25 12:00 - 88/ 5/30 12:00 FINAL

>

STA ID	AVG PASS TIME YY/MM/DD HH:MM	GOOD OBS	RAW RMS (MM)	PREC EST (MM)	RNG BIAS (MM)	TIME BIAS (US)	PASS DUR (MIN)	EDIT OBS
>								
1181	88/ 5/26 1:27	34	189	164	33	60	14	4
1181	88/ 5/29 0:46	47	153	152	12	25	25	5
>								
7080	88/ 5/25 13:57	49	93	36	-87	3	12	1
>								
7090	88/ 5/26 17:12	46	24	9	-9	-12	41	4
7090	88/ 5/27 15:54	50	47	8	16	32	41	0
7090	88/ 5/27 19:25	50	59	10	-27	32	42	0
>								
7105	88/ 5/26 8:54	49	37	10	12	19	42	1
7105	88/ 5/27 7:32	48	29	10	-10	15	46	1
>								
7109	88/ 5/25 13:56	50	85	7	-77	-26	37	0
7109	88/ 5/26 9: 5	49	63	7	61	3	26	1
7109	88/ 5/26 12:40	50	26	7	-25	1	36	0
7109	88/ 5/27 11:16	50	56	8	-19	31	48	0
7109	88/ 5/27 14:41	47	22	8	14	14	36	2
>								
7110	88/ 5/25 13:57	50	41	12	-15	-31	32	0
7110	88/ 5/26 9: 5	49	29	10	1	-20	42	1
7110	88/ 5/26 12:36	49	32	8	21	-11	42	1
7110	88/ 5/27 7:44	50	54	11	-50	-22	17	0
7110	88/ 5/27 11:17	49	29	11	4	12	47	1
7110	88/ 5/27 14:41	49	86	10	87	12	23	1
>								
7123	88/ 5/26 9:46	49	33	22	0	-21	30	0
7123	88/ 5/26 13: 4	47	132	21	131	0	5	3
7123	88/ 5/27 12: 5	48	53	21	83	-17	12	0
>								
7288	88/ 5/26 9: 5	47	41	15	-22	-28	33	3
7288	88/ 5/26 12:34	47	21	10	-5	-20	22	3

>											
	7546	88/ 5/26	1:29	50	117	59	-81	-44	13	0	
	7546	88/ 5/29	4:18	50	60	56	-1	-16	9	0	
>											
	7810	88/ 5/26	1:17	49	131	82	-215	-98	12	1	
>											
	7835	88/ 5/26	11:56	54	53	24	35	9	15	0	
	7835	88/ 5/28	2:20	54	32	17	23	-8	51	0	
	7835	88/ 5/28	5:51	55	74	18	52	-51	35	0	
	7835	88/ 5/30	3: 5	54	106	14	73	-45	39	0	
>											
	7838	88/ 5/26	16:31	33	41	13	25	-8	21	2	
	7838	88/ 5/28	17:24	34	67	23	-41	23	41	0	
	7838	88/ 5/29	16: 0	34	69	51	-3	43	24	1	
>											
	7840	88/ 5/27	3:30	45	100	48	6	56	30	0	
	7840	88/ 5/27	7: 5	44	71	53	-42	12	28	0	
	7840	88/ 5/27	10:34	28	81	50	40	44	16	2	
	7840	88/ 5/28	5:51	35	87	46	-35	-31	27	0	
	7840	88/ 5/28	12:54	29	62	46	54	-45	15	0	
>											
	7907	88/ 5/26	5:52	42	172	142	-39	43	38	8	
	7907	88/ 5/27	4:34	25	158	110	-103	1	22	25	
	7907	88/ 5/27	8: 0	39	160	151	31	-53	17	9	
>											
	7939	88/ 5/26	1:27	48	163	119	-104	-15	50	2	
	7939	88/ 5/26	4:57	31	179	117	132	-8	27	4	
	7939	88/ 5/27	22:36	45	116	111	-21	-57	23	5	
	7939	88/ 5/28	2:16	49	142	120	-52	20	50	1	
	7939	88/ 5/29	23:30	50	152	134	67	-12	44	0	
	7939	88/ 5/30	2:47	48	105	98	35	0	10	2	

LAGEOS ARC 882: 88/ 5/30 12:00 - 88/ 6/ 4 12:00 PRELIM

>	STA	AVG PASS	TIME	GOOD	RAW	PREC	RNG	TIME	PASS	EDIT
	ID	YY/MM/DD	HH:MM	OBS	RMS	EST	BIAS	BIAS	DUR	OBS
					(MM)	(MM)	(MM)	(US)	(MIN)	
>										
	7080	88/ 6/ 1	7:54	48	50	46	-1	-14	37	1
	7080	88/ 6/ 1	11:29	50	59	46	-34	6	36	0
	7080	88/ 6/ 1	18:14	50	55	40	-16	-14	15	0
	7080	88/ 6/ 2	16:46	0	931	44	930	0	11	50
	7080	88/ 6/ 2	19:59	0	2149	1998	-790	0	32	50
>										
	7090	88/ 5/31	17:36	49	28	10	5	-15	42	1
	7090	88/ 6/ 2	18: 7	48	33	9	-4	16	15	2
	7090	88/ 6/ 3	13:31	47	57	9	53	-13	18	3
	7090	88/ 6/ 3	16:53	48	70	9	-1	45	46	2
>										
	7105	88/ 5/31	9:14	47	29	10	-29	38	18	3
>										

7109	88/ 6/ 3	8:42	49	82	9	78	-13	38	1
>									
7110	88/ 5/31	9:22	49	15	13	-5	0	44	0
>									
7123	88/ 6/ 2	10:46	42	56	17	11	-40	28	2
7123	88/ 6/ 3	9:29	50	41	29	-9	-25	19	0
7123	88/ 6/ 3	12:55	47	55	30	44	-13	30	0
7123	88/ 6/ 4	11:49	47	41	25	30	0	12	0
>									
7288	88/ 6/ 2	10: 8	50	96	18	-69	-47	42	0
7288	88/ 6/ 3	8:48	48	49	17	-16	-43	26	1
7288	88/ 6/ 3	12:14	39	23	15	-15	2	29	9
>									
7295	88/ 6/ 4	7:12	50	99	66	-74	0	5	0
>									
7546	88/ 5/31	5: 8	28	49	46	37	70	4	2
7546	88/ 6/ 2	2:26	50	63	60	8	10	23	0
7546	88/ 6/ 3	0:59	50	63	62	-28	-27	10	0
7546	88/ 6/ 3	4:37	50	68	62	-1	-26	16	0
>									
7810	88/ 6/ 3	1:14	50	177	62	-190	21	13	0
>									
7835	88/ 6/ 1	3:51	54	89	20	86	16	28	0
7835	88/ 6/ 1	7:18	55	21	19	-9	0	38	0
7835	88/ 6/ 1	10:35	55	57	26	37	32	40	0
7835	88/ 6/ 1	14:15	55	44	20	-22	17	49	0
7835	88/ 6/ 2	2:32	54	48	27	24	14	48	0
7835	88/ 6/ 2	5:58	54	83	24	27	-60	31	0
7835	88/ 6/ 2	12:38	54	63	46	70	13	15	1
7835	88/ 6/ 3	1: 8	54	54	22	4	-34	39	0
7835	88/ 6/ 3	4:39	54	54	23	6	-30	40	0
7835	88/ 6/ 3	8: 0	54	48	35	32	0	27	0
>									
7839	88/ 6/ 3	23:29	0	2365	33	-2364	0	22	50
>									
7840	88/ 5/31	12:16	40	41	40	9	-5	23	0
7840	88/ 6/ 1	3:53	49	74	47	0	31	34	0
7840	88/ 6/ 1	7:21	45	92	82	-25	-9	30	0
>									
7882	88/ 5/31	9:25	50	45	15	-11	24	45	0
7882	88/ 6/ 1	8: 2	49	22	12	15	-5	37	1
7882	88/ 6/ 1	11:30	49	38	13	0	25	38	0
7882	88/ 6/ 2	10:10	49	39	11	-13	-17	47	1
7882	88/ 6/ 3	8:53	48	31	12	7	-17	39	1
7882	88/ 6/ 3	12:17	43	19	10	17	18	17	0
>									
7907	88/ 6/ 1	4:36	38	187	135	-78	31	22	12
7907	88/ 6/ 2	3:25	31	182	138	53	45	22	19
7907	88/ 6/ 2	6:42	45	128	122	-27	6	15	5
7907	88/ 6/ 3	5:25	39	161	144	-1	42	23	11
7907	88/ 6/ 3	9: 3	37	147	117	83	-99	12	11
>									

