

HUT

Memo: WPB 95-3.1

Date: March 23, 1995

TO: HUT Science Team

FROM: Bill Blair *Bill*

SUBJECT: As Flown Materials from Astro-2 Mission

In an effort to provide some reference materials for us all as we begin to wade through our data from Astro-2, here are a) an "as-flown" limbram plot for >30 hours, and b) the "as-flown" SCIPLAN file, including nominal start/stop times for each pointing interval.

These data are not perfect, but should provide a useful reference for your initial data analysis. The SCIPLAN is that provided by MSFC, including all of the RRs submitted throughout the mission to actually plan the observations. In addition, I have hand-edited in the OCRs that affected actual observations in the HUT blocks beyond 30 hours AMET. I am not 100% certain that any OCRs by the other teams have been included at this point, so if you find errors, please let me know. Also, I have NOT attempted to try and recreate the "actual" pointings prior to 30 hours, which basically constituted the "activation" portion of the timeline. The times, of course, do not take into account the acquisition times, which varied from object to object, but should correspond roughly to when we were on the various "attitudes."

For reference, launch occurred on March 2, 1995, at 6:38:13 UT, which corresponds to 1995 day 063:06:38:13. This may be helpful in conjunction with the data file names to figure out the actual times of your observations.

The "as flown" materials can be found in the rp account on hut4, in the mission/asflown directory. SCIPLAN.asflown is the file corresponding to the attached SCIPLAN printout. Happy data crunching!

Part 1 of 2 : JSCIPLAN

I T	SPN ID	Name1	Name2	RA	Dec	Src	Acc	Roll	R	O	T	S	C	P	ReqTm	SchTm	METstart	METstop	Comments
V	V A01	9809-00	IPS-PLINT	GAMTUC	23 14 31.319	-58 30 33.48	26	99.99	-99.99	0	0	0	0	1	2500	1080	5.3000	5.6000	POINT INIT
V	V A02	9801-10	IPS-OSPC	14OMILEO	09 41 24.000	+10 45 00.00	1	99.99	-99.99	0	0	0	0	1	2500	1500	5.7944	6.2111	OSPC OBJ
V	V A03	9810-20	IPS-OSPC	14OMILEO	09 41 24.000	+10 45 00.00	13	99.99	-99.99	0	0	0	0	1	2500	740	6.2111	6.4167	IDPT OBJ
V	V A03	9810-10	IPS-IPT	26ALFMON	07 38 19.200	-08 48 00.00	7	99.99	-99.99	0	0	0	0	1	2500	420	7.0125	7.1292	OSPC OBJ
V	V A03	9810-20	IPS-IPT	26ALFMON	07 38 19.200	-08 48 00.00	19	99.99	-99.99	0	0	0	0	1	2500	840	7.1292	7.3625	IDPT OBJ
V	V A06	9815-10	IPS-IDRT	2320-10	06 53 38.903	-24 36 47.30	104	99.99	-99.99	0	0	0	0	1	1000	420	7.4458	7.5625	13.8
V	V A06	9815-20	IPS-IDRT	2321-10	06 50 50.809	-21 46 22.44	105	99.99	-99.99	0	0	0	0	1	2000	420	7.6458	7.7625	12.0
V	V A05	9802-10	IPS-IDPT	26ALFMON	07 38 19.200	-08 48 00.00	8	99.99	-99.99	0	0	0	0	1	2500	660	8.5500	8.7333	OSPC OBJ
V	V A05	9802-20	IPS-IDPT	26ALFMON	07 38 19.200	-08 48 00.00	20	99.99	-99.99	0	0	0	0	1	2500	840	8.7333	8.9667	IDPT OBJ
V	V A04	9814-00	IPS-SSUB	26ALFMON	07 38 19.200	-08 48 00.00	0	99.99	-99.99	0	0	0	0	1	2500	660	8.9667	9.1500	SENSOR SUB
V	V A07	9811-00	IPS-LOTS	BET-CAS	00 06 29.736	+58 52 26.76	31	99.99	-99.99	0	0	0	0	1	6000	1500	9.3236	9.7403	LOT SEARCH
V	V A06	9815-30	IPS-IDRT	2707-10	00 05 41.930	+51 06 35.20	128	3.00	-99.99	0	0	0	0	3	2000	420	11.1500	11.2667	9.1
V	V A06	9815-40	IPS-IDRT	5303-10	23 54 00.000	+56 27 00.00	276	60.00	-99.99	0	0	0	0	3	2000	420	11.3667	11.4833	8.4
V	V A06	9815-50	IPS-IDRT	3301-10	00 15 03.347	+51 09 19.80	168	0.26	-99.99	0	0	0	0	3	2000	420	11.5833	11.7000	11.0
V	V A09	9804-00	IMC-CAL	BET-CAS	00 06 29.736	+58 52 26.76	31	99.99	-99.99	0	0	0	0	1	6000	1560	12.5167	12.9500	IMC CALIB
V	V A10	9803-00	IMC-GYRO	BET-CAS	00 06 29.736	+58 52 26.76	0	99.99	-99.99	0	0	0	0	1	6000	660	13.1000	13.2833	IMC GYRO
W	P W00	0901-10	BET-CAS	HD432	00 06 29.736	+58 52 26.76	1	0.04	-99.99	0	0	0	0	1	6000	660	13.1000	13.2833	IMC CALIB
W	P W00	0901-20	BET-CAS	HD432	00 06 29.736	+58 52 26.76	1	0.04	-99.99	0	0	0	0	1	6000	840	15.7333	15.9667	March 2 pole
V	V A11	9813-00	IPS-MTAT	BET-CAS	00 06 29.736	+58 52 26.76	31	99.99	-99.99	0	0	0	0	1	6000	1200	16.5833	16.9167	MTA TEST
