

60 inch Telescope Log
 Observer: P Berlin
 PI: Greenly, Kirshner, Hutchins
 Spectrograph: FAST
 Grating: 3002
 Date: 7/1/98
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Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	FLAT				4s	5" slit
11-20	BIAS				0s	3" slit ↓
21-30	FLAT				6s	
31-40	BIAS				0s	bin by 2
41-50	FLAT				12s	↑
51-55	N4151	12:08	+39:41	6		
56	COMP			↑		clear skies
57-58	N4151	12:08	+39:41	6	15s, 30s	
59	COMP			↑		
60-61	AGD ₂	16:01	+66:48	12	2s, 20s	
62	COMP			↑		
63-67	HD156074	17:11	+42:09	79	5s-2s	
68	COMP			↑		
69-71	p23.2998	16:45	+23:18	79	5-10s	
72	COMP			↑		
73-76	HD122547	13:59	+33:03	79	5-10s	
77	COMP			↑		seeing 2"
78-80	p30.2657	15:15	+29:47	79	10s	
81	COMP			↑		
82	N5548	14:15	+25:21	6	3m	
83	COMP			↑		
84	H244	13:21	+36:23	56	2m	bin by 2
85	COMP			↑		
86	SN1998bu	10:46	+11:50	2	10m	
87	COMP			↑		
88	SN1998ag	11:56	+55:07	2	10m	
89	COMP			↑		PA=10
90,92	10067p6310	10:10:17	+62:55:14	68	15m	oh boy, bright sky, scot left
91,93	COMP			↓		from bright k. 2 comps
94-95	brt. star	10:10	+62:55	68	1s	1 LSB @ rows 30-38

only 95 to data base
 (that is, not 94)

2 @ row 50 - em @ pix 2612
 in both images
 → CatL break @ ~4400 Å (?)

60 inch Telescope Log

Observer: PB


PI: Greenberg, Krashinsky, Huchra, & Garcia

Spectrograph: FAST

Grating: 3002

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Date: 7/1/98

Number	Object	R. A.	Dec.	L/R	Exp	Comments
96	SN 1998S	11:46	+17:28	2	15m	PA=90
97	WMP			↑		
98	1326 p2825	13:26	+28:11	79	15m	M dwarf
99	WMP			↑		
100	1326 p282	13:26	+28:11	79	10m	PA=20 
101	WMP			↑		
102, 104	SN 1998ct	15:51	+21:56	2	15m	PA=3
103, 105	WMP			↑		
106, 108	1708 m147	17:08	-14:45	79	5m	PA=3
107, 109	WMP			↑		
110-112	p83.442	15:10	+82:56	79	10s	PA=90
113	WMP			↑		
114-116	p17.3325	17:43	+17:13	79	5s	
117	WMP			↑		
118	ZM 160542.7	16:05	+16:14	68	20m	
119	WMP			↑		
120	ZM 160543.2	16:05	+16:24	68	20m	
121	WMP			↑		Finally the moon sets
122	ZM 160528.8	16:05	+14:30	68	20m	
123	WMP			↑		
124	XTE J2123.0058	21:23	-05:47	65	20m	12:45
125	WMP			↑		
126	ZM 160541.8	16:05	+15:40	68	20m	
127	WMP			↑		
128	ZM 163205.1	16:32	+18:32	68	15m	
129	WMP			↑		
130	XTE J2123.0058	21:23	-05:47	65	20m	
131	WMP			↑		
132	ZM 163205.1	16:32	+18:32	68	75m	
133	WMP			↑		

60 inch Telescope Log

Observer: PB

PI: Misc.

Spectrograph: FAST

Grating: 3W2

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Date: 7/1/98

Number	Object	R.A.	Dec.	L/R	Exp	Comments
134	2M174540.8	17:45	+23:31	68	20m	Seems 2x" wk
135	COMP			↑		
136	XTEJ2123.058	21:23	-05:47	65	20m	Seems even worse
137	COMP			↑		
138	Sagal-276	23:15	+06:42	73	12m	
139	COMP			↑		humidity ↑↑
140	Sagal-278-279	23:17	+18:42	73	15m	monsoon moisture
141	COMP			↑		creeping in!
142	XTEJ2123.058	21:23	-05:47	65	20m	Seems better
143	COMP			↑		
144	3C390.3	18:45	+79:43	6	10m	
145	COMP			↑		
146	N7331	22:34	+34:09	57	3m	
147	COMP			↑		
148	MRK335	0:03	+19:55	6	3m	
149	COMP			↑		
150	N7469	23:03	+08:52	6	2m	
151	COMP			↑		
152-153	BDP 284211	21:48	+78:37	56	30s	
154	COMP			↑		
155-156	AGP ₂₈	21:51	+12:37	17	12s, 0.5x	
157	COMP			↑		
158-159	ZAm	23:33	+48:49	12	20s, 1.5	
160	COMP			↑		
161-163	HD 17066	22:54	+6:27	56	5s	
164	COMP			↑		
165-166	CIC ₂₈	19:50	+35:41	12	30s, 1.5	
167	COMP			↑		
168-170	HD 192381	20:40	+40:07	56	5s	
171	COMP			↑		

140 278 = W } checked
 279 = E } c Battery

60 inch Telescope Log
 Observer: PB
 Pl: Green
 Spectrograph: FAST
 Grating: 3WR
 Date: 7/1/98
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Number	Object	R.A.	Dec.	L/R	Exp	Comments
172-173	Fogello	23:17	-05:26	56	90s	1.26
174	COMP			↑		
175-177	HD227075	00:01	+03:29	79	1s	clear & humid @ dawn
178	COMP			↑		
179-181	HD7561	01:16	+25:46	79	3s	
182	COMP			↑		
183-192	BIAS			0	0s	
193-202	FLAT			0	6s	
203-212	BIAS				0s	bin by 2
213-222	FLAT				12	"
223-232	DARK				20m	bin by 4
						★END of FAST Run★

★ Start of FAST Run ★

60 inch Telescope Log Observer: <u>P. Berlind</u> PI: <u>Kirshner</u>	Spectrograph: <u>FAST</u> Grating: <u>300; 3" slit</u> Date: <u>7/14/98</u>
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Number	Object	R.A.	Dec.	L/R	Exp	Comments
1	BIAS				0s	UV-Flood of ccd has degraded
2-6	DARK				15m	substantially from last run.
7-16	BIAS				0s	sensitivity down ~20%
17-26	FLAT				7s	lots of pock-mark structure
27-36	BIAS				0s	the plan is to re-flood it
37-46	FLAT				14s	later this week or next
47-48	test				1s	when the rains come back
49-54	sky	zenith		57	2s	7:44
55	COMP			r	6s	
56-57	AG Dra	16:01	+66:18	CZ	2s, 25s	Mostly clear
58	COMP			r		windy
59	N4151	12:08	+39:41	6	30s	
60	COMP			r		
61-62	BDP35264Z	15:50	+33:05	56	1m	
63	COMP			r		
65	H244	13:21	+36:23	56	2m	
66	COMP			r		
67	N4256	12:16	+47:39	6	2m	
68	COMP			r		
69	N4051	12:08	+44:48	6	2m	
70	COMP			r		
71	MRK273	13:51	+69:33	6	3m	
72	COMP			r		
73	N5548	14:15	+25:22	6	3m	
74	COMP			r		
75	SN1998bn	10:46	+11:50	Z	12m	cl=14°, sec2=4
76	COMP			r		
77,79	SN1998S	11:46	+47:28	Z	15m	
78,80	COMP			r		

60 inch Telescope Log

Observer: PB

PI: Hucha

Spectrograph: FAST

Grating: 3602

Date: 7/14/98

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
81	SN1998aq	11:56	+56:07	Z	20m	
82	COMP			↑		
83	H244	13:21	+76	6	3m	sec=1.5
84	COMP			↑		
85	ZM141617.9	14:16	+14:21	68	15m	
86	COMP			↑		seeing 2"
87	ZM141617.9	14:07	+22:50	68	12m	
88	COMP			↑		
89	ZM141617.9	14:01	+19:31	68	12m	
90	COMP			↑		
91	ZM140131.3	14:01	+20:27	68	9m	
92	COMP			↑		
93	ZM141511.9	14:15	+15:44	68	5m	
94	COMP			↑		
95	ZM141512.0	14:15	+14:28	68	15m	Moon's up
96	COMP			↑		seeing better!
97	ZM163931.0	16:39	+20:40	68	8m	clear skies!
98	COMP			↑		
99	ZM163215.0	16:32	+22:48	68	9m	to to W
100	COMP			↑		
101	ZM170010.9	17:00	+18:19	68	9m	
102	COMP			↑		
103	ZM163213.7	16:32	+23:49	68	8m	Sy 9
104	COMP			↑		
105	ZM163201.6	16:32	+21:50	68	12m	good cz
106	COMP			↑		
107	ZM170004.0	17:00	+18:26	68	20m	em!
108	COMP			↑		
109	ZM165918.0	16:59	+23:23	68	12m	
110	COMP			↑		