7939	88/ 6/ 1	22:52	45	143	138	-19	-24	37	5
7939	88/ 6/ 3	1: 8	48	150	120	-83	-11	54	2
7939	88/ 6/ 3	23:45	47	142	138	15	12	46	1
7939	88/ 6/ 4	3:14	43	157	135	15	46	30	7

>

 LAGEOS ARC 883: 88/ 6/ 4 12:00 - 88/ 6/ 9 12:00 NOT REP.

>

STA ID	AVG PASS TIME YY/MM/DD HH:MM	GOOD OBS	RAW RMS (MM)	PREC EST (MM)	RNG BIAS (MM)	TIME BIAS (US)	PASS DUR (MIN)	EDIT OBS
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>

7110	88/ 6/ 7	10:28	50	27	13	-14	10	45	0
7110	88/ 6/ 7	13:49	49	31	10	22	-19	27	1

>

7288	88/ 6/ 7	10:24	49	62	14	-59	5	42	1
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>

7838	88/ 6/ 5	16:53	30	33	26	-70	-39	19	1
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>

7840	88/ 6/ 5	8:52	29	84	47	-45	35	26	1
7840	88/ 6/ 5	12:31	0	112	78	335	-191	9	15
7840	88/ 6/ 6	4: 1	51	49	43	-6	-12	32	0
7840	88/ 6/ 6	7:21	11	76	70	19	-5	9	1

>

7907	88/ 6/ 6	4:50	33	131	114	102	46	28	14
7907	88/ 6/ 6	8:25	42	133	131	0	29	13	8

>

7939	88/ 6/ 6	23: 7	44	145	124	-47	-50	40	6
7939	88/ 6/ 7	2:40	49	117	111	-14	13	42	1

>

 UNIVERSITY OF TEXAS AT AUSTIN/CENTER FOR SPACE RESEARCH
 LAGEOS QUICK-LOOK ANALYSIS REPORT
 JUNE 15, 1988

>

THE FOLLOWING TABLE CONTAINS THE EARTH ROTATION SOLUTION REPORTED ON MARK III AS SWCSR*. THESE RESULTS ARE 5-DAY AVERAGES IN SYSTEM CSR 86 L 01.

88060298447314306	1740	3050	1337	65	11	12	85	23	-9	-17	15	528	88:
88060798447319911	1736	2943	901	57	19	17	108	18	28	26	13	330	88:
88061298447324392	1715	2872	963	61	12	13	59	14	12	17	15	448	988:

THE FOLLOWING TABLES CONTAIN INFORMATION FOR EACH PASS USED IN THE UT/CSR WEEKLY ANALYSIS. THE RESIDUALS SUMMARIZED BELOW ARE IN THE NEW UT/CSR SYSTEM CSR 86 L 01. THE RESULTS ARE REPORTED IN THE MARK III FILE SLRQL*.

 LAGEOS ARC 882: 88/ 5/30 12:00 - 88/ 6/ 4 12:00 FINAL

>

STA ID	AVG PASS TIME YY/MM/DD HH:MM	GOOD OBS	RAW RMS (MM)	PREC EST (MM)	RNG BIAS (MM)	TIME BIAS (US)	PASS DUR (MIN)	EDIT OBS
--------	---------------------------------	----------	-----------------	------------------	------------------	-------------------	-------------------	----------

>											
7080	88/	6/	1	7:54	48	50	46	0	-13	37	1
7080	88/	6/	1	11:29	50	61	46	-39	3	36	0
7080	88/	6/	1	18:14	50	52	40	-3	-20	15	0
7080	88/	6/	2	16:50	47	47	36	-25	-11	11	2
7080	88/	6/	2	20: 6	45	55	23	-45	3	33	5
>											
7090	88/	5/31		17:36	49	32	10	1	-17	42	1
7090	88/	6/	2	18: 7	48	31	9	-14	9	15	2
7090	88/	6/	3	13:31	47	60	9	54	-15	18	3
7090	88/	6/	3	16:53	48	65	9	-4	41	46	2
>											
7105	88/	5/31		9:14	47	29	10	-33	37	18	3
>											
7109	88/	6/	3	8:42	49	84	9	80	-15	38	1
>											
7110	88/	5/31		9:22	49	15	13	-6	1	44	0
>											
7123	88/	6/	2	10:46	42	56	17	9	-41	28	2
7123	88/	6/	3	9:29	50	40	29	-7	-26	19	0
7123	88/	6/	3	12:55	47	50	30	36	-18	30	0
7123	88/	6/	4	11:49	47	33	25	19	0	12	0
>											
7288	88/	6/	2	10: 8	50	99	18	-71	-49	42	0
7288	88/	6/	3	8:48	48	50	17	-15	-44	26	1
7288	88/	6/	3	12:14	39	23	15	-18	-3	29	9
>											
7295	88/	6/	4	7:12	50	98	66	-72	0	5	0
>											
7546	88/	5/31		5: 8	28	48	46	40	70	4	2
7546	88/	6/	2	2:26	50	63	60	6	10	23	0
7546	88/	6/	3	0:59	50	63	62	-33	-28	10	0
7546	88/	6/	3	4:37	50	68	62	0	-29	16	0
>											
7810	88/	6/	3	1:14	50	182	62	-197	23	13	0
>											
7835	88/	6/	1	3:51	54	88	20	86	16	28	0
7835	88/	6/	1	7:18	55	20	19	-5	0	38	0
7835	88/	6/	1	10:35	55	57	26	42	30	40	0
7835	88/	6/	1	14:15	55	40	20	-22	13	49	0
7835	88/	6/	2	2:32	54	46	27	22	14	48	0
7835	88/	6/	2	5:58	54	87	24	30	-62	31	0
7835	88/	6/	2	12:38	54	70	46	78	12	15	1
7835	88/	6/	3	1: 8	54	54	22	0	-34	39	0
7835	88/	6/	3	4:39	54	57	23	7	-33	40	0
7835	88/	6/	3	8: 0	54	53	35	37	-3	27	0
>											
7839	88/	6/	3	23:29	0	2373	33	-2372	0	22	50
>											
7840	88/	5/31		12:16	40	41	40	14	-8	23	0
7840	88/	6/	1	3:53	49	75	47	-1	32	34	0
7840	88/	6/	1	7:21	45	91	82	-23	-11	30	0

>											
	7882	88/ 5/31	9:25	50	46	15	-13	25	45	0	
	7882	88/ 6/ 1	8: 2	49	23	12	17	-4	37	1	
	7882	88/ 6/ 1	11:30	49	36	13	-5	21	38	0	
	7882	88/ 6/ 2	10:10	49	44	11	-17	-20	47	1	
	7882	88/ 6/ 3	8:53	48	34	12	6	-19	39	1	
	7882	88/ 6/ 3	12:17	43	15	10	13	12	17	0	
>											
	7907	88/ 6/ 1	4:36	38	188	135	-73	35	22	12	
	7907	88/ 6/ 2	3:25	31	185	138	65	49	22	19	
	7907	88/ 6/ 2	6:42	45	131	122	-37	5	15	5	
	7907	88/ 6/ 3	5:25	39	162	144	-2	43	23	11	
	7907	88/ 6/ 3	9: 3	37	140	117	70	-102	12	11	
>											
	7939	88/ 6/ 1	22:52	45	144	138	-26	-22	37	5	
	7939	88/ 6/ 3	1: 8	48	152	120	-86	-12	54	2	
	7939	88/ 6/ 3	23:45	47	142	138	10	12	46	1	
	7939	88/ 6/ 4	3:14	43	155	135	16	42	30	7	