H	P H09	3227-12	SS-CYG		21 40 44.480	+43 21 22.70	20	0.60	-99.99	0	0	0	0	3	2000	1424	17.1253	17.5208	HUT
H	P H01	0101-11	ALF-AUR	CAPELLA	05 12 59.800	+45 56 38.90	480	0.03	-99.99	0	0	0	0	3	3000	3208	17.6497	18.5408	also 0101
H	P H01	0101-12	ALF-AUR	CAPELLA	05 12 59.800	+45 56 38.90	480	0.03	-99.99	0	0	0	0	3	3000	3208	19.1756	20.0667	also 0101
W	P W01	0502-10	NGC2070	30DOR	05 39 03.476	-69 07 35.20	1	0.94	-99.99	0	0	0	0	4	2000	2160	20.3950	20.9950	pos HD38268;a
H	P H01	0001-11	HZ43		13 14 00.170	+29 21 44.80	479	0.20	-99.99	0	0	0	0	3	1500	2160	21.3000	21.9000	HUT CAL
U	P U01	0301-10	BR-EARTH		00 00 00.000	+00 00 00.00	999	99.99	-99.99	0	1	0	0	3	2000	1200	22.1606	22.4939	BRIGHT ERTH
H	P H07	6353-31	M87	NGC4486	12 28 17.560	+12 40 02.00	80	0.80	20.00	2	0	0	0	3	2000	2190	22.7917	23.4000	RT=10
H	G G12	2530-11	GD50	GR288	03 46 17.380	-01 07 38.00	478	0.30	-99.99	0	0	0	0	3	1800	2443	23.7214	24.4000	also_0008, PM
H	P H09	3230-20	RX-AND		21 11 03.400	+49 53 54.50	538	3.00	-99.99	0	0	0	0	3	2000	1915	24.6181	25.1500	in SAA < 1/2
H	G G14	4469-11	CYGLP-P7		01 01 45.900	+41 01 54.50	20	1.00	-99.99	0	0	0	0	3	2000	2442	25.2539	25.9322	
U	P U10	6308-20	M49	NON-RAD	20 52 34.300	+32 06 21.00	487	2.00	135.00	2	0	0	0	3	2000	3158	26.0497	26.9269	
U	P U10	6103-10	NGC0205	NGC4472	12 27 13.900	+08 16 32.00	349	4.00	155.00	2	0	0	0	1	2000	2239	27.3114	27.9333	RT=10; HUT
U	P U10	6594-11	IC2574	UGC05666	10 24 41.300	+68 40 18.00	425	1.80	170.00	2	0	0	0	1	2000	2430	28.2417	28.9167	RT=10
W	P W31	2203-10	PHI-PER	HD10516	01 40 30.757	+50 26 15.92	1	0.04	-99.99	0	0	0	0	3	2000	1124	29.1044	29.4167	UIT added 11/
W	P W31	2133-10	P-CYG	HD193237	20 15 56.500	+37 52 35.55	1	0.25	-99.99	0	0	0	0	3	2000	3719	29.6169	30.6500	sh; bin; vsin
W	P W31	2271-10	HD93521		10 45 33.578	+37 50 04.65	1	0.52	-99.99	0	0	0	0	3	2000	2162	30.7828	31.3833	early in miss
H	G G14	4453-10	GK-PERN	NGC1410	03 27 45.300	+43 43 46.00	491	2.00	-99.99	0	0	0	0	3	2000	2462	31.7694	32.4533	very early Sp
H	G G11	3401-10	EG-AND	HD4174	00 41 52.730	+40 24 21.10	95	1.00	-99.99	0	0	0	0	3	2000	2627	34.0536	34.7833	WUPPE V= 7.40
H	P H01	0001-10	HZ43		13 14 00.170	+29 21 44.80	479	0.20	-99.99	0	0	0	0	3	1500	2351	34.9828	35.6358	also_2533
U	P U06	4804-10	FSGL-15		08 07 29.830	-35 57 22.90	450	1.00	135.00	2	0	0	0	1	2000	2618	36.0833	36.8106	RT=5
U	P U05	5201-11	47-TWC	NGC0104	00 21 44.610	-72 22 08.39	4	2.00	-99.99	0	0	0	0	1	2000	1990	36.9936	37.5464	HUT; UVBS BS
U	P U05	5101-10	NGC2808		09 11 03.900	-64 39 22.50	90	0.68	-99.99	0	0	0	0	1	2000	2199	37.7672	38.3781	
W	P W11	4508-10	31TAU	HD24263	03 49 20.056	+06 23 09.69	1	0.15	-99.99	0	0	0	0	3	2000	1579	38.4614	38.9000	HUT; HD96472
W	P W01	0656-10	HD161056		17 41 04.999	-07 03 29.06	1	0.53	87.50	3	0	0	0	3	2000	2281	39.0442	39.6778	high-b
U	G G21	9421-10	UGC6151		11 03 16.000	+20 05 40.00	460	3.00	-99.99	0	0	0	0	1	2000	2130	39.9114	40.5031	Beg of miss;H
H	P H01	0003-10	G191B2B		05 01 31.530	+52 45 48.40	478	0.20	-99.99	0	0	0	0	3	2000	2593	40.7797	41.5000	xNew pos 5/94
H	P H04	8116-11	NGC4151		12 08 01.060	+39 41 02.00	160	0.01	-99.99	0	0	0	0	3	2000	2484	42.0600	42.7500	also_2509
H	G G11	3402-10	AX-PER	MWC411	01 33 11.870	+53 59 44.98	95	1.00	-99.99	0	0	0	0	3	6000	1112	42.8869	43.1958	
H	P H13	1204-10	JUPIFER		16 48 55.260	-21 38 01.70	525	1.00	90.00	2	1	0	0	3	2000	1997	43.4286	43.9833	WUPPE V=11.32
W	P W01	0608-10	BET-UMA	HD95418	10 58 50.251	+56 39 03.12	1	0.04	0.00	3	0	0	0	3	2000	3115	44.2181	45.0833	For 3_2_95,44
U	P U05	5109-12	NGC6752		19 06 27.300	+60 33 40.50	90	0.50	-99.99	0	0	0	0	1	2000	2569	45.3483	46.0619	Beg of missio
U	P U10	6235-11	M101A	NGC5457	14 01 22.040	+54 07 37.97	539	4.00	175.00	2	0	0	0	1	2000	1860	46.3044	46.8211	7/94 cl ctr
W	G G32	2302-10	HD50896	WR6	06 52 08.092	-23 51 51.60	1	0.64	-99.99	0	0	0	0	3	2000	2866	47.0461	47.8422	RT=10 Searle
W	P W01	0502-12	NGC2070	30DOR	05 39 03.476	-69 07 35.20	1	0.94	-99.99	0	0	0	0	3	2000	3163	48.0681	48.9467	HUT;FUSP
W	P W11	4543-10	HD147888		16 22 24.076	-23 20 48.42	1	0.41	-99.99	0	0	0	0	3	2000	3408	49.3078	50.2544	pos HD38268;a
															2444	50.4864	51.1653	LanMax.72	