11.
11

60 inch Telescope Log				Spectrograph: <u>FAST</u>		Page: <u>6418</u>
Observer: <u>PB</u>				Grating: <u>302</u>		
PI: <u>Huchra & McClintock</u>				Date: <u>7/14/98</u>		
Number	Object	R.A.	Dec.	L/R	Exp	Comments
111	ZM 165932.2	16:59	+23:04	68	12m	faint comp to W; please try to get
112	COMP			↑		
113	ZM 165958.3	16:59	+22:32	68	15m	
114	COMP			↑		
115	ZC 390.3	18:45	+79:43	6	11m	
116	COMP			↑		
117	COMP			↓	10s	1.1" slit ↓
118, 119	4U 1907.09	19:09	+09:49	77	15m	
120	COMP			↑	10s	
121-123	HD 230599	19:01	+11:01	77	20s	
124	COMP			↑		
125-126	CIC 49	19:50	+75:41	6	20, 15	3" slit ↓
127	COMP			↑		
128	ZM 225918.6	22:59	+25:59	68	5m	
129	COMP			↑		
130	ZM 225907.8	22:59	+28:56	68	6m	
131	COMP			↑		
132	ZM 225815.3	22:58	+24:09	68	6m	
133	COMP			↑		
134	ZM 225843.1	22:58	+28:05	68	7m	
135	COMP			↑		
136	ZM 225913.1	22:59	+29:41	68	8m	
137	COMP			↑		
138	ZM 225756.5	22:57	+26:06	68	7m	* to W
139	COMP			↑		
140	ZM 225825.0	22:58	+26:10	68	5m	
141				↑		

111 - extracted: W object - velocity no good
waste of time

60 inch Telescope Log
 Observer: PB
 PI: Huchra/Kirshner
 Spectrograph: FAST
 Grating: red
 Date: 7/14/98
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Number	Object	R.A.	Dec.	L/R	Exp	Comments
142	ZM225701.0	22:57	+26:01	68	7m	
143	COMP			↑		
144	ZM225909.6	22:59	+26:32	68	8m	
145	COMP			↑		
146	SN1998cu	23:59	+46:52	2	20m	v. faint → 18 ⇒ SN!
147	COMP			↑		
148-149	ZAD	23:33	+48:49	6	25s, 1s	
150	COMP			↑		windy
151	ZM225932.7	22:59	+28:57	68	7m	
152	COMP			↑		
153	MRK335	00:3	+19:55	6	3m	
154	COMP			↑		
155	NTM69	23:03	+08:52	6	3m	
156	COMP			↑		
157-158	AGPeg	21:51	+12:37	12	6, 15s	
159	COMP			↑		
160	MRK509	20:41	-10:54	6	3m	
161	COMP			↑		
162-164	Uranus	20:56	-17:58	57	1s	
165	COMP			↑		
166-168	Neptune	20:42	-19:35	57	3s	
169	COMP			↑		clear; windy @ dawn
170-171	NT331	22:54	+34:09	56	3m	
172	COMP			↑		
173-176	CHCy3	19:24	+50	6	1s-10s	
177	COMP			↑		
178-180	FID192281	20:10	+40:07	56	15s	
181	COMP			↑		
182-183	BDP28421	21:48	+28:47	56	40s	
184	COMP					

175 saturated??

60 inch Telescope Log
 Observer: P. Berline
 PI: Wilkes & Kivshner
 Spectrograph: FAST
 Grating: 3002, 3" slit
 Date: 7/15/98
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Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-5	DARK				15m	
6-15	BIDS				0s	
16-25	FLAT				7s	
26-35	BIDS				0s	bin by 2
36-45	FLAT				14s	
46-50	sky	zenith		S7	2s	
51	COMP			↑		clouds to S+E
52-53	AG Dra				2s, 25s	clear to W!
54	COMP					
55	N 4151				30s	
56	COMP					
57-58	BDp 332042	15:50	+33:05	S6	1m	
59	COMP			↑		
60	N 5846	16:03	+01:47	S7	2m	
61	COMP			↑		
62	N 5548	14:15	+25:22	6	3m	
63	COMP			↑		
64	MRK 421	11:01	+38:28	6	5m	
65	COMP			↑		
66-67	H 244	13:21	+36:23	S6	2m	bin by 2
68	COMP			↑		
69	MRK 271	13:51	+69:33	6	3m	
70	COMP			↑		
71	SBS 1425p606	14:25	+60:39	6	12m	
72	COMP			↑		
73	SN 1997eg	13:11	+22:55	2	20m	7 months on this one
74	COMP			↑		
75	MCG 9-11m19	15:18	+65:45	S7	5m	NOT A GOOD STD.
76	COMP			↑		em lines are double

60 inch Telescope Log

Observer: PB
 PI: Huchra

Spectrograph: FAST
 Grating: 3WL
 Date: 7/15/98

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
77	CGCG319.007	15:18	+65:46	57	5m	
78	COMP			↑		Seeing 2.5"
79	ZM1401253	14:01	+19:31	68	6m	
80	COMP			↑		
81	ZM1410163	14:10	+19:39	68	7m	
82	COMP			↑		
83	ZM140137.3	14:01	+20:37	68	12m	
84	COMP			↑		
85	ZM141512.1	14:15	+14:28	68	12m	
86	COMP			↑		
87	ZM1413334	14:13	+16:07	68	15m	
88	COMP			↑		
89	ZM1410331	14:10	+19:09	68	15m	
90	COMP			↑		
91	ZM1410494	14:10	+17:52	68	10m	
92	COMP			↑		
93	ZM172157.7	17:21	+22:41	68	8m	bright to W; bright sky
94	COMP			↑		
95	ZM162844.0	16:28	+22:49	68	12m	Seeing better
96	COMP			↑		
97	ZM163919.5	16:39	+20:44	68	12m	clouds in E
98	COMP			↑		
99	ZM171452.2	17:14	+22:34	68	12m	6m by 2 close E-W pair
100	COMP			↑		W is a star (M)
101	ZM165918.0	16:59	+21:07	68	12m	
102	COMP			↑		moon's up
103	ZM165905.7	16:59	+18:32	68	12m	
104	COMP			↑		
105	ZM163202.8	16:32	+20:41	68	20m	
106	COMP			↑		

1657 v=13400 z=0.045

60 inch Telescope Log
 Observer: PB
 PI: Huchra & Krashner & Kanyon
 Spectrograph: FAST
 Grating: 3WR
 Date: 7/15/98
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Number	Object	R.A.	Dec.	L/R	Exp	Comments
107	ZM162843.0	16:28	+22:23	68	15m	
108	COMP			↑		
109	ZM165914.8	16:59	+22:00	68	10m	
110	COMP			↑		
111	ZM170021.4	17:00	+23:07	68	12m	
112	COMP			↑		increasing clouds
113	ZM171447.7	17:14	+20:41	68	12m	
114	COMP			↑		
115	ZM171440.2	17:14	+18:29	68	12m	
116	COMP			↑		
117	SN1998co	21:47	-13:11	2	20m	10m stopped by clouds
118	COMP			↑		2am
119-121	HD197201	20:20	+40:07	56	6s	
122	COMP			↑		mostly big clouds
123-125	CI C ₄₂	19:50	+35:41	12	15-35s	
126	COMP			↑		
127-130	CH C ₄₂	19	750	12	15s	
131	COMP			↑		
132-133	V1057 C ₄₂	20:57	+44:03	12	20s, 3m	
134	COMP			↑		
135-136	V1515 C ₄₂	21:45	+47:18	12	3m/1m	
137	COMP			↑		mostly cloudy
138-140	PG Key	21:51	+42:37	12	1s, 15s, 10s	good sucker hole
141	COMP			↑		
142	ZM194230.9	19:29	+20:47	68	3m/1m	planetary nebula
143	COMP			↑		
144	ZM191802.4	19:18	+18:34	68	10m	crowded field galaxy? +2
145	COMP			↑		a few objects in sbt
146	SN1998co	21:47	-13:10	2	20m	clearing some
147	COMP			↑		10m w/ stopped again!

60 inch Telescope Log

Observer: PB

PI: All

Spectrograph: FAST

Grating: 300R

Date: 7/15/98

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Number	Object	R. A.	Dec.	L/R	Exp	Comments
148	ZM225844.4EW	22:58	424:38	68	12m	binby2; E+W comps
149	COMP			↑	11m	Stopped again
150-159	BIAS				0s	Solid clouds ☹
160-169	FLAT				7s	
170-179	BIAS				0s	
180-189	FLAT				14s	
190-194	DARK				15m	
195	Comp		late exp??			

