

SPECTRA

Telescope: 61"

3672 04re

Frame prefix #: SP92C

Day of Week: FRI/SAT

Focus: 3640 Humdty: 56% Sheet #: 1

Observers: FINK, HOFFMANN

Date MST/UT: 13/14

Dec offset:

Temp O/I: 36/41 °F
RA: 300

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
001	BS 2067	1.0	1.0m	11000	3:33	5:55:20	13:54:24	12:44	GP: 380, 410ms & RA 384 380, 387 → use 390
002	"	2.0	"	20800					
002		2.0		21260		5:50:59		E 1:47	1.16
003		2.0		22000		3:38:41		12:49	1.17
004		2.0						1:57	1.18
005		2.0		23,000				1:55	1.18
006	BS 3314	0.7	1.0	17,000	4:01	6:25:10	-3:54:10	-0:18	1.25
007	"	"	"	14,000					1.24
008	"	"	"	12,000					1.24
009	"	"	"	12,500					1.24
010	"	"	"	12,500					1.24
011	"	"	"	17,800					1.24
012	(Anthea) Alm 2	120	0.5	59,000					1.13
013	"	60	0.5	34,200	10:40:00	10:40:00	9:52:19	-1:08	1.12
014	"	60		33,200					1.12

Guide by Hand

Temp 35/40
Humidity 60%

SPECTRA

Telescope: 61"

Frame prefix #: SPARC Day of Week: FR1/SAT RA offset: Dec offset:

Focus: 3640 Humdty: Sheet #: 2
Tailpiece: Balance: Temp O/I:

Observers: Fink Hoffmann
Grandy Hicks

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments
015	Alma ^(Amathra)	60	0.5	29800					1.12
016	"	"	"	29000					1.12
017	"	"	"	27000					1.12
018	IO/ALMA	"	"	59000					1.11 moving to info 51.7
019	"	45	"	24000					
020	"	"	"	24000					1.11
021	IO	1.0	1.0	35000	5:53				1.10
022	"	"	"	30600		10:40:09	9:52:16	-0:40	1.10
023	"	"	"	31600					1.10
024	"	"	"	32000					1.10
025	"	"	"	36000					1.10
026	IV	1.5	1.0	27000		10:40:17	9:51:12	-0:33	1.09
027	"	"	"	25000	6:02				1.09
028	"	"	"	22000					1.09
029	"	"	"						1.09

Telescope: 61"

Frame prefix #: SP92C Day of Week: Fri 1/27 RA offset:

Humidity: Sheet #: 3

Observers: Fink Hoffmann Date MST/UT: 13/14 Dec offset:

Focus: Tailpiece: Balance:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
030	IV	1.5	1.0	28000	UT				1.09
031	III	0.75	"	36000	6:10	10:39:56	9:53:39	-0:24	1.09
032	"	"	"	35000					1.09
033	"	"	"	34000					1.09
034	"	"	"	38000					1.09
035	"	"	"	38000					1.09
036	"	"	"	37500					1.09
037	II	1.0	"	22000	6:20	10:39:52	9:53:57	-0:14	1.08
038	"	"	"	29000					1.08
039	"	"	"	27000					1.08
040	"	1.5	"	39000					1.08
041	"	"	"	36000					1.08
042	"	"	"	36000					1.09
043	"	"	"	41000					1.08 Mount Micro
044	BS 4030	0.5	"	53000	6:51	10:16:01	23:31:13	-0:10	1.07 Crashed

⇒ BS 4031 is actually the star we observed; not BS 4030

Telescope: 61'

Sheet #: 4

RA offset:

Humdty: Focus: Tailpiece: Balance:

Temp O/I:

Day of Week: Fri./Sat

Frame prefix #: SP92C

Dec offset:

Date MST/UT: 13/14

Observers: Fink, Hollman
Grandy, Hicks

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
045	* BS 4030	0.3	1.0	35000					1.03 Black rock
046	"	"	"	44000					1.03 stops guiding
047	"	"	"	41500					1.03
048	"	"	"	46000					1.03
049	"	"	"	36000					1.03
050	"	"	"	48000					1.03
051	"	"	"	44000					1.03
052	"	"	"	43000					1.03
053	"	"	"	44000					1.03 light leak!
054	"	"	"	44000					1.03 Black rock streak
055	"	"	"	43000					1.03 to guide again
056	TO	1.0	"	26000		10:39:57	9:57:30 + 0:38		1.10
057	"	"	"	35000					1.10
058	"	"	"		7:13				1.10
059	"	"	"	33000					1.10

* BS4031 IS ACTUAL STAR, NOT BS4030

Telescope: 61"

Frame prefix #: SP92C Day of Week: Fri/Sat

RA offset:

Humdty: Focus: Tailpiece: Balance:

Sheet #: 5

Observers: Frank Hoffmann Grundy Hicks Date MST/UT: 13/11A Dec offset:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
060	I O	1.0	"	40,000					1.10
061	"	"	"	39,000					1.10
062	IV	1.5	"	28,000		10:40:00	9:56:31		1.10
063	"	"	"	27,000					1.10
064	"	"	"	22,000					1.10
065	"	"	"	25,000					1.10
066	"	"	"	25,000					1.10
067	"	"	"	26,000					1.11
068	III	0.75	"	32,000		10:39:45	9:50:56	7:0:56	1.11
069	"	"	"	37,000					1.11
070	"	"	"	27,000	7:31				1.11
071	"	"	"	28,000					1.11
072	"	"	"	30,000					1.12
073	"	"	"	31,000					1.12
074	II	1.5	"	30,000					1.12

