

CCD Commander Log File
Software v1.3.5
This copy is registered to:
Jon K. Olson
jon@astroham.com

23:07:33 Action starting.
23:07:33 Connecting to the Camera...
23:07:33 Connecting to the Mount...
23:07:34 Connecting to FocusMax...
23:07:34 Turning on Fan.
23:07:34 Turning on cooler.
23:07:34 Setting cooler = -15
23:07:34 Simple Temperature Control complete.
23:07:34 Running ngc3628_lum_30m.act
23:07:34 Running Action List Iteration #1
23:07:34 Starting move to action.
23:07:34 Precessing coordindates.
23:07:34 J2000 Coordinates: RA: 11h 15m 52.0s Dec: +13°18'27"
23:07:34 JNow Coordinates: RA: 11h 16m 11.2s Dec: +13°16'26"
23:07:34 Slewing to SAO 99525...
23:07:42 Done slewing!
23:07:42 Starting post slew delay.
23:07:45 Completed post slew delay.
23:07:45 Setting imager bin mode to 2x2.
23:07:45 Setting filter to Luminance.
23:07:48 Taking 5 second image for Plate Solve...
23:08:06 Saving Image...
23:08:07 Performing Plate Solve with CCDSoft...
23:08:08 Plate solve results:
23:08:08 Pixel Scale = 1.85 asp.
23:08:08 North Angle = 311.81 degrees.
23:08:08 J2000 Coordinates = RA: 11h 15m 50.9s Dec: +13°18'47"
23:08:08 Syncing to RA 11.26946, Dec 13.27949
23:08:16 Starting focus run...
23:09:59 Focus succeeded! HFD = 3.62
23:09:59 Starting move to action.
23:09:59 Precessing coordindates.
23:09:59 J2000 Coordinates: RA: 11h 20m 17.0s Dec: +13°35'24"
23:09:59 JNow Coordinates: RA: 11h 20m 36.2s Dec: +13°33'23"
23:09:59 Slewing to ngc 3628...
23:10:07 Done slewing!
23:10:07 Starting post slew delay.
23:10:10 Completed post slew delay.
23:10:10 Setting image type to Light.
23:10:10 Setting imager bin mode to 1x1.
23:10:10 Setting filter to Luminance.
23:10:12 Setting imager to full frame.
23:10:12 Setting imager exposure time to 450 seconds.
23:10:13 Setting autoguider bin mode to 2x2.
23:10:13 Taking a 3 second autoguider exposure.
23:10:23 Beginning guide star search...
23:10:25 Found possible guide star at 119, 21 with a max brightness
of 9686 ADU.
23:10:25 Taking a 3 second autoguider exposure.
23:10:31 Beginning guide star search...

23:10:32 Found appropriate guide star at 120, 21 with a max brightness of 7442 ADU.
23:10:32 Trying to autoguide on star at 120.0,21.0.
23:10:32 Starting to autoguide.
23:10:44 Checking autoguider max error...
23:10:45 Autoguider error: X=-0.05 Y=0.22
23:10:45 Autoguider max error < 0.5!
23:10:45 Stopping autoguider...
23:10:47 Automatic guide star acquisition successful!
23:10:47 Setting autoguider exposure time to 3 seconds.
23:10:47 Setting guide star position to 120.0,21.0.
23:10:47 Starting to autoguide.
23:10:59 Checking autoguider max error...
23:10:59 Autoguider error: X=-0.30 Y=0.04
23:10:59 Autoguider max error < 0.5!
23:10:59 Starting imager exposure (1 of 4).
23:18:40 Imager exposure complete.
23:18:40 Stopping autoguider...
23:18:43 Setting autoguider exposure time to 3 seconds.
23:18:43 Setting guide star position to 121.0,21.0.
23:18:43 Starting to autoguide.
23:18:55 Checking autoguider max error...
23:18:55 Autoguider error: X=-0.58 Y=0.40
23:18:55 Checking autoguider max error...
23:18:59 Autoguider error: X=-0.24 Y=-0.05
23:18:59 Autoguider max error < 0.5!
23:18:59 Starting imager exposure (2 of 4).
23:26:41 Imager exposure complete.
23:26:41 Stopping autoguider...
23:26:43 Setting autoguider exposure time to 3 seconds.
23:26:43 Setting guide star position to 121.0,22.0.
23:26:43 Starting to autoguide.
23:26:55 Checking autoguider max error...
23:26:55 Autoguider error: X=-0.10 Y=-0.77
23:26:55 Checking autoguider max error...
23:26:59 Autoguider error: X=0.18 Y=-0.45
23:26:59 Autoguider max error < 0.5!
23:26:59 Starting imager exposure (3 of 4).
23:34:44 Imager exposure complete.
23:34:44 Stopping autoguider...
23:34:46 Setting autoguider exposure time to 3 seconds.
23:34:46 Setting guide star position to 120.0,22.0.
23:34:46 Starting to autoguide.
23:34:58 Checking autoguider max error...
23:34:59 Autoguider error: X=-0.28 Y=-0.33
23:34:59 Autoguider max error < 0.5!
23:34:59 Starting imager exposure (4 of 4).
23:42:40 Imager exposure complete.
23:42:40 Stopping autoguider...
23:42:42 Take Images Action complete.
23:42:42 Running Action List Iteration #2
23:42:42 Starting move to action.
23:42:42 Precessing coordindates.
23:42:42 J2000 Coordinates: RA: 11h 15m 52.0s Dec: +13°18'27"
23:42:42 JNow Coordinates: RA: 11h 16m 11.2s Dec: +13°16'26"
23:42:42 Slewing to SAO 99525...