60 inch Telescope Log

Observer: Calkins

PI: Al, Kirschner, Huchra

Spectrograph: FAST

Grating: 300L

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Date: 7/16/98

Number	Object	R. A.	Dec.	L/R	Exp	Comments
1	DARK				15m	Binby 4
2-6	sky	zenith		57	4s	↓
7	comp			↑	6s	
8-17	BIAS				0s	Binby 4
18-27	FLAT				6s	↓
28-37	BIAS				0s	Binby 2
38-47	FLAT				12s	↓
48	AG Dra	16 01	66 48	#12	2s	Binby 4
49	comp			↑		↓
50	AG Dra	16 01	66 48	#12	20s	
51	comp			↑		
52	N4151	12 10	39 24	#6	30s	
53	comp			↑		
54	N4258	12 18	47 18	#6	2m	
55	comp			↑		
56	MRK 279	13 53	69 18	#6	3m	
57	comp			↑		
58	N5348	14 17	25 08	#6	3m	
59	comp			↑		
60, 61	SN 1998S	11 46	47 28	#2	15, 13m	Binby 2, clouds toward
62	comp			↑		Alexey's 11hr gal
63, 64	HD 192281	20 12	40 16	#56	4s	decreased 2nd exp due
65	comp			↑		to clouds. (galaxy
66	211200719.7, 22	20 07	22 49	#68	6m	to the west)
67	comp			↑		wx deteriorating
	(Closed for about an hour due to wx.)					binby 4, bright object to west, shortened exposure for wx.
68	211200719.7, 22	20 07	22 49	#68	10m	(re-do for wx)
69	comp			↑		bright object to west

Files 66 + 68 were greatly obscured by clouds

(wx = weather)

60 inch Telescope Log

Observer: CALKINS

PI: All, Huchra

Spectrograph: FAST

Grating: 500L

Date: 7/17/98

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7/17/98
(be)

Number	Object	R.A.	Dec.	L/R	Exp	Comments
	(Had to close again for wx.)					
70	MRK 509	20 44	-10 43	#6	3m	sucker hole ?!
71	comp			↑		
72	N7469	23 03	8:53	#6	2.5m	object to east
73	comp			↑		
74	N7331	22 37	34 25	#57	3m	
75	comp			↑		
76	DM230428.2p27	23 04	27 21	#68	5m	
77	comp			↑		
78	DM230429.3p29	23 07	29 55	#68	3m	
79	coma			↑		
80-89	Bias				0s	Tried to get Alamy's
90-99	FLAT				7s	2nd gal but cloudy
100-109	Bias				0s	wouldn't cooperate!
110-119	FLAT				14s	
120-129	DARK				15m	

60 inch Telescope Log			Spectrograph: <u>FAST</u>		Page: <u>6427</u>	
Observer: <u>CALKINS</u>			Grating: <u>300L</u>		Date: <u>7/17/98</u>	
PI: <u>All, Kirchner, Scott</u>						
Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	DARK					Binby 4
11-20	BIAS				0s	
21-30	FLAT				7s	
31-40	BIAS				0s	Binby 2
41-50	FLAT				14s	
51-60	FLAT				25s	Binby 4, 1.1" slit
61-65	sky			S7	2s	3" slit (7:45 pm)
66	comp			↑	7s	Big cell just west
67, 68	AG Dra	16 01	66 48	#12	2, 25s	
69	comp			↑		
70	PG1708p602	17 09	60 09	#56	5m	
71	comp			↑		
72	NS 866	15 06	55 45	#57	3m	dust lane
73	comp			↑		
74	N1051	12 03	44 32	#6	4m	doubled exp time
75	comp			↑		for clouds
76	MRK 279	13 53	69 18	#6	4m	
77	comp			↑		
78	NS 548	14 17	25 08	#6	3m	
79	comp			↑		
80	SN1998aq	11 56	55 08	#2	10m	binby 2, galaxy to ea
81	comp			↑		
82, 83	Feige 66	12 37	25 03	#56	30s	Note: tried to get
84	comp			↑		Alexy's gal #1 a
85	MRK 501	16 53	39 45	#6	5m	couple of times hit
86	comp			↑		wx interfered
87	comp			↓	10s	1.1" slit
88, 89	4U1907p09	19 09	09 49	#77	20m	(in aout of clouds
90	comp			↑		stopped exp numer
91, 92	HD 230579	19 04	11 05	S77	10, 20s	times)

60 inch Telescope Log

Observer: CALKINS

PI: McClintock, Huebra

Spectrograph: FAST

Grating: 300L

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Date: 7/17/98

Number	Object	R.A.	Dec.	L/R	Exp	Comments
93	comp			↑		
94,95	CIGy	19 50	35 40	#12	1,30s	
96	comp			↑		
97	DM183908.lpl	18 39	16 23	#68	20m	objects to east-west
98	comp			↑		clouds present
99	24192255.6p2	19 22	20 17	#68	15m	$\alpha = 15^\circ (75^\circ)$ to west
100	comp			↑		object to west
101	DM191702.lp2	19 17	23 31	#68	15m	●● ← double object
102	comp			↑		
103	sr96013.053	22 46	11 15	#59	15m	clouds
104	comp			↑		
105	sr96013.054	22 46	11 01	#59	10m	object to west
106	comp			↑		
107	sr96013.055	22 46	11 57	#59	10m	
108	comp			↑		clouded out hole!
109	sn1998co	21 47	-13 10	#2	15m	binby 2, star to west
110	comp			↑		
111	2247p0337	22 47	3 38	#80	20m	
112	comp			↑		
113,114	AGPeg	21 51	12 38	#12	6,12s	
115	comp			↑		
116,117	zAnd	23 33	48 49	#12	2,30s	
118	comp			↑		
119	M7469	23 03	8 52	#6	2.5m	star to east
120	comp			↑		
121	HD217086	22 56	62 43	#56	4s	
122	comp			↑		
123	N7331	22 37	34 24	#57	4m	
124	comp			↑		

99 STAR (also there is a star to W)
 101 - very difficult to separate - but both are probably stars
 NOT sure if separated very well (extracted 5 trace)

60 inch Telescope Log
 Observer: Calkins
 PI: All, Alexey, Kirchner,

Spectrograph: FAST
 Grating: 300L
 Date: 7/18/98

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	DAIK				15m	Binby 4
11-20	BIAS				0s	
21-30	FLAT				7s	
31-40	BIAS				0s	Binby 2
41-50	FLAT				14s	
51-55	sky			57	2s	Binby 4
56	comp			↑		
57,58	AGDra	16 01	66 48	#12	2,25s	
59	comp			↑		
60	WY151	12 10	39 24	#6	30s	
61	comp			↑		
62	N4258	12 18	47 18	#6	2m	
63	comp			↑		
64	MRK279	13 53	69 18	#6	3m	
65	comp			↑		
66	N5548	14 17	25 07	#6	3m	
67	comp			↑		
68	H244	13 23	36 08	#56	2m	
69	comp			↑		
70,71	1138p OS15	11 38	3 16	#80	20m	Caught it!!
72	comp			↑		
73	sn1997eg	13 11	22 55	#2	15m	star to east (Binby 2)
74	comp			↑	14s	
75	sn1998cs	16 30	41 13	#2	20m	
76	comp			↑		
77	sn1998bp	17 54	18 19	#2	20m	very faint
78	comp			↑		
79	PG1708p602	17 09	60 10	#56	6m	clouds returning
80	comp			↑		(1hr delay for wx)
81	nrqs388.001	16 15	57 57	#59	10m	Binby 4

60 inch Telescope Log Observer: <u>GALKINS</u> PI: <u>Mahdavi, Alexey, Kenyon, Tucker</u>	Spectrograph: <u>FAST</u> Grating: <u>300L</u> Date: <u>7/18/98</u>
Page: <u>6/31</u>	

Number	Object	R.A.	Dec.	L/R	Exp	Comments
82	comp			↑		
83	nrp388.002	16 16	37 55	#59	15m	Clouded out
84	comp			↑		(w/2.5hr delay for wx)
85	2247p0337	22 47	3 37	#80	20m	low counts
86	comp			↑		
87, 88	CICy9	19 50	35 41	#12	1,20s	
89	comp			↑		
90, 91	AG Peg	21 51	12 37	#12	2,12s	
92	comp			↑		
93, 94	zAnd	23 33	48 49	#12	2,30s	
95	comp			↑		
96	N7469	23 03	8 52	#6	2.5m	star to east
97	comp			↑		
98	2M230009.2p	23 00	24 21	#68	12m	
99	comp			↑		
100	2M230324.5p	23 03	24 36	#68	7m	
101	comp			↑		
102	2M234149.2p	23 41	27 42	#68	8m	
103	comp			↑		
104	2M230458.3p	23 05	27 21	#68	7m	
105	comp			↑		
106	2M235845.7p	23 58	26 55	#68	5m	
107	comp			↑		
108	2M235842.2p	23 58	28 05	#68	7m	
109	comp			↑		
110	HD217086	22 56	62 43	#56	10s	
111	comp			↑		
112	N7331	22 37	34 24	#57	3m	
113	comp			↑		
114-123	BIAS				0s	

60 inch Telescope Log

Observer: P. Barlow
 PI: Scott

Spectrograph: FAST
 Grating: 300, 3" slit
 Date: 7/19/98

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
10	DARK				15m	
11-20	BTAS				0s	
21-30	FLAT				7s	
31-40	BTAS				0s	lots of rain; SB; hail
41-50	FLAT				14s	
46-48	HDX 92201	20:		SG	6s	
49	COMP			↑		
50-51	DDP 28421	21:48	+2852	SG	2m	
52	COMP			↑		
53	MRK 509	20:11	-10	6	3m	
54	COMP			↑		
55	Starb 03036	22:46	+11:11	SG	10m	Sm stopped by clouds
56	COMP			↑		Hx-wk
57-58	CHC 78	19:50	+38:41	12	20, 45s	
59	COMP			↑		
60-62	CHC 78	19:35	+50	12	1, 10s	
63	COMP			↑		stopped for good - clouds
64-73	BTAS				0s	
74-83	FLAT				7s	
						ok. led drained.
						warm-up for new UV-flod