Telescope: 61"

Frame prefix #: SP92C Day of Week: Fri. / 5/71 RA offset:

Humidity: Sheet #: 6

Observers: Fink, Holloman Date MST/UT: 13/14 Dec offset:

Focus: Tailpiece: Balance:

Temp O/I:

Grundy Hickey

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
075	II	1.5	1.0	35000		10:34:40	9:54:21		1.12
076	"	"	"	35000					1.12
077	"	"	"	36000					1.12
078	"	"	"	35000					1.12
079	"	"	"	37000					1.12
080	BS 4030	1.0	1.0	17000	8:00	10:15:52	23:36:04	+1:50	1.11
081	"	1.5	"	24000					1.11
082	"	1.5	"	25000					1.11
083	"	2.5	"	37000					1.12
084	"	2.5	"	39000					1.12
085	"	"	"	39000					1.12
086	"	"	"	36000					1.12
087	"	"	"	38000					1.13
088	"	"	"	39000					1.13
089	"	"	"	41,000					1.13

WE HAVE FOUND BS 4030 Now

Telescope: 61"

Frame prefix #: SP926 Day of Week: Fri/524 RA offset:

Humidity: Sheet #: 7

Observers: Fink, Hoffmann, Grundy Hicks, Date MST/UT: 13/14 Dec offset:

Focus: Tailpiece:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
090	BS 4030	2.5	1.0	39000					1.13
091	"	"	"	38000					1.14
092	"	"	"	43000					1.14
093	"	"	"	41000					1.14
094	"	"	"	41000					1.14
095	"	"	"	41000					1.14
096	"	"	"	43000					1.15
097	"	"	"	48000					1.15
098	"	"	"	44000					1.15
099	"	"	"	40000					1.15
100	"	"	"	43000					1.15
101	"	"	"	42000					1.16
102	"	"	"	40000					1.16
103	"	"	"	37000					1.16
104	"	"	"	37000					1.16

105
 $\sigma = 870$
 $\sigma = 14$
 $\sigma = 868$
 $\sigma = 13.2$

Telescope: 61"

Frame prefix #: SP92C Day of Week: WED/THR RA offset:

Humdty: 73% Sheet #: 8
Focus: Tailpiece:
Balance:

Observers: Fink, Grundy Date MST/UT: 18/19 Dec offset:

Temp O/I: 37/41

Hoffmann Hicks

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
								GP =>	(382 395)
106	BS 2067	1.0	1.0	5700	3:15	5:55:30	13:54:05		1,15
107	"	3.0	"	15000					1,16
108	"	3.0	"	19K					1,16
109	"	"	"	17K					1,16 Dkr
110	"	"	"	16K					1,16 Black rack crashed
111	"	"	"	22K					1,17 Generally clear
112	"	"	"	22K					1,17 but some clouds
113	"	"	"	23K					1,18
114	BS 2251	2.0	1.0	33K	3:27	6:16:43	5:04:42	#1:35	1,23
115	"	"	"	38K					1,23
116	"	"	"	36K					1,23
117	"	"	"	32K					1,24
118	"	"	"	29K					1,24
119	"	"	"	31K					1,24 CLEANSING MPI

Telescope: 61"

Frame prefix #: SP92C Day of Week: WED 1THIR RA offset:

Humdty: 73% Sheet #: 9

Observers: Fink Grundy Date MST/UT: 18/19 Dec offset:

Temp O/I:

Hoffmann Hils

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
120	BS 2251	2.0	1.0	28K					1.25 Appears to be
121	BS 4030	3.0	1.6	41K		10:16:03	23:01:34		1.14 quite clear
122	"	3.0	1.0	45K					1.14
123	"	"	"	43K					1.14
124	"	"	"	44K					1.14
125	"	"	"	43K					1.14
126	"	"	"	43K					1.13
127	"	"	"	42K					1.13
128	"	"	"	34K					1.13 → on sys!
129	^{STD} BS 3314	1.0	1.0	47K		8:25:08	-3:53:34		1.24
130	"	0.7	"	34K					1.24
131	"	0.7	"	43K					1.24
132	"	0.5	"	27K					1.24
133	"	0.5	"	27K					1.24
134	JO	1.0	1.1	28K					1.22

Telescope: 61"

Humdty: 70% Sheet #: 10

Focus: Tailpiece: Balance:

RA offset: Dec offset:

Day of Week: Wed / Thu Date MST/UT: '8/19

Frame prefix #: SP92c Observers: Erik Grundy Hoffman Hicks

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
135	JD I	1.0	1.0	28K		10:37:52	10:07:40		1.22
136	"	1.2	"	38K					1.22
137	"	"	"	35K					1.21
138	"	"	"	33K					1.21
139	"	"	"	32K					1.21
140	Genymede J III	0.75	"	27K		10:37:40	10:08:34		1.20
141	"	1.0	1	33K					1.20
142	"	1.0	"	33K					1.20
143	"	"	"	34K					1.20
144	"	"	"	32K					1.19
145	"	"	"	32K					1.19
146	Europa II	1.5	1.0	34K		10:38:09	10:05:34		1.18
147	"	"	"	32K					1.18
148	"	"	"	32K					1.18
149	"	"	"	37K					1.17

Telescope: 61"

Frame prefix #: SP92C Day of Week: Wed/Thu RA offset:

Humdty: 70% Sheet #: 11
Focus: Tailpiece:
Balance:

Observers: Fink, Grundy, Hoffmann, Hicky Date MST/UT: 18/19 Dec offset:

Temp O/I: 27/30

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
150	Europa J II	1.5	1.0	41K					1.17
151	"	1.5	"	36K					1.17
152	"	"	"	41K					1.17
153	Callisto J II	2.5	1.0	34K	4:42	10:38:26	10:03:56		1.15 BLACK RACK CRASHES
154	"	"	"	27K					1.15
155	"	"	"	32K					1.15
156	"	3.0	"	37K					1.15
157	"	"	"	32K					1.15
158	"	"	"	42K					1.15 WE HUNT FOR ALMATHA
159	Ganymede J III	1.0	1.0	24K	10:37:35	10:08:35			1.00 SEEING WORSE
160	"	"	"	27K					1.00 BUT GLEARED UP PERFECT
161	Europa J II	1.5	"	24K					1.00
162	Europa J II	1.5	"	24K		10:38:02	10:05:27		1.08
163	"	1.5	"	32K					1.08
164	"	"	"	28K					1.08

Telescope: 61"

Frame prefix #: SP92C Day of Week: Wed / Thur RA offset:

Humdty: 80% Sheet #: 12

Focus: Tailpiece:

Observers: Fink, Grady Date MST/UT: 10/19 Dec offset:

Temp O/I: 24/29

Hoffmann Hicks

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
165	Callisto JIV	3.0	1.0	33K	6:18	10:38:18	10:03:57		1.08
166	"	"	"	38K					1.08
167	"	"	"	36K		10:16:02	23:31:14		1.08
168	B54030	3.0	"	43K			↓		1.02
169	"	"	"	45K					1.02
170	"	"	"	47K					1.02
171	"	"	"	33K					1.02
172	"	"	"	38K					1.02
173	"	"	"	47K					1.02
174	"	"	"	42K					1.02
175	STO B5 4534	0.2	"	54K		11:48:42	14:36:10		1.07
176	"	0.1	"	36K					1.07
177	"	"	"	25K					1.07
178	"	"	"	31K					1.07
179	"	"	"	37K					1.07

BLACK RACK CRASHES

CLOSE TO MOON

not in center of slit!

GUIDED BY HAND

1.07

34K

IMAGES

Telescope: 61"

=3672 total

1

Frame prefix #: FR92C Day of Week: FRI/SAT RA offset:

Focus: 3636 Humdty: 56% Sheet #: Tailpiece: 34.3

Observers: FINK, HOFFMANN GRUNDY, HICKS

Date MST/UT: 13/14 Dec offset:

Balance: 400 Temp O/I: 41/36 °F Iris: 300

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
/	Fk4*								(380,395) guidepoint
/									T = 35/40 °F
/									Humidity = 60%
001	Jupiter w/ IO2	.01	B/dichr		5:19	10:40:10	9:52:24	-1:10	1.13 \leftarrow II \leftarrow III
002	Jupiter w/ ^{4031 filter} Grundy's Emul	.02	B/dichr		7:36	10:39:41	9:59:21	+1:02	1.12 \oplus
/	BS 4030	1.0	"	wrong star	7:44	10:16:01	23:30:53	+1:33	1.08 \leftarrow I \leftarrow IV
/	BS 4030	"	"	oops, we initialized on			BS 4031,	thinking	it was 4030
003	STOFF	2.0	V+R			11:16:21	-20:25:11		- New CP (340, 390)
004	"	"	"						1.86
005	"	"	"						1.87 } saved
006	"	"	"	12650	8:50				1.87 } twice
607	"	"	"						1.89
009	COMP14	0.3	"	21700					1.40
010	"					11:13:39	-19:37:31		1.89

256

"

512

}

Telescope: 61"

Frame prefix #: FR92C Day of Week: Fri/15/21 RA offset:

Humdty: Sheet #: 2

Observers: Fink, Hoffman
Grundy, Hicks

Date MST/UT: 13/14 Dec offset:

Focus:
Tailpiece:
Balance:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
011	BRO	20	UTR	PK 8480 PHAT 704		12:54:31	21:28:34		1.02
012	"	"	"		9:06				1.02
013	"	"	"						1.02
014	"	"	"						1.02
015	COMP12	0.3	"	PK 354					1.62
016	"	"	"			12:56:08	21:02:25		1.02
017	STDF	20	"	PK 94 PHAT 854	9:17				2.06
018	"	"	"			11:16:22	20:25:06		2.08
019	"	"	"						2.10
020	"	"	"						2.10
021	COMP14	0.3	"	PK 21		11:13:38	19:32		2.08
022	"	"	"						2.10
023	BRO	20	"	PK 84 PHAT 654	9:28	12:54:34	21:29:30		1.03
024	"	"	"						1.03
025	"	"	"						1.03

Telescope: 61

Frame prefix #: FR2C

Day of Week: Fri/Sat

RA offset:

Focus:

Humdty:

Sheet #: 3

Observers: Fink etc

Date MST/UT: 13/11

Dec offset:

Tailpiece:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
026	BRO	20	VR						1.03
027	COMP 12	0.3	"	PK 27	9:34	12:56:09	21:02:24		1.04
028	"	"	"						1.04
029	CHAD	40	"	PK MK PK 63K					1.80
030	"	"	"						1.74
031	"	"	"		9:50				1.77
032	"	"	"			17:25:35	5:13:39		1.76
033	COMP 20	0.3	"	20K	9:57	17:29:45	21:57:34		1.75
034	"	"	"						1.75
035	STOFF	20	"	151K?	10:02				2.60
036	"	"	"		10:06	11:16:18.4	-20:26:19	+3h	
037	"	"	"		10:08				2.65
038	"	"	"		10:10				2.68
039	Comp 14		"	57K?	10:11.5				2.68
040	"		"			11:13:40	-19:31:38	+3h	2.71