 LAGEOS ARC 883: 88/ 6/ 4 12:00 - 88/ 6/ 9 12:00 FINAL

STA	AVG PASS	TIME	GOOD	RAW	PREC	RNG	TIME	PASS	EDIT	
ID	YY/MM/DD	HH:MM	OBS	RMS	EST	BIAS	BIAS	DUR	OBS	
				(MM)	(MM)	(MM)	(US)	(MIN)		
>										
	7080	88/ 6/ 9	11: 8	47	50	35	-19	-17	37	3
>										
	7105	88/ 6/ 8	8:50	50	16	9	12	-2	35	0
>										
	7110	88/ 6/ 7	10:28	50	56	13	-21	28	45	0
	7110	88/ 6/ 7	13:49	49	13	10	8	-1	27	1
	7110	88/ 6/ 8	9: 1	47	31	9	-25	-8	43	2
	7110	88/ 6/ 8	12:34	50	34	11	30	-12	36	0
	7110	88/ 6/ 9	7:42	50	13	9	6	7	23	0
	7110	88/ 6/ 9	11:15	50	15	10	4	5	43	0
>										
	7288	88/ 6/ 7	10:24	49	74	15	-61	22	42	1
	7288	88/ 6/ 9	7:35	49	27	14	-22	-1	22	1
	7288	88/ 6/ 9	11:11	48	32	16	-26	-1	25	2
>										
	7810	88/ 6/ 8	23:56	50	139	94	-90	-60	23	0
>										
	7834	88/ 6/ 8	23:55	39	109	62	84	-61	17	0
>										
	7837	88/ 6/ 4	18:28	0	266	99	-263	-23	23	50
	7837	88/ 6/ 5	17: 3	48	241	109	-214	0	31	16
	7837	88/ 6/ 7	18: 5	21	172	103	-122	-13	13	3
>										
	7838	88/ 6/ 5	16:53	30	69	26	-124	-89	19	1
>										
	7839	88/ 6/ 6	23: 0	50	31	31	-6	-8	13	0

7839	88/ 6/ 8	23:59	48	42	20	15	-41	17	2
>									
7840	88/ 6/ 5	8:52	29	88	47	-66	4	26	1
7840	88/ 6/ 5	12:31	0	128	78	421	-243	9	15
7840	88/ 6/ 6	4: 1	51	58	43	0	-21	32	0
7840	88/ 6/ 6	7:21	11	72	70	16	0	9	1
7840	88/ 6/ 6	10:57	9	99	77	35	157	4	0
7840	88/ 6/ 8	8:19	22	73	37	60	-13	25	0
>									
7843	88/ 6/ 7	14:53	12	32	14	-18	18	12	0
>									
7882	88/ 6/ 7	6:55	50	59	12	-40	45	24	0
7882	88/ 6/ 7	10:29	49	76	18	36	35	38	0
7882	88/ 6/ 8	9: 1	50	23	15	9	-5	45	0
7882	88/ 6/ 9	7:45	50	24	12	-11	14	37	0
7882	88/ 6/ 9	11:15	49	60	16	57	3	31	0
>									
7907	88/ 6/ 6	4:50	33	132	114	-4	36	28	14
7907	88/ 6/ 6	8:25	42	133	131	33	26	13	8
7907	88/ 6/ 7	3:37	41	159	140	48	76	16	9
7907	88/ 6/ 8	5:34	24	142	139	74	48	18	26
7907	88/ 6/ 9	7:48	41	152	144	-78	-37	23	9
>									
7939	88/ 6/ 6	23: 7	44	130	125	-17	-27	40	6
7939	88/ 6/ 7	0:57	0	9999	9999	99999	0	49	50
7939	88/ 6/ 7	2:40	49	148	111	-37	42	42	1

 LAGEOS ARC 884: 88/ 6/ 9 12:00 - 88/ 6/14 12:00 PRELIM

STA ID	AVG YY/MM/DD	PASS TIME HH:MM	GOOD OBS	RAW RMS (MM)	PREC EST (MM)	RNG BIAS (MM)	TIME BIAS (US)	PASS DUR (MIN)	EDIT OBS
>									
7090	88/ 6/ 9	12:31	47	77	9	-67	-34	4	3
7090	88/ 6/10	14:30	50	21	8	-9	-18	27	0
7090	88/ 6/11	13:13	50	69	9	63	-38	15	0
>									
7105	88/ 6/10	6: 4	49	44	11	-22	26	42	1
7105	88/ 6/10	9:34	49	32	10	11	25	29	1
7105	88/ 6/13	5:32	49	21	11	-10	-11	30	1
7105	88/ 6/13	9: 1	50	33	9	19	-15	34	0
7105	88/ 6/14	7:40	49	14	7	-9	2	40	1
>									
7109	88/ 6/13	9:10	49	12	7	0	-5	46	1
7109	88/ 6/13	12:42	50	29	9	-22	-9	42	0
7109	88/ 6/14	7:44	50	65	8	69	11	30	0
7109	88/ 6/14	11:20	50	67	8	-12	32	45	0
>									
7110	88/ 6/10	9:45	49	26	12	-15	6	40	1
7110	88/ 6/10	13:20	50	35	10	-22	-15	30	0
7110	88/ 6/13	9:16	50	78	13	-50	-30	47	0

7110	88/	6/13	12:45	50	50	10	42	-21	34	0
7110	88/	6/14	7:52	43	27	8	-5	-20	38	7
7110	88/	6/14	11:27	50	27	9	12	12	39	0
>										
7288	88/	6/10	9:49	49	52	16	-48	-1	45	1
7288	88/	6/13	9:14	49	93	11	-80	-39	35	1
7288	88/	6/14	7:50	46	36	12	-25	-32	30	4
>										
7295	88/	6/10	6:10	50	63	60	19	14	26	0
>										
7810	88/	6/10	2:12	50	81	73	7	23	28	0
7810	88/	6/14	0:11	50	146	109	-95	0	29	0
>										
7835	88/	6/10	2:27	55	61	22	51	3	24	0
7835	88/	6/11	4:18	54	67	37	55	-1	14	0
7835	88/	6/13	1:36	53	55	16	51	9	52	1
7835	88/	6/13	5:17	54	74	20	88	-78	23	0
>										
7838	88/	6/10	17: 7	32	54	16	-128	-84	11	2
7838	88/	6/13	16:44	34	108	16	-15	58	34	0
>										
7839	88/	6/14	0:11	50	35	26	-10	17	32	0
>										
7840	88/	6/12	6:31	18	59	39	20	-45	19	0
7840	88/	6/13	8:37	16	141	102	148	-98	16	0
>										
7843	88/	6/12	5: 0	14	63	18	-45	45	18	0
>										
7882	88/	6/10	9:43	49	39	12	0	15	43	0
7882	88/	6/11	8:30	46	30	11	22	15	41	4
7882	88/	6/11	11:57	39	11	11	6	9	10	0
7882	88/	6/12	12: 2	0	9999	9999	99999	0	3	7
>										
7907	88/	6/10	6:22	46	142	138	153	77	13	4
7907	88/	6/13	5:50	43	115	112	98	57	18	7
>										
7939	88/	6/ 9	22:27	48	154	139	-4	-73	23	2
7939	88/	6/10	2:10	49	144	137	-33	7	53	1
7939	88/	6/11	0:43	47	159	133	-83	-20	41	3
7939	88/	6/14	0:10	48	128	104	-62	-26	40	2
>										
8833	88/	6/14	3:40	28	48	40	38	18	3	0
>										

UNIVERSITY OF TEXAS AT AUSTIN/CENTER FOR SPACE RESEARCH
LAGEOS QUICK-LOOK ANALYSIS REPORT
JUNE 22, 1988

>
THE FOLLOWING TABLE CONTAINS THE EARTH ROTATION SOLUTION REPORTED ON MARK
III AS SWCSR*. THESE RESULTS ARE 5-DAY AVERAGES IN SYSTEM CSR 86 L 01.