23:42:51 Done slewing!
23:42:51 Starting post slew delay.
23:42:54 Completed post slew delay.
23:42:54 Setting imager bin mode to 2x2.
23:42:54 Setting filter to Luminance.
23:42:56 Taking 5 second image for Plate Solve...
23:43:13 Saving Image...
23:43:13 Performing Plate Solve with CCDSoft...
23:43:15 Plate solve results:
23:43:15 Pixel Scale = 1.85 asp.
23:43:15 North Angle = 311.83 degrees.
23:43:15 J2000 Coordinates = RA: 11h 15m 52.4s Dec: +13°18'03"
23:43:15 Syncing to RA 11.26989, Dec 13.26743
23:43:22 Starting focus run...
23:45:08 Focus succeeded! HFD = 3.41
23:45:08 Starting move to action.
23:45:08 Precessing coordindates.
23:45:08 J2000 Coordinates: RA: 11h 20m 17.0s Dec: +13°35'24"
23:45:08 JNow Coordinates: RA: 11h 20m 36.2s Dec: +13°33'23"
23:45:08 Slewing to ngc 3628...
23:45:16 Done slewing!
23:45:16 Starting post slew delay.
23:45:19 Completed post slew delay.
23:45:19 Setting image type to Light.
23:45:19 Setting imager bin mode to 1x1.
23:45:19 Setting filter to Luminance.
23:45:21 Setting imager to full frame.
23:45:21 Setting imager exposure time to 450 seconds.
23:45:22 Setting autoguider bin mode to 2x2.
23:45:22 Taking a 3 second autoguider exposure.
23:45:33 Beginning guide star search...
23:45:34 Found possible guide star at 133, 49 with a max brightness
of 8188 ADU.
23:45:34 Taking a 3 second autoguider exposure.
23:45:40 Beginning guide star search...
23:45:41 Found appropriate guide star at 134, 48 with a max
brightness of 7616 ADU.
23:45:41 Trying to autoguide on star at 134.0,48.0.
23:45:41 Starting to autoguide.
23:45:54 Checking autoguider max error...
23:45:57 Autoguider error: X=0.39 Y=0.20
23:45:57 Autoguider max error < 0.5!
23:45:57 Stopping autoguider...
23:45:59 Automatic guide star acquisition successful!
23:45:59 Setting autoguider exposure time to 3 seconds.
23:45:59 Setting guide star position to 134.0,48.0.
23:45:59 Starting to autoguide.
23:46:11 Checking autoguider max error...
23:46:12 Autoguider error: X=0.75 Y=-0.01
23:46:12 Checking autoguider max error...
23:46:16 Autoguider error: X=1.27 Y=-0.29
23:46:16 Checking autoguider max error...
23:46:19 Autoguider error: X=0.76 Y=-0.02
23:46:19 Checking autoguider max error...
23:46:24 Autoguider error: X=1.44 Y=-1.00
23:46:24 Checking autoguider max error...

23:46:28 Autoguider error: X=0.70 Y=0.01
23:46:28 Checking autoguider max error...
23:46:31 Autoguider error: X=0.86 Y=-0.88
23:46:31 Checking autoguider max error...
23:46:35 Autoguider error: X=0.51 Y=-0.08
23:46:35 Checking autoguider max error...
23:46:46 Autoguider error: X=0.54 Y=-0.11
23:46:46 Checking autoguider max error...
23:46:50 Autoguider error: X=0.75 Y=-0.27
23:46:50 Checking autoguider max error...
23:46:54 Autoguider error: X=1.01 Y=-0.06
23:46:54 Checking autoguider max error...
23:46:58 Autoguider error: X=0.63 Y=-0.06
23:46:58 Checking autoguider max error...
23:47:02 Autoguider error: X=1.20 Y=-0.39
23:47:02 Checking autoguider max error...
23:47:06 Autoguider error: X=0.62 Y=-0.23
23:47:06 Checking autoguider max error...
23:47:10 Autoguider error: X=1.30 Y=-0.87
23:47:10 Checking autoguider max error...
23:47:14 Autoguider error: X=1.08 Y=-0.41
23:47:14 Checking autoguider max error...
23:47:18 Autoguider error: X=0.91 Y=0.02
23:47:18 Checking autoguider max error...
23:47:22 Autoguider error: X=1.33 Y=-0.38
23:47:22 Checking autoguider max error...
23:47:26 Autoguider error: X=0.98 Y=-0.02
23:47:26 Checking autoguider max error...
23:47:30 Autoguider error: X=1.02 Y=0.11
23:47:30 Checking autoguider max error...
23:47:34 Autoguider error: X=0.83 Y=0.32
23:47:34 Autoguider error failed to decrease to < 0.5!
23:47:35 Take Images Action failed.
23:47:35 Running Action List Iteration #3
23:47:35 Starting move to action.
23:47:35 Precessing coordindates.
23:47:35 J2000 Coordinates: RA: 11h 15m 52.0s Dec: +13°18'27"
23:47:35 JNow Coordinates: RA: 11h 16m 11.2s Dec: +13°16'26"
23:47:35 Slewing to SAO 99525...
23:47:43 Done slewing!
23:47:43 Starting post slew delay.
23:47:46 Completed post slew delay.
23:47:46 Setting imager bin mode to 2x2.
23:47:46 Setting filter to Luminance.
23:47:48 Taking 5 second image for Plate Solve...
23:48:06 Saving Image...
23:48:06 Performing Plate Solve with CCDSoft...
23:48:07 Plate solve results:
23:48:07 Pixel Scale = 1.85 asp.
23:48:07 North Angle = 311.83 degrees.
23:48:07 J2000 Coordinates = RA: 11h 15m 50.3s Dec: +13°18'36"
23:48:07 Syncing to RA 11.26932, Dec 13.27659
23:48:15 Starting focus run...
23:50:00 Focus succeeded! HFD = 3.42
23:50:00 Starting move to action.
23:50:00 Precessing coordindates.

23:50:00 J2000 Coordinates: RA: 11h 20m 17.0s Dec: +13°35'24"
23:50:00 JNow Coordinates: RA: 11h 20m 36.2s Dec: +13°33'23"
23:50:00 Slewing to ngc 3628...
23:50:08 Done slewing!
23:50:08 Starting post slew delay.
23:50:11 Completed post slew delay.
23:50:11 Setting image type to Light.
23:50:11 Setting imager bin mode to 1x1.
23:50:11 Setting filter to Luminance.
23:50:13 Setting imager to full frame.
23:50:13 Setting imager exposure time to 450 seconds.
23:50:14 Setting autoguider bin mode to 2x2.
23:50:14 Taking a 3 second autoguider exposure.
23:50:25 Beginning guide star search...
23:50:26 Found possible guide star at 145, 34 with a max brightness
of 9064 ADU.
23:50:26 Taking a 3 second autoguider exposure.
23:50:32 Beginning guide star search...
23:50:33 Found appropriate guide star at 146, 33 with a max
brightness of 9312 ADU.
23:50:33 Trying to autoguide on star at 146.0,33.0.
23:50:33 Starting to autoguide.
23:50:46 Checking autoguider max error...
23:50:46 Autoguider error: X=0.46 Y=0.11
23:50:46 Autoguider max error < 0.5!
23:50:46 Stopping autoguider...
23:50:48 Automatic guide star acquisition successful!
23:50:48 Setting autoguider exposure time to 3 seconds.
23:50:48 Setting guide star position to 146.0,33.0.
23:50:48 Starting to autoguide.
23:51:00 Checking autoguider max error...
23:51:01 Autoguider error: X=1.34 Y=-0.36
23:51:01 Checking autoguider max error...
23:51:05 Autoguider error: X=1.14 Y=-0.33
23:51:05 Checking autoguider max error...
23:51:09 Autoguider error: X=0.51 Y=0.48
23:51:09 Checking autoguider max error...
23:51:13 Autoguider error: X=0.89 Y=-0.42
23:51:13 Checking autoguider max error...
23:51:17 Autoguider error: X=0.48 Y=-0.02
23:51:17 Autoguider max error < 0.5!
23:51:17 Starting imager exposure (1 of 4).
23:58:58 Imager exposure complete.
23:58:58 Stopping autoguider...
23:59:00 Setting autoguider exposure time to 3 seconds.
23:59:00 Setting guide star position to 147.0,33.0.
23:59:00 Starting to autoguide.
23:59:13 Checking autoguider max error...
23:59:13 Autoguider error: X=-0.25 Y=-0.07
23:59:13 Autoguider max error < 0.5!
23:59:13 Starting imager exposure (2 of 4).
00:06:54 Imager exposure complete.
00:06:54 Stopping autoguider...
00:06:56 Setting autoguider exposure time to 3 seconds.
00:06:56 Setting guide star position to 147.0,34.0.
00:06:56 Starting to autoguide.