38,500 km/sec
 z = .13

60 inch Telescope log

Observer: Pberlme

PI: Andi

Spectrograph: FAST

Grating: 300

Page: 6434

Date: 7/20/98

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	BIAS				0s	*New UV-Flood for CCD*
11-20	FLAT				6s	high dark current
21-22	BDp332042	15:50	+37:05	56	1m	last 400 pixels
23	COMP			↑		took 1500 test exposures
24	MCG5-38-603	16:16	+37:56	59	8m	today to read it out
25	COMP			↑		still there
26	SNPFBcs	16:30	+41:12	2	20m	→ 7m stopped by clouds
27	COMP			↑		
28	SNPFBcs	"	"	2	20m	→ 10m "
29	COMP			↑		
30	BDp332042	15:50	+37:05	56	90s	
31	COMP			↑		
32-33	AGDra	16:01	+66:48	12m	2x20s	
34	COMP			↑		
35	M5548	14:45	+26:22	6	3m	
36	COMP			↑		
37	MCG5-38-604	16:16	+37:40	59	5m	
38	COMP			↑		
39	OD5	16:16	+38:01	59	5m	
40	COMP			↑		
41	OD6	16:16	+38:17	59	7m	em
42	COMP			↑		
43	OD7	16:16	+37:51	59	9m	
44	COMP			↑		
45	OD8	16:17	+38:02	59	6m	
46	COMP			↑		
47	OD9	16:18	+38:18	59	4m	
48	COMP			↑		
49	OD2	16:19	+37:51	59	6m	
50	COMP			↑		

VELOCITY OBSERVATIONS CUT OFF AT PIXEL 2000
(~ 6550 Å) DUE TO UNREMOVED HIGH DARK COUNT

60 inch Telescope Log

Observer: PB
 PI: And

Spectrograph: FAS
 Grating: 300
 Date: 7/20/98

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Number	Object	R. A.	Dec.	L/R	Exp	Comments
51	Mr 5358.43	16:19	+3729	59	10m	
52	COMP			↑		
53	.014	16:19	+3705	59	5m	
54	COMP			↑		
55	.015	16:19	+3707	59	10m	clouds... wbc; em!
56	COMP			↑		
57	.016	16:19	+3805	59	10m	
58	COMP			↑		
59	.019	16:19	+3718	59	6m	
60	COMP			↑		stopped by clouds
61/62	COMP	19:50	+3541	12	15, 20s	SS to NE
63	COMP			↑		
64	2M190758.1	19:07	+3208	68	5m	
65	COMP			↑		
66	2M192759.9	19:27	+3355	68	7m	multiple objects in slit
67	COMP			↑		gal in middle
68-77	BIPS			0	0s	solid clouds + SS
78-87	FLAT			0	6s	
88-97	BIPS			0	0s	bm by 2
98-107	FLAT			0	12s	"
108-110	DARK				10m	bm by 4
111	2M192905.2	19:29	+3222	68	8m	try again... * to W + EW
112	COMP			↑		
113	2M192755.5	19:27	+3216	68	8m	to's E+W
114	COMP			↑		
115	2M191246.1	19:12	+2215	68	10m	→ 9m clouds
116	COMP			↑		

60 inch Telescope Log

Observer: P. Berlind

PI: Huchra & Kirshner

Spectrograph: FAST

Grating: 3002

Date: 7/21/98

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Number	Object	R. A.	Dec.	L/R	Exp	Comments
110	DARK				20m	lots of rain + clouds
11-20	BIAS				0s	(run test exposures)
21-30	FLAT				6s	
31-35	HDX 92081	20:40	+40:07	56	6s	
37	COMP			↑		
35-36	CIC 927	19:50	+35:41	17	-	sucker hole; close
37	COMP			↑		
38-39	DARK				20m	DARK current down from earlier NOT ENOUGH
40-41	CIC 927	19:50	+35:41	17	4s, 10s	
42	COMP			↑		hole in clouds
43-44	AG 927	21:51	+12:37	17	0.5s, 1.5s	↓ to W+S
45	COMP			↑		
46	2M191617.7	19:16	+23:52	68	15m	*'s to E+W
47	COMP			↑		
48	2M192901.7	19:29	+32:16	68	10m	*'s to E+W
49	COMP			↑		many objects on list are stars not observed
50	2M193056.2	19:30	+34:09	68	11m	*'s to E+W
51	COMP			↑		
52	SN1998co	20:44	-13:24	2	20m	
53	COMP			↑		more clouds
54-55	BD 284211	21:48	+28:37	56	7m + 5m	
56	COMP			↑		clouds
57	2M225839.4	22:58	+24:39	68	5m	
58	COMP			↑		
59	2M225934.7	22:59	+24:22	68	6m	
60	COMP			↑		
61	2M225903.0	22:59	+26:19	68	6m	
62	COMP			↑		

NOTE

VELOCITY OBSERVATIONS FOR THIS NIGHT WERE CUT AT PIXEL 2000 (λ 6500 Å) BECAUSE OF HIGH DARK COUNT ON RED END.

7 OBSERVATIONS INVOLVED - ALL 2MASS

60 inch Telescope Log
 Observer: CAULKINS
 PI: Kirshner
 Spectrograph: FAST
 Grating: 300L
 Date: 7/22/98
 Page: 6439

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-3	Dark				15m	Binby 4
4-13	Bias				0s	
14-23	Flat				6s	
24-33	Bias				0s	
34-43	FLAT				12s	Haze - Clouds at sunset
44	sn1998cs	16 30	41 12	2	20m	partial hole, Binby 2
45	comp			↑		
46	BDp404032	20 08	41 14	#56	3m	fog moving in from summit, humidity rising
47	comp			↑		
						Clouded - out
48-57	Bias				0s	Binby 4
58-67	FLAT				6s	
68-77	Bias				0s	Binby 2
78-87	FLAT				12s	
88-97	DARK				15m	

60 inch Telescope Log
 Observer: CALKINS
 PI: Al, Kirschner, Huchra, Mahdavi
 Spectrograph: FAST
 Grating: 300L
 Date: 7/23/98
 Page: 6440

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	DARK				15m	Binby 4
11-20	BEARS				0s	↓
21-30	FLAT				6s	
31-40	BEARS				0s	Binby 2
41-50	FLAT				12s	
51-55	sky			57	3s	(7:44 pm)
56	comp			↑		
57	Feige 98	14 38	27 29	#56	3m	in & out of clouds
58	comp			↑		
59	W5548	14 17	25 07	#6	5m	
60	comp			↑		
61	MRK 501	16 53	39 45	#6	5m	star to the east
62	comp			↑		
63	sn 1998S	11 46	47 29	#2	40m	had to abort for clouds, Binby 2
64	comp			↑		
65	PG 1708 p 602	17 09	60 10	#56	7m	
66	comp			↑		
67	sn 1998S	11 46	47 29	#2	15m	give it another shot!
68	comp			↑		
69	NGC 388.020	16 19	37 34	#59	20m	lightening clouds star to the west
70	comp			↑		
71	NGC 388.021	16 19	38 14	#59	20m	
72	comp			↑		
73	NGC 388.022	16 19	37 46	#59	11m	dome closed automatic
74	comp			↑		
75	2M 200758.2p	20 07	18 03	#68	8m	star *
76	comp			↑		
77	2M 200653.3p	20 06	21 29	#68	20m	bright star to west
78	comp			↑		
79	2M 200717.9p	20 07	17 54	#68	20m	bright star to west

77 M^KE extracted 77 + 78(E)

60 inch Telescope Log				Spectrograph: <u>FAST</u>		Page: <u>6441</u>
Observer: <u>CALKINS</u>				Grating: <u>300L</u>		
PI: <u>Huchra, Kenyon, All</u>				Date: <u>7/23/98</u>		
Number	Object	R.A.	Dec.	L/R	Exp	Comments
80	comp			↑		
81	2M200721.8p	20 07	21 28	#68	15m	Dome auto-closed * star
82	comp			↑		3rd time in a row. Humidity > 95%
83, 84	AG Peg	21 51	12 27	#12	2, 12s	
85	comp			↑		
86, 87	2And	23 33	48 49	#12	2, 20s	
88	comp			↑		
89	2M230551.9p	23 05	28 04	#68	15m	* star
90	comp			↑		
91	2M235842.2p	23 58	28 05	#68	12m	
92	comp			↑		
93	HD217086	22 56	62 43	#56	20s	
94	comp			↑		
95-104	BIAS				0s	
105-114	FLAT				60s	
115-124	BIAS				0s	Binby 2
125-134	FLAT				12s	
135-144	DARK				15m	Binby 2

