

PARSEC: PARallaxes of Southern Extremely Cool objects

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This is production line Astronomy, the objective here is to have the telescope working all the time, e.g. be as efficient as possible. In the next page you will find some tricks to increase observations.

QUICK “startup” GUIDE

- 1) Put PARSEC obx's on 2.2 control computer, subdirectory PARSEC
- 2) Select the object closest to the meridian and start observation
- 3) After the first quick exposure locate the target and enter it's x,y
- 4) Check s/n of target in 1st frame, increase exposure time if required
- 5) Go to the next target.

Read the rest of this guide to increase efficiency.

p2pp details USER: RSMART, for PW ask ricky, Space: PARSEC

On the obx computer there is a PARSEC directory put the new .obx files in that directory which also have finders attached. If required use the above login for p2pp.

Which target to observe

Observe objects that are in meridian (± 30), if there are two use the priority. For a 3 night run on the first night at the beginning of the night go for any high priority on or less than 1 hour past meridian; skip low priority targets until you are mainly observing in meridian. If things start to slip, skip low priority targets to get back observing things in meridian. The exposure times help you understand roughly how long the given target will take, for exposure times of 150s it is a total time of 12-15 minutes, for 300s 15-20 minutes. The schedule is such that the telescope should never be idle. On the second night of a run make sure all objects not done on the first night are observed, at the beginning of the night you can go upto 2 hours after meridian, likewise at the end you can go upto 2 hours before meridian. On the last night redo all objects not observed twice. The number TT = total number of observations todate, do not bother to do targets with less than 4 in this column.

Comment regarding exposure times

If the night is not particularly good, high seeing or clouds, do mainly objects with exposure times of 150s, likewise if the night is good do mainly objects with exposure times of 300s. If the seeing is really bad then you can increase exposure times by some factor. This you can see from the first image by looking at the pixel stats the maximum where the object is should be at least counts of 100 over the mean background. If it isn't multiple the time by 1.5 or whatever is needed. For example consider a amplitude of 100 counts and sigma of 4 pixels then the Volume of a gaussian = $2.\pi$ amplitude $\sigma^2 = 10000$ and the signal/noise from Poisson statistics is the square of this, e.g. 100.

Tricks to get the most observations

- **Keep the telescope working 100%**
- **A reasonable s/n for the psf will be found when the counts-over-background in the pick object tool is > 100 . Increasing the time should only be done in exceptionally bad skies. Always do the first image with the standard length, then the second starts automatically and if the counts-over-background is < 100 in the first exposure for the object then increase time during the second exposure.**
- Start before and finish after nautical twilight.
- Use our first target to set the telescope coordinates using the coordinates in the obx file
- Observe high declination targets in the twilight zones as the sky b/g is lower
- Ask that they make a focus observation on your first target so it is already pointed and you can use that as the short move to pixel frame. If the X FWHM = Y FWHM focus does not need doing. You should not need more than one refocusing in a given night, if X FWHM not equal to Y FWHM then you will need to refocus.
- Do morning flats, keep observing 150s objects until the image is already a flat.
- During the night keep high and low declination targets together in blocks to minimize dome movements.
- Insist forcefully that the GROND observations are made during the 21:00-03:00 hours. Only with a significant scientific motive should GROND be allowed to interrupt in twilight hours.
- Take control quickly of the move-to-pixel sequence and computer, cutting and pasting the pixel values, saves time, lowers mistakes and keeps you and the other guy on your toes.
- First and last targets can be up to 2 hours out of meridian if things in the meridian have been observed on another night.
- Arrive early on the first night to set up with the telescope operator the calibration images: dome flat, sky flat, bias. They will not do both if you do not ask.
- If you plan to leave the mountain the days after observations make sure they know you need a backup before going. If you can get it on the small disk or laptop there is not need to bring their disk.
- Don't get too domesticated with the telescope controls or the telescope operator may leave you alone doing things which is fine until something goes wrong.