00:07:08 Checking autoguider max error...
00:07:08 Autoguider error: X=0.45 Y=-1.08
00:07:08 Checking autoguider max error...
00:07:12 Autoguider error: X=0.03 Y=-0.09
00:07:12 Autoguider max error < 0.5!
00:07:12 Starting imager exposure (3 of 4).
00:14:52 Imager exposure complete.
00:14:52 Stopping autoguider...
00:14:54 Setting autoguider exposure time to 3 seconds.
00:14:54 Setting guide star position to 146.0,34.0.
00:14:54 Starting to autoguide.
00:15:06 Checking autoguider max error...
00:15:07 Autoguider error: X=-0.47 Y=-2.18
00:15:07 Checking autoguider max error...
00:15:12 Autoguider error: X=-0.66 Y=-1.08
00:15:12 Checking autoguider max error...
00:15:16 Autoguider error: X=-0.09 Y=-1.73
00:15:16 Checking autoguider max error...
00:15:20 Autoguider error: X=-0.30 Y=-0.91
00:15:20 Checking autoguider max error...
00:15:24 Autoguider error: X=0.47 Y=-0.46
00:15:24 Autoguider max error < 0.5!
00:15:24 Starting imager exposure (4 of 4).
00:23:04 Imager exposure complete.
00:23:04 Stopping autoguider...
00:23:06 Take Images Action complete.
00:23:06 Running Action List Iteration #4
00:23:06 Starting move to action.
00:23:06 Precessing coordindates.
00:23:06 J2000 Coordinates: RA: 11h 15m 52.0s Dec: +13°18'27"
00:23:06 JNow Coordinates: RA: 11h 16m 11.2s Dec: +13°16'26"
00:23:06 Slewing to SAO 99525...
00:23:15 Done slewing!
00:23:15 Starting post slew delay.
00:23:18 Completed post slew delay.
00:23:18 Setting imager bin mode to 2x2.
00:23:18 Setting filter to Luminance.
00:23:20 Taking 5 second image for Plate Solve...
00:23:37 Saving Image...
00:23:38 Performing Plate Solve with CCDSoft...
00:23:39 Plate solve results:
00:23:39 Pixel Scale = 1.85 asp.
00:23:39 North Angle = 311.85 degrees.
00:23:39 J2000 Coordinates = RA: 11h 15m 53.3s Dec: +13°19'03"
00:23:39 Syncing to RA 11.27014, Dec 13.28393
00:23:46 Starting focus run...
00:25:36 Focus succeeded! HFD = 3.51
00:25:36 Starting move to action.
00:25:36 Precessing coordindates.
00:25:36 J2000 Coordinates: RA: 11h 20m 17.0s Dec: +13°35'24"
00:25:36 JNow Coordinates: RA: 11h 20m 36.2s Dec: +13°33'23"
00:25:36 Slewing to ngc 3628...
00:25:44 Done slewing!
00:25:44 Starting post slew delay.
00:25:47 Completed post slew delay.
00:25:47 Setting image type to Light.

00:25:47 Setting imager bin mode to 1x1.
00:25:47 Setting filter to Luminance.
00:25:49 Setting imager to full frame.
00:25:49 Setting imager exposure time to 450 seconds.
00:25:50 Setting autoguider bin mode to 2x2.
00:25:50 Taking a 3 second autoguider exposure.
00:26:00 Beginning guide star search...
00:26:01 Found possible guide star at 139, 39 with a max brightness
of 8549 ADU.
00:26:01 Taking a 3 second autoguider exposure.
00:26:08 Beginning guide star search...
00:26:09 Found appropriate guide star at 139, 39 with a max
brightness of 9219 ADU.
00:26:09 Trying to autoguide on star at 139.0,39.0.
00:26:09 Starting to autoguide.
00:26:21 Checking autoguider max error...
00:26:21 Autoguider error: X=0.72 Y=0.60
00:26:21 Checking autoguider max error...
00:26:25 Autoguider error: X=0.87 Y=0.01
00:26:25 Checking autoguider max error...
00:26:29 Autoguider error: X=0.88 Y=0.15
00:26:29 Checking autoguider max error...
00:26:33 Autoguider error: X=1.17 Y=0.53
00:26:33 Checking autoguider max error...
00:26:38 Autoguider error: X=0.63 Y=0.00
00:26:38 Checking autoguider max error...
00:26:42 Autoguider error: X=0.16 Y=0.53
00:26:42 Checking autoguider max error...
00:26:46 Autoguider error: X=0.01 Y=0.02
00:26:46 Autoguider max error < 0.5!
00:26:46 Stopping autoguider...
00:26:48 Automatic guide star acquisition successful!
00:26:48 Setting autoguider exposure time to 3 seconds.
00:26:48 Setting guide star position to 139.0,39.0.
00:26:48 Starting to autoguide.
00:27:00 Checking autoguider max error...
00:27:00 Autoguider error: X=0.28 Y=-0.07
00:27:00 Autoguider max error < 0.5!
00:27:00 Starting imager exposure (1 of 4).
00:34:42 Imager exposure complete.
00:34:42 Stopping autoguider...
00:34:45 Setting autoguider exposure time to 3 seconds.
00:34:45 Setting guide star position to 140.0,39.0.
00:34:45 Starting to autoguide.
00:34:57 Checking autoguider max error...
00:35:00 Autoguider error: X=0.11 Y=-0.58
00:35:00 Checking autoguider max error...
00:35:04 Autoguider error: X=0.41 Y=-1.00
00:35:04 Checking autoguider max error...
00:35:08 Autoguider error: X=0.53 Y=-0.51
00:35:08 Checking autoguider max error...
00:35:12 Autoguider error: X=0.65 Y=-0.86
00:35:12 Checking autoguider max error...
00:35:16 Autoguider error: X=-0.02 Y=-0.07
00:35:16 Autoguider max error < 0.5!
00:35:16 Starting imager exposure (2 of 4).