60 inch Telescope Log

Observer: CALKINS

PI: All, Kirshner, Huchra

Spectrograph: FAST

Grating: 300L

Page: 6442

Date: 7/21/98

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	DARK				15m	Binby 4
11-20	BIAS				0s	↓
21-30	FLAT				6s	
31-40	BIAS				0s	Binby 2
41-50	FLAT				12s	↓
51-55	sky			57	2s	(7:42 pm)
56	comp			↑		
57	H244	13 23	36 08	#56	3m	
58	comp			↑		
59	N4151	12 10	39 24	#6	2m	
60	comp			↑		
61	N4051	12 03	44 32	#6	3m	
62	comp			↑		
63	N4258	12 18	47 18	#6	2m	
64	comp			↑		
65	MRK 421	11 04	38 12	#6	4m	
66	comp			↑		
67, 68	SN1998S	11 46	47 29	#2	20m	galaxy to west,
69	comp			↑		Binby 2
70, 71	Feige 66	12 37	25 03	#56	30s	
72	comp			↑		
73	MRK 279	13 53	69 18	#6	3m	Binby 4
74	comp			↑		
75	NG 866	15 06	55 45	#57	3m	Dust Lane
76	comp			↑		
77	2M163229.9p	16 32	19 07	#68	20m	Binby 2. for separation
78	comp			↑		from object to east
79	2M170714.0p19	17 07	19 40	#68	20m	object to east, binby 4
80	comp			↑		
81	2M170717.5p	17 07	23 55	#68	20m	

60 inch Telescope Log				Spectrograph: <u>FAST</u>		Page: <u>6443</u>
Observer: <u>CALKINS</u>				Grating: <u>300L</u>		
PI: <u>Nachra, McClintock, Kanyon, Hong</u>				Date: <u>7/24/98</u>		
Number	Object	R.A.	Dec.	L/R	Exp	Comments
82	comp			↑		
83	2M170025.5p	17 00	23 06	#68	20m	
84	comp			↑		
85, 86	AG Dra	16 01	46 47	#12	2, 20	
87	comp			↑		
88	comp			↓		1.1" slit
89, 90	4U1907p09	19 09	09 49	#77	20m	bumped-up exposures for here
91	comp			↑		
92, 93	HD230579	19 04	11 06	#77	10, 20s	
94	comp			↑		
95, 96	CICyg	19 50	35 41	#12	1, 30s	3" slit
97	comp			↑		
98	2M190737.6p	19 07	19 27	#68	20m	bright star to west *
99	comp			↑		
100	2M192429.0p	19 24	19 39	#68	7 m	one star to east * (object itself is a star)
101	comp			↑		
102	2M192112.3p	19 21	21 37	#68	5 m	*
103	comp			↑		
104	2M192257.9p	19 22	18 04	#68	20 m	* star
105	comp			↑		
106	2M191421.3p	19 14	19 29	#68	20 m	objects to east + west (• • •)
107	comp			↑		
108	2M193042.7p	19 30	33 36	#68	15m	2 objects east, 3 objects west
109	comp			↑		
110	2M200726.6p	20 07	22 59	#68	20m	3 objects east, poor SNR
111	comp			↑		
112	2M2007142.0p	20 07	19 17	#68	20m	1 object east, 2 objects west
113	comp			↑		
114	2247p0337	22 47	03 36	#80	20m	
115	comp			↑		

110 - probably 2 objects almost on top of each other
needs to be binmed by 2

60 inch Telescope Log
 Observer: CALKINS
 PI: Kirshner, All, Huchra, Kenyon
 Spectrograph: FAST
 Grating: 3006
 Date: 7/24/98
 Page: 6444

Number	Object	R.A.	Dec.	L/R	Exp	Comments
116	sn1998de	00 48	27 38	#2	20m	Galaxy to West,
117	comp			↑		Binby 2
118	Feige 110	23 19	-05 09	#56	90s	
119	comp			↑		
120	MRK 509	20 44	-10 43	#6	3m	Binby 4
121	comp			↑		
122	N7469	23 03	08 53	#6	2.5m	Bright star to east
123	comp			↑		
124	N7331	22 36	34 24	#57	3m	
125	comp			↑		
126	2M230245.9p	23 02	27 45	#68	12m	Clearly a star - <i>check on</i> galaxy to east <i>Binby 2?</i>
127	comp			↑		
128	2M230413.9p2	23 04	26 56	#68	5m	
129	comp			↑		
130	2M234216.5p	23 42	28 11	#68	4m	AGN!!
131	comp			↑		
132	2M215837.8p	23 58	28 50	#68	6m	Object to the West
133	comp			↑		
134	2M230030.6p2	23 00	24 29	#68	4m	
135	comp			↑		
136	2M230418.2p	23 04	27 38	#68	4m	
137	comp			↑		
138,139	AG Peg	21 51	12 37	#12	6,12s	
140	comp			↑		
141,142	ZAnd	23 33	48 49	#12	2,30s	
143	comp			↑		
144-153	BIAS				0s	
154-163	FLAT				6s	
164-173	FLAT				8s	1.1" slit
174-183	BIAS				0s	BINBY 2, 3" slit

184-193 FLAT
 194-203 Dark

126 is a STAR. EXTRACTED ~~OBJECT~~ GALAXY TO EAST AS FILE 127.

LOTS OF 2M objects are stars W H4 2, 23

60 inch Telescope Log
 Observer: P. Berlin
 PI: Huchra
 Spectrograph: FAST
 Grating: 3002
 Date: 7/25/98
 Page: 6445

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	DARK				15m	
11-12	DARK				20m	bin by 2
13-22	BINS					
23-32	FLAT					
33-42	BINS					scattered clouds
43-52	FLAT					
53-57	SKY			S	2s	
58	WMP			↑		
59-60	AGDs	16:01	+66:48	12	2s, 20x	
61	WMP			↑		
62-63	BDP371672	15:50	+33:08	S6	1m	
64	WMP			↑		seeing 2"
65	N418	12:08	+39:41	f	30s	
66	COMP			↑		
67	N5548	14:25	+25:72	f	3m	
68	WMP			↑		
69	H244	13:21	+36:23	S6	2m	
70	WMP			↑		
71	MRK271	13:51	+69:33	6	3m	
72	COMP			↑		
73	SBS1425p06	14:25	+60:39	6	10m	
74	WMP			↑		
75	2M11457.1	14:14	+12:42	68	5m	nice one
76	COMP			↑		
77	2M11616.8 S	14:16	+14:28	68	8m	S comp nice
78	COMP			↑		
79	2M11616.8 N	14:16	+14:28	68	9m	N comp ok
80	WMP			↑		
81	2M11426.2	14:14	+12:37	68	10m	em
82	WMP			↑		

60 inch Telescope Log

Observer: PB

PI: Huchra & Andri

Spectrograph: FAST

Grating: 300R

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Date: 7/25/98

Number	Object	R.A.	Dec.	L/R	Exp	Comments
83	ZM141139.0	14:11	+16:27	68	5m	
84	COMP			↑		
85	ZM141629.8	14:16	+15:22	68	5m	sup * all * *
86	COMP			↑		
87	ZM141340.8	14:13	+19:53	68	9m	
88	COMP			↑		
89	ZM141019.5	14:10	+21:46	68	8m	ok
90	COMP			↑		
91	ZM141440.5	14:14	+17:13	68	6m	
92	COMP			↑		
93	ZM14106.6	14:16	+13:07	68	9m	
94	COMP			↑		
95	ZM163207.2	16:32	+22:03	68	7m	
96	COMP			↑		
97	ZM163917.5	16:39	+20:28	68	7m	* to W weak; cm!
98	COMP			↑		
99	ZM171421.6	17:14	+19:36	68	15m	* to W high ca
100	COMP			↑		
101	ZM163207.4	16:32	+21:46	68	20m	ok high ca
102	COMP			↑		
103	ZM170735.6	17:07	+21:58	68	15m	
104	COMP			↑		
105	ZC3903	18:45	+71:43	6	11m	
106	COMP			↑		
107	nrqs 388.015	16:19	+57:01	59	5m	(also obs 7/20/98)
108	COMP			↑		
109	OBJ	16:19	+57:22	59	5m	
110	COMP			↑		
111	OBJ	16:20	+57:35	59	12m	
112	COMP			↑		

60 inch Telescope Log

Observer: PB
 PI: Andri Kluhne

Spectrograph: FAST
 Grating: 302
 Date: 7/25/98

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
113	NGC 388025	16:20	+37:47	S9	4m	
114	COMP			↑		
115	021	16:20	+37:33	S9	4m	
116	COMP			↑		
117	031	16:21	+38:09	S9	4m	
118	COMP			↑		
119	032	16:21	+38:10	S9	5m	
120	COMP			↑		
121	033	16:21	+37:10	S9	6m	
122	COMP			↑		
123	034	16:21	+37:59	S9	3m	
124	COMP			↑		
125	035	16:21	38:27	S9	9m	
126	COMP			↑		clouds to N+E
127	036	16:22	+37:23	S9	4m	
128	COMP			↑		
129	037	16:22	+37:59	S9	10m	* to E em
130	COMP			↑		
131	038	16:22	+37:50	S9	5m	
132	COMP			↑		
133	2M190059.4	19:00	+20:43	68	20m	ok
134	COMP			↑		
135	2M190036.3	19:00	+18:24	68	20m	*'s to W em
136	COMP			↑		
137	2M193003.6	19:30	+34:09	68	12m	
138	COMP			↑		
139-140	CCUg	19:50	+38:41	12	15,328	
141	COMP			↑		
142-143	BDp281211	21:48	+28:37	56	30s	30
144	COMP			↑		