P: Priority, 0 highest ... 3 lowest
 T: Exposure time of the science image
 z: apparent z band mag sometimes measured sometimes estimated
 ST: Spectral types from infrared/optical spectroscopy
 7,8,9,0: approximately the number of nights in 2007...2010
 TT=Total number of nights observed

--Name----	P---	T-----	z-----	ST--7-8-9-0-1-	TT	HH-MM-SS.ss	--DD-MM-SS.s
k0004s40	2	150	15.8	L5 2 2 3 5 0 12	0	4 34.84	-40 44 5.8
k0006s17	3	300	18.4	L2 1 0 2 0 0 3	0	6 20.50	-17 20 50.6
k0010s20	0	150	16.5	L0 1 2 3 4 0 10	0	10 0.09	-20 31 12.2
k0013s22	2	300	18.6	L4 2 0 2 2 0 6	0	13 57.79	-22 35 20.0
k0014s48	3	150	16.8	L2 1 0 2 0 0 3	0	14 55.75	-48 44 17.1
k0016s40	3	300	18.0	L3 2 0 2 0 0 4	0	16 59.53	-40 56 54.1
k0030s37s	1	150	17.9	L3 2 0 2 2 0 6	0	30 6.26	-37 39 48.2
k0032s44	0	150	17.1	L0 2 2 4 4 0 12	0	32 55.84	-44 5 5.8
k0032s22	2	150	17.9	L1 2 0 2 1 0 5	0	32 43.08	-22 37 27.2
k0033s15	3	300	18.0	L2 1 0 2 0 0 3	0	33 23.86	-15 21 30.9
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k0034s07	0	300	18.2	L3 2 2 3 4 0 11	0	34 56.84	-7 6 1.3
k0051s15	3	300	18.0	L3 1 0 2 0 0 3	0	51 10.78	-15 44 16.9
k0053s36	3	150	17.2	L3 1 0 2 0 0 3	0	53 18.99	-36 31 10.2
k0054s00	0	300	18.18	L1 2 3 3 1 0 9	0	54 6.55	-0 31 1.8
k0058s06s	0	150	17.1	L4 3 2 3 3 0 11	0	58 42.47	-6 51 23.1
k0109s51s	0	150	14.6	L0 3 2 3 5 0 13	1	9 1.16	-51 0 50.7
k0117s34	0	150	17.9	L2 2 2 4 2 0 10	1	17 47.48	-34 3 25.8
k0123s36s	1	150	16.4	L2 3 2 3 4 0 12	1	23 0.50	-36 10 30.6
k0125s34	2	300	18.3	L2 2 1 3 1 0 7	1	25 36.89	-34 35 4.9
k0128s55s	1	150	16.6	L4 3 1 3 4 0 11	1	28 26.76	-55 45 34.5
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k0144s07	2	150	16.9	L5 2 1 3 3 0 9	1	44 35.36	-7 16 14.2
k0147s49s	1	150	15.8	L2 3 3 3 4 0 13	1	47 32.82	-49 54 47.9
k0205s11	0	150	17.27	L6 3 3 4 3 0 13	2	5 29.40	-11 59 29.6
k0218s31	3	150	17.4	L3 1 1 3 2 0 7	2	18 29.13	-31 33 23.0
k0219s19	0	150	16.9	L2 1 4 3 6 0 14	2	19 28.07	-19 38 41.6
k0227s16	2	150	16.1	L1 2 4 3 3 0 12	2	27 10.36	-16 24 47.9
k0230s09s	0	150	17.7	T0 3 3 3 4 0 13	2	30 44.99	-9 53 5.1
k0235s23	2	150	17.92	L1 1 3 2 0 0 6	2	35 59.93	-23 31 20.5
k0235s08	2	300	18.3	L2 1 1 1 2 0 5	2	35 47.56	-8 49 19.8
k0239s17s	1	150	16.6	L0 0 2 2 4 0 8	2	39 42.40	-17 35 46.1
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k0243s24	2	300	18.9	T6 0 1 3 5 0 9	2	43 13.71	-24 53 29.8
k0255s47	1	150	16.1	L9 1 2 2 6 0 11	2	55 3.57	-47 0 50.9
k0257s31	3	150	17.6	L8 1 1 2 3 0 7	2	57 25.81	-31 5 52.3
k0310s27	3	300	18.5	L5 0 1 1 0 0 2	3	10 14.01	-27 56 45.2
k0318s34	3	300	18.5	L7 0 1 1 0 0 2	3	18 54.03	-34 21 29.2
k0348s60	2	300	18.8	T7 0 1 1 1 0 3	3	48 7.72	-60 22 27.0
k0350s05	0	300	18.92	L1 2 4 3 7 0 16	3	50 48.61	-5 18 12.6
k0357s44	0	150	18.27	L0 1 5 3 5 0 14	3	57 26.95	-44 17 30.5
k0357s06	2	300	18.3	L0 1 5 2 3 0 11	3	57 21.10	-6 41 26.0
k0408s14	0	150	16.9	L3 1 4 3 7 1 16	4	8 29.05	-14 50 33.4
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k0423s04	1	150	17.3	L9 2 3 3 5 1 14	4	23 48.58	-4 14 3.5
k0439s23	1	150	17.3	L6 1 3 3 5 2 14	4	39 1.01	-23 53 8.3
k0443s32	3	300	18.0	L5 0 1 2 1 0 4	4	43 5.81	-32 2 9.0