00:42:57 Imager exposure complete.
00:42:57 Stopping autoguider...
00:42:59 Setting autoguider exposure time to 3 seconds.
00:42:59 Setting guide star position to 140.0,40.0.
00:42:59 Starting to autoguide.
00:43:11 Checking autoguider max error...
00:43:12 Autoguider error: X=0.65 Y=-1.00
00:43:12 Checking autoguider max error...
00:43:15 Autoguider error: X=-0.15 Y=-0.18
00:43:15 Autoguider max error < 0.5!
00:43:15 Starting imager exposure (3 of 4).
00:50:55 Imager exposure complete.
00:50:55 Stopping autoguider...
00:50:57 Setting autoguider exposure time to 3 seconds.
00:50:57 Setting guide star position to 139.0,40.0.
00:50:57 Starting to autoguide.
00:51:09 Checking autoguider max error...
00:51:10 Autoguider error: X=0.98 Y=0.49
00:51:10 Checking autoguider max error...
00:51:14 Autoguider error: X=0.16 Y=0.59
00:51:14 Checking autoguider max error...
00:51:18 Autoguider error: X=-0.41 Y=-0.52
00:51:18 Checking autoguider max error...
00:51:22 Autoguider error: X=-0.46 Y=0.12
00:51:22 Autoguider max error < 0.5!
00:51:22 Starting imager exposure (4 of 4).
00:59:02 Imager exposure complete.
00:59:02 Stopping autoguider...
00:59:04 Take Images Action complete.
00:59:04 Running Action List Iteration #5
00:59:04 Starting move to action.
00:59:04 Precessing coordindates.
00:59:04 J2000 Coordinates: RA: 11h 15m 52.0s Dec: +13°18'27"
00:59:04 JNow Coordinates: RA: 11h 16m 11.2s Dec: +13°16'26"
00:59:04 Slewing to SAO 99525...
00:59:12 Done slewing!
00:59:12 Starting post slew delay.
00:59:15 Completed post slew delay.
00:59:15 Setting imager bin mode to 2x2.
00:59:15 Setting filter to Luminance.
00:59:17 Taking 5 second image for Plate Solve...
00:59:35 Saving Image...
00:59:35 Performing Plate Solve with CCDSoft...
00:59:37 Plate solve results:
00:59:37 Pixel Scale = 1.85 asp.
00:59:37 North Angle = 311.87 degrees.
00:59:37 J2000 Coordinates = RA: 11h 15m 51.5s Dec: +13°19'13"
00:59:37 Syncing to RA 11.26965, Dec 13.28684
00:59:45 Starting focus run...
01:01:25 Focus succeeded! HFD = 3.40
01:01:25 Starting move to action.
01:01:25 Precessing coordindates.
01:01:25 J2000 Coordinates: RA: 11h 20m 17.0s Dec: +13°35'24"
01:01:25 JNow Coordinates: RA: 11h 20m 36.2s Dec: +13°33'23"
01:01:25 Slewing to ngc 3628...
01:01:33 Done slewing!

01:01:33 Starting post slew delay.
01:01:36 Completed post slew delay.
01:01:36 Setting image type to Light.
01:01:36 Setting imager bin mode to 1x1.
01:01:36 Setting filter to Luminance.
01:01:38 Setting imager to full frame.
01:01:38 Setting imager exposure time to 450 seconds.
01:01:39 Setting autoguider bin mode to 2x2.
01:01:39 Taking a 3 second autoguider exposure.
01:01:49 Beginning guide star search...
01:01:51 Found possible guide star at 137, 37 with a max brightness of 8608 ADU.
01:01:51 Taking a 3 second autoguider exposure.
01:01:57 Beginning guide star search...
01:01:58 Found appropriate guide star at 137, 37 with a max brightness of 9317 ADU.
01:01:58 Trying to autoguide on star at 137.0,37.0.
01:01:58 Starting to autoguide.
01:02:10 Checking autoguider max error...
01:02:10 Autoguider error: X=0.19 Y=-0.33
01:02:11 Autoguider max error < 0.5!
01:02:11 Stopping autoguider...
01:02:13 Automatic guide star acquisition successful!
01:02:13 Setting autoguider exposure time to 3 seconds.
01:02:13 Setting guide star position to 137.0,37.0.
01:02:13 Starting to autoguide.
01:02:25 Checking autoguider max error...
01:02:25 Autoguider error: X=0.54 Y=-0.49
01:02:25 Checking autoguider max error...
01:02:28 Autoguider error: X=0.58 Y=-0.23
01:02:28 Checking autoguider max error...
01:02:32 Autoguider error: X=0.65 Y=-0.41
01:02:32 Checking autoguider max error...
01:02:36 Autoguider error: X=0.44 Y=-0.09
01:02:36 Autoguider max error < 0.5!
01:02:36 Starting imager exposure (1 of 4).
01:10:16 Imager exposure complete.
01:10:16 Stopping autoguider...
01:10:18 Setting autoguider exposure time to 3 seconds.
01:10:18 Setting guide star position to 138.0,37.0.
01:10:18 Starting to autoguide.
01:10:30 Checking autoguider max error...
01:10:31 Autoguider error: X=-0.76 Y=0.33
01:10:31 Checking autoguider max error...
01:10:35 Autoguider error: X=-0.39 Y=0.29
01:10:35 Autoguider max error < 0.5!
01:10:35 Starting imager exposure (2 of 4).
01:18:15 Imager exposure complete.
01:18:15 Stopping autoguider...
01:18:17 Setting autoguider exposure time to 3 seconds.
01:18:17 Setting guide star position to 138.0,38.0.
01:18:17 Starting to autoguide.
01:18:29 Checking autoguider max error...
01:18:29 Autoguider error: X=0.40 Y=-1.20
01:18:29 Checking autoguider max error...
01:18:33 Autoguider error: X=0.02 Y=-0.39