60 inch Telescope Log

Observer: PBS

PI: Huchra/Kirshner

Spectrograph: FAST

Grating: 300

Date: 7/25/98

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Number	Object	R. A.	Dec.	I/R	Exp	Comments
145	MRK509	20:41	+10:54	6	3m	
146	COMP			↑		
147	ZM225941.5	22:59	+24:04	68	15m	Wcom; k to far E
148	COMP			↑		
149	ZM225852.2	22:58	+26:01	68	6m	em also obs 7/21/98
150	COMP			↑		
151	ZM225946.2	22:59	+27:33	68	6m	
152	COMP			↑		
153	ZM225720.9	22:57	+26:04	68	5m	
154	COMP			↑		
155	ZM225724.7	22:57	+27:14	68	5m	
156	COMP			↑		
157	ZM225826.0	22:58	+26:14	68	5m	
158	COMP			↑		
159	ZM225843.6	22:58	+26:01	68	7m	6m by Z comp to W
160	COMP			↑		both weak (faint)
161	ZM225758.7	22:57	+26:07	68	6m	
162	COMP			↑		
163	ZM225942.8	22:59	+28:06	68	7m	ok!
164	COMP			↑		
165	SN1998dh	22:11	+04:32	2	10m	good one!
166	COMP			↑		
167,8	Ferguson	23:17	+06:26	56	90s	
169	COMP			↑		
170	NTM69	23:03	+08:52	6	2.5m	
171	COMP			↑		
172,174	SN1998de	00:48	+27:37	2	20m	r2
173,175	COMP			↑		
176	MRK335	00:03	+19:55	6	3m	
177	COMP			↑		

60 inch Telescope Log				Spectrograph: <u>FAST</u>		Page: <u>6449</u>
Observer: <u>PB</u>		Grating: <u>3002</u>		Date: <u>7/25/98</u>		
PI: <u>All</u>						
Number	Object	R. A.	Dec.	L/R	Exp	Comments
178	ZZSm280	00:41	+41:05	57	4m	#5 1
179	COMP			↑		
180	VLA-HE object	02:57	+23:47	68	1m	
181	COMP			↑		
180/183	AKPer	01:36	+54:15	12	80, 4s	
184	COMP			↑		
185/187	HD21704	22:51	+62:27	56	5s	
186	COMP			↑		
189-190	ZAnd	23:23	+18:49	12	30s, 2s	
191	COMP			↑		a few clouds @ dawn
192/193	AGPer	21:31	+12:57	12	0.5s, 12s	
194	COMP			↑		
195/196	M32	00:40	+40:35	57	30s	
197	COMP			↑		
198-207	BTAS				0s	
208-217	FLAT				6s	
218-227	BTAS				0s	
228-237	FLAT				12s	
238-247	DARK				20m	bmby 2

60 inch Telescope Log
 Observer: PBerlin
 PI: Scott

Spectrograph: FAST
 Grating: 30R, 3° slit
 Date: 7/26/98

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-8	DARK				15m	
9-20	BIAS				0s	
21-30	FLAT				6s	Mostly clear!
31-40	BIAS				0s	
41-50	FLAT				12s	
51-55	sky			57	2s	
56	WMP			↑		
57-58	AGDm	16:01	+66:48	12	2s, 20s	
59	WMP			↑		
60-61	BDP 322642	15:50	+33:05	56	60s	
62	WMP			↑		
63	N5846	16:03	+01:47	57	2m	
64	WMP			↑		Seeing 50-50
65	N4151	12:08	+39:41	6	25s	
66	WMP			↑		
67	H244	13:21	+76:23	56	2m	
68	WMP			↑		
69	N5548	14:15	+75:22	6	3m	
70	WMP			↑		
71	ROXR1m4A	16:25	-25:43	74	3m	
72	WMP			↑		
73	ROXR1m38A	16:27	-24:19	74	24m	
74	WMP			↑		
75	ROXR1m2	16:25	-24:26	74	20s	
76	WMP			↑		
77	ROXR1m24	16:26	-24:20	74	3m	
78	WMP			↑		
79	ROXR1m53	16:27	-24:25	74	3m	
80	WMP			↑		

60 inch Telescope Log
 Observer: PB
 PI: Andi
 Spectrograph: FAST
 Grating: 302
 Date: 7/26/98
 Page: 6451

Number	Object	R.A.	Dec.	L/R	Exp	Comments
81	ROX R1m8	16:25	-24:39	74	5m	
82	COMP			↑		
83	SN1998eg	11:56	+55:07	2	15m	
84	COMP			↑		
85	MRK279	13:51	+69:33	6	3m	
86	COMP			↑		
87	ZMM1510.0EW	14:13	+12:11	68	8m	E+W comps; wide sep.
88	COMP			↑		rows 42 + 20 - em!
89	ZM1410158.4	14:01	+18:24	68	15m	
90	COMP			↑		poor seeing
91	ZM141541.3	14:13	+19:44	68	8m	
92	COMP			↑		
93	NGC388.040	16:22	+37:31	59	4m	pec jascly +s
94	COMP			↑		
95	.039	16:22	+37:10	59	6m	em high ex
96	COMP			↑		
97	041	16:22	+37:47	59	6m	
98	COMP			↑		
99	044	16:22	+37:47	59	5m	
100	COMP			↑		
101	042	16:22	+37:33	59	5m	
102	COMP			↑		seeing 2-3"
103	043	16:22	+38:02	59	6m	
104	COMP			↑		
105	045	16:22	+37:46	59	6m	
106	COMP			↑		
107	046	16:22	+37:58	59	4+m	
108	COMP			↑		
109	047	16:22	+37:56	59	4m	
110	COMP			↑		

60 inch Telescope Log
 Observer: AB
 PI: Jeff-John-Andi-Betsy
 Spectrograph: FAST
 Grating: 302
 Date: 7/26/98
 Page: 6452

Number	Object	R.A.	Dec.	L/R	Exp	Comments
111	Mags 388.048	16:22	+38:09	S9	4m	
112	WMP			↑		
113	049	16:23	+37:55	S9	90s	* to E
114	WMP			↑		
115	050	16:23	+37:45	S9	4m	
116	WMP			↑		
117	051	16:23	+37:49	S9	5m	
118	WMP			↑		seeing better
119	052	16:23	+37:43	S9	8m	em
120	WMP			↑		
121	2M162832.1	16:28	+21:40	68	15m	em dx
122	WMP			↑		
123	2M165921.5	16:59	+22:02	68	8m	
124	WMP			↑		
125	WMP			↓		1.1" slit ↓
126,127	4U1907p09	19:09	+09:49	77	15m	
128	WMP			↑		
129-130	HD230579	19:01	+11:01	77	20+10s	
131	WMP			↑		
132	soqal 227-228	20:59	-01:53	73	20m	3" slit ↓ PA=22°
133	WMP			↑		2gals
134	soqal 228-239	21:49	+16:14	73	12m	PA=38°
135	WMP			↑		
136	soqal 233	21:16	+15:03	73	12m	PA=90° ↓
137	WMP			↑		
138	soqal 234	21:16	+15:02	73	8m	
139	WMP			↑		

132 + 134 - NO WAY FOR ME TO KNOW WHICH GALAXY IS WHICH.
 See charts at end of logs for info about id's

60 inch Telescope log

Observer: PB

PI: Kirshner & Green

Spectrograph: FAST

Grating: 300

Page: 6453

Date: 7/26/98

Number	Object	R. A.	Dec.	L/R	Exp	Comments
140	2M191256.7	19:22	+22:33	68	20m	many "objects" were stars for this list faint - obj to find galaxy gem!
141	COMP			↑		
142	2M193156.4	19:31	+35:26	68	10m	
143	COMP			↑		
144	2M193054.7	19:30	+29:56	68	12m	ok
145	COMP			↑		
146	SN1998dh	23:14	+04:32	2	10m	
147	COMP			↑		
148-9	Fairplay	23:17	-05	56	2m	
150	COMP			↑		
151,153	2311m068	23:11	-06:49	79	10m	5th C2!
152,154	COMP			↑		
155-56	BDp284211	21:48	+28:57	56	30s	
157	COMP			↑		
158,160	2352p401	23:52	+40:11	79	6m	high proper motion C2!
159,161	COMP			↑		
162	SN1998de	00:48	+07:57	2	20m	
163	COMP			↑		
164,165	0038p555	00:38	+55:33	79	3m	bm by 2; ... clean
166	COMP			↑		
167,169	0038p730	00:38	+73:01	79	12m	* to E high proper motion
168,170	COMP			↑		
171,172	015p159	01:15	+15:55	79	3m	weak C2
173	COMP			↑		
174	MRK335	02:07	+19:55	6	3m	
175	COMP			↑		
176	N7469	23:03	+08:52	6	3m	
177	COMP			↑		
178-79	NG15	21:51	+12:57	12	0.5s/7s	
180	COMP			↑		

60 inch Telescope log
 Observer: PBS
 PI: Scott
 Spectrograph: FAST
 Grating: 302
 Date: 7/26/98
 Page: 6454