H P H07	2916-10	0839+399	K345-30	08 39	56.500	+39 55	39.00	486	1.00	-99.99	0 0 0 0	2000	1027	51.4981	51.7833	13.87	sd ; S
H G G14	4469-10	CYGLP-P7	NON-RAD	20 52	34.300	+32 06	21.00	487	2.00	135.00	2 0 0 0	2000	3302	51.9522	52.8694	-	-
H P H02	8415-21	1700+64	-	17 00	40.470	+64 16	25.00	481	1.00	-99.99	0 0 0 3	2000	2105	53.1061	53.6908	-	-
H P H09	3206-20	VW-HYI	-	04 09	33.000	-71 25	27.40	501	1.00	-99.99	0 0 1 0	2000	2984	53.9381	54.7669	-	-
H P H13	1204-20	JUPIYER	-	16 49	12.768	-21 38	28.68	529	1.00	90.00	2 1 0 3	2000	2690	55.0119	55.7592	For_3_2_95,55	
H P H09	3266-11	YZ-CNC	-	08 07	52.590	+28 17	32.30	501	1.00	-99.99	0 0 1 0	2000	2491	56.0367	56.7286	-	-
H G H07	2979-10	1704+221	-	17 04	39.400	+22 09	44.00	486	1.00	-99.99	0 0 0 3	2000	1119	56.8953	57.2061	V=11.77; sdb-	
U P U16	8106-10	NGC1566	-	04 18	53.000	-55 03	24.00	425	8.00	-99.99	0 0 0 0	2000	1651	57.4183	57.8769	-	-
U P U05	5196-10	NGC6121	M4	13 34	11.350	-26 24	36.40	90	0.66	-99.99	0 0 0 0	2000	2633	58.0186	58.7500	-	-
U G G22	6248-11	NGC5236	-	16 20	31.000	-29 36	48.00	425	8.00	-99.99	0 0 0 0	2000	3260	59.2700	60.1756	-	-
W P W22	4211-11	NGC7023	-	19 02	50.900	-01 46	40.30	547	5.00	-99.99	0 0 0 1	4000	2413	60.6497	61.3200	RT=5;3115-HD2	
W P W32	3270-11	NOVA-AQL	-	19 02	50.900	-01 46	40.30	547	5.00	-99.99	0 0 0 1	4000	1823	61.4350	61.9414	pr 1 if brigh	
W P W22	4211-12	NGC7023	-	21 00	59.700	+67 57	55.50	446	1.50	50.00	2 0 0 1	4000	2428	62.1692	62.8436	RT=5;3115-HD2	
W P W22	3115-10	HD200775	-	21 00	59.700	+67 57	55.50	446	1.50	50.00	2 0 0 1	4000	659	62.9269	63.1100	also 4211	
H G H07	2907-11	0250+189	-	02 50	59.100	+18 57	43.00	486	0.32	-99.99	0 0 0 3	2000	1803	63.2392	63.7400	V=13.65; sdb	
H P H01	0001-12	HZ43	-	13 14	00.170	+29 21	44.80	479	0.20	-99.99	0 0 0 3	1500	1582	63.9606	64.4000	also_2533	
H P H01	2567-10	GD394	-	21 11	03.400	+49 53	54.50	538	3.00	-99.99	0 0 1 0	2000	2032	64.5192	65.0836	in SAA < 1/2	
H P H02	8415-11	1700+64	-	17 00	40.470	+64 16	25.00	481	1.00	-99.99	0 0 0 3	2000	2572	65.3053	66.0197	-	
H P H01	2707-11	KPD0005	5106	00 05	41.930	+51 06	35.20	439	3.00	-99.99	0 0 0 3	2000	1920	66.1167	66.6500	-	
H P H05	8202-11	NGC1068	-	17 00	40.470	+64 16	25.00	481	1.00	-99.99	0 0 0 3	6000	2409	66.8308	67.5000	-	
H P H10	4449-11	CYGLP-P1	NEWNR	20 53	07.750	+30 14	29.40	534	1.00	178.00	2 0 0 3	2000	2610	67.8475	68.5725	Off_SW_from_n	
U G G21	9425-10	VCC2037	-	12 43	43.000	+10 28	48.00	454	3.00	-99.99	0 0 0 0	2000	3318	68.7500	69.6719	Near_SE_Cloud	
U P U04	5312-10	NGC6791	-	19 19	04.520	+37 35	56.10	541	1.00	-99.99	0 0 0 0	2000	1759	69.9814	70.4700	UIT added 11/	
U P U10	8210-10	NG3226-7	A94	10 20	46.780	+20 07	06.14	425	0.25	-99.99	0 0 0 1	2000	1481	70.6233	71.0347	HUT: sdo STAR	
W G G32	3327-10	V3565GR	WD173787	06 52	08.092	-23 51	51.60	1	0.64	-99.99	0 0 0 0	2000	2394	71.4108	72.0758	HUT_8133_Posn	
W P W32	3807-10	VELA-X-1	HD77581	18 44	54.357	-20 19	49.29	1	0.29	-99.99	0 0 1 0	2000	2048	72.4675	73.3500	about 1 day a	
H G G15	2295-11	SK-66172	-	05 37	03.740	-66 23	15.90	483	0.50	-99.99	0 0 0 3	1700	1996	75.2289	75.7833	ephemeris tar	
H P H04	8116-21	NGC4151	-	12 08	01.060	+39 41	02.00	160	0.01	-99.99	0 0 0 2	6000	1976	76.0247	76.5736	-	
H G G12	2564-11	WOLF1346	-	20 32	12.720	+24 53	30.80	481	0.50	-99.99	0 0 0 2	1800	1575	76.8264	77.2639	PM_cor	
H P H03	8121-13	MKN279	-	13 51	53.580	+69 33	13.20	7	0.09	50.00	2 0 0 3	4000	2006	77.5094	78.0667	RT=20	
H P H03	8102-11	FAIRALL9	-	01 21	51.220	-59 03	58.90	13	0.20	-99.99	0 0 1 0	4000	1829	78.3419	78.8500	-	
H P H02	8535-21	Q1542+54	-	15 42	41.900	+54 08	26.00	481	1.00	-99.99	0 0 0 3	2000	3023	79.0892	79.9289	-	
H P H12	2248-10	AE-AUR	HD34078	05 12	59.810	+34 15	25.60	1	0.26	90.00	2 0 0 1	900	1168	80.1256	80.4500	RT=3;& 4221;	
H P H12	4221-10	IC405	VDB34	05 13	06.300	+34 22	42.00	498	17.00	90.00	2 0 0 1	1800	1654	80.5333	80.9928	RT=3;& 2248;	
H G H07	2953-10	1710+490	-	17 10	59.800	+49 02	00.00	486	1.00	-99.99	0 0 0 3	1000	1313	81.1744	81.5392	V=12.06; sdb	
U P U10	6141-11	M31A	NE_ARM	00 41	24.300	+41 21	32.00	540	5.00	-99.99	0 0 0 0	2000	1999	81.7883	82.3436	HUT: G267	
U P U05	5108-11	M92	NGC6341	17 15	35.012	+43 11	21.09	90	0.55	-99.99	0 0 0 0	2000	2205	82.4750	83.0875	-	
U P U04	5311-11	M67	NGC2682	08 48	27.720	+11 56	38.71	95	1.00	-99.99	0 0 0 0	4000	2617	83.4739	84.2008	HUT: BLUE STR	
W P W23	3114-10	HD50138	NGC0104	00 21	44.610	-72 22	08.39	4	2.00	-99.99	0 0 0 0	2000	763	84.4381	84.6500	HUT: UVES BS	
W P W31	2203-11	PHI-PER	HD10516	01 40	30.757	+50 26	15.92	1	0.78	-99.99	0 0 0 3	2000	2794	84.7594	85.5756	sim to HD4567	
W P W11	4557-10	HD197770	-	20 41	57.951	+56 55	58.16	1	0.04	-99.99	0 0 0 3	2000	2003	86.0736	86.6300	sh; bin; vsin	
H P H02	8415-14	1700+64	-	17 00	40.470	+64 16	25.00	481	1.00	-99.99	0 0 0 3	2000	3934	86.7572	87.8500	Bump Poi;earl	
H G G11	3413-10	Z-AND	HD221650	23 31	15.410	+48 32	31.10	95	1.00	-99.99	0 0 0 3	6000	2170	89.7214	90.3241	-	
H P H02	8415-15	1700+64	-	17 00	40.470	+64 16	25.00	481	1.00	-99.99	0 0 0 3	2000	2680	90.3956	91.1400	WUPPE V=10.91	
H P H01	2567-12	GD394	-	21 11	03.400	+49 53	54.50	538	1.00	-99.99	0 0 0 3	6000	2553	91.2464	91.9555	-	
H P H09	3217-10	EX-HYA	-	12 49	42.660	-28 58	40.60	21	0.50	-99.99	0 0 0 3	2000	2141	92.0053	92.6000	in SAA < 1/2	
U P U10	6207-10	NGC1097	A77	02 44	11.000	-30 28	54.00	425	8.00	130.00	2 0 0 0	2000	3182	92.7861	93.6700	-	
U P U12	8310-11	CEN-A	NGC5128	13 22	30.430	-42 44	27.00	4	1.02	300.00	2 0 0 0	4000	1573	93.8831	94.3200	RT=10	
U P U10	6197-10	SMC-CLUS	NGC0330	00 54	35.630	-72 44	01.60	534	3.00	-99.99	0 0 0 0	1500	2368	94.5022	95.1600	RT=10;HUT:OFF	
U G G22	6248-12	NGC5236	-	13 34	11.000	-29 36	48.00	425	8.00	-99.99	0 0 0 0	2000	1346	95.4103	95.7842	Cluster Cente	
W G G32	2302-30	HD50896	WR6	06 52	08.092	-23 51	51.60	1	0.64	-99.99	0 0 0 3	2000	1899	95.9392	96.4667	-	
W P W32	3270-12	NOVA-AQL	-	19 02	50.900	-01 46	40.30	547	5.00	-99.99	0 0 0 1	5000	3058	96.8672	97.7167	about 1 day a	
W P W22	4211-13	NGC7023	HD200775	21 00	59.700	+67 57	55.50	446	1.50	50.00	2 0 0 1	4000	2132	97.9500	98.5422	pr 1 if brigh	
H G G11	3407-12	HM-SGE	-	19 39	41.470	+16 37	32.80	95	1.00	-99.99	0 0 0 3	2000	2860	98.6606	99.4550	RT=5;3115-HD2	
H G G13	7342-13	0833+652	-	08 33	57.400	+65 17	46.00	517	5.00	-99.99	0 1 0 3	6000	1652	99.6275	100.0864	WUPPE V=11.14	
													2480	100.3006	100.9894	-	-