Telescope: 61"

Frame prefix #: FR92C Day of Week: Fri/Sat

RA offset:

Focus: Tailpiece:

Humdty: Sheet #: 4

Date MST/UT: 13/14

Dec offset:

Temp O/I:

Observers:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments
41	Bro	20	V12	60k	10:19				1.09 VME crashed again
42	"	"	"	^{Phot} 55k	10:22	12:54:23.0	21:31:13.5	+11:30	1.09 ← guidepoint screwed up?
43	"	"	"		10:29	12:54:28	21:28:46		1.10 (340, 390)
44	"	"	"		10:30				1.10
45	"	"	"		10:31				1.11
46	Comp 12	0.3	"	^{Phot} 290k	10:32				1.11
47	"	"	"		10:34	12:56:7.5	21:2:13	+11:40	1.11
48	Chao	40	"	^{Phot} 7.4k	10:37				1.45
49	"	"	"		10:42	17:25:34.5	5:13:9	-2:37	1.43
50	"	"	"		10:44				1.42
51	"	"	"		10:45				1.42
52	Comp 20	0.3	"	^{Phot} 194k	10:47				1.43
53	"	"	"		10:48	17:29:46	4:57:2	-2:35	1.42
54	Bro	20	"	^{Phot} 64k	10:53			+2:05	1.15
55	"	"	"		10:56	12:54:25.9	21:28:47		1.16

Telescope: 61"

Frame prefix #: FR92C Day of Week: Fri/Sat

Observers: Date MST/UT: 13/14

RA offset:

Dec offset:

Focus: Tailpiece:
Balance:

Humdty: Sheet #: 5

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start (P.A., seeing, Moon, clouds, etc.)	Sec Z	Comments
56	Bro	20	VTR		10:57				1.16	
57	"	"	'		10:59				1.17	
58	COMP 12	0.3	'	Phot: 285k	11:00				1.17	
59	"	"	'		11:02	12:56:8	21:2:19	+2:11	1.17	
60	CHAO	40	'	?	11:04			-2:15	1.34	← Not sure
61	"	"	'	?	11:10			-2:09	1.32	which object is Chao
62	"	"	'	?	11:13			-2:06	1.31	(not at guidepoint)
63	"	"	'	?	11:14			-2:05	1.30	
64	COMP 20	0.3	'	Phot: 169k	11:17			-2:06	1.31	
65	"	"	'		11:19	12:29:46	4:57:8		1.30	
66	BRO	20	'	66k	11:22			+2:33	1.23	
67	"	20	'		11:24	12:54:24.0	21:28:34	+2:36	1.24	
68	"	20	'		11:25				1.24	
69	"	20	'		11:26			+2:38	1.25	
70	COMP 12	0.3	'	302k	11:28			+2:38	1.25	

Telescope: 61"

Frame prefix #: FR92C Day of Week: Fri/Sat

Observers: Date MST/UT: 13/14

RA offset:

Dec offset:

Focus: Tailpiece:
Balance:

Humdty: Sheet #: 6
Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Sec Z	Comments (P.A., seeing, Moon, clouds, etc.)
71	COMP 12	0.3	VAR		11:29	12:56:7.5	21:2:8		1.26	
72	CHAO	40	'	Phot: 74k	11:32			-1:47	1.25	
73	"	"	'		11:35	17:25:38.8	5:13:45		1.24	moon has set
74	"	"	'		11:36				1.24	
75	"	"	'		11:38			-1:41	1.24	
76	COMP 20	0.3	'	Phot: 199k	11:39.5			-1:44	1.25	
77	"	"	'		11:41	17:29:45.3	4:57:2		1.24	
78	BRO	20	'	Phot: 59k	11:44			+2:56	1.31	
79	"	"	'		11:47	12:54:22.5	21:28:31		1.32	
80	"	"	'		11:48			+3:00	1.33	
81	"	"	'		11:49			+3:01	1.34	satellite eipped through
82	COMP 12	0.3	'	Phot: 299k	11:50.5			+3:01	1.34	
83	"	"	'		11:52	12:56:8	21:2:9		1.34	
84	CHAO	40	'	Phot: 73k	11:55			-1:25	1.20	
85	"	"	'		11:57	17:25:39.0	5:13:46	-1:22	1.20	

Telescope: 61"

Frame prefix #: FR92C

Day of Week: FRI/SAT

RA offset:

Humdty: Focus: Tailpiece: Balance:

Sheet #: 7

Observers:

Date MST/UT: 13/14

Dec offset:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
86	CHAO	40	VTR	68K	11:59				1.19 ← Jumped in east (Guided again)
87	"	"	'		12:02	17:25:35.3	5:13:48	-1:17	1.19
88	COMP 20	0.3	'	Phot: 187K	12:03				1.20
89	"	"	'		12:05	17:29:45	4:56:58	-1:19	1.19
90	BRO	20	'	65K	12:08			+3:20	1.42
91	"	"	'	65K	12:10	12:54:22	21:28:31	+3:22	1.44
92	"	"	'						1.47
93	"	"	'		12:12			+3:22.5	1.45
94	OMP 12	0.3	'	284K	12:14			+3:	1.45
95	"	"	'		12:16	12:56:8.6	21:2:15	+3:26	1.46
96	CHAO	40	'	70K	12:18			-1:01	1.16
97	"	"	'		12:21	17:25:35.8	5:13:49	-0:58	1.16
98	"	"	'		12:23			-0:56.5	1.16
99	"	"	'		12:24			-0:55	1.16
100	COMP 20	0.3	'	187K	12:25.5			-0:57.5	1.16