01:18:33 Autoguider max error < 0.5!
01:18:33 Starting imager exposure (3 of 4).
01:26:13 Imager exposure complete.
01:26:13 Stopping autoguider...
01:26:15 Setting autoguider exposure time to 3 seconds.
01:26:15 Setting guide star position to 137.0,38.0.
01:26:15 Starting to autoguide.
01:26:27 Checking autoguider max error...
01:26:28 Autoguider error: X=-1.10 Y=-1.95
01:26:28 Checking autoguider max error...
01:26:33 Autoguider error: X=-1.28 Y=-1.34
01:26:33 Checking autoguider max error...
01:26:37 Autoguider error: X=-0.93 Y=-1.39
01:26:37 Checking autoguider max error...
01:26:42 Autoguider error: X=0.16 Y=-0.36
01:26:42 Autoguider max error < 0.5!
01:26:42 Starting imager exposure (4 of 4).
01:34:21 Imager exposure complete.
01:34:21 Stopping autoguider...
01:34:23 Take Images Action complete.
01:34:23 Running Action List Iteration #6
01:34:23 Starting move to action.
01:34:23 Precessing coordidnates.
01:34:23 J2000 Coordinates: RA: 11h 15m 52.0s Dec: +13°18'27"
01:34:23 JNow Coordinates: RA: 11h 16m 11.2s Dec: +13°16'26"
01:34:23 Slewing to SAO 99525...
01:34:32 Done slewing!
01:34:32 Starting post slew delay.
01:34:35 Completed post slew delay.
01:34:35 Setting imager bin mode to 2x2.
01:34:35 Setting filter to Luminance.
01:34:36 Taking 5 second image for Plate Solve...
01:34:54 Saving Image...
01:34:54 Performing Plate Solve with CCDSoft...
01:34:55 Plate solve results:
01:34:55 Pixel Scale = 1.85 asp.
01:34:55 North Angle = 311.87 degrees.
01:34:55 J2000 Coordinates = RA: 11h 15m 52.6s Dec: +13°19'18"
01:34:55 Syncing to RA 11.26996, Dec 13.28822
01:35:02 Starting focus run...
01:36:50 Focus succeeded! HFD = 4.04
01:36:50 Starting move to action.
01:36:50 Precessing coordidnates.
01:36:50 J2000 Coordinates: RA: 11h 20m 17.0s Dec: +13°35'24"
01:36:50 JNow Coordinates: RA: 11h 20m 36.2s Dec: +13°33'23"
01:36:50 Slewing to ngc 3628...
01:36:58 Done slewing!
01:36:58 Starting post slew delay.
01:37:01 Completed post slew delay.
01:37:01 Setting image type to Light.
01:37:01 Setting imager bin mode to 1x1.
01:37:01 Setting filter to Luminance.
01:37:03 Setting imager to full frame.
01:37:03 Setting imager exposure time to 450 seconds.
01:37:04 Setting autoguider bin mode to 2x2.
01:37:04 Taking a 3 second autoguider exposure.

01:37:14 Beginning guide star search...
01:37:15 Found possible guide star at 141, 35 with a max brightness of 6617 ADU.
01:37:15 Taking a 3 second autoguider exposure.
01:37:22 Beginning guide star search...
01:37:23 Found appropriate guide star at 142, 34 with a max brightness of 7720 ADU.
01:37:23 Trying to autoguide on star at 142.0,34.0.
01:37:23 Starting to autoguide.
01:37:35 Checking autoguider max error...
01:37:35 Autoguider error: X=0.59 Y=-0.34
01:37:35 Checking autoguider max error...
01:37:40 Autoguider error: X=0.23 Y=0.16
01:37:40 Autoguider max error < 0.5!
01:37:40 Stopping autoguider...
01:37:42 Automatic guide star acquisition successful!
01:37:42 Setting autoguider exposure time to 3 seconds.
01:37:42 Setting guide star position to 142.0,34.0.
01:37:42 Starting to autoguide.
01:37:54 Checking autoguider max error...
01:37:54 Autoguider error: X=0.99 Y=-0.10
01:37:54 Checking autoguider max error...
01:37:58 Autoguider error: X=0.16 Y=-0.21
01:37:58 Autoguider max error < 0.5!
01:37:58 Starting imager exposure (1 of 4).
01:45:38 Imager exposure complete.
01:45:38 Stopping autoguider...
01:45:40 Setting autoguider exposure time to 3 seconds.
01:45:40 Setting guide star position to 143.0,34.0.
01:45:40 Starting to autoguide.
01:45:52 Checking autoguider max error...
01:45:53 Autoguider error: X=0.08 Y=-0.07
01:45:53 Autoguider max error < 0.5!
01:45:53 Starting imager exposure (2 of 4).
01:53:33 Imager exposure complete.
01:53:33 Stopping autoguider...
01:53:35 Setting autoguider exposure time to 3 seconds.
01:53:35 Setting guide star position to 143.0,35.0.
01:53:35 Starting to autoguide.
01:53:47 Checking autoguider max error...
01:53:47 Autoguider error: X=0.12 Y=-0.03
01:53:47 Autoguider max error < 0.5!
01:53:47 Starting imager exposure (3 of 4).
02:00:00 Skip ahead at 02:00 action is active. Skipping ahead.
02:00:00 Stopping autoguider...
02:00:00 Skipping remainder of Action: Light 4x450s Luminance AS "ngc3628_lum", AG Dither every 1 exp.
02:00:01 Running Action List Iteration #7
02:00:01 Skipping Action: Move to SAO 99525.
02:00:01 Skipping Action: Plate Solve, Sync, and ReSlew.
02:00:01 Skipping Action: Focus with Luminance filter.
02:00:01 Skipping Action: Move to ngc 3628.
02:00:01 Skipping Action: Light 4x450s Luminance AS "ngc3628_lum", AG Dither every 1 exp.
02:00:01 Running Action List Iteration #8
02:00:01 Skipping Action: Move to SAO 99525.

02:00:01 Skipping Action: Plate Solve, Sync, and ReSlew.
02:00:01 Skipping Action: Focus with Luminance filter.
02:00:01 Skipping Action: Move to ngc 3628.
02:00:01 Skipping Action: Light 4x450s Luminance AS "ngc3628_lum", AG
Dither every 1 exp.
02:00:01 Running Action List Iteration #9
02:00:01 Skipping Action: Move to SAO 99525.
02:00:01 Skipping Action: Plate Solve, Sync, and ReSlew.
02:00:01 Skipping Action: Focus with Luminance filter.
02:00:01 Skipping Action: Move to ngc 3628.
02:00:01 Skipping Action: Light 4x450s Luminance AS "ngc3628_lum", AG
Dither every 1 exp.
02:00:01 Done running ngc3628_lum_30m.act
02:00:01 Running m63_lum_30m.act
02:00:02 Running Action List Iteration #1
02:00:02 Starting move to action.
02:00:02 Precessing coordindates.
02:00:02 J2000 Coordinates: RA: 13h 17m 33.0s Dec: +40°34'21"
02:00:02 JNow Coordinates: RA: 13h 17m 49.5s Dec: +40°32'25"
02:00:02 Slewing to SAO 44549...
02:00:34 Done slewing!
02:00:34 Starting post slew delay.
02:00:37 Completed post slew delay.
02:00:37 Setting imager bin mode to 2x2.
02:00:37 Setting filter to Luminance.
02:00:39 Taking 5 second image for Plate Solve...
02:00:57 Saving Image...
02:00:57 Performing Plate Solve with CCDSoft...
02:00:58 Plate solve results:
02:00:58 Pixel Scale = 1.85 asp.
02:00:58 North Angle = 311.83 degrees.
02:00:58 J2000 Coordinates = RA: 13h 17m 18.1s Dec: +40°31'19"
02:00:58 Syncing to RA 13.29295, Dec 40.48968
02:01:06 Starting focus run...
02:02:51 Focus succeeded! HFD = 4.20
02:02:51 Starting move to action.
02:02:51 Precessing coordindates.
02:02:51 J2000 Coordinates: RA: 13h 16m 02.0s Dec: +42°04'49"
02:02:51 JNow Coordinates: RA: 13h 16m 18.4s Dec: +42°02'53"
02:02:51 Slewing to M63...
02:02:59 Done slewing!
02:02:59 Starting post slew delay.
02:03:02 Completed post slew delay.
02:03:02 Setting image type to Light.
02:03:02 Setting imager bin mode to 1x1.
02:03:02 Setting filter to Luminance.
02:03:04 Setting imager to full frame.
02:03:04 Setting imager exposure time to 450 seconds.
02:03:05 Setting autoguider bin mode to 2x2.
02:03:05 Taking a 3 second autoguider exposure.
02:03:16 Beginning guide star search...
02:03:17 Found possible guide star at 83, 211 with a max brightness
of 11420 ADU.
02:03:17 Taking a 3 second autoguider exposure.
02:03:23 Beginning guide star search...
02:03:25 Found appropriate guide star at 84, 210 with a max