H G G15	2253-10	SK-67167	05 31	59.620	-67 41	43.80	483	0.50	-99.99	0 0 0 0	3 1	600	2108	101.1944	101.7800	
H P H07	6306-20	NGC3379	10 45	11.300	+12 50	48.00	349	4.00	-99.99	0 0 0 0	3 1	2000	2054	101.9294	102.5000	OVL_P_UIT 2KS
H P H09	3206-21	VW-HYI	04 09	33.000	-71 25	27.40	501	1.00	-99.99	0 1 0 3	1 0	2000	2346	102.6483	103.3000	
H P H07	6306-31	NGC3379	10 45	11.300	+12 50	48.00	349	4.00	-99.99	0 0 0 0	3 2	4000	2113	103.4464	104.0333	
H P H14	2822-10	HD94963	09 54	36.320	-61 26	29.70	450	1.00	-99.99	0 0 0 3	1 0	800	1773	104.1508	104.6433	O6.5III; w/28
H P H14	2856-10	HD86466	09 55	22.010	-52 24	00.30	450	1.00	-99.99	0 0 0 3	1 0	800	1398	104.7417	105.1300	B3IV; w/28
H P H10	2506-10	SW-MID	14 59	36.770	-41 47	31.70	61	0.40	-99.99	0 0 0 3	1 0	2000	2883	105.2450	106.0458	
U P U19	9405-12	SA57	13 06	15.614	+29 40	29.89	342	15.00	-99.99	0 0 0 0	1 0	4000	2246	106.4586	107.0825	
U P G05	5109-13	NGC6752	19 06	27.300	-60 03	50.50	90	0.50	-99.99	0 0 0 0	1 0	2000	1334	107.2636	107.6342	7/94 cl ctr
U G G22	6272-10	NGC3351	10 41	19.600	+11 58	00.00	425	10.00	-99.99	0 0 0 0	1 0	2000	2602	107.9761	108.6989	
H G G15	2252-10	HD269698	05 31	51.710	-67 40	04.30	483	0.50	-99.99	0 0 0 3	1 0	500	1502	108.8828	109.3000	
H P H09	3266-21	YZ-CNC	08 07	52.590	+28 17	32.30	501	1.00	-99.99	0 1 0 3	1 0	2000	2088	109.5100	110.0900	
H P G11	3405-11	RS-OPH	17 47	31.560	-06 41	39.20	95	1.00	-99.99	0 0 0 3	1 0	2000	990	110.3250	110.6000	WUPPE J=11.51
H P H05	8208-11	MKN3	06 09	48.420	+71 03	10.70	7	0.11	-99.99	0 0 0 3	1 0	4000	3024	110.7997	111.6397	
H P H10	4413-10	CYGLOOPB	20 55	16.450	+30 54	05.40	534	1.00	135.00	2 1 0 3	2 0	2000	1897	111.7831	112.3100	A-1 radiative
H G G12	2534-11	GD71	05 49	34.850	+15 52	35.00	479	0.20	-99.99	0 0 0 3	1 0	1800	1765	112.4931	112.9833	PM_cor
H G G11	3409-11	V1016CYG	19 55	19.860	+39 41	29.80	95	1.00	-99.99	0 0 0 3	1 0	2000	1322	113.1661	113.5333	WUPPE V=11.30
H P H01	0003-11	G191B2B	05 01	31.530	+52 45	48.40	478	0.20	-99.99	0 0 0 3	1 0	2000	2542	113.7106	114.4167	also_2509
H G G14	4469-21	CYGLP-P7	20 52	34.300	+32 06	21.00	487	2.00	135.00	2 0 0 3	1 0	2000	3133	114.5697	115.4400	
U P U10	7316-10	NGC5253	13 37	04.999	-31 23	29.98	340	60.00	-99.99	0 0 0 0	2 0	2000	2448	115.7200	116.4000	UIT added 11/
U P U05	5101-12	NGC2808	09 11	03.900	-64 39	22.50	90	0.68	-99.99	0 0 0 0	1 0	2000	1146	116.5483	116.8667	
U P U10	6604-10	NGC3115	10 02	44.400	-07 28	32.00	425	15.00	-99.99	0 0 0 0	1 0	2000	2704	117.0700	117.8211	RT=10
U P U10	7401-10	NGC1549	04 14	51.000	-55 48	33.00	340	60.00	-99.99	0 0 0 0	2 0	2000	2066	117.9761	118.5500	xMID betw 154
U G G22	6223-10	NGC4038	11 59	19.000	-18 35	12.00	425	8.00	110.00	2 0 0 0	1 0	2000	2033	118.7200	119.2847	RT=20
U P U16	8211-10	NGC1672	04 44	55.000	-59 20	18.00	425	8.00	170.00	2 0 0 0	2 0	2000	1800	119.6722	120.1722	RT=10
U P U10	6134-10	SEX-A	10 08	34.200	+04 26	44.00	340	60.00	-99.99	0 0 0 0	1 0	2000	1803	120.3361	120.8369	xNew pos 5/94
W P W31	2205-10	PSI-FER	03 32	55.512	+48 01	41.41	1	0.16	-99.99	0 0 0 0	3 1	2000	2700	121.2400	121.9900	sh; bin; vsin
W G G32	2306-10	HD191765	20 08	21.618	+36 01	39.99	1	0.28	-99.99	0 0 0 3	1 0	2000	2207	122.1869	122.8000	HUT
W P W11	4595-20	HD191765	04 03	25.919	+62 11	48.61	1	0.46	-99.99	0 0 0 3	1 0	2000	1819	123.0147	123.5200	NGC1502
W P W11	4586-20	HD25090	03 58	30.669	+62 16	58.54	1	0.37	-99.99	0 0 0 3	1 0	2000	2221	123.7231	124.3400	next orbit af
W G G32	2306-30	HD191765	20 08	21.618	+36 01	39.99	1	0.28	-99.99	0 0 0 3	1 0	2000	1784	124.5544	125.0500	NGC1502
W P W11	4596-40	HD24992	03 57	33.500	+62 22	46.00	450	99.99	90.00	2 0 0 3	2 0	2000	2080	125.2722	125.8500	next orbit af
W G G32	2306-40	HD191765	20 08	21.618	+36 01	39.99	1	0.28	-99.99	0 0 0 3	1 0	2000	1981	126.0297	126.5800	RT=5;NGC1502
H G G12	2586-10	RE0512	05 09	33.610	-00 45	40.20	95	0.30	-99.99	0 0 0 3	2 0	2000	2065	126.7597	127.3333	next orbit af
H P H04	8116-12	NGC4151	12 08	01.060	+39 41	02.00	160	0.01	-99.99	0 0 0 3	1 0	6000	1887	127.5258	128.0500	
H P H05	8202-21	NGC1068	02 40	07.230	-00 13	22.80	520	0.20	8.40	2 0 0 3	1 0	4000	2160	128.9500	129.5500	Off_NE_from_n
H P H10	4445-11	CYGLP-P2	20 54	52.100	+30 55	16.00	59	1.50	30.00	2 1 0 3	2 0	2000	3401	129.7686	130.7133	SE_IUE_Posn
U P U10	7305-10	NGC2903	09 29	19.900	+21 43	19.00	425	10.00	17.00	2 0 0 0	1 0	2000	2110	130.9106	131.4967	RT=10
U P U04	5403-12	N4	04 53	26.960	-67 00	14.90	95	2.00	-99.99	0 0 0 0	1 0	1500	967	131.7369	132.0056	HD268653,HSTG
U P U10	6406-10	NGC4449	12 25	44.852	+44 23	23.00	89	1.00	-99.99	0 0 0 0	1 0	2000	2783	132.3861	133.1592	
W G G32	2302-40	HD50896	06 52	08.092	-23 51	51.60	1	0.64	-99.99	0 0 0 3	2 0	2000	3233	133.4711	134.3692	about 1 day a
H P H14	2843-10	HD31726	04 55	27.330	-14 18	27.10	450	1.00	-99.99	0 0 0 3	2 0	700	1439	136.5500	136.9500	B2V; w/28
H P H01	2517-10	GD153	12 54	35.210	+22 18	06.20	481	1.00	-99.99	0 0 0 3	2 0	1800	2520	137.0919	137.7919	
H P H01	2567-21	GD394	21 11	03.400	+49 53	54.50	538	3.00	-99.99	0 1 0 3	2 0	2000	1764	137.9230	138.4130	in SAA < 1/2
H P H02	8415-23	1700+64	17 00	40.470	+64 16	25.00	481	1.00	-99.99	0 0 0 3	2 0	6000	2354	138.4628	139.1167	
H P H14	2830-10	HD189957	19 59	18.180	+41 52	09.70	450	1.00	-99.99	0 0 0 3	2 0	800	1392	139.3833	139.7700	O9.5III; w/28
H P H02	8415-24	1700+64	17 00	40.470	+64 16	25.00	481	1.00	-99.99	0 0 0 3	2 0	6000	2355	139.9858	140.6400	
H G G11	3430-11	BF-CYG	19 21	55.370	+29 34	34.40	95	1.00	-99.99	0 0 0 3	2 0	2000	1203	140.9047	141.2389	WUPPE V=11.52
H G G13	7342-14	0833+652	08 33	57.400	+65 17	46.00	517	5.00	-99.99	0 1 0 3	1 0	6000	2765	141.3986	142.1667	
H G G11	3404-11	CH-CYG	19 23	14.210	+50 08	30.80	95	1.00	-99.99	0 0 0 3	1 0	2000	1138	142.4103	142.7264	WUPPE V= 7.50
U G G22	6202-10	NGC2841	09 18	35.850	+51 11	24.10	425	1.25	147.00	2 0 0 0	1 0	2000	2758	142.9186	143.6847	RT=10
U P U10	6103-11	NGC0205	00 37	38.200	+41 24	58.00	425	1.80	170.00	2 0 0 0	1 0	2000	1722	143.9214	144.3997	RT=10
U G G22	6215-10	NGC2403	07 32	18.250	+65 43	22.00	533	2.00	-99.99	0 0 0 0	1 0	2000	2404	144.5133	145.1811	HII_Reg_298,
W P W11	4503-10	HD62542	07 40	58.073	-42 06	36.16	1	0.73	-99.99	0 0 0 3	1 0	2000	3443	145.6436	146.6000	?? w!CH+,CN-C
W G G32	2316-10	HD96548	11 04	18.018	-65 14	21.13	1	0.52	-99.99	0 0 0 3	1 0	2000	2099	146.6836	147.2667	HUT
W P W12	4526-10	HD73882	08 37	19.468	-40 14	31.55	1	0.80	-99.99	0 0 0 3	1 0	2000	2520	147.3500	148.0500	large DeltaBu
W G G32	2316-20	HD96548	11 04	18.018	-65 14	21.13	1	0.52	-99.99	0 0 0 3	1 0	2000	2148	148.1333	148.7300	next orbit af