Telescope: 6 1/2"

Frame prefix #: FR92C Day of Week: WED/THU RA offset:

Observers: FINK, HOFFMANN Date MST/UT: 18/19 Dec offset:

Detail: 3632
Focus:
Tailpiece:

Humdty: 73% Sheet #: 10

Temp O/I: 37/41
Balance: weight the way back

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Pointing sec z	Comments (P.A., seeing, Moon, clouds, etc.)
/	FK4*			note: telescope is		tail-head			Guidepoint: (382, 395)
/	BS 2067 ^{comp}	.20s	B/dichr	28k phot		+14°		1.16	not photometric, really
/	BS 2251 ^{comp}	.10s	B/dichr	33k phot		+5°		1.25	
/	BS 4030 ^{comp}	.15s	B/dichr	40k phot		+23.5°		1.15	Sky looks to be clear now
/	BS 3314 ^{STD}	.02s	B/dichr	57k phot		-4°		1.24	STOPPED TO CLEAR ROOM ON DISK
I	10, Jupiter	.10s	B/dichr	33k phot		+10°		1.22	T = 27/30 °F
III	GANYMEDE	.10s	B/dichr	60k phot		+10°		1.20	Humdty = 70%
II	EUROPA	.10s	B/dichr	39k phot	UT 4:34	10:38:10	+10:5:38	1.18	(-1:40 LHA) °III
IV	CALLISTO	.10s	B/dichr	21k phot	UT 4:46	10:38:26.7	+10:3:52	1.16	°V → (J) °II °IV ↓ E
V	AMALTHEA		8900A						
110	ART	10	"		4:56				(400, 436)
111	Amalthea	5.0s	"						
112	"	"	"						
113	"	"	"						
114	"	10s	"						

Telescope: 61"

Frame prefix #: FR92C Day of Week: WED/THU

Observers: Date MST/UT: 18/19

RA offset:

Dec offset:

Focus: Tailpiece:

Balance:

Humdty: Sheet #: 11

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments
115	Amalthea	10 sec	8900A		5:22	10:37:55	10:6:30	-152	1.11
116	"	"	"						
117	"	"	"						
118	"	"	"		5:24				1.10
119	"	"	"		5:25			-148	1.10
120	"	30s	"		5:27				
121	"	10s	VAR						
122	"	2	"		5:38	10:37:10	10:6:27		1.09
123	"	5	"						
124	"	"	"		5:41				
125	"	5s	8900A		5:43	10:37:49	10:6:24		1.09
126	"	"	"		5:44				
127	"	"	"		5:47			1.09	3550 → 3520
128	"	"	"		5:48				changed focus
129	"	"	"		5:49				(3606 octal)



Telescope: 6"

Frame prefix #: FR92C Day of Week: WED/TH RA offset:

Humidity: Sheet #: 12

Observers: Fink, Gandy Date MST/UT: 18/19
40 ft min. Hills

Focus: Tailpiece:
Balance:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
130	Amalthea?	5	8900A		5:53				
131	"	"	"		5:54	10:37:49.1	10:6:33		1.08
132	"	"	"						1.08
133	PARA	5	V+R	37K	6:51				focus back to
134	"	"	"		6:54	10:31:8.9	-8:14:55	1:35	(3634 oct)
135	"	"	"		6:55			1:35	Seeing has degenerated
136	COMP 8	0.3	"	222K	6:59?			1:35	
137	"	"	"		7:01	10:34:22.3	-7:53:21	1:35	+1:50
138	⁷⁵⁹ MALA	5	"	64K	7:08			-2:06	1:39
139	"	"	"	62K	7:10	13:40:31	+0:5:54	-2:05	1:38
140	"	"	"		7:12			-2:03	1:38
141	COMP 3	0.25	"		7:17			-1:56	1:38
142	^(139456 SAO) "	"	"		7:17	13:38:2.5	-0:57:39	-1:55	1:37
143	⁶⁶⁷ DENISE	5	"	9K	7:32			-3:50	1:87
144	"	5	"		7:39	15:48:51.7	9:37:10	3:45	1:81

256

NOT SAVED

Telescope: 61"

← 3634 octal

Sheet #: 13

Frame prefix #: FR92C Day of Week: WED THU

Humidity: Focus: Tailpiece: Balance: Temp O/I:

Observers: Hoffmann, Hicks Grundy Date MST/UT: 18/19

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
144	SAO121165 COMP 5	.3	V+R	76k	7:41			-3:37	1.78 Yes, ↑ full
145	" S	"			7:44	15:44:42.0	7:57:6.8	-3:35	1.76 Yes, ↑ lots
146	PARA S	S		22k	7:51			+1:45	1.49
147	" "	"			7:53	10:31:3.6	-8:15:12	+1:47	1.50
148	" "	"			7:56			+1:50	1.51
149	COMP 8	0.3		140k	7:57			+1:48	1.49
150	" "	"			7:59	10:34:21.7	-7:53:14	+1:50	1.50
151	MALA S	S		65k	8:02			-1:13	1.25
152	" "	"		91k	8:06	13:40:28.9	0:6:21	-1:09	1.24 ← not guided, quite
153	" "	"			8:08	13:40:25.2	0:6:21	-1:07	1.24 ← guided right.
154	COMP 3	0.25		253k	8:09			-1:03	1.25
155	" "	"			8:11	13:37:58.2	-0:57:19	-1:02	1.24
156	DENI S	S		21k	8:13			-3:10	1.53 ←
157	" "	"			8:16	15:48:52.7	9:36:51	-3:07	1.52 ← less opacity
158	" "	"			8:18			-3:05	1.51 ← this time
159	COMP 5	.3		217k	8:19			-3:00	1.51