brightness of 10828 ADU.

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02:03:25 Trying to autoguide on star at 84.0,210.0.
02:03:25 Starting to autoguide.
02:03:37 Checking autoguider max error...
02:03:37 Autoguider error: X=1.02 Y=-0.21
02:03:37 Checking autoguider max error...
02:03:41 Autoguider error: X=0.74 Y=-0.32
02:03:41 Checking autoguider max error...
02:03:45 Autoguider error: X=0.69 Y=-0.44
02:03:45 Checking autoguider max error...
02:03:49 Autoguider error: X=0.58 Y=-0.08
02:03:49 Checking autoguider max error...
02:03:53 Autoguider error: X=0.94 Y=-0.09
02:03:53 Checking autoguider max error...
02:03:57 Autoguider error: X=0.41 Y=0.02
02:03:57 Autoguider max error < 0.5!
02:03:57 Stopping autoguider...
02:03:59 Automatic guide star acquisition successful!
02:03:59 Setting autoguider exposure time to 3 seconds.
02:03:59 Setting guide star position to 84.0,210.0.
02:03:59 Starting to autoguide.
02:04:11 Checking autoguider max error...
02:04:12 Autoguider error: X=1.17 Y=-0.18
02:04:12 Checking autoguider max error...
02:04:16 Autoguider error: X=0.48 Y=-0.15
02:04:16 Autoguider max error < 0.5!
02:04:16 Starting imager exposure (1 of 4).
02:11:56 Imager exposure complete.
02:11:56 Stopping autoguider...
02:11:58 Setting autoguider exposure time to 3 seconds.
02:11:58 Setting guide star position to 85.0,210.0.
02:11:58 Starting to autoguide.
02:12:10 Checking autoguider max error...
02:12:10 Autoguider error: X=-0.58 Y=-0.44
02:12:10 Checking autoguider max error...
02:12:14 Autoguider error: X=0.60 Y=-0.43
02:12:14 Checking autoguider max error...
02:12:18 Autoguider error: X=0.11 Y=0.00
02:12:18 Autoguider max error < 0.5!
02:12:18 Starting imager exposure (2 of 4).
02:19:58 Imager exposure complete.
02:19:58 Stopping autoguider...
02:20:00 Setting autoguider exposure time to 3 seconds.
02:20:00 Setting guide star position to 85.0,211.0.
02:20:00 Starting to autoguide.
02:20:12 Checking autoguider max error...
02:20:13 Autoguider error: X=0.79 Y=-0.90
02:20:13 Checking autoguider max error...
02:20:16 Autoguider error: X=0.93 Y=-1.05
02:20:16 Checking autoguider max error...
02:20:21 Autoguider error: X=0.40 Y=-0.72
02:20:21 Checking autoguider max error...
02:20:24 Autoguider error: X=-0.03 Y=-0.53
02:20:24 Checking autoguider max error...
02:20:28 Autoguider error: X=0.51 Y=-0.81
02:20:28 Checking autoguider max error...
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02:20:32 Autoguider error: X=0.03 Y=-0.44
02:20:32 Autoguider max error < 0.5!
02:20:32 Starting imager exposure (3 of 4).
02:28:12 Imager exposure complete.
02:28:12 Stopping autoguider...
02:28:14 Setting autoguider exposure time to 3 seconds.
02:28:14 Setting guide star position to 84.0,211.0.
02:28:14 Starting to autoguide.
02:28:26 Checking autoguider max error...
02:28:27 Autoguider error: X=-0.28 Y=-1.52
02:28:27 Checking autoguider max error...
02:28:31 Autoguider error: X=0.26 Y=-0.73
02:28:31 Checking autoguider max error...
02:28:35 Autoguider error: X=-0.05 Y=-0.59
02:28:35 Checking autoguider max error...
02:28:39 Autoguider error: X=-0.16 Y=-0.28
02:28:39 Autoguider max error < 0.5!
02:28:39 Starting imager exposure (4 of 4).
02:36:19 Imager exposure complete.
02:36:19 Stopping autoguider...
02:36:21 Take Images Action complete.
02:36:21 Running Action List Iteration #2
02:36:21 Starting move to action.
02:36:21 Precessing coordidnates.
02:36:21 J2000 Coordinates: RA: 13h 17m 33.0s Dec: +40°34'21"
02:36:21 JNow Coordinates: RA: 13h 17m 49.5s Dec: +40°32'25"
02:36:21 Slewing to SAO 44549...
02:36:29 Done slewing!
02:36:29 Starting post slew delay.
02:36:32 Completed post slew delay.
02:36:32 Setting imager bin mode to 2x2.
02:36:32 Setting filter to Luminance.
02:36:34 Taking 5 second image for Plate Solve...
02:36:52 Saving Image...
02:36:53 Performing Plate Solve with CCDSoft...
02:36:53 Plate solve results:
02:36:53 Pixel Scale = 1.85 asp.
02:36:53 North Angle = 311.84 degrees.
02:36:53 J2000 Coordinates = RA: 13h 17m 36.8s Dec: +40°36'53"
02:36:53 Syncing to RA 13.29814, Dec 40.58246
02:37:01 Starting focus run...
02:38:42 Focus succeeded! HFD = 4.32
02:38:42 Starting move to action.
02:38:42 Precessing coordidnates.
02:38:42 J2000 Coordinates: RA: 13h 16m 02.0s Dec: +42°04'49"
02:38:42 JNow Coordinates: RA: 13h 16m 18.4s Dec: +42°02'53"
02:38:42 Slewing to M63...
02:38:50 Done slewing!
02:38:50 Starting post slew delay.
02:38:53 Completed post slew delay.
02:38:53 Setting image type to Light.
02:38:53 Setting imager bin mode to 1x1.
02:38:53 Setting filter to Luminance.
02:38:55 Setting imager to full frame.
02:38:55 Setting imager exposure time to 450 seconds.
02:38:56 Setting autoguider bin mode to 2x2.