H P H09	3232-22	WX-HYI	02 08	29.350	-63 32	48.20	501	1.00	-99.99	0 0 1	0 3 2	2000	2552	198.5945	199.3033	
H P H07	7407-21	NGC4631	12 39	39.760	+32 47	30.00	537	5.00	86.00	2 1 0	0 3 2	2000	2534	199.5561	200.2600	RT=2 OVLP_UIT
U P U10	6597-10	CARINA	06 40	24.020	-50 54	59.67	447	60.00	-99.99	0 0 0	0 0 2	2000	2647	200.5647	201.3000	UIT added 11/
U P U05	5109-11	NGC6752	19 06	27.300	-60 03	50.50	90	0.50	-99.99	0 0 0	0 0 1	2000	1882	201.4772	202.0000	7/94 cl ctr
U P U10	6141-13	M31A	00 41	24.300	+41 21	32.00	540	5.00	-99.99	0 0 0	0 0 1	2000	1817	202.2600	202.7647	HUT: G267
U P U05	5107-10	M13	16 39	46.420	+36 31	47.40	469	1.00	-99.99	0 0 0	0 0 1	2000	2282	202.9058	203.5397	HUT: UVBS B29
U P U10	6225-10	NGC4258	12 16	29.390	+47 34	53.20	425	1.25	150.00	2 0 0	0 0 1	2000	3053	203.9406	204.7886	RT=10
U P U04	5302-10	NGC0752	01 54	38.850	+37 14	51.39	95	1.00	-99.99	0 0 0	0 0 1	2000	1800	205.0167	205.5167	MRHUT: BLUE S
U P U18	9203-11	HER-CIUS	16 03	11.998	+17 57	00.00	338	60.00	-99.99	0 0 0	0 0 1	4000	1826	205.7128	206.2200	
W P W12	4560-10	HD207198	21 43	30.732	+62 13	47.05	1	0.41	-99.99	0 0 0	0 3 1	2000	2266	208.3406	208.9700	gutchem&extin
W P W32	3271-10	NCEB-95	12 59	27.750	-59 55	31.13	547	1.00	-99.99	0 0 0	0 3 5	2000	1741	209.2303	209.7039	pr 1 if brigh
H P H09	3213-10	Z-CAM	08 19	39.500	+73 16	23.70	20	0.60	-99.99	0 0 0	0 3 2	2000	2876	209.9397	210.7386	
H P H01	2567-20	GD394	21 11	03.400	+49 53	54.50	538	3.00	-99.99	0 0 1	0 3 2	2000	1688	210.9478	211.4167	in SAA < 1/2
H P H06	8612-10	MKN421	11 01	40.600	+38 28	42.70	114	0.09	-99.99	0 0 0	0 3 1	2500	2396	211.6561	212.3217	
H P H10	4442-10	CYGL00PD	20 43	34.910	+30 55	33.00	24	1.00	0.00	2 0 0	0 3 3	2000	1575	212.5425	212.9800	
H P H03	8121-12	MKN279	13 51	53.580	+69 33	13.20	7	0.09	50.00	2 0 0	0 3 1	4000	2705	213.0953	213.8467	RT=20
W P W31	2231-11	EW-LAC	22 54	51.568	+48 24	59.86	1	0.26	-99.99	0 0 0	0 3 1	2000	2000	213.9611	214.5167	extreme on tr
W P H04	8115-10	NGC3516	11 03	22.840	+72 50	20.20	7	0.10	-99.99	0 0 0	0 3 1	2000	2431	214.6967	215.3719	
U P U10	6598-10	HOLMBERG 2	08 14	05.998	+70 52	00.00	523	60.00	-99.99	0 0 0	0 3 1	2000	3087	215.9406	216.7980	xNew pos ref,
U P U10	6142-11	M31S	00 37	17.700	+40 17	41.00	540	5.00	-99.99	0 0 0	0 3 2	2000	2460	217.7061	218.3895	HUT: G42
U P U10	7303-11	NGC3310	10 35	40.300	+53 45	45.00	425	10.00	-99.99	0 0 0	0 3 1	2000	1533	217.1408	217.5667	
W P W11	4563-10	HD216658	22 51	33.417	+61 52	06.62	1	0.32	-99.99	0 0 0	0 3 1	2000	2732	218.6578	219.4167	scn, CH>CH+
W P W11	4549-10	HD161961	17 46	00.569	-02 10	50.91	1	0.27	-99.99	0 0 0	0 3 2	2000	3118	219.5908	220.4569	
W G G32	2317-10	HD931131	10 41	56.746	-59 51	17.88	1	0.38	-99.99	0 0 0	0 3 1	2000	3534	220.8728	221.8544	HUT
H G G14	4460-10	VELA-H	08 39	31.740	-44 34	23.00	493	3.00	0.00	2 0 0	0 3 1	2000	3152	222.1222	222.9978	
H P H03	8102-12	FAIRALL9	01 21	51.220	-59 03	28.90	13	0.20	-99.99	0 0 1	0 3 2	4000	2434	223.1539	223.8300	
H P H09	3204-13	EF-ERI	12 41	09.000	+11 49	23.00	349	4.00	105.00	2 0 0	0 3 2	4000	1797	224.7508	225.2500	RT=10
H P H07	6310-32	M60	03 11	59.860	-22 46	47.40	20	1.50	-99.99	0 0 0	0 3 2	2000	1896	225.5211	226.0478	RT=10
H G G15	2210-11	HD269810	05 35	21.010	+67 35	15.60	483	4.00	105.00	2 0 0	0 3 2	4000	2005	226.2264	226.7833	
H G G13	7343-13	1050+04	10 50	28.400	-04 53	52.00	516	3.00	-99.99	0 1 0	0 3 2	6000	2604	226.9339	227.6572	
U G G22	6271-11	NGC1291	03 15	28.000	-41 17	24.00	425	8.00	-99.99	0 0 0	0 1 2	2000	1122	227.8550	228.1667	
U P U19	9405-11	SA57	13 06	15.614	+29 40	29.89	342	15.00	-99.99	0 0 0	0 1 1	4000	2452	228.4161	229.0972	
U P U04	5312-11	NGC6791	19 19	04.520	+37 35	56.10	541	1.00	-99.99	0 0 0	0 1 1	2000	1955	229.2206	229.7636	HUT: sdo STAR
U P U10	6235-12	M101A	14 01	22.040	+54 33	47.97	539	4.00	175.00	2 0 0	0 3 1	2000	3059	229.8936	230.7333	RT=10 Searle
W P W13	4564-10	HD216898	22 53	44.180	+62 02	21.16	1	0.36	-99.99	0 0 0	0 3 1	2000	2078	230.9172	231.6333	gutchem&extin
W P W31	2223-11	CHI-OPH	16 24	07.286	-18 20	40.22	1	0.17	-99.99	0 0 0	0 3 1	2000	3515	231.8903	232.5333	pole-on; SpT
W P W31	2107-10	ALF-CAM	04 49	03.825	+66 15	38.64	1	0.03	-99.99	0 0 0	0 3 2	600	1559	232.7336	233.1667	Astro-1; FUSP
W P W31	2222-10	48LIB	15 55	23.102	-14 08	11.73	1	0.07	-99.99	0 0 0	0 3 2	2000	2514	233.3808	234.0792	sh; vsini 400
H P H03	8138-11	MKN478	14 40	04.600	+35 39	07.00	402	1.00	-99.99	0 0 0	0 3 3	2000	3102	234.5711	235.4328	
H P H02	8415-16	1700+64	17 00	40.470	+64 16	25.00	481	1.00	-99.99	0 0 0	0 3 1	6000	3068	235.8978	236.7500	
H P H10	4413-11	CYGL00PB	20 55	16.450	+30 54	05.40	534	1.00	135.00	2 1 0	0 3 2	2000	1820	236.8445	237.3500	A-1 radiative
H P H02	8415-17	1700+64	17 00	40.470	+64 16	25.00	481	1.00	-99.99	0 0 0	0 3 1	6000	2801	237.5119	238.2900	
H P H09	3322-20	WX-HYI	02 08	29.350	-63 32	48.20	501	1.00	-99.99	0 0 1	0 3 2	2000	1825	238.5597	239.0667	
H P H03	8424-10	3C273	12 26	33.250	+02 19	43.20	113	0.07	-99.99	0 0 0	0 3 1	2000	2421	239.2786	239.9511	
U G G22	6246-10	NGC4736	12 48	31.860	+41 23	31.20	425	0.57	-99.99	0 0 0	0 1 1	2000	2246	240.5594	241.1833	
U P U10	6207-11	NGC1097	02 44	11.000	-30 28	54.00	425	8.00	130.00	2 0 0	0 1 1	2000	1796	241.5344	242.0333	RT=10
V A00	9816-00		07 52	07.801	+22 08	03.48	153	10.00	-99.99	0 1 1	0 1 1	1000	420	242.1667	242.2833	Phase 60deg
U G G23	1320-60	LUNA	07 37	24.455	+16 27	27.36	999	10.00	-99.99	0 1 1	0 1 1	1000	1200	242.3667	242.7000	Phase 10deg
W P W31	3606-11	ALF-ORI	05 52	27.809	+07 23	57.92	1	0.03	-99.99	0 0 0	0 3 1	4000	3099	243.2614	244.1222	
W P W31	2133-31	P-CYG	20 15	56.500	+37 52	35.55	1	0.25	-99.99	0 0 0	0 3 1	2000	2833	244.3433	245.1303	end of missio
W P W32	3269-10	NCIR-95	14 40	51.280	-63 41	16.15	547	5.00	-99.99	0 0 0	0 1 5	2000	3222	245.4370	246.3319	pr 1 if brigh
H P H10	4474-10	PUPABAST	08 22	35.220	-42 47	53.51	85	2.00	130.00	2 0 0	0 3 1	2000	3173	246.5119	247.3933	RT=5
H G G11	3410-11	RR-FEL	20 00	20.160	-55 52	03.10	95	1.00	-99.99	0 0 0	0 3 1	2000	1792	247.5308	248.0286	WUPPE J=10.60
H G G14	4429-10	SN1006	14 59	03.300	-41 33	03.84	85	2.00	55.00	2 0 0	0 3 1	2000	3120	248.4553	249.3219	RT=5, NM_OPT_F
U P U15	7407-10	NGC4631	12 39	39.760	+32 47	30.00	537	5.00	86.00	2 1 0	0 1 1	2000	2855	249.7236	250.5167	RT=2 OVLP_HUT
U P U05	5303-10	NGC7789	23 54	00.000	+56 27	00.00	452	60.00	-99.99	0 0 0	0 3 2	2000	1800	250.6631	251.1631	UIT added 6/9
U G G22	7107-10	M51	13 27	45.980	+47 27	21.50	425	1.25	-99.99	0 0 0	0 1 1	2000	2880	251.2997	252.0997	