Number	Object	R. A.	Dec.	L/R	Exp	Comments
181-182	CICgy	19:50	+35:41	12	23,40s	
183	COMP			↑		
184-185	ZAnd	23:33	+48:49	12	23,30s	
186	COMP			↑		
187-188	AXRr	01:36	+54:15	12	80s, 4s	
189	COMP			↑		
190-191	M31	00:39	+40:35	57	30s	
192	COMP			↑		
193-195	HD 217086	22:51	+62:27	56	4s	
196	COMP			↑		
197-199	HD 12623	02:02	+62:36	57	5s	
200	COMP			↑		a few clouds to E of down
201-210	BTAS				0s	
211-220	FLAT				6s	
221-230	BTAS				0s	
231-240	FLAT				17s	
241-250	FLAT				20s	1.1" slit - bin by 7
251-260	DARK				20m	bin by 2

TILT POS changed to 60°

60 inch Telescope Log
 Observer: PB
 PI: All
 Spectrograph: FAST
 Grating: 3W2
 Date: 7/27/98
 Page: 6455

Number	Object	R A	Dec	L/R	Exp	Comments
1-5	BDAS				0s	
6-11	DARK				30m	Bin by 4
12	test				20s	1200g; 3" slit; tilt=129°
13-22	FLAT				25s	focus=1000 f _e = 5329 Å
23	test					3W2 ↓
24-33	BDAS				0s	
34-43	FLAT				6s	
44-53	BDAS				0s	bin by 2
54-63	FLAT				12s	bin by 2
64-68	sky			59	2s	
69	WMP			↑	5s	clouds to W, S, E + N
70-71	NG 229	16:04	+66:48	12	20, 20s	
72	COMP			↑		
72-74	BDP 332642	15:50	+38:03	56	1m	
75	COMP			↑		
76	N4151	12:08	+39:41	6	25s	
77	COMP			↑		
78	N4051	12:10	+44:48	6	2m	
79	COMP			↑		
80	N4258	12:16	+47:34	6	2m	
81	COMP			↑		
82-83	H244	13:21	+36	56	2m	
84	COMP			↑		
85	MRK 279	13:51	+61:33	6	3m	
86	COMP			↑		
87	N5548	14:25	+25:22	6	3m	
88	COMP			↑		
89-90	HBC 656	17:00	-22:58	74	10s, 90s	classic young star
91	COMP			↑		Strong Li 6708; H&H, K, H α!!

NO BIN BY 2 DORKS

60 Inch Telescope Log

Observer: PB
 PI: Scott & Andi & John

Spectrograph: FAST
 Grating: 300L + 1200L
 Date: 7/27/98

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
92	HBC657	17:08	-27:12	74	2m	ditto
93	COMP			↑		
94	ROXR1m31A-	16:26	-24:43	74	12m	
95	COMP			↑		
96	test				20s	1200L; 3"; tilt = 429.4 ↓
97	BDP532642	16:50	+33:05	56	2m	focus = 1000
98	COMP			↑	25s	
99	awm4-NG051.1	16:04	+23:55	35	30m	PA = 77°
100	COMP			↑		
101	awm4-NG051.2	16:04	+23:55	35	30m	5" S of #99
102	COMP			↑		ohoh - clouds moving in from S.
103	test					3000; 3" slit ↓
104	A2248n3n4	17:00	+77:02	68	20m	PA=57 4 is "E" object @ row 50
105	COMP			↑		both 3 is "W" object @ row 37
106	A2248n1n1b	16:59	+77:08	68	12m	1 @ row 88; 1b @ row 80 PA: bmk by 2
107	COMP			↑		
108	A2248n5	17:00	+77:00	68	20m	Seemg worse clouds...
109	COMP			↑		
110-111	CICogg	19:50	+35:41	12	3s, 45s	
112	COMP			↑		
113-115	HD192281	20:10	+40:07	56	6s	
116	COMP			↑		
117	Z01081	16:25	+30:19	75	12m	quidem! NEEDS DARKS!!
118	COMP			↑		
119	Z008615	16:52	+30:20	75	10m	"
120	COMP			↑		
121	Z008616	16:56	+30:28	75	5m	
122	COMP			↑		

60 inch Telescope Log
 Observer: PB
 PI: Barbara & John

Spectrograph: FAST
 Grating: 300
 Date: 7/27/98

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
123	Z 004579	16:55	+26:39	75	4m	
124	COMP			↑		
125	N 002910	16:56	+26:50	75	5m	
126	COMP			↑		
127	N 001091	16:56	+27:49	75	3m	
128	COMP			↑		
129	Z 013816	16:57	+27:50	75	7m	Sun 2
130	COMP			↑		
131	Z 013817	16:57	+28:11	75	5m	
132	COMP			↑		
133	Z 011753	16:57	+27:50	75	5m	
134	COMP			↑		lots of clouds
135	Z 022689	16:57	+27:51	75	3m	
136	COMP			↑		
137	Z 023016	16:59	+29:56	75	6m	
138	COMP			↑		
139	MRK 59	20:41	+10:54	6	4m	
140	COMP			↑		
141-142	BDP 254211	21:48	+28:37	56	45s	
143	COMP			↑		pretty murky sky
144	ZM 2305119	23:05	+28:34	68	12m	
145	COMP			↑		
146	ZM 230616.1	23:06	+27:42	68	12m	
147	COMP			↑		
148	ZM 230122.1	23:01	+25:12	68	15m	* + w
149	COMP			↑		
150	ZM 230333.5	23:03	+26:39	68	15m	
151	COMP			↑		
152	ZM 230609.9	23:06	+25:21	68	15m	
153	COMP			↑		

60 inch Telescope Log

Observer: PB
 PI: Kirshner & And.

Spectrograph: FAST

Grating: 30R

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Date: 7/27/98

Number	Object	R.A.	Dec.	L/R	Exp	Comments
154	SN1998dh	23:14	+10:32	Z	20m	lots of clouds
155	COMP			↑		
156	BDp284211	21:48	+28:42	S6	3m	
157	COMP			↑		
158-159	AG Peg	21:51	+12:39	12	15,15s	
160	COMP			↑		
161	src 6013.057	22:47	+12:19	S9	11m	
162	COMP			↑		
163	OS9	22:47	+12:18	S9	10m	em
164	COMP			↑		
165	OS6	22:46	+11:11	S9	5m	em red from 7/19/98
166	COMP			↑		
167	061	22:47	+11:22	S9	9m	clearing!
168	COMP			↑		
169	067	22:48	+12:02	S9	9m	
170	COMP			↑		
171	066	22:48	+12:06	S9	12m	em
172	COMP			↑		
173	068	22:48	+11:34	S9	15m	
174	COMP			↑		
175	071	22:49	+11:40	S9	12m	
176	COMP			↑		
177	072	22:49	+11:32	S9	5m	
178	COMP			↑		
179	077	22:49	+11:35	S9	4m	
180	COMP			↑		
181	078	22:49	+11:48	S9	3m	
182	COMP			↑		
183	079	22:49	+10:38	S9	6m	
184	COMP			↑		

60 inch Telescope Log

Observer: PB

PI: All

Spectrograph: FAST

Grating: 300

Date: 7/27/98

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
185	Srgb 013.080	22:49	+11:53	59	2m	
186	COMP			↑		
187	NTM69	23:05	+08:52	6	2.5m	
188	COMP			↑		
189	Fergello	23:17	-05:26	56	2m	
190	COMP			↑		
191	MRK335	00:00	+19:55	6	3m	
192	COMP			↑		Scattered clouds
193	158m213	00:40	+40:50	57	3m	☉ Dawn
194	COMP			↑		
195-6	Comet Hartig 1961	03:50	+28:25	57	2m	
197	COMP			↑		
198-199	AXPer	01:26	+54:15	12	80s, 1s	
200	COMP			↑		
201-202	ZAN	23:33	+48:49	12	30s, 2s	
203	COMP			↑		
204-213	BIAS			0	0s	
214-223	FLAT				6s	
224-253	BIAS				0s	
234-243	FLAT				12s	
244-253	DARK				15m	bm by 4

7/28/98
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2 TOTAL ✓

0051.sn1998de.ms.imh	98739.66	X	3.20	fn7331temp
0053.Feige110.ms.imh	-28.52	Q	2.89	fm32temp