88061298447324686 1725 2874 937 65 10 12 53 11 10 11 18 587 884

THE FOLLOWING TABLES CONTAIN INFORMATION FOR EACH PASS USED IN THE UT/CSR WEEKLY ANALYSIS. THE RESIDUALS SUMMARIZED BELOW ARE IN THE NEW UT/CSR SYSTEM CSR 86 L 01. THE RESULTS ARE REPORTED IN THE MARK III FILE SLRQL*.

```

-----
LAGEOS ARC 884: 88/ 6/ 9 12:00 - 88/ 6/14 12:00 FINAL
>
  STA   AVG PASS TIME   GOOD RAW PREC   RNG   TIME PASS EDIT
  ID    YY/MM/DD HH:MM  OBS  RMS  EST  BIAS  BIAS  DUR  OBS
                   (MM) (MM) (MM)  (US) (MIN)
>
1181  88/ 6/14  0:16   22  208  144   15   99  13  12
>
7090  88/ 6/ 9 12:31   47   77   9  -62  -55   4   3
7090  88/ 6/10 14:30   50   40   8  -18  -36  27   0
7090  88/ 6/11 13:13   50   72   9   61  -63  15   0
>
7105  88/ 6/10  6: 4   49   62  10  -45   29  42   1
7105  88/ 6/10  9:34   49   56  10   26   47  29   1
7105  88/ 6/13  5:32   49   36  11  -26  -16  30   1
7105  88/ 6/13  9: 1   50   35   9   30   -3  34   0
7105  88/ 6/14  7:40   49   12   7    0    4  40   1
>
7109  88/ 6/13  9:10   49   10   7   -4   -3  46   1
7109  88/ 6/13 12:42   50   31   8  -26    5  42   0
7109  88/ 6/14  7:44   50   53   9   55    7  30   0
7109  88/ 6/14 11:20   50   79   8   -4   41  45   0
>
7110  88/ 6/10  9:45   49   42  12  -10   16  40   1
7110  88/ 6/10 13:20   50   28  10  -25   16  30   0
7110  88/ 6/13  9:16   50   70  12  -45  -27  47   0
7110  88/ 6/13 12:45   50   43  10   41   -1  34   0
7110  88/ 6/14  7:52   45   36   9  -15  -24  38   5
7110  88/ 6/14 11:27   50   51   9   28   23  39   0
>
7210  88/ 6/10 13:41   46   75  18  -26  -40  35   4
7210  88/ 6/11 12:16   38   69  21    8  -38  39  12
7210  88/ 6/11 15:50   30   59  31  -49    0   3   2
7210  88/ 6/13 13:12   50  104  26  -18  -51  20   0
7210  88/ 6/14 11:42   46   29  22  -18   -6  18   4
>
7288  88/ 6/10  9:49   49   51  16  -44   10  45   1
7288  88/ 6/13  9:14   49   88  11  -77  -36  35   1
7288  88/ 6/14  7:50   46   44  12  -35  -36  30   4
7288  88/ 6/14 11:23   46   28  14    2   17  39   4
>
7295  88/ 6/10  6:10   50   63  60    3   17  26   0
>
7810  88/ 6/10  2:12   50   85  73    4   30  28   0
7810  88/ 6/14  0:11   50  149 109  -98   -9  29   0

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>
7811* 88/ 6/13 23:53    0 8368  384  8359    0   7  50
>
7835 88/ 6/10  2:27   55  77  22  57    7  24  0
7835 88/ 6/11  4:18   54  63  37  53   12  14  0
7835 88/ 6/13  1:36   53  56  17  53    6  52  1
7835 88/ 6/13  5:17   54  63  20  65  -62  23  0
7835 88/ 6/13  8:23   55  53  20  58   11  19  0
>
7838 88/ 6/10 17: 7   32  39  16 -109  -67  11  2
7838 88/ 6/13 16:44  34 114  16  -2   64  34  0
>
7839 88/ 6/14  0:11   50  30  26  -11   10  32  0
>
7840 88/ 6/12  6:31   18  66  39  -17  -33  19  0
7840 88/ 6/13  8:37   16 121  99   74  -88  16  0
7840 88/ 6/14  0:15   24  45  45  13   -7  14  0
7840 88/ 6/14  3:49   50  55  51  -12   11  32  0
7840 88/ 6/14  7:10   34  55  49  -25   -9  24  0
7840 88/ 6/14 10:43   31  74  53   15   36  18  0
>
7843 88/ 6/12  5: 0   14  56  18  -47  -13  18  0
>
7882 88/ 6/10  9:43   49  62  12  27   29  43  0
7882 88/ 6/11  8:30   46  36  11  25   19  41  4
7882 88/ 6/11 11:57   39  29  11  39   39  10  0
7882 88/ 6/12 12: 2    0 9999 9999 99999    0   3  7
7882 88/ 6/14  7:56   47  23  10  -13  -10  42  3
7882 88/ 6/14 11:27   48  89  13   82   27  29  1
>
7907 88/ 6/10  6:22    0 174 138  276   99  13  50
7907 88/ 6/13  5:50   43 146 111  192   63  18  7
7907 88/ 6/14  4:40   42 145 140  -21   11  26  8
7907 88/ 6/14  8: 7   36 157 130   66  -67  20  12
>
7939 88/ 6/ 9 22:27   48 151 139  -36  -83  23  2
7939 88/ 6/10  2:10   49 146 138  -21   17  53  1
7939 88/ 6/11  0:43   47 159 133  -83  -19  41  3
7939 88/ 6/14  0:10   48 129 104  -59  -32  40  2
>
8833 88/ 6/14  3:40   28  42  40   25   17  3  0
>

```

*NOTE: DATA FROM BOROWIEC, POLAND (7811) EDITED BECAUSE OF
VERY PRELIMINARY STATION COORDINATES.