Telescope: 61"

Frame prefix #: FR92C

Day of Week: W/Th

Humdty: Focus: Tailpiece: Balance:

Sheet #: 14

Observers: Hoffmann, Hicks Grundy

Date MST/UT: 18/19

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon clouds, etc.)
160	Comp 5	0.3	VHR		8:20	15:44:42.7	7:56:17	-2:59	1.50
161	PARA	5		26k	8:23			+2:17	1.63
162	"	"			8:25	10:31:1.8	-8:15:43	+2:19	1.64
163	"	"			8:26			+2:20	1.65
164	comp 8	0.3		232k	8:27			+2:18	1.62
165	"	"			8:28	10:34:21.8	-7:53:27	+2:20	1.63
166	MALA	5		93k	8:31			-1:44	1.21 still
167	"	"			8:33	13:40:23.8	0:6:4	-1:42	1.20 some
168	"	"			8:34			-1:41	1.20 clouds
169	comp 3	0.25		260k	8:35			-1:37	1.21 but fading out
170	"	"			8:37	13:37:56.7	-0:57:27	-1:35	1.21
171	DEN 1	5		25k	8:40			-2:43	1.39
172	"	"			8:46	15:48:52.6	9:26:52	-2:37	1.36
173	"	"			8:47			-2:37	1.36
174	comp 5	0.3	✓	224k	8:47.5			-2:31	1.36
175	"	"			8:50	15:44:42.7	7:55:32	-2:29	1.35

Telescope: 61"

Frame prefix #: FRA2C Day of Week: W/Th

Observers: Hoffmann, Hicks, Grundy Date MST/UT: 18/19

RA offset:

Dec offset:

Focus: Tailpiece:

Balance:

Humdty:

Temp O/I:

Sheet #:

15

full moon

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
176	PARA	S	VTR	34K	8:53			+2:48	1.83 no clouds
177	"	"			8:56	10:31:0	-8:15:55	+2:51	1.86 any more
178	"	"			8:57			+2:52	1.87
179	COMP 8	0.3		221K	8:58			+2:50	1.84
180	"	"			9:00	10:34:22	-7:53:26	+2:51	1.85
181	MALA	S		97K	9:03			-0:10	1.18
182	"	"			9:05	13:40:22	+0:6:50	-0:08	1.18
183	"	"			9:06			-0:07	1.18
184	COMP 3	0.25		276K	9:08			-0:04	1.20
185	"	"			9:09	13:37	-0:57:26	-0:02	1.20
186	DENI	S		25.7K	9:11			-2:11	1.27
187	"	"			9:13	15:48:52	+9:36:57	-2:09	1.26
188	"	"			9:14			-2:08	1.26
189	COMP 5	0.3		243K	9:15			-2:03	1.26
190	"	"	✓		9:17	15:44:42	+7:56:05	-2:01	1.26

Telescope: G
 Humdty: 81% Sheet #: 16
 Focus: Tailpiece:
 Balance: Temp O/I: 24/28

RA offset:
 Dec offset:

Frame prefix #: FR92C
 Day of Week: W/Tu
 Date MST/UT: 18/19

Observers: H, H, G

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
191	PARA	5	V+R	284	9:20			+3:15	2.12
192	"	1			9:23	10:30:59	-8:16:2	+3:17	2.15
193	"	1			9:24			+3:18	2.16
194	COMP 8	.3		2084	9:25			+3:16	2.11
195	"	1			9:26	10:34:22	-7:53:21	+3:18	2.13
196	MALA	5		1014	9:30			+0:15	1.19
197	"	1			9:33	13:40:21	+0:06:25	+0:18	1.19
198	"	1			9:34			+0:20	1.19
199	COMP 3	.25		2814	9:35			+0:23	1.20
200	"	1			9:37	13:37:55	-0:57:32	+0:25	1.20
201	DEN1	5		264	9:40			-1:42	1.19
202	"	1			9:42	15:48:51	+9:37:02	-1:40	1.19
203	"	1			9:43			-1:39	1.18
204	COMP 5	.3		2454	9:44			-1:34	1.19
205	"	1			9:46	15:44:41	-7:58:04	-1:32	1.19

Telescope: 61"

Humidity: Sheet #: 17

Focus: Tailpiece: Balance:

RA offset: Dec offset:

Day of Week: W/Th Date MST/UT: 18/19

Frame prefix #: FR92C Observers: Hicks, H.H.