k0518s28	1	300		18.8	L9		2	3	3	2	2	12		5	18	59.95	-28	28	37.2				
k0523s14	0	150		15.9	L4		0	3	4	6	3	16		5	23	38.22	-14	3	2.2				
k0539s00s	1	150		16.7	L3		1	4	3	4	3	15		5	39	51.85	-0	59	5.2				
k0559s14	2	150		17.3	T5		0	4	212	2	20		5	59	19.14	-14	4	48.8					
k0614s20s	1	150		17.6	L4		1	3	4	5	5	18		6	14	11.84	-20	19	14.6				
k0624s45	3	150		17.2	L5		0	3	5	5	3	16		6	24	45.95	-45	21	54.8				
k0639s74	2	300		18.5	L5		4	5	3	4	3	19		6	39	55.96	-74	18	44.7				
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k0641s43	2	150		16.3	L1		4	5	4	4	3	20		6	41	18.40	-43	22	32.9				
k0719s50	1	150		16.5	L0		7	5	4	4	5	25		7	19	31.88	-50	51	41.0				
k0729s78r	1	300		18.3	L9		5	5	5	6	5	26		7	29	11.54	-78	43	37.5				
k0828s13	2	150		15.6	L2		3	5	5	6	4	23		8	28	34.19	-13	9	19.8				
k0832s01	0	150		16.65	L1		2	4	5	4	5	20		8	32	4.51	-1	28	36.0				
k0835s08	2	150		15.9	L5		2	4	3	4	3	16		8	35	42.56	-8	19	23.7				
k0859s19	1	300		18.4	L6		2	4	5	3	5	19		8	59	25.47	-19	49	26.8				
k0909s06	2	150		16.2	L0		2	4	5	5	3	19		9	9	57.49	-6	58	18.6				
k0921s21	2	150		15.5	L2		1	4	4	4	3	16		9	21	14.10	-21	4	44.6				
k0922s80	2	300		18.1	L4		1	4	5	2	3	15		9	22	19.52	-80	10	39.9				
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k0928s16	2	300		18.1	L2		1	4	4	2	3	14		9	28	39.72	-16	3	12.8				
k0953s10	2	150		15.8	L0		1	4	4	4	3	16		9	53	21.27	-10	14	20.5				
k1004s13s	1	150		17.6	T0		1	4	5	3	3	16		10	4	40.31	-13	18	18.7				
k1004s33	2	150		17.3	L4		2	3	6	4	3	18		10	4	39.29	-33	35	18.9				
k1018s29	2	150		16.7	L1		2	4	6	4	3	19		10	18	58.79	-29	9	53.5				
k1045s01	2	150		15.73	L1		2	4	6	2	3	17		10	45	24.00	-1	49	57.6				
k1047s18	2	150		17.0	L2		1	3	5	2	3	14		10	47	31.09	-18	15	57.4				
k1058s15	2	150		16.9	L3		1	3	4	3	3	14		10	58	47.87	-15	48	17.2				