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>
-----
LAGEOS ARC 885: 88/ 6/14 12:00 - 88/ 6/19 12:00 PRELIM
>
STA   AVG PASS TIME   GOOD RAW PREC   RNG   TIME PASS EDIT
ID   YY/MM/DD HH:MM  OBS  RMS  EST  BIAS  BIAS DUR  OBS
      (MM)   (MM)   (MM)   (US) (MIN)
>

```

7080	88/ 6/16	8:51	48	62	35	-21	-15	25	2
7080	88/ 6/17	10:52	46	42	41	7	-5	30	4
>									
7090	88/ 6/14	12:47	35	37	9	36	0	1	0
>									
7109	88/ 6/14	14:48	49	87	10	-83	22	32	0
7109	88/ 6/15	10: 1	47	45	6	-11	25	48	3
7109	88/ 6/15	13:22	50	66	9	-80	-13	26	0
7109	88/ 6/16	12:16	50	36	8	-51	23	24	0
7109	88/ 6/16	15:31	48	27	6	-23	4	27	1
>									
7110	88/ 6/14	14:47	49	23	12	-17	22	15	1
7110	88/ 6/15	10: 4	50	35	11	-28	6	47	0
7110	88/ 6/16	12:12	50	16	13	6	3	37	0
7110	88/ 6/16	15:31	50	47	12	42	15	19	0
7110	88/ 6/17	7:32	50	24	13	-19	0	6	0
7110	88/ 6/17	10:49	49	19	9	9	9	44	0
>									
7123	88/ 6/15	10:28	48	114	34	109	0	3	0
>									
7210	88/ 6/15	10:22	46	79	20	-59	-35	26	4
7210	88/ 6/16	12:33	46	99	15	-33	-42	39	4
7210	88/ 6/18	9:52	49	64	23	-62	5	14	0
7210	88/ 6/18	13:18	42	43	18	-35	-10	27	8
>									
7295	88/ 6/16	8:28	31	66	33	-95	-26	9	0
7295	88/ 6/17	7: 3	49	84	58	43	-8	22	0
>									
7810	88/ 6/16	0:58	50	167	78	-137	2	35	0
7810	88/ 6/18	1:43	48	113	79	9	47	37	2
7810	88/ 6/19	0:24	47	77	67	-31	-4	33	3
>									
7811*	88/ 6/14	22:30	0	9626	794	9593	0	25	21
7811*	88/ 6/16	23:23	0	9505	341	9499	0	8	50
>									
7835	88/ 6/15	2:26	55	70	16	51	24	42	0
7835	88/ 6/15	5:58	54	72	21	71	-49	32	0
7835	88/ 6/15	9:19	55	44	19	28	11	34	0
7835	88/ 6/15	12:47	54	71	30	-64	3	40	0
7835	88/ 6/16	0:59	55	37	26	-16	4	48	0
7835	88/ 6/16	4:34	54	60	19	35	-35	31	0
7835	88/ 6/17	3: 9	54	42	18	33	-5	29	1
>									
7839	88/ 6/14	22:49	50	32	31	-5	16	23	0
>									
7840	88/ 6/18	8:49	19	77	50	58	-54	20	0
7840	88/ 6/19	0:25	45	54	39	37	-8	31	0
7840	88/ 6/19	3:54	35	65	52	-38	0	23	0
7840	88/ 6/19	7:29	40	88	70	25	29	24	0
7840	88/ 6/19	11: 0	34	97	76	-13	45	21	0
>									
7882	88/ 6/15	6:36	50	13	12	-4	0	20	0

7882	88/	6/15	10:16	49	48	13	20	17	31	0
7882	88/	6/17	7:29	50	53	13	57	-32	31	0
7882	88/	6/17	10:49	48	63	12	64	25	26	1
7882	88/	6/18	9:29	49	38	15	31	26	22	0
>										
7907	88/	6/15	3:22	46	143	135	40	14	20	4
7907	88/	6/15	6:43	33	202	159	-151	-45	34	17
7907	88/	6/16	5:17	39	165	109	-87	18	40	11
7907	88/	6/17	3:54	47	145	139	-64	-13	13	3
>										
7939	88/	6/15	2:26	45	131	108	6	41	38	5
7939	88/	6/16	0:58	46	163	128	-91	12	39	4
7939	88/	6/17	22: 6	46	148	113	126	56	27	4
>										

 LAGEOS ARC 886: 88/ 6/19 12:00 - 88/ 6/24 12:00 NOT REP.

STA ID	AVG YY/MM/DD	PASS TIME HH:MM	GOOD OBS	RAW RMS (MM)	PREC EST (MM)	RNG BIAS (MM)	TIME BIAS (US)	PASS DUR (MIN)	EDIT OBS
>									
7105	88/ 6/20	6:37	50	17	10	20	-23	21	0
>									
7109	88/ 6/20	10:10	49	12	6	3	9	31	1
>									
7110	88/ 6/20	10:17	50	18	14	5	-1	47	0
>									
7907	88/ 6/20	3:25	45	137	127	57	85	15	5
>									
7939	88/ 6/19	23: 4	45	111	100	-37	-4	44	5
>									

 UNIVERSITY OF TEXAS AT AUSTIN/CENTER FOR SPACE RESEARCH
 LAGEOS QUICK-LOOK ANALYSIS REPORT
 JUNE 29, 1988

>
 THE FOLLOWING TABLE CONTAINS THE EARTH ROTATION SOLUTION REPORTED ON MARK III AS SWCSR*. THESE RESULTS ARE 5-DAY AVERAGES IN SYSTEM CSR 86 L 01.

88061798447328544	1723	2806	865	67	11	14	67	42	0	-6	15	472	88!
88062298447334711	1699	2653	609	63	12	12	72	20	-3	21	14	606	988!

THE FOLLOWING TABLES CONTAIN INFORMATION FOR EACH PASS USED IN THE UT/CSR WEEKLY ANALYSIS. THE RESIDUALS SUMMARIZED BELOW ARE IN THE NEW UT/CSR SYSTEM CSR 86 L 01. THE RESULTS ARE REPORTED IN THE MARK III FILE SLRQL*.

 LAGEOS ARC 885: 88/ 6/14 12:00 - 88/ 6/19 12:00 FINAL

STA ID	AVG YY/MM/DD	PASS TIME HH:MM	GOOD OBS	RAW RMS (MM)	PREC EST (MM)	RNG BIAS (MM)	TIME BIAS (US)	PASS DUR (MIN)	EDIT OBS
>									

>											
7080	88/	6/16	8:51	48	63	35	-22	-15	25	2	
7080	88/	6/17	10:52	46	42	41	5	-6	30	4	
>											
7090	88/	6/14	12:47	35	37	9	36	0	1	0	
>											
7109	88/	6/14	14:48	49	87	10	-83	21	32	0	
7109	88/	6/15	10: 1	47	44	6	-12	24	48	3	
7109	88/	6/15	13:22	50	65	9	-81	-14	26	0	
7109	88/	6/16	12:16	50	38	8	-52	23	24	0	
7109	88/	6/16	15:31	48	26	6	-23	3	27	1	
>											
7110	88/	6/14	14:47	49	22	12	-17	21	15	1	
7110	88/	6/15	10: 4	50	36	11	-29	6	47	0	
7110	88/	6/16	12:12	50	15	13	5	3	37	0	
7110	88/	6/16	15:31	50	47	12	43	14	19	0	
7110	88/	6/17	7:32	50	24	13	-19	0	6	0	
7110	88/	6/17	10:49	49	18	9	8	9	44	0	
>											
7123	88/	6/15	10:28	48	112	34	107	0	3	0	
>											
7210	88/	6/15	10:22	46	79	20	-59	-36	26	4	
7210	88/	6/16	12:33	46	100	15	-35	-42	39	4	
7210	88/	6/18	9:52	49	65	23	-63	5	14	0	
7210	88/	6/18	13:18	42	44	18	-37	-10	27	8	
>											