U P U06	4807-10	CB_4	00	36	15.000	+52	35	28.00	360	10.00	0	0	0	0	0	2	2000	1294	252.2406	252.6000	RT=3
U P U18	9101-11	COMA-CL	12	57	10.961	+28	13	42.99	92	3.00	-99.99	0	0	0	0	0	4000	2496	252.8019	253.4953	Two pointings
U P U10	6102-11	NGC0185	00	36	11.399	+48	03	43.99	43	5.00	-99.99	0	0	0	0	3	2000	1451	253.7469	254.1500	UIT added 6/9
U P U18	9101-12	COMA-CL	12	57	10.961	+28	13	42.99	92	3.00	-99.99	0	0	0	0	1	4000	2497	254.3264	255.0200	Two pointings
U P U10	6408-10	NGC1313	09	08	12.230	+20	30	01.08	999	1.00	0.00	2	0	0	0	3	2000	1816	255.2456	255.7500	RT=10
W P W21	1205-10	MARS	03	18	14.100	+42	44	45.00	15	1.00	79.00	2	1	0	0	3	2000	2084	255.9428	256.5217	RT=5;view equ
W P W11	4569-11	HD217490	22	58	05.041	+59	21	04.98	1	0.14	-99.99	0	0	0	3	1	2000	3078	256.7617	257.6167	LamMax.36
W P W32	3323-11	BET-LXR	11	03	22.840	+72	50	20.20	7	0.10	-99.99	0	0	0	3	1	2000	2734	257.7239	258.4833	ephemeris tar
H P H04	8115-20	NGC3516	19	23	14.210	+50	08	30.80	95	1.00	-99.99	0	0	0	3	2	2000	3202	258.6830	259.5725	WUPPE V= 7.50
H G G13	7350-11	NGC6090	16	10	24.500	+52	35	06.00	516	3.00	-99.99	0	0	0	3	1	2000	2299	259.7953	260.4339	
H P H01	2607-13	1707+427	17	07	14.100	+42	44	45.00	15	1.00	-99.99	0	0	0	3	3	2600	1178	261.2197	261.1197	
H P H01	2603-13	H1504+65	15	01	24.400	+66	24	01.90	439	3.00	-99.99	0	0	0	3	1	2000	2240	261.7944	262.4167	
H P H13	1201-10	VENUS	20	55	07.830	-17	05	45.85	525	1.00	79.00	2	1	0	3	1	2000	2228	262.6478	263.2667	For_3_2_95_at
H P H04	8116-14	NGC4151	12	08	01.060	+39	41	02.00	160	0.01	-99.99	0	0	0	3	1	6000	1404	263.5000	263.8900	
H P H09	3253-12	EM-CYG	19	36	42.040	+30	23	33.60	501	1.00	-99.99	0	0	0	3	3	2000	2660	264.0444	264.7833	
U P G22	7309-10	NGC4214	12	13	08.030	+36	36	22.00	425	1.55	135.00	2	0	0	0	1	2000	2382	264.9378	265.5995	RT=20
U P U10	6108-10	M31W	00	37	25.800	+40	54	38.00	540	5.00	-99.99	0	0	0	3	2000	1610	265.9125	266.3597	HUT: G45	
U G G21	9428-10	UGC5675	10	25	39.000	+19	48	24.00	460	3.00	-99.99	0	0	0	0	1	2000	2130	266.5983	267.1900	xNew pos 5/94
W G G31	4592-10	SK67-78	05	20	23.010	-67	20	58.45	95	2.00	-99.99	0	0	0	3	1	600	2511	267.3608	268.0583	HUT
W G G31	4511-10	SK66-19	04	55	48.200	-66	29	36.08	95	2.00	-99.99	0	0	0	1	1	2000	3690	268.1417	269.1667	pair with 459
W G G31	4591-10	SK69-83	05	14	51.510	-69	33	00.80	95	2.00	-99.99	0	0	0	3	1	600	1200	269.2500	269.5833	HUT
W G G31	4511-20	SK66-19	04	55	48.200	-66	29	36.08	95	2.00	-99.99	0	0	0	1	1	2000	3360	269.6667	270.6000	pair with 459
H P H11	4702-11	H2H	05	33	59.700	-06	49	02.00	27	2.00	-99.99	0	1	0	3	1	2000	3121	270.6851	271.5521	
H P H13	1201-21	VENUS	20	57	25.608	-16	59	47.76	525	1.00	79.00	2	1	0	3	2	2000	2107	271.8147	272.4000	For_3_2_95_at
H P H06	8612-21	MKN421	11	01	40.600	+38	28	42.70	114	0.09	-99.99	0	0	0	3	2	2500	2507	272.6167	273.3130	
H G G14	4473-21	CYGLP-11	20	55	12.950	+30	50	52.00	487	1.00	0.00	2	0	0	3	1	2000	1782	273.5750	274.0700	
H G G13	7350-15	NGC6090	16	10	24.500	+52	35	06.00	516	3.00	-99.99	0	1	0	3	1	6000	2131	274.2480	274.8400	
H P H01	2705-10	K1-16	18	21	36.819	+64	20	18.96	39	7.00	-99.99	0	0	0	3	3	1500	2280	274.9167	275.5500	
H G G13	7342-15	0833+652	08	33	57.400	+65	17	46.00	517	5.00	-99.99	0	1	0	3	1	6000	2044	275.7000	276.2678	
U P U12	6138-10	M32	00	39	57.700	+40	35	29.30	4	1.17	35.00	2	0	0	3	2	4000	2287	276.5647	277.2000	RT=10; UIT
U P U18	9203-12	HER-CLUS	16	03	11.998	+17	57	00.00	338	60.00	-99.99	0	0	0	0	1	4000	1857	277.3767	277.8925	
U P U05	5109-14	NGC6752	19	06	27.300	-60	03	50.50	90	0.50	-99.99	0	0	0	0	1	2000	1623	278.0253	278.4761	7/94 cl ctr
U P U18	9302-20	AB1795	13	46	33.940	+26	50	27.60	48	0.30	179.10	2	1	0	0	1	2000	3069	278.7636	279.6161	RT=2; OVLP_HU
W P W23	3120-11	AB-AUR	04	52	34.347	+30	28	21.61	1	0.49	-99.99	0	0	0	3	1	2000	1921	279.9764	280.5100	prototype; po
W P W01	0656-20	HD161056	17	41	04.999	-07	03	29.06	1	0.53	-2.50	3	0	0	3	1	2000	2360	280.7611	281.4167	last half of
W P W01	0608-20	BET-UMA	10	58	50.251	+56	39	03.12	1	0.04	90.00	3	0	0	3	1	2000	3155	281.5911	282.4675	last half of
H P H03	8447-10	PKS0405	04	05	27.400	-12	19	31.80	51	1.00	-99.99	0	0	0	3	3	2000	3160	282.7586	283.6364	
H P H09	3223-21	AM-HER	18	14	58.750	+49	50	54.90	20	0.60	-99.99	0	1	0	3	2	2000	2887	283.8994	284.7014	
H P H07	6310-21	M60	12	41	09.000	+11	49	23.00	349	4.00	105.00	2	0	0	3	1	4000	1993	284.9633	285.5169	RT=10;OVLP_UI
H G G15	2268-11	NGC346_4	00	57	19.570	-72	26	47.20	482	0.50	-99.99	0	0	0	3	2	1600	1955	285.7014	286.2444	
H P H07	6353-30	M87	12	28	17.560	+12	40	02.00	80	0.80	20.00	2	0	0	3	2	2000	1856	286.5267	287.0422	RT=10
H G G12	2564-13	WOLF1346	20	32	12.720	+24	53	30.80	481	0.50	-99.99	0	0	0	2	1	1800	1968	287.2433	287.7900	PM_Cor
H P H04	8122-10	NGC5548	14	15	43.480	+25	22	01.10	160	0.14	-99.99	0	0	0	3	1	2000	2952	287.9775	288.7975	
U P U18	9399-10	NGC2300	07	13	03.786	+85	49	44.15	999	99.99	-99.99	0	0	0	3	1	2000	1056	289.0067	289.3000	
U P U05	5105-10	M3	13	39	58.470	+28	41	06.50	477	1.00	-99.99	0	0	0	2	2	2000	2461	289.4664	290.1500	HUT:UVBS vZ 1
U G G22	6259-10	NGC0925	02	24	16.600	+33	21	20.00	425	10.00	102.00	2	0	0	0	1	2000	2316	290.3567	291.0000	RT=10
U G G23	1320-70	LUNA	09	20	59.112	+10	14	15.00	999	10.00	-99.99	0	1	1	0	1	1000	1200	291.6667	291.6000	Phase 60deg
W P W32	3270-13	NOVA-AQL	19	02	50.900	-01	46	40.30	547	5.00	-99.99	0	0	0	1	5	2000	2294	293.0461	293.6833	pr 1 if brigh
W P W34	4109-11	NGC3132	10	04	55.199	-40	11	30.60	159	1.00	140.00	2	0	0	1	1	2000	2604	293.9600	294.6833	RT=5;do early
W P W32	2282-23	HD5980	00	57	46.350	-72	26	02.90	482	0.50	-99.99	0	1	0	3	2	2000	1533	294.9244	295.3503	ephemeris tar
H G G14	4455-10	LMC_0519	05	19	55.440	-69	05	04.10	534	1.00	40.00	2	0	0	3	1	2000	2759	295.4336	296.2000	RT=5,SE_limb
H G G15	2269-11	NGC346_6	00	57	16.880	-72	26	42.90	482	0.50	-99.99	0	0	0	3	2	2300	2220	296.2833	296.9000	
H P H03	8506-11	1211+143	12	11	44.800	+14	19	53.00	14	1.00	-99.99	0	0	0	3	1	4000	2475	297.1561	297.8436	
U P U07	4416-10	SN1987A	05	35	48.915	-69	15	38.61	62	0.20	-99.99	0	0	0	0	1	2000	4397	298.0172	299.2386	WUPPE SK69-20
U P U04	5404-10	N79	04	53	54.000	-69	22	05.00	546	60.00	-99.99	0	0	0	2	1	1500	2716	299.3219	300.0764	between LH 1,
U P U10	6198-10	LMC-BAR	05	25	26.399	-69	40	40.77	86	1.00	90.00	2	0	0	1	1	1500	2172	300.1597	300.7631	RT=10, same po
U P U04</																					