k1059s21	0	150		17.08	L1		1	4	6	1	5	17		10	59	51.38	-21	13	8.2				
k1122s35	2	300		18.1	T2		0	2	4	0	3	9		11	22	8.26	-35	12	36.3				
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k1122s39	2	300		18.4	L3		0	2	4	0	3	9		11	22	36.24	-39	16	5.4				
k1126s50s	1	150		15.9	L9		0	3	6	2	3	14		11	26	39.91	-50	03	55.0				
k1154s34	2	150		16.6	L0		0	2	4	2	4	12		11	54	42.23	-34	0	39.0				
k1225s27	2	300		18.8	T6		0	2	4	0	2	8		12	25	54.32	-27	39	46.6				
k1228s15	0	150		17.2	L6		0	2	5	2	4	13		12	28	15.23	-15	47	34.2				
k1246s31s	1	300		18.2	T1		0	2	6	1	3	12		12	46	29.65	-31	39	28.1				
k1254s01	2	300		18.01	T2		0	2	6	1	3	12		12	54	53.93	-1	22	47.4				
k1326s27	2	300		18.6	L5		0	2	4	2	3	11		13	26	20.09	-27	29	37.0				
k1331s01	2	300		18.08	L7		0	2	6	1	2	11		13	31	48.94	-1	16	50.0				
k1341s30	2	150		17.3	L3		0	2	5	4	3	14		13	41	11.60	-30	52	50.5				
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k1404s31s	1	300		18.8	T1		1	2	7	1	2	13		14	4	49.48	-31	59	33.1				
k1425s36	2	150		16.5	L5		1	3	4	3	3	14		14	25	27.98	-36	50	22.9				
k1438s13	0	300		18.2	L3		3	3	7	1	3	17		14	38	54.98	-13	9	10.3				
k1441s09	3	150		16.4	L0		3	4	5	3	1	16		14	41	37.16	-9	45	59.0				
k1457s21	3	300		18.8	T7		2	2	6	1	1	12		14	57	14.96	-21	21	47.7				
k1507s16	2	150		15.6	L5		2	4	5	2	2	15		15	7	47.69	-16	27	38.6				
k1520s44	2	150		16.0	L4		4	4	5	2	1	16		15	20	2.24	-44	22	41.9				
k1523s23	2	150		17.0	L2		1	2	5	3	1	12		15	23	6.57	-23	47	52.6				
k1530s81r	1	150		17.0	L9		2	3	4	3	1	13		15	30	32.98	-81	45	33.1				
k1534s29	2	300		18.4	T6		1	3	5	1	1	11		15	34	49.84	-29	52	27.4				
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k1539s05	0	150		16.6	L3		1	3	5	6	2	17		15	39	41.89	-5	20	42.8				
k1547s24	2	150		16.3	L0		2	3	4	5	1	15		15	47	47.19	-24	23	49.3				