7295	88/	6/16	8:28	31	67	33	-97	-27	9	0	
7295	88/	6/17	7: 3	49	84	58	41	-8	22	0	
>											
7810	88/	6/16	0:58	50	167	78	-137	1	35	0	
7810	88/	6/18	1:43	48	113	79	8	46	37	2	
7810	88/	6/19	0:24	47	77	67	-32	-4	33	3	
>											
7811	88/	6/14	22:40	14	166	136	-38	-94	25	7	
7811	88/	6/16	23:27	0	204	129	231	231	8	50	
>											
7835	88/	6/15	2:26	55	69	16	50	24	42	0	
7835	88/	6/15	5:58	54	72	21	71	-49	32	0	
7835	88/	6/15	9:19	55	44	19	30	10	34	0	
7835	88/	6/15	12:47	54	71	30	-63	3	40	0	
7835	88/	6/16	0:59	55	37	26	-16	4	48	0	
7835	88/	6/16	4:34	54	60	19	34	-36	31	0	
7835	88/	6/17	3: 9	54	41	18	32	-5	29	1	
>											
7839	88/	6/14	22:49	50	32	31	-5	16	23	0	
>											
7840	88/	6/18	8:49	19	78	50	59	-55	20	0	
7840	88/	6/19	0:25	45	54	39	36	-8	31	0	
7840	88/	6/19	3:54	35	65	52	-39	-1	23	0	
7840	88/	6/19	7:29	40	88	70	25	29	24	0	
7840	88/	6/19	11: 0	34	98	76	-11	45	21	0	
>											

7882	88/	6/15	6:36	50	13	12	-3	0	20	0
7882	88/	6/15	10:16	49	46	13	18	16	31	0
7882	88/	6/17	7:29	50	53	13	57	-32	31	0
7882	88/	6/17	10:49	48	61	12	62	25	26	1
7882	88/	6/18	9:29	49	37	15	29	26	22	0
>										
7907	88/	6/15	3:22	46	143	135	41	15	20	4
7907	88/	6/15	6:43	33	204	159	-154	-45	34	17
7907	88/	6/16	5:17	39	167	109	-88	19	40	11
7907	88/	6/17	3:54	47	145	139	-66	-13	13	3
>										
7939	88/	6/15	2:26	45	130	109	5	40	38	5
7939	88/	6/16	0:58	46	163	128	-92	11	39	4
7939	88/	6/17	22: 6	46	147	113	126	55	27	4

>

 LAGEOS ARC 886: 88/ 6/19 12:00 - 88/ 6/24 12:00 PRELIM

>

STA	AVG PASS	TIME	GOOD	RAW	PREC	RNG	TIME	PASS	EDIT	
ID	YY/MM/DD	HH:MM	OBS	RMS	EST	BIAS	BIAS	DUR	OBS	
				(MM)	(MM)	(MM)	(US)	(MIN)		
>										
7080	88/	6/21	8:53	48	51	47	-16	4	41	2
7080	88/	6/21	12:28	49	87	43	-68	-5	8	1
7080	88/	6/22	7:30	50	53	49	3	-7	44	0
7080	88/	6/22	11: 2	47	39	35	-13	5	33	3
7080	88/	6/23	6:10	49	43	39	-4	-17	24	1
7080	88/	6/23	9:40	49	41	36	-8	10	43	1
7080	88/	6/24	11:49	50	78	44	68	-28	21	0
>										
7090	88/	6/21	17: 9	50	40	8	42	-9	40	0
7090	88/	6/23	14:26	48	106	10	100	12	29	0
7090	88/	6/23	17:46	49	75	9	-41	31	20	1
>										
7105	88/	6/20	6:37	50	14	9	-15	13	21	0
7105	88/	6/22	7:21	48	26	7	13	17	29	2
7105	88/	6/23	5:59	49	13	8	2	8	36	1
7105	88/	6/23	9:30	50	27	10	2	27	22	0
7105	88/	6/24	8: 9	49	25	9	16	-6	45	1
>										
7109	88/	6/20	10:10	49	47	7	-14	26	31	1
7109	88/	6/21	15:41	50	87	8	-106	-33	15	0
7109	88/	6/22	7:27	50	85	10	85	16	34	0
7109	88/	6/22	11: 2	49	36	9	-17	18	47	1
7109	88/	6/22	14:32	50	22	7	-14	-6	21	0
7109	88/	6/23	9:40	50	51	9	-22	25	48	0
7109	88/	6/23	13:10	50	12	8	5	6	38	0
7109	88/	6/24	8:17	50	30	8	12	-18	43	0
7109	88/	6/24	11:49	50	24	8	9	-11	44	0
>										
7110	88/	6/20	10:17	50	34	14	-17	13	47	0
7110	88/	6/22	7:35	48	39	11	40	-20	28	2

7110	88/	6/22	11: 6	48	14	13	4	3	44	2
7110	88/	6/23	9:52	49	31	12	-36	6	12	1
7110	88/	6/24	8:16	50	64	12	-35	-48	36	0
7110	88/	6/24	11:53	49	78	14	67	-33	34	1
>										
7210	88/	6/23	10:17	49	127	33	-122	0	2	1
>										
7295	88/	6/22	7:24	50	54	54	-5	-3	13	0
7295	88/	6/23	6: 7	50	72	63	35	0	32	0
7295	88/	6/24	8:21	50	57	44	-13	-23	22	0
>										
7810	88/	6/21	23:49	40	168	109	-133	-31	28	10
7810	88/	6/23	1:57	50	108	79	46	84	18	0
7810	88/	6/24	0:40	50	112	87	-61	24	36	0
>										
7835	88/	6/21	1:19	54	48	26	-33	-8	37	0
7835	88/	6/21	4:45	54	76	25	47	-32	36	0
7835	88/	6/21	8:15	54	39	28	6	17	20	0
7835	88/	6/21	23:54	54	70	21	20	-48	42	0
7835	88/	6/22	3:26	54	55	20	46	10	40	0
7835	88/	6/22	10:18	54	46	28	20	12	26	1
7835	88/	6/23	8:54	55	48	30	23	28	18	0
7835	88/	6/24	7:30	43	36	33	-13	0	5	12
>										
7840	88/	6/22	10:32	9	80	51	62	0	7	0
7840	88/	6/23	2: 1	55	124	38	39	77	33	2
7840	88/	6/23	5:38	36	94	53	-60	-17	19	0
7840	88/	6/23	9: 8	25	68	58	-9	27	15	0
>										
7882	88/	6/22	7:35	47	52	10	46	-4	40	2
7882	88/	6/22	11: 8	48	56	12	49	17	32	1
7882	88/	6/23	6:11	48	12	10	-6	-3	24	2
7882	88/	6/23	9:51	48	64	12	42	20	43	1
7882	88/	6/24	8:25	48	54	9	17	-26	34	2
7882	88/	6/24	11:47	15	131	16	131	2	3	0
>										
7907	88/	6/20	3:25	0	160	127	175	173	15	50
7907	88/	6/21	2:13	0	189	165	70	288	8	50
7907	88/	6/21	5:28	43	149	146	63	26	24	7
7907	88/	6/22	4: 6	44	152	128	199	65	13	6
7907	88/	6/22	7:43	48	162	161	37	56	13	2
7907	88/	6/23	2:50	44	141	134	108	109	11	5
7907	88/	6/23	6:13	42	154	132	110	66	33	8
7907	88/	6/24	4:58	45	139	127	36	46	26	5
>										
7939	88/	6/19	23: 4	43	208	97	-147	-71	44	7
>										
8833	88/	6/23	2: 8	10	60	58	-27	15	12	0
>										

 LAGEOS ARC 887: 88/ 6/24 12:00 - 88/ 6/29 12:00 NOT REP

>

STA ID	AVG PASS TIME YY/MM/DD HH:MM	GOOD OBS	RAW RMS (MM)	PREC EST (MM)	RNG BIAS (MM)	TIME BIAS (US)	PASS DUR (MIN)	EDIT OBS
>								
7090	88/ 6/27 12:33	49	10	8	0	-3	20	1