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
206	PARA	5	V+R	12K	9:49			+3:44	2.57
207	-	-			9:51	10:30:59	-8:15:59	+3:46	2.62
208	-	-			9:52			+3:47	2.64
209	COMP8	.3		182K	9:54			+3:45	2.57
210	-	-			9:55	10:34:24	-7:55:11	+3:47	2.60
211	NACA	5		964	9:58			+0:43	1.20
212	-	-			10:01	13:40:20	+0:7:6	+0:46	1.21
213	-	-			10:02			+0:47	1.21
214	COMP3	.25		276K	10:03			+0:51	1.23
215	-	-			10:05	13:37:55	-0:52:53	+0:53	1.23
216	DEN1	5		21K	10:08			-1:14	1.14
217	-	-			10:10	15:48:47	+9:37:20	-1:12	1.13
218	-	-			10:11			-1:11	1.13
219	COMP5	.3	V	222K	10:12			-1:06	1.14
220	-	-			10:14	15:44:37	+7:55:19	-1:04	1.14

Telescope: 61

Frame prefix #: FR92C

Day of Week: W/Th

RA offset:

Humdty:

Sheet #: 18

Observers: H No

Date MST/UT: 18/19

Dec offset:

Balance:

Temp O/I:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
221	MALA	5	VR	97K	10:17			+1:03	1.23
222	-	-	-		10:20	13:40:20	+0:6:55	+1:06	1.23
223	-	-	-		10:21			+1:07	1.24
224	COMP3	25	-	268K	10:22			+1:10	1.26
225	-	-	-		10:25	13:37:55	-0:57:26	+1:13	1.26
226	DEN1	5	-	25K	10:29			-0:52	1.11
227	-	-	-		10:31	15:48:47	+9:37:9	-0:50	1.11
228	-	-	-		10:32			-0:50	1.11
229	COMP5	13	-	253K	10:33			-0:45	1.12
230	-	-	-		10:34	15:44:37	+7:55:19	-0:43	1.12
231	MALA	5	-	80K	10:37			+1:22	1.26
232	-	-	-		10:40	13:40:19	+0:07:04	+1:26	1.27
233	-	-	-		10:41			+1:27	1.27
234	COMP3	25	V	258K	10:42			+1:30	1.30
235	-	-	-		10:44	13:37:55	-0:57:39	+1:32	1.30

Telescope: 61"

Humidity: Sheet #: 19

RA offset:

Frame prefix #: FR92C

Focus: Tailpiece:

Dec offset:

Day of Week: W/Th

Temp O/I:

Date MST/UT: 18/19

Observers: Mick, Hoff

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
236	DEN1	5	V4R	26K	10:47			-0:35	1.10
237	"	"			10:48	15:48:47	+9:37:10	-0:34	1.10 jumped sky in RA
238	"	"			10:50			-0:32	1.09
239	COMP5	3		242K	10:51			-0:26	1.11
240	"	"			10:54	15:44:36	+7:5:09	-0:24	1.10
241	MALA	5		74K	10:57			+1:43	1.31
242	"	"			11:00	13:40:18	+0:07:03	+1:46	1.32
243	"	"			11:02			+1:47	1.33
244	COMP3	25		268K	11:03			+1:51	1.36
245	"	"			11:05	13:37:55	-0:58:25	+1:53	1.36
246	DEN1	5		25K	11:07			-0:15	1.09
247	"	"			11:09	15:48:46	+9:37:08	-0:12	1.09
248	"	"			11:10			-0:11	1.09
249	COMP5	3		262K	11:11			-0:06	1.10
250	"	"			11:13	15:44:36	+7:55:3	-0:05	1.10

Telescope: 61"

Frame prefix #: FR92C
Day of Week: W/M
Date MST/UT: 18/19

Humidity: Sheet #: 20
Focus: Tailpiece:
Balance: Temp O/I:

RA offset:
Dec offset:

Observers: Kids, W...

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
251	MALA	5	VHR	796K	11:15			+2:01	1.37
252	"				11:18	13:40:18	+0:07:07	+2:03	1.38
253	"				11:19			+2:04	1.39
254	COMP3	.25		247K	11:20			+2:08	1.42
255	"				11:22	13:37:54	-0:57:40	+2:10	1.42
256	DEN1	5		244	11:24			+0:01	1.08 Object close to *
257	"				11:26	15:48:45	+9:37:16	+0:04	1.08 H
258	"				11:27			+0:05	1.08 ~
259	COMP5	.3		252K	11:28			+0:10	1.10
260	"				11:30	15:44:36	+7:55:04	+0:11	1.10
261	MALA	5		88K	11:32			+2:18	1.44
262	"				11:35	13:40:18	+0:07:27	+2:21	1.45
263	"				11:36			+2:22	1.45
264	COMP3	.25		251K	11:37			+2:25	1.49
265	"				11:39	13:37:55	-0:18:21	+2:27	1.50

Telescope: *Col*

Frame prefix #: *FR92C*
Day of Week: *W/M*
Observers: *M. D., K. H.*
Date MST/UT: *18/19*

Humidity: *21*
Focus:
Tailpiece:
Balance:
Temp O/I:
RA offset:
Dec offset:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
266	DEN1	5	V+R	(294)	11:42			+0:19	1.09 Star still close by
267	"	-			11:43	15:48:45	+9:37:20	+0:21	1.09
268	"	-			11:45			+0:23	1.09
269	COMPS	3		2534	11:46			+0:27	1.11
270	"	-			11:47	15:44:35	+7:55:45	+0:29	1.11
271	MALA	5		824	11:50			+2:36	1.52
272	"	-			11:52	13:40:17	+0:07:37	+2:38	1.54
273	"	-			11:53			+2:39	1.54
274	COMPS	25		2384	11:54			+2:43	1.59
275	"	-			11:56	13:37:55	-0:57:24	+2:45	1.60
276	DEN1	5		254	11:59			+0:36	1.10
277	"	-			12:01	15:48:45	+9:37:47	+0:38	1.10
278	"	-			12:02			+0:39	1.10
279	COMPS	3		2454	12:03			+0:45	1.12
280	"	-			12:05	15:44:35	+7:55:43	+0:46	1.12