NO LOG SHEET

ONLY 2 OBJECTS OBSERVED

60 inch Telescope Log

Observer: CALKINS

PI: All, Kirshner, Carter

Spectrograph: FAST

TILT = 60°

Grating: 300 L

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Date: 7/29/98

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1-10	DARKS				15m	Binby 4
11-20	FEAS				0s	
21-30	FLAT				6s	
31-40	BIAS				0s	Binby 2
41-50	FLAT				12s	
51-55	sky			#57	3s	Binby 4
56	comp			↑		
57-58	AG Dra	16 01	66 48	#12	2,200	
59	comp			↑		
60	HZ 44	13 23	36 08	#56	2m	
61	comp			↑		
62	MRK 421	11 04	38 13	#6	5m	
63	comp			↑		
64	N4151	12 10	39 24	#6	30s	
65	comp			↑		
66	N4258	12 18	47 18	#6	2m	
67	comp			↑		
68	MRK 501	16 53	39 44	#6	5m	star to the east
69	comp			↑		
70	NS 866	15 06	55 44	#57	4m	dust lane
71	comp			↑		
72	sn 1997eq	13 11	22 55	#2	20m	Binby 2, star east
73	comp			↑		
74	Feige 98	14 38	27 29	#56	2m	
75	comp			↑		
76	N002985	16 30	27 27	#75	20m	Binby 4
77	comp			↑		
78	2010082	16 35	27 29	#75	20m	
79	comp			↑		
80	2011752	16 44	32 12	#75	3m	appears stellar STAR

heard "fuzzy" in @ 16 44 33. +B2 13 00

60 inch Telescope Log
 Observer: Calkins
 PI: Carles, Hubra, Kirshner
 Spectrograph: FAST
 Grating: 300L
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Number	Object	R.A.	Dec.	L/R	Exp	Comments
81	comp			↑		
82	Z013633	16 44	26 40	#75	12m	
83	comp			↑		
84	Z013810	16 45	27 31	#75	20m	
85	comp			↑		
86	Z013811	16 46	27 19	#75	20m	(^{paper but ok} clouds returning)
87	comp			↑		
88	Z013812	16 46	26 56	#75	18m	NOT enough clouds shortened exposure
89	comp			↑		
90,91	CIG 9	19 50	35 40	#12	4,35s	
92	comp			↑		
93,94	AG Peg	21 51	12 27	#12	2,12s	
95	comp			↑		clouded out
						hole!
96	ZM200703.4p	20 07	23 49	#68	20m	start to start west
97	comp			↑		
98	sn1998dh	23 14	04 33	#2	15	Binby 3
99	comp			↑		
100	sn1998eo	21 47	-13 10	#2	15m	got galaxy (sn not separate) had to wait for clouds to clear
101	comp			↑		
102	sn1998ke	00 48	27 27	#2	15m	galaxy to west
103	comp			↑		
104	ZM003129.3p	00 31	17 22	#68	10m	Binby 4
105	comp			↑		
106	ZM00312.5p	00 13	31 09	#68	8m	
107	comp			↑		
108	ZM003027.7p	00 30	14 48	#68	8m	

60 inch Telescope Log

Observer: CALKINS

PI: Huchra, Kenyon, All

Spectrograph: FAST

Grating: 300L

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
109	comp			↑		
110	2M001217.3p	00 12	29 52	#68	6m	
111	comp			↑		
112	2M001227.6p	00 12	32 45	#68	7m	
113	comp			↑		
114	2M001319.8p	00 13	35 18	#68	8m	
115	comp			↑		
116	MRK 335	00 06	20 11	#6	3m	
117	comp			↑		
118	M7469	23 03	08 52	#6	2.5m	star to the east
119	comp			↑		
120,121	2And	23 33	48 48	#12	4,30s	
122	comp			↑		
123,124	AXPer	21 36	54 14	#12	10,80s	
125	comp			↑		
126-135	BIAS				0s	Binby 4
136-145	FLAT				6s	
146-155	BIAS				0s	Binby 2
156-165	FLAT				12s	
166-175	DARK				15m	Binby 2

60 inch Telescope Log

Observer: CALKINS

PI: AL, McClintock, Bucher

Spectrograph: FAST

Grating: 300L

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Date: 7/30/98

Number	Object	R.A.	Dec.	L/R	Exp	Comments
1	BIAS				0s	Test after lightening
2-11	DARK				15m	Binby 4
12-21	BIAS				0s	
22-31	FLAT				6s	
32-41	BIAS				0s	Binby 2
42-51	FLAT				12s	
52-56	sky			#57	2s	
57	comp			↑		100% clouds @ sunset
						Clearing overhead
58	HD 192281	20 12	40 15	" 56	4s	
59	comp			↑		
60	3C 390.3	18 42	79 44	#6	10m	(weak exposure)
61	comp			↑		
62	comp			↓		1.1" slit
63, 64	4U 1907.09	19 09	09 49	#77	20m	bumped-up for bare object to east
65	comp			↑		
66, 67	HD 230579	19 04	11 06	" 77	10, 20s	
68	comp			↑		
69	2M 200711.2p	20 07	20 04	" 68	6m	3" slit, PA = 62°
70	comp			↑		? object east NOT visible
71	2M 200720.1p	20 07	23 55	" 68	20m	object to the east
72	comp			↑		
73	2M 200750.8p	20 07	21 20	" 68	5m	3 objects east, 1 west
74	comp			↑		
75	2M 191904.6p	19 19	20 43	" 68	20m	object east

files 69, 71, 73, 75 + 77 are ALL stars. Light extra other objects in slit - they were stars too. W side of time!

60 inch Telescope Log

Observer: CALKINS

PI: Huchra

Spectrograph: FAST

Grating: 300L

Date: 7/30/98

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
76	comp			↑		
77	2M230450.7p	23 04	27 53	↑ 68	20m	
78	comp			↑		
79	2M235824.3p	23 58	27 34	↑ 68	6m	
80	comp			↑		
81	2M235923.6p	23 59	27 02	↑ 68	5m	clouds returned
82	comp			↑		(very weak spectra)
						clouded out
83-92	BIAS				0s	
93-102	FLAT				6s	
103-112	FLAT				20s	1.1" slit
113-122	BIAS				0s	Rinby 2, 3" slit
123-132	FLAT				12s	
133-142	DARK				15m	

60 inch Telescope Log

Observer: P Berlin
 PI: Kenyon & Huchra

Spectrograph: FAST
 Grating: 3009
 Date: 7/31/98

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Number	Object	R A.	Dec.	L/R	Exp	Comments
1-10	BINS					
11-20	FLAT					→ solid clouds
21-30	BINS					open @ 12:30 ←
31-40	FLAT					
41-50	DARK					
51-53	HD192291	20:10	+40:07	S6	20+3	lots of clouds
54	WMP			↑		
55-56	CH Cyg	19:50	+35:41	12	45, 3m	
57	WMP			↑		
58-60	CH Cyg	19:29	+50:14	12	30, 90, 10s	-0-
61				↑		
62-64	AG Peg	21:51	+12:37	12	30, 2m, 5m	
65	WMP			↑		
66-67	BD+28:211	21:48	+28:42	S6	2m	
68	WMP			↑		
69	V1057 Cyg	20:57	+44:03	12	5m	
70	WMP			↑		
71	V1515 Cyg	20:22	+44:02	12	5m	
72	WMP			↑		prior seeing
73	MRK 509	20:41	-10:54	6	5m	
74	WMP			↑		
75	ZM230609.6	23:06	+27:41	68	5m	
76	WMP			↑		
77	ZM230534	23:10	+26:41	68	5m	
78	WMP			↑		
79	ZM230016.0	23:10	+24:46	68	6m	
80	WMP			↑		
81	ZM231157.6	23:41	+26:44	68	5m	
82	WMP			↑		

60 inch Telescope Log

Observer: PB

PI: Huchra & Kirchner & Kayser

Spectrograph: FAST

Grating: 30R

Date: 7/21/98

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Number	Object	R.A.	Dec.	L/R	Exp	Comments
83	ZM234196.2	23:11	+26:16	68	5m	
84	COMP			↑		
85	ZM230529.1	23:05	+28:47	68	5m	
86	COMP			↑		better sky!
87	ZM230651.5	23:06	+29:59	68	4m	
88	COMP			↑		
89	ZM230730.8	23:07	+28:13	68	5m	
90	COMP			↑		
91	SN1998dh	23:14	+04:32	2	10m	good
92	COMP			↑		
93	SN1998de	00:48	+21:37	2	15m	good
94	COMP			↑		
95-96	Fairplay	23:17	-05	56	2m	Setlitter through slit for 95
97	COMP			↑		
98	ZM230718.4	23:07	+28:06	68	15m	1/2m clouds em!
99	COMP			↑		
100/101	ZAW	23:33	+48:49	12	5s, 90s	
102	COMP			↑		
103-104	AXR	01:36	+54:55	12	6s, 2m	
105	COMP			↑		
106-108	HD217086	22:54	+62:27	56	6s	
109	COMP			↑		big clouds
110	N7331	22:34	+34:09	57	4m	
111	COMP			↑		
112	N7469	23:03	+08:52	6	4m	
113	COMP			↑		
114	MRK335	00:03	+19:55	6	4m	
115	COMP			↑		
116	ZM230206.5	23:02	+27:06	68	6m	
117	COMP			↑		

60 inch Telescope Log

Observer: PB

PI: Huchra

Spectrograph: FAST

Grating: 3002

Date: 7/31/98

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Number	Object	R. A.	Dec.	L/R	Exp	Comments
118	2M230241.6	23:02	+28:32	68	6m	even more clouds
119	WMP			↑		
120	2M230009.8	23:00	+26:27	68	6m	
121	WMP			↑		
122	2M230056.2	23:00	+25:12	68	9m	
123	WMP			↑		
124	2M234139.8	23:41	+27:49	68	7m	
125	WMP			↑		
126	2M235844.7	23:58	+27:10	68	4m	
127	WMP			↑		
128	163m217	00:40	+41:11	57	4m	
129	WMP			↑		clouds all over
130	225m280	00:11	+41:05	57	4m	~
131	WMP			↑		
132-133	M32	00:39	+40:35	57	30s	2
134	WMP			↑		
135-144	BIAS				0s	
145-154	FLAT				6s	
155-164	BIAS				0s	6m by 2/
165-174	FLAT				12s	↓
175-184	DARK				15m	