>								
7105	88/ 6/27 7:36	50	21	10	-6	-4	40	0
7105	88/ 6/27 11: 4	47	16	9	19	-25	11	3
>								
7110	88/ 6/24 15:11	49	21	13	-12	21	19	1
>								
7123	88/ 6/25 11: 7	50	30	24	-14	-2	31	0
>								
7882	88/ 6/25 7: 6	50	23	14	17	4	26	0
7882	88/ 6/25 10:43	49	47	12	11	23	15	0
>								
7939	88/ 6/27 0: 2	38	129	124	0	25	26	7
>								

UNIVERSITY OF TEXAS AT AUSTIN/CENTER FOR SPACE RESEARCH
LAGEOS QUICK-LOOK ANALYSIS REPORT
JULY 5, 1988

>
THE FOLLOWING TABLE CONTAINS THE EARTH ROTATION SOLUTION REPORTED ON MARK III AS SWCSR*. THESE RESULTS ARE 5-DAY AVERAGES IN SYSTEM CSR 86 L 01.

88062298447334746	1699	2653	609	62	12	12	71	17	-3	20	15	623	880
88062798447339542	1752	2539	414	70	13	14	87	3	-10	-6	14	424	880
88070298447343475	1759	2476	348	56	15	12	80	-6	-2	4	14	395	9880

THE FOLLOWING TABLES CONTAIN INFORMATION FOR EACH PASS USED IN THE UT/CSR WEEKLY ANALYSIS. THE RESIDUALS SUMMARIZED BELOW ARE IN THE NEW UT/CSR SYSTEM CSR 86 L 01. THE RESULTS ARE REPORTED IN THE MARK III FILE SLRQL*.

LAGEOS ARC 886: 88/ 6/19 12:00 - 88/ 6/24 12:00 FINAL

STA ID	AVG PASS TIME YY/MM/DD HH:MM	GOOD OBS	RAW RMS (MM)	PREC EST (MM)	RNG BIAS (MM)	TIME BIAS (US)	PASS DUR (MIN)	EDIT OBS
>								
7080	88/ 6/21 8:53	48	51	47	-16	5	41	2
7080	88/ 6/21 12:28	49	88	43	-69	-5	8	1
7080	88/ 6/22 7:30	50	53	49	3	-7	44	0
7080	88/ 6/22 11: 2	47	39	35	-13	5	33	3
7080	88/ 6/23 6:10	49	43	39	-4	-17	24	1
7080	88/ 6/23 9:40	49	41	36	-8	10	43	1
7080	88/ 6/24 11:49	50	78	45	65	-34	21	0
>								
7090	88/ 6/21 17: 9	50	39	8	42	-9	40	0
7090	88/ 6/23 14:26	48	105	10	99	12	29	0
7090	88/ 6/23 17:46	49	75	9	-41	30	20	1

APPENDIX II

UTSPAN::CDDIS::LINDER	H. LINDER	
BITNET%"PIERRON@FRONI51"	FRANCIS PIERRON, FRANCOIS BARLIER	
UK%"ATS@RO-GREENWICH.AC.UK"	ANDREW SINCLAIR, RGO	02/10/89 CONT
BITNET%"IPDVM@IPDUNIV"	ALLESSANDRO CAPORALI, PADOVA	
BITNET%"1428@DBOTUZ01"	DIETER LELGEMANN, BERLIN	
BITNET%"PEARLMAN@CFA7"	MIKE PEARLMAN, SAO	
BITNET%"VLRUSBR@HDETUD1"	KAREL WAKKER, RON NOOMEN, DELFT	02/13/89 CONT
BITNET%"IFAGSI24@DDAGMD11"	PETER WILSON, IFAG	
BITNET%"A2507AA@DM0LRZ01"	HORST MUELLER, DGFI	
BITNET%"GAMBIS@FRIAP51"	DANIEL GAMBIS, PARIS	
BITNET%"GEODEET@FINFUN"	TUEVO PARM, HELSINKI	
BITNET%"U150@CBEEDA3T"	WERNER GURTNER, BERN	
BITNET%"TN2A@ICINECA"	SUSANNA ZERBINI, BOLOGNA	02/08/89 CONT
BITNET%"GEORGER@COLORADO"	GEORGE ROSBOROUGH, BOULDER	
BITNET%"TGJBB@VPFVM"	CAREY NOLL	
BITNET%"G52RK@SCFMVS"	RON KOLENKIEWICZ, GSFC	
BITNET%"ZCPJD@VPFMVS"	PETER DUNN	
BITNET%"TPZ3@ICNUCEVM"	ALBERTO CENCI, TELESPAZIO	
UTSPAN::CDDIS::CDP	JOHN BOSWORTH, GSFC	02/08/89 DELE
UTSPAN::6797::DSGWMD	WIN DECKER, BFEC	
WINS%"PJS@ASTRO.AS.UTEXAS.EDU"	PETE SHELUS, ASTRONOMY	

APPENDIX III

SUMMARY OF CENTER FOR SPACE RESEARCH LAGEOS QL ANALYSIS
JANUARY THROUGH DECEMBER 1987

STATION	NO. OF PASSES	NO. OF OBS.	NO. OF EDITED OBS.	PCT. EDITED	NO. OF GOOD OBS.	RAW RMS (CM)	RBTB RMS (CM)	PREC. EST. (CM)
1181 POTS DM	109	3606	1681	46.6	1925	19.3	15.2	14.4
1953 SANCUB	21	846	552	65.2	294	20.6	16.4	14.8
7061 EASTER	16	765	3	.4	762	5.9	3.2	3.2
7086 MCDON	324	16177	444	2.7	15733	5.8	4.2	4.1
7090 YARAG	206	10270	183	1.8	10087	3.5	1.2	1.0
7105 GRF105	307	15217	521	3.4	14696	3.0	1.0	.9
7109 QUINC2	288	14373	185	1.3	14188	3.3	.9	.9
7110 MNPEAK	359	17905	230	1.3	17675	5.2	1.1	1.0
7122 MAZTLN	179	8994	156	1.7	8838	4.1	1.1	1.1
7123 HUAHI2	32	1459	3	.2	1456	8.1	2.8	2.8
7130 GRF130								
7210 HOLLAS	197	9534	651	6.8	8883	6.3	3.9	3.8
7510 ASKITS	135	5892	252	4.3	5640	8.1	5.1	5.1
7512 RHODES	51	2367	21	.9	2346	8.5	4.9	4.8
7515 DIONS2	133	6394	220	3.4	6174	9.4	5.2	5.1
7517 ROUMEL	108	5180	121	2.3	5059	7.8	3.7	3.7
7525 XRISOK	51	2207	197	8.9	2010	6.4	1.4	1.3
7530 BARGIY	105	4815	741	15.4	4074	15.8	12.3	12.2
7544 LAMPED	77	3427	204	6.0	3223	7.8	5.3	5.3
7575 DIYARB	32	1398	69	4.9	1329	10.6	5.1	5.0
7580 MELENG	43	2025	356	17.6	1669	7.4	1.4	1.3
7585 YOZGAT	36	1451	340	23.4	1111	9.6	4.9	4.9
7587 YIGILC	43	2006	194	9.7	1812	5.3	1.4	1.4
7805 METFIN	5	47	42	89.4	5	18.9	3.6	3.5
7810 ZIMMER	106	5267	535	10.2	4732	13.2	8.0	7.9
7831 HELWAN	77	1147	24	2.1	1123	7.5	3.9	3.8
8833 KOTWK2	2	68	1	1.5	67	8.7	5.3	5.2
7834 WETZEL	162	5516	185	3.4	5331	10.3	4.6	4.5
7835 GRASSE	190	10301	387	3.8	9914	8.3	3.9	3.8
7837 SHAHAI	23	1045	468	44.8	577	16.6	12.3	12.2
7838 SHO	148	4689	81	1.7	4608	7.3	4.1	3.6
7839 GRAZ	221	11108	459	4.1	10649	5.3	2.9	2.8
7840 RGO	413	15042	223	1.5	14819	7.3	5.5	5.3
7843 ORLLLR	185	4897	412	8.4	4485	7.1	3.4	3.0
7907 ARELAS	261	12425	3952	31.8	8473	15.5	13.6	13.3
7920 GRF920								
7935 DODAIR	14	538	522	97.0	16	23.1	19.1	10.1
7939 MATERA	368	17536	1069	6.1	16467	13.9	12.5	12.3
TOTALS	5070	228105	16301	7.1	211804	8.5	6.1	5.9