Telescope: 61"

Day of Week: W/Th

RA offset:

Focus: Tailpiece:

Humdty:

Sheet #: 22

Frame prefix #: FR92C

Date MST/UT: 18/19

Dec offset:

Temp O/I:

Observers: Mids, Hoff

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
281	MACA	5	V+R	604	12:06			+2:52	1.62
282	"	"	"		12:09	13:40:17	+0:07:51	+2:55	1.64
283	"	"	"		12:10			+2:56	1.65
284	COMP3	.25	"	2304	12:11			+2:59	1.70
285	"	"	"		12:13	13:37:55	-0:57:33	+3:01	1.71
286	DEMI	5	"	234	12:15			+0:53	1.11
287	DEMI	"	"		12:17	15:48:44	+9:37:54	+0:54	1.11
288	"	"	"		12:19			+0:56	1.12
289	COMP5	.3	"	2474	12:20			+1:01	1.14
290	"	"	"		12:22			+1:03	1.14
291	MACA	5	"	874	12:24			+3:10	1.76
292	"	"	"		12:26	13:40:17	+0:08:17	+3:12	1.77
293	"	"	"		12:28			+3:14	1.78
294	COMP3	.25	"	2314	12:29			+3:18	1.86
295	"	"	"		12:30	13:37:54	+0:57:52	+3:19	1.87

DECT

Telescope: 61

800

Frame prefix #: ~~1022C~~ Day of Week: Sat/Sun

Humdty: Focus: Tailpiece: Balance: 0

Sheetoff: 1

Observers: Fink Anthony Grandy Hicks Date MST/UT:

Temp 0/I: Dec offset:

7:50 2 10

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
001	FK4 350 37 CANCER	1.0	IJ			9:18	17:42	AM	GP for e/w 430 807 HHH HHH
002	FK4 350	1.0	"			9:18:29	17:42:17	1.03	HHH HHH CLOUDS
003	"	0.75	"					1.04	HHH HHH ↓
004	FK4 350	2.0	"						trzi/mg 205 draft
005	ADS 7307	0.2	IJ			9:20:35	38:11:39	1.03	HHH HHH (-0.92 hop)
006	VESTA	0.5	"			11:31:27	15:27:58		HHH HHH
007	"	0.5	"		7:06			1.05	HHH HHH
008	"	0.5	"						HHH HHH 16/62st
009	"	"	K						HHH HHH 1 image Double
010	BS 4030	0.35	"		7:33	10:16:07	23:30:15	1.07	HHH HHH
011	"	"	"						HHH HHH
012	"	"	"						HHH HHH
013	Jupiter	0.05	"						HHH HHH
014	Cyrtos	0.55	"		8:19	10:40:02	9:51:51		HHH HHH

Telescope:

Frame prefix #: D192c Day of Week: sat/sun RA offset: Humdty: Sheet #: 2

Observers: Fish, Hoffing, Grady Heds Focus: Tailpiece: Balance: 0 Temp O/I: Dec offset:

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
015	Callisto	0.28	1J					←	COMP HANG IS ACTUALLY 014
016	Callisto	0.35	"						HT HT 1
017	"	"	"						HT HT 1
018	Vesta	0.35	1J			11:31:22	15:38:20		HT HT 1
019	"	"	"						HT HT 1
020	"	"	"						HT HT 1
021	"	"	"	8:45					HT HT 1
022	"	"	"						HT HT 1
023	B54050	0.35	"			10:16:06	23:30:50	1.28	HT HT 1
024	"	"	"	8:58					HT HT 1
025	"	"	"						HT HT 1
026	"	"	"						HT HT 1
027	Flat	15	15						Variac = 35
028	"	"	"						
029	"	"	"						
030	Dark	0.5	"						
031	"	"	"						

Telescope: 61"

Frame prefix #: DJ92C

Day of Week: Mon/Tue

Focus: Tailpiece:

Humidity: 62 Sheet #: 4

Observers: Hoffmann
Hicks

Date MST/UT: ~~2/14/88~~

Dec offset:

Balance: 0

Temp O/I: 34/38

Exp #	Object	Exp time	Filter slit	Counts Object/Sky	Exp start MST	RA set	Dec set	Hour-angle exp-start	Comments (P.A., seeing, Moon, clouds, etc.)
040	SAO 7973	1.0	IJ			24:49:06	24:16:14		Scattered Cirrus Fo 3673 1.01 HHT HHT
041	"	"	"						Fo 3703 1.01 HHT HHT
042	"	"	"						Fo 3713 1.01 HHT HHT
043	"	"	"						Fo 3733 HHT HHT
044	"	"	"						Fo 3773 1.01 HHT HHT
045	"	"	"				- 0:01		Fo 3573 1.01 HHT HHT
046	"	"	"						Fo 3633 1.01 HHT HHT
047	"	"	"						Fo 3653 1.01 HHT HHT
048	"	"	"						Fo 3663 1.01 HHT HHT
049	"	0.3	"			out of slit →		+ 0:18	Fo 3673 1.01 HHT HHT
050	"	0.1	"						Fo 3673 1.01 HHT HHT
051	SAO 7973	3.0	"			7:51:11	22:26:40		Fo 3673 1.04 HHT HHT
052	"	1.0	"			one smeared exp			Fo 3673 1.01 HHT HHT
053	"	0.3	"						Fo 3673 1.04 HHT HHT