U P U04	4305-10	N70	DEM301	05 42	57.510	-67	52	03.50	534	2.00	0.00	2	0	0	0	3	2000	1685	301.4653	301.9333	RT=10, Brt_W_
U P U05	5201-12	47-TUC	NGC0104	00 21	44.610	-72	22	08.39	4	2.00	-99.99	0	0	0	0	1	2000	3409	302.0408	302.9878	HUT: UVBS BS
U P U12	8310-12	CEN-A	NGC5128	13 22	30.430	-42	44	27.00	4	1.02	300.00	2	0	0	0	1	4000	2004	303.2558	303.8125	RT=10;HUT:OFF
U P U05	5112-10	NGC6397		17 36	34.300	-53	36	58.17	95	1.00	-99.99	0	0	0	0	2	2000	1215	303.8958	304.2333	UIT added 11/
V V A10	9803-00	IMC-GYRO	CARINA	06 40	24.020	-59	54	59.67	325	99.99	-99.99	0	0	0	0	1	6000	660	304.4594	304.6428	IMC GYRO
W G G31	4519-11	SK69-270	HD269997	05 41	41.500	-69	06	27.70	95	2.00	-99.99	0	0	0	1	2000	3765	304.7342	305.7800	pair with 459	
W G G31	4593-11	SK67-90	HD269440	05 23	04.020	-67	14	02.90	95	2.00	-99.99	0	0	0	3	2	600	1124	305.8633	306.1756	HUT
W G G31	4519-21	SK69-270	HD269997	05 41	41.500	-69	06	27.70	95	2.00	-99.99	0	0	0	1	2000	3856	306.2589	307.3300	pair with 459	
H P H14	2828-20	HD57682	S134580	07 19	38.110	-08	53	00.00	450	1.00	-99.99	0	0	0	3	1	700	1499	307.4536	307.8700	O9IV; w/28
H P H01	4103-11	NGC1360	G327.6	14 59	03.300	-41	33	03.84	85	2.00	-99.99	0	0	0	3	2	2000	1137	308.0742	308.3900	RT=5,NW_OPT_F
H P H07	6310-22	M60	PHL1556	03 31	07.000	-26	02	12.00	16	3.00	-99.99	0	0	0	3	2	1500	1852	308.6056	309.1200	
H P H14	2866-10	HD188665	NGC4649	12 41	09.000	+11	49	23.00	349	4.00	105.00	2	0	0	3	1	4000	1844	309.3978	309.9100	RT=10;OVLP_UI
H P H03	8506-12	LD11+143	S32085	19 52	15.840	+57	23	31.00	450	1.00	-99.99	0	0	0	0	0	0	1878	310.1450	310.6667	B5V;
H G G11	3401-11	EG-AND	HD4174	00 41	52.730	+40	24	21.10	95	1.00	-99.99	0	0	0	3	1	4000	2098	310.9175	311.5003	
H P H01	2607-14	1707+427		12 26	33.250	+02	19	43.20	113	0.07	-99.99	0	0	0	3	2	4000	1774	312.4239	312.9167	WUPPE V= 7.40
U G G22	6232-11	M63	NGC5055	13 13	36.440	+42	17	34.00	425	1.00	-99.99	0	0	0	3	2	2600	1450	313.0572	313.4600	
U P U05	5304-11	NGC0752	NORTH	01 54	15.570	+37	32	14.05	528	1.00	-99.99	0	0	0	2	2000	1561	314.7264	315.1600	UIT P745, N.	
H P H07	6309-20	M89	NGC4552	12 33	08.400	+12	49	57.00	49	3.00	-99.99	0	0	0	3	4	2000	2220	315.4033	316.0200	UIT
W P W11	4566-11	HD188220	CD-69474	05 40	06.840	-69	46	01.80	95	2.00	-99.99	0	0	0	2	2000	1334	316.2792	316.6497	high-b	
W G G31	4517-10	SK69-254	AV232	00 57	51.480	-72	26	57.10	482	0.50	-99.99	0	0	0	3	2	600	3307	316.7814	317.7000	HUT
H G G15	2251-11	SK80	HD270151	05 49	33.070	-70	03	16.80	95	2.00	-99.99	0	0	0	1	2	2000	1608	317.7833	318.2300	pair with 459
H P H01	2702-10	LSV46-21		04 39	40.600	+46	36	27.40	4	1.10	-99.99	0	0	0	3	2	1500	3893	318.4186	319.5000	
H P H04	8116-23	NGC4151		12 08	01.060	+39	41	02.00	160	0.01	-99.99	0	0	0	3	2	6000	1092	319.6987	320.0000	
W P W11	4566-12	HD188220		19 51	50.302	-16	02	43.53	1	0.34	-99.99	0	0	0	3	2	2000	1224	320.2500	320.5900	
H P H10	4410-11	VELA-P1	SBFIL	08 58	39.270	-45	42	44.20	534	1.00	18.00	2	1	0	3	1	2000	1371	320.7992	321.1800	high-b
U P G22	6299-12	NGC1365		03 31	41.000	-36	18	24.00	485	8.00	85.00	2	0	0	3	2	2000	2666	321.3694	322.1100	RT=10
U P U05	5116-10	OMG-CEN	NGC4486	12 28	17.560	+12	40	02.00	80	0.80	20.00	2	0	0	0	1	2000	1873	322.2797	322.8000	RT=5,NEW UIT
U P G22	6269-11	NGC1512	NGC5139	13 22	45.680	-47	08	26.72	472	1.00	-99.99	0	0	0	1	2000	2122	323.0436	323.6331	RT=10;OVLP_HU	
U P U05	5108-12	M92	NGC6341	17 15	35.012	+43	11	21.09	90	0.55	-99.99	0	0	0	0	1	2000	2242	325.3439	325.9667	HUT: UVBS ROA
W G G32	2320-11	HD51285		06 53	38.903	-24	36	47.30	1	0.34	-99.99	0	0	0	0	1	2000	3006	326.1483	326.9833	
W P W34	3613-11	HR4049	HD89353	10 15	49.908	-28	44	29.04	1	0.09	15.00	2	0	0	3	2	1000	1876	327.2189	327.7400	HUT:ISM PROBE
W P W31	2242-11	510PH	HD158643	17 28	21.745	-23	55	33.43	149	0.01	-99.99	0	0	0	3	1	4000	1069	327.9103	328.2072	RT=5
H P H13	1204-51	JUPTHER		13 14	00.170	+29	21	44.80	479	0.20	-99.99	0	0	0	3	1	1500	1810	329.0305	329.5333	poss HaeBe?;
H G G13	7347-12	MRK66		16 52	14.688	-21	42	51.84	525	1.00	90.00	2	1	1	3	2	2000	1932	329.6525	330.1892	also_2533
U P U05	5195-10	NGC6218	M12	16 44	31.970	-01	51	04.62	526	1.00	-99.99	0	0	0	3	2	6000	3107	330.4036	331.2669	For_3_2_95,15
U P U10	6594-12	IC2574	UGC05666	10 24	41.300	+68	40	18.00	425	10.00	-99.99	0	0	0	0	3	2000	1224	331.3682	331.7083	HUT: UVBS IV-
U P U19	9496-10	BAADES	WINDOW	18 00	21.697	-30	02	10.98	90	1.00	-99.99	0	0	0	2	2000	2060	331.9354	332.5086	UIT added 11/	
W P W22	4207-10	ETA-CARH	HD933308	10 43	06.901	-59	25	15.85	1	0.15	135.00	2	0	0	0	2	2000	1879	332.7794	333.3014	UIT added 11/
W P W32	3301-20	AO-CAS	HD1337	00 15	03.347	+51	09	19.80	1	0.26	-99.99	0	0	0	1	2	4000	2169	333.7033	334.3058	RT=5;also 211
W P W11	4547-12	RHOOPHAB	HD147933	16 22	34.963	-23	20	01.41	1	0.15	160.00	2	0	0	3	2	2000	2897	334.5653	335.3700	ephemeris tar
W G G31	4516-12	SK69-239	HD269902	05 38	30.380	-69	07	55.94	95	2.00	-99.99	0	0	0	3	1	2000	2374	335.6000	336.2594	RT=5;FUSP
W P W11	4566-13	HD188220		19 51	50.302	-16	02	43.53	1	0.34	-99.99	0	0	0	3	2	2000	2436	336.7533	337.4300	HUT
H P H02	8535-14	Q1542+54		15 42	41.900	+54	08	26.00	481	1.00	-99.99	0	0	0	3	1	6000	2771	338.1108	338.8806	
H P H03	8126-10	MKN509		20 41	26.280	-10	54	18.20	7	0.17	-99.99	0	0	0	3	3	4000	1460	339.0444	339.4500	
H P H02	8535-15	Q1542+54		15 42	41.900	+54	08	26.00	481	1.00	-99.99	0	0	0	3	1	6000	2807	339.6255	340.4053	
H P H01	2567-32	GD394		21 11	03.400	+49	53	24.00	538	3.00	-99.99	0	0	0	3	1	2000	1891	340.5247	341.0500	in SAA < 1/2
U P U10	8210-12	NG3226-7	A94	10 20	46.780	+20	07	06.14	425	0.25	-99.99	0	0	0	1	2000	2556	341.2200	341.9300	HUT_8133_Posn	
U P U16	8106-12	NGC1566		04 18	53.000	-55	03	24.00	425	8.00	-99.99	0	0	0	1	2000	2695	342.1847	342.9333		
U G G23	1320-80	LUNA	AMET291	11 12	05.039	+01	02	26.52	999	10.00	-99.99	0	1	1	0	1	1000	1200	343.1000	343.4333	Phase 30deg
W P W31	2265-10	XI-PER	HD24912	03 55	42.825	+35	38	56.50	1	0.05	-99.99	0	0	0	3	1	2000	2092	343.9355	344.5167	SCH,CH+,CN,SD
W P W11	4577-10	OMI-SCO	HD147084	16 17	37.370	-24	03	02.03	1	0.19	-99.99	0	0	0	3	1	2000	2287	344.7669	345.4022	
W P W32	3807-12	VELA-X-1	HD77581	09 00	13.184	-40	21	25.29	1	0.62	-99.99	0	0	0	1	2000	2432	345.7245	346.4000	ephemeris tar	
W P W11	4543-11	HD147888		16 22	24.076	-23	20	48.42	1	0.41	-99.99	0	0	0	3	1	2000	952	346.5464	346.8108	LanMax.72