02:38:56 Taking a 3 second autoguider exposure.
02:39:07 Beginning guide star search...
02:39:08 Found possible guide star at 35, 160 with a max brightness
of 12589 ADU.
02:39:08 Taking a 3 second autoguider exposure.
02:39:14 Beginning guide star search...
02:39:16 Found appropriate guide star at 36, 160 with a max
brightness of 11935 ADU.
02:39:16 Trying to autoguide on star at 36.0,160.0.
02:39:16 Starting to autoguide.
02:39:28 Checking autoguider max error...
02:39:28 Autoguider error: X=0.42 Y=0.11
02:39:28 Autoguider max error < 0.5!
02:39:28 Stopping autoguider...
02:39:30 Automatic guide star acquisition successful!
02:39:30 Setting autoguider exposure time to 3 seconds.
02:39:30 Setting guide star position to 36.0,160.0.
02:39:30 Starting to autoguide.
02:39:42 Checking autoguider max error...
02:39:46 Autoguider error: X=0.28 Y=-0.03
02:39:46 Autoguider max error < 0.5!
02:39:46 Starting imager exposure (1 of 4).
02:47:26 Imager exposure complete.
02:47:26 Stopping autoguider...
02:47:28 Setting autoguider exposure time to 3 seconds.
02:47:28 Setting guide star position to 37.0,160.0.
02:47:28 Starting to autoguide.
02:47:40 Checking autoguider max error...
02:47:41 Autoguider error: X=-0.57 Y=0.85
02:47:41 Checking autoguider max error...
02:47:44 Autoguider error: X=-0.48 Y=0.86
02:47:44 Checking autoguider max error...
02:47:48 Autoguider error: X=0.03 Y=0.09
02:47:48 Autoguider max error < 0.5!
02:47:48 Starting imager exposure (2 of 4).
02:55:28 Imager exposure complete.
02:55:28 Stopping autoguider...
02:55:30 Setting autoguider exposure time to 3 seconds.
02:55:30 Setting guide star position to 37.0,161.0.
02:55:30 Starting to autoguide.
02:55:42 Checking autoguider max error...
02:55:46 Autoguider error: X=0.11 Y=0.04
02:55:46 Autoguider max error < 0.5!
02:55:46 Starting imager exposure (3 of 4).
03:03:26 Imager exposure complete.
03:03:26 Stopping autoguider...
03:03:28 Setting autoguider exposure time to 3 seconds.
03:03:28 Setting guide star position to 36.0,161.0.
03:03:28 Starting to autoguide.
03:03:40 Checking autoguider max error...
03:03:40 Autoguider error: X=-0.56 Y=-1.82
03:03:40 Checking autoguider max error...
03:03:45 Autoguider error: X=0.07 Y=-1.00
03:03:45 Checking autoguider max error...
03:03:49 Autoguider error: X=-0.13 Y=-0.73
03:03:49 Checking autoguider max error...

03:03:53 Autoguider error: X=-0.39 Y=-0.66
03:03:53 Checking autoguider max error...
03:03:57 Autoguider error: X=-0.36 Y=-0.93
03:03:57 Checking autoguider max error...
03:04:02 Autoguider error: X=0.41 Y=-0.47
03:04:02 Autoguider max error < 0.5!
03:04:02 Starting imager exposure (4 of 4).
03:11:42 Imager exposure complete.
03:11:42 Stopping autoguider...
03:11:44 Take Images Action complete.
03:11:44 Running Action List Iteration #3
03:11:44 Starting move to action.
03:11:44 Precessing coordindates.
03:11:44 J2000 Coordinates: RA: 13h 17m 33.0s Dec: +40°34'21"
03:11:44 JNow Coordinates: RA: 13h 17m 49.5s Dec: +40°32'25"
03:11:44 Slewing to SAO 44549...
03:11:53 Done slewing!
03:11:53 Starting post slew delay.
03:11:56 Completed post slew delay.
03:11:56 Setting imager bin mode to 2x2.
03:11:56 Setting filter to Luminance.
03:11:57 Taking 5 second image for Plate Solve...
03:12:15 Saving Image...
03:12:15 Performing Plate Solve with CCDSoft...
03:12:16 Plate solve results:
03:12:16 Pixel Scale = 1.85 asp.
03:12:16 North Angle = 311.85 degrees.
03:12:16 J2000 Coordinates = RA: 13h 17m 36.6s Dec: +40°35'11"
03:12:16 Syncing to RA 13.29810, Dec 40.55433
03:12:23 Starting focus run...
03:14:15 Focus succeeded! HFD = 4.41
03:14:15 Starting move to action.
03:14:15 Precessing coordindates.
03:14:15 J2000 Coordinates: RA: 13h 16m 02.0s Dec: +42°04'49"
03:14:15 JNow Coordinates: RA: 13h 16m 18.4s Dec: +42°02'53"
03:14:15 Slewing to M63...
03:14:24 Done slewing!
03:14:24 Starting post slew delay.
03:14:27 Completed post slew delay.
03:14:27 Setting image type to Light.
03:14:27 Setting imager bin mode to 1x1.
03:14:27 Setting filter to Luminance.
03:14:29 Setting imager to full frame.
03:14:29 Setting imager exposure time to 450 seconds.
03:14:30 Setting autoguider bin mode to 2x2.
03:14:30 Taking a 3 second autoguider exposure.
03:14:40 Beginning guide star search...
03:14:41 Found possible guide star at 33, 164 with a max brightness
of 10263 ADU.
03:14:41 Taking a 3 second autoguider exposure.
03:14:48 Beginning guide star search...
03:14:49 Found appropriate guide star at 33, 164 with a max
brightness of 13165 ADU.
03:14:49 Trying to autoguide on star at 33.0,164.0.
03:14:49 Starting to autoguide.
03:15:01 Checking autoguider max error...