NORMAL POINT SUMMARY FOR 1987

STATION	NO. OF GOOD PASSES	NO. OF NP	OBS. PER NP	NP PER PASS	PREC. EST.1 (CM)
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1181	POTSDM	89	585	3.3	6.6	8.0
1953	SANCUB	17	118	2.5	6.9	9.3
7061	EASTER	16	122	6.2	7.6	1.2
7086	MCDON	322	2962	5.3	9.2	1.5
7090	YARAG	206	2481	4.1	12.0	.5
7105	GRF105	302	3095	4.7	10.2	.4
7109	QUINC2	288	3538	4.0	12.3	.4
7110	MNPEAK	359	3792	4.7	10.6	.5
7122	MAZTLN	179	1988	4.4	11.1	.4
7123	HUAHI2	32	229	6.4	7.2	1.0
7130	GRF130					
7210	HOLLAS	195	1682	5.3	8.6	1.3
7510	ASKITS	129	725	7.8	5.6	1.7
7512	RHODES	51	331	7.1	6.5	1.7
7515	DIONS2	128	950	6.5	7.4	1.9
7517	ROUMEL	107	903	5.6	8.4	.8
7525	XRISOK	47	404	5.0	8.6	.6
7530	BARGIY	102	845	4.8	8.3	5.2
7544	LAMPED	72	397	8.1	5.5	1.7
7575	DIYARB	29	183	7.3	6.3	1.8
7580	MELENG	37	298	5.6	8.1	.5
7585	YOZGAT	26	134	8.3	5.2	1.7
7587	YIGILC	41	351	5.2	8.6	.6
7805	METFIN	3	4	1.3	1.3	44.7
7810	ZIMMER	97	868	5.5	8.9	3.2
7831	HELWAN	77	482	2.3	6.3	2.0
8833	KOTWK2	2	16	4.2	8.0	2.4
7834	WETZEL	158	1045	5.1	6.6	1.8
7835	GRASSE	184	2050	4.8	11.1	1.6
7837	SHAHAI	16	92	6.3	5.8	3.3
7838	SHO	147	1271	3.6	8.6	1.2
7839	GRAZ	218	1892	5.6	8.7	1.1
7840	RGO	407	3858	3.8	9.5	2.5
7843	ORLLLR	173	1672	2.7	9.7	1.0
7907	ARELAS	247	2018	4.2	8.2	6.3
7920	GRF920					
7935	DODAIR	5	15	1.1	3.0	48.4
7939	MATERA	357	4037	4.1	11.3	5.9
TOTALS		4900	45718	4.6	9.3	.7

SUMMARY OF CENTER FOR SPACE RESEARCH LAGEOS QL ANALYSIS
JANUARY THROUGH DECEMBER 1988

STATION	NO. OF PASSES	NO. OF OBS.	NO. OF EDITED OBS.	PCT. EDITED	NO. OF GOOD OBS.	RAW RMS (CM)	RBTB RMS (CM)	PREC. EST. (CM)	
1181	POTSDM	65	2396	773	32.3	1623	19.6	13.4	13.1
1884	RIGA	56	1770	1510	85.3	260	23.1	13.6	13.1
1953	SANCUB	66	2517	1627	64.6	890	20.7	14.7	14.1
7035	OTAY2	59	2950	409	13.9	2541	5.0	1.4	1.4

7080	MCDON4	300	14644	502	3.4	14142	5.5	3.7	3.6
7086	MCDON	30	1386	25	1.8	1361	6.2	4.6	4.6
7090	YARAG	222	10952	234	2.1	10718	3.6	1.1	1.0
7091	HAYSTK	60	2841	234	8.2	2607	8.0	1.6	1.3
7097	EASTR2	35	1749	64	3.7	1685	6.6	3.1	3.0
7105	GRF105	236	11735	314	2.7	11421	3.7	1.2	1.0
7109	QUINC2	309	15431	139	.9	15292	4.1	.9	.9
7110	MNPEAK	375	18628	253	1.4	18375	4.9	1.2	1.1
7112	PLATVL	74	3511	23	.7	3488	7.2	5.5	5.5
7122	MAZTLN	142	6974	273	3.9	6701	4.1	.9	.9
7123	HUAHI2	40	1794	156	8.7	1638	7.0	2.6	2.5
7125	GRF125								
7210	HOLLAS	243	12051	857	7.1	11194	8.9	2.9	2.9
7288	MOJAV2	58	2887	418	14.5	2469	4.5	1.6	1.4
7295	RICHMO	49	2198	86	3.9	2112	7.1	5.4	5.4
7530	BARGIY	2	50	38	76.0	12	26.6	8.7	8.7
7545	CAGLIA	46	2069	76	3.7	1993	7.3	5.3	5.2
7546	MEDICI	8	375	2	.5	373	7.9	6.0	6.0
7805	METFIN	2	17	17	100.0	0	0.0	0.0	0.0
7810	ZIMMER	158	7805	138	1.8	7667	9.6	7.8	7.6
7811	BOROWC	32	1055	967	91.7	88	19.7	14.6	12.9
7831	HELWAN	43	644	16	2.5	628	7.4	3.5	3.4
8833	KOTWK2	52	2529	165	6.5	2364	8.7	5.2	5.1
7834	WETZEL	78	2778	169	6.1	2609	10.8	5.2	5.1
7835	GRASSE	561	30010	419	1.4	29591	7.0	2.7	2.4
7837	SHAHAI	36	1380	350	25.4	1030	12.5	7.0	6.9
7838	SHO	87	3034	117	3.9	2917	8.5	4.1	3.7
7839	GRAZ	139	6792	172	2.5	6620	5.6	2.3	2.1
7840	RGO	473	18890	506	2.7	18384	7.3	4.6	4.4
7843	ORLLLR	168	4552	179	3.9	4373	6.3	1.9	1.7
7853	OWNSV3	60	2990	6	.2	2984	7.7	5.6	5.6
7882	CABO	47	2168	59	2.7	2109	6.8	1.3	1.2
7907	ARELAS	218	10808	2832	26.2	7976	15.0	13.6	13.4
7920	GRF920								
7939	MATERA	212	10081	1159	11.5	8922	14.5	12.6	12.4
	TOTALS	4853	224967	15580	6.9	20938			

NORMAL POINT SUMMARY FOR 1988

STATION	NO. OF GOOD PASSES	NO. OF NP	OBS. PER NP	NP PER PASS	PREC. EST.1 (CM)	
1181	POTSDM	56	395	4.1	7.1	5.9
1884	RIGA	17	87	3.0	5.1	7.9
1953	SANCUB	46	300	3.0	6.5	8.2
7035	OTAY2	59	559	4.5	9.5	.6
7080	MCDON4	297	2887	4.9	9.7	1.2
7086	MCDON	30	262	5.2	8.7	1.8
7090	YARAG	221	2452	4.4	11.1	.4

7091 HAYSTK	57	404	6.5	7.1	.5
7097 EASTR2	34	274	6.1	8.1	1.1
7105 GRF105	234	2535	4.5	10.8	.4
7109 QUINC2	309	3898	3.9	12.6	.4
7110 MNPEAK	375	4247	4.3	11.3	.5
7112 PLATVL	72	665	5.2	9.2	2.3
7122 MAZTLN	137	1345	5.0	9.8	.4
7123 HUAHI2	35	232	7.1	6.6	.9
7210 HOLLAS	239	1929	5.8	8.1	1.0
7288 MOJAV2	58	561	4.4	9.7	.6
7295 RICHMO	47	330	6.4	7.0	2.0
7530 BARGIY	1	4	3.0	4.0	5.0
7545 CAGLIA	44	229	8.7	5.2	1.7
7546 MEDICI	8	43	8.7	5.4	2.0
7810 ZIMMER	156	1521	5.0	9.8	3.1
7811 BOROWC	7	29	3.0	4.1	6.6
7831 HELWAN	42	230	2.7	5.5	1.7
8833 KOTWK2	49	303	7.8	6.2	1.8
7834 WETZEL	73	543	4.8	7.4	2.0
7835 GRASSE	551	6435	4.6	11.7	1.0
7837 SHAHAI	30	170	6.1	5.7	2.4
7838 SHO	86	778	3.7	9.0	1.1
7839 GRAZ	136	1454	4.6	10.7	.8
7840 RGO	458	4205	4.4	9.2	1.9
7843 ORLLR	167	1363	3.2	8.2	.7
7853 OWNSV3	60	669	4.5	11.2	2.6
7882 CABO	46	416	5.1	9.0	.5
7907 ARELAS	211	1732	4.6	8.2	6.0
7920 GRF920					
7939 MATERA	203	2250	4.0	11.1	6.0
TOTALS	4657	45774	4.6	9.8	.7