H G G12	2577-12	RE1738	-	17 38	04.750	+66 55	23.60	95	0.30	135.00	2 0 0 0	3 1	1800	1883	347.0103	347.5333	-
H P H01	2614-13	1424+535	-	14 24	14.900	+53 28	52.00	15	0.75	-99.99	0 0 0 0	3 2	2000	1680	347.6167	348.0833	-
H G G11	3403-11	AG-DRA	-	16 01	23.290	+66 56	25.80	95	1.00	-99.99	0 0 0 0	3 1	2000	2347	348.1681	348.8200	WUPPE V= 9.47
H P H03	8448-12	PG1351	-	13 51	46.300	+64 00	28.00	182	1.00	-99.99	0 0 0 0	3 2	6000	2364	348.9033	349.5600	PG1351+64
U G G22	6271-12	NGC1291	-	03 15	28.000	-41 17	24.00	425	8.00	-99.99	0 0 0 0	1 1	2000	3121	349.8058	350.6728	-
U P U06	4801-10	THUMPENT	-	12 41	19.430	-78 31	17.13	341	10.00	113.00	2 0 0 0	1 1	2000	1782	350.7850	351.2800	RT=3, roll pa
U P U05	5102-10	NGC0362	-	01 01	32.640	-71 06	59.30	90	2.07	-99.99	0 0 0 0	1 1	2000	1440	351.3633	351.7633	-
U G G22	6248-14	NGC5236	-	13 34	11.000	-29 36	48.00	425	8.00	-99.99	0 0 0 0	1 1	2000	1568	352.1667	352.6022	-
U P U10	6112-10	SMC-B	BAR	00 49	35.400	-73 00	31.00	534	3.00	-99.99	0 0 0 0	2 1	1500	1784	352.7683	353.2639	HUT,AzV95,07.
W P W22	4207-12	ETA-CARH	HD93308	10 43	06.901	-59 25	15.85	1	0.15	135.00	2 0 0 0	1 2	4000	3140	353.5130	354.3854	RT=5;also 211
W P W31	2204-10	GAM2VEL	HD68273	08 08	02.350	-47 12	13.26	1	0.09	-99.99	0 0 0 0	3 4	2000	2448	354.9100	355.5900	too brt;tgt o
H P H09	3253-13	EM-CYG	-	19 36	42.040	+30 23	33.60	501	1.00	-99.99	0 0 0 0	3 3	2000	1913	355.8472	356.3786	-
H G G13	7347-13	MRK66	-	13 23	57.800	+57 30	39.00	516	3.00	-99.99	0 1 0 0	3 2	6000	2191	356.5747	357.1833	-
H P H10	4413-12	CYGLOOPB	-	20 55	16.450	+30 54	05.40	534	1.00	135.00	2 1 0 0	3 2	2000	1755	357.3125	357.8000	A-1 radiative
U G G23	1320-90	LUNA	AMET360	11 44	50.370	-01 50	52.50	999	10.00	-99.99	0 1 1 1	1 0 1	1000	1396	358.0500	358.4380	Phase 0deg