k1548s16	2	150		16.7	L2		1	4	5	5	1	16		15	48	58.34	-16	36	1.8
k1618s13	2	150		16.6	L0		2	4	5	5	1	17		16	18	45.03	-13	21	29.7
k1620s04	3	300		18.0	L2		1	0	4	2	0	7		16	20	26.14	-4	16	31.5
k1633s06	1	300		18.66	L6		1	1	5	5	1	13		16	33	59.33	-6	40	55.2
k1636s00	2	150		17.0	L0		2	2	5	4	1	14		16	36	0.78	-0	34	52.5
k1645s13	2	150		15.0	L1		3	4	5	6	1	19		16	45	22.11	-13	19	51.6
k1705s05	0	150		16.1	L4		3	2	4	8	2	19		17	5	48.34	-5	16	46.2
k1707s05	0	150		16.7	L3		3	2	4	5	1	15		17	7	23.43	-5	58	24.9
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k1737s10s	1	300		19.0	T2		5	2	4	6	1	18		17	37	43.36	-10	57	42.6
k1750s00	2	150		16.0	L5		4	4	5	7	1	21		17	50	24.84	-0	16	15.1
k1753s65	0	150		16.9	L4		7	3	7	8	1	26		17	53	45.18	-65	59	55.9
k1824s71r	1	300		18.5	L9		5	3	5	5	1	19		18	24	45.54	-71	28	16.4
k1828s48	2	300		18.7	T5		5	1	4	6	0	16		18	28	35.72	-48	49	4.6
k1840s56r	1	300		18.9	L9		5	3	5	5	0	18		18	40	19.19	-56	31	11.4
k1928s43	2	150		17.9	L5		2	2	6	7	0	17		19	28	51.96	-43	56	25.6
k1936s55	0	150		17.2	L5		2	4	6	6	1	19		19	36	1.87	-55	2	32.2
k1956s17	0	150		16.1	L0		1	4	6	5	0	16		19	56	15.42	-17	54	25.2
k2002s05	1	300		18.2	L6		3	2	4	5	0	14		20	2	50.73	-5	21	52.4
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k2011s62s	1	300		18.8	T1		2	1	5	4	0	12		20	11	56.49	-62	1	12.7
k2023s59s	0	300		18.7	T1		1	2	4	5	0	12		20	23	28.58	-59	46	52.0
k2026s29	2	150		17.3	L1		2	3	4	4	0	13		20	26	15.84	-29	43	12.4
k2041s35	0	150		17.6	L2		1	3	3	5	0	12		20	41	42.83	-35	6	44.2
k2045s63s	1	150		15.4	L4		1	2	5	4	0	12		20	45	2.27	-63	32	5.3
k2057s02	0	150		15.6	L1		1	3	3	4	0	11		20	57	54.09	-2	52	30.2
k2101s29s	0	300		18.8	T1		1	2	5	4	0	12		21	1	52.33	-29	44	5.0
k2102s60s	1	300		18.8	T2		1	1	3	2	0	7		21	2	22.13	-60	46	18.2
k2104s10	3	150		16.6	L3		1	2	3	1	0	7		21	4	14.91	-10	37	36.9
k2107s45	0	150		17.3	L0		2	2	3	4	0	11		21	7	54.09	-45	44	6.4
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k2130s08	2	150		16.7	L1		2	2	3	4	0	11		21	30	44.64	-8	45	20.5
k2132s14s	1	300		19.0	T3		2	1	5	3	0	11		21	32	48.98	-14	52	54.5
k2148s63s	0	300		18.3	L8		3	2	4	4	0	13		21	48	13.26	-63	23	26.6
k2150s75	2	150		16.6	L1		1	1	4	4	0	10		21	50	15.92	-75	20	36.7
k2157s55	0	150		17.0	L2		1	3	4	4	0	12		21	57	49.04	-55	34	42.0
k2158s15	2	150		17.8	L4		1	1	3	2	0	7		21	58	4.57	-15	50	9.8
k2204s56	2	150		16.7	T6		1	2	2	2	0	7		22	4	10.52	-56	46	57.7
k2206s42	3	300		18.3	L2		1	0	3	3	0	7		22	6	44.98	-42	17	20.8
k2209s27s	1	300		18.9	T2		3	2	4	4	0	13		22	9	21.84	-27	11	33.0
k2213s21	3	150		17.9	L1		1	0	2	0	0	3		22	13	44.91	-21	36	7.9
--Name----	P----	T-----	z-----	ST--7-8-9-0-1-	TT	HH-MM-SS.ss--	DD-MM-SS.s												
k2224s01	2	150		16.9	L4		1	0	3	2	0	6		22	24	43.81	-1	58	52.1
k2252s17	1	150		17.2	L7		2	2	5	3	0	12		22	52	10.73	-17	30	13.4
k2254s28	3	150		16.5	L0		1	0	3	0	0	4		22	54	51.94	-28	40	25.3
k2255s00	0	300		17.91	L0		2	2	6	4	0	14		22	55	29.07	-0	34	33.6
k2310s17	3	150		16.9	L1		1	0	3	0	0	4		23	10	18.46	-17	59	9.0
k2318s13s	1	300		18.8	T3		2	3	4	4	0	13		23	18	54.98	-13	1	10.7
k2330s03	0	150		17.0	L1		2	1	4	5	0	12		23	30	22.58	-3	47	18.9
k2344s07	2	150		17.6	L4		1	0	2	1	0	4		23	44	6.24	-7	33	28.2
k2346s59s	1	150		17.3	L5		3	2	4	4	0	13		23	46	26.38	-59	28	42.7
k2351s25	2	150		14.8	L0		2	3	2	4	0	11		23	51	50.44	-25	37	36.7