03:15:01 Autoguider error: X=0.61 Y=-0.09
03:15:01 Checking autoguider max error...
03:15:05 Autoguider error: X=0.51 Y=0.18
03:15:05 Checking autoguider max error...
03:15:09 Autoguider error: X=0.41 Y=0.15
03:15:09 Autoguider max error < 0.5!
03:15:09 Stopping autoguider...
03:15:11 Automatic guide star acquisition successful!
03:15:11 Setting autoguider exposure time to 3 seconds.
03:15:11 Setting guide star position to 33.0,164.0.
03:15:11 Starting to autoguide.
03:15:24 Checking autoguider max error...
03:15:24 Autoguider error: X=1.16 Y=-0.09
03:15:24 Checking autoguider max error...
03:15:28 Autoguider error: X=1.08 Y=-0.20
03:15:28 Checking autoguider max error...
03:15:32 Autoguider error: X=0.77 Y=0.12
03:15:32 Checking autoguider max error...
03:15:36 Autoguider error: X=0.37 Y=-0.53
03:15:36 Checking autoguider max error...
03:15:40 Autoguider error: X=0.35 Y=-0.16
03:15:40 Autoguider max error < 0.5!
03:15:40 Starting imager exposure (1 of 4).
03:23:20 Imager exposure complete.
03:23:20 Stopping autoguider...
03:23:22 Setting autoguider exposure time to 3 seconds.
03:23:22 Setting guide star position to 34.0,164.0.
03:23:22 Starting to autoguide.
03:23:34 Checking autoguider max error...
03:23:35 Autoguider error: X=0.43 Y=-0.44
03:23:35 Autoguider max error < 0.5!
03:23:35 Starting imager exposure (2 of 4).
03:31:14 Imager exposure complete.
03:31:14 Stopping autoguider...
03:31:16 Setting autoguider exposure time to 3 seconds.
03:31:16 Setting guide star position to 34.0,165.0.
03:31:16 Starting to autoguide.
03:31:28 Checking autoguider max error...
03:31:29 Autoguider error: X=1.45 Y=-1.27
03:31:29 Checking autoguider max error...
03:31:33 Autoguider error: X=0.51 Y=-0.98
03:31:33 Checking autoguider max error...
03:31:37 Autoguider error: X=0.88 Y=-0.39
03:31:37 Checking autoguider max error...
03:31:41 Autoguider error: X=-0.26 Y=-0.85
03:31:41 Checking autoguider max error...
03:31:45 Autoguider error: X=0.61 Y=-0.03
03:31:45 Checking autoguider max error...
03:31:49 Autoguider error: X=0.72 Y=-0.68
03:31:49 Checking autoguider max error...
03:31:53 Autoguider error: X=0.35 Y=-0.45
03:31:53 Autoguider max error < 0.5!
03:31:53 Starting imager exposure (3 of 4).
03:39:33 Imager exposure complete.
03:39:33 Stopping autoguider...
03:39:35 Setting autoguider exposure time to 3 seconds.

03:39:35 Setting guide star position to 33.0,165.0.
03:39:35 Starting to autoguide.
03:39:47 Checking autoguider max error...
03:39:48 Autoguider error: X=1.38 Y=0.03
03:39:48 Checking autoguider max error...
03:39:52 Autoguider error: X=1.34 Y=0.17
03:39:52 Checking autoguider max error...
03:39:56 Autoguider error: X=0.24 Y=-0.79
03:39:56 Checking autoguider max error...
03:40:00 Autoguider error: X=0.67 Y=0.31
03:40:00 Checking autoguider max error...
03:40:04 Autoguider error: X=-0.52 Y=-1.13
03:40:04 Checking autoguider max error...
03:40:08 Autoguider error: X=0.44 Y=-0.70
03:40:08 Checking autoguider max error...
03:40:12 Autoguider error: X=0.04 Y=-0.78
03:40:12 Checking autoguider max error...
03:40:16 Autoguider error: X=0.29 Y=-0.14
03:40:16 Autoguider max error < 0.5!
03:40:16 Starting imager exposure (4 of 4).
03:47:56 Imager exposure complete.
03:47:56 Stopping autoguider...
03:47:58 Take Images Action complete.
03:47:58 Running Action List Iteration #4
03:47:58 Starting move to action.
03:47:58 Precessing coordindates.
03:47:58 J2000 Coordinates: RA: 13h 17m 33.0s Dec: +40°34'21"
03:47:58 JNow Coordinates: RA: 13h 17m 49.5s Dec: +40°32'25"
03:47:58 Slewing to SAO 44549...
03:48:06 Done slewing!
03:48:06 Starting post slew delay.
03:48:09 Completed post slew delay.
03:48:09 Setting imager bin mode to 2x2.
03:48:09 Setting filter to Luminance.
03:48:11 Taking 5 second image for Plate Solve...
03:48:29 Saving Image...
03:48:29 Performing Plate Solve with CCDSoft...
03:48:30 Plate solve results:
03:48:30 Pixel Scale = 1.85 asp.
03:48:30 North Angle = 311.89 degrees.
03:48:30 J2000 Coordinates = RA: 13h 17m 36.1s Dec: +40°35'19"
03:48:30 Syncing to RA 13.29794, Dec 40.55652
03:48:38 Starting focus run...
03:50:22 Focus succeeded! HFD = 4.44
03:50:22 Starting move to action.
03:50:22 Precessing coordindates.
03:50:22 J2000 Coordinates: RA: 13h 16m 02.0s Dec: +42°04'49"
03:50:22 JNow Coordinates: RA: 13h 16m 18.4s Dec: +42°02'53"
03:50:22 Flipping mount...
03:52:27 Slewing to M63...
03:52:49 Done slewing!
03:52:49 Starting post slew delay.
03:52:53 Completed post slew delay.
03:52:53 Setting image type to Light.
03:52:53 Setting imager bin mode to 1x1.
03:52:53 Setting filter to Luminance.

03:52:54 Setting imager to full frame.
03:52:54 Setting imager exposure time to 450 seconds.
03:52:55 Setting autoguider bin mode to 2x2.
03:52:55 Taking a 3 second autoguider exposure.
03:53:06 Beginning guide star search...
03:53:07 Taking a 6 second autoguider exposure.
03:53:23 Beginning guide star search...
03:53:25 Found possible guide star at 26, 126 with a max brightness of 4633 ADU.
03:53:25 Taking a 6 second autoguider exposure.
03:53:34 Beginning guide star search...
03:53:35 Taking a 12 second autoguider exposure.
03:54:04 Beginning guide star search...
03:54:05 Taking a 40 second autoguider exposure.
03:55:30 Beginning guide star search...
03:55:31 Found possible guide star at 93, 189 with a max brightness of 3855 ADU.
03:55:31 Taking a 40 second autoguider exposure.
03:56:14 Beginning guide star search...
03:56:16 Cannot find star greater then 3000 ADU.
03:56:16 Stopping autoguider...
03:56:17 Unable to find a guide star.
03:56:17 Take Images Action failed.
03:56:17 Running Action List Iteration #5
03:56:17 Starting move to action.
03:56:17 Precessing coordnates.
03:56:17 J2000 Coordinates: RA: 13h 17m 33.0s Dec: +40°34'21"
03:56:17 JNow Coordinates: RA: 13h 17m 49.5s Dec: +40°32'25"
03:56:17 Slewing to SAO 44549...
03:56:25 Done slewing!
03:56:25 Starting post slew delay.
03:56:29 Completed post slew delay.
03:56:29 Setting imager bin mode to 2x2.
03:56:29 Setting filter to Luminance.
03:56:30 Taking 5 second image for Plate Solve...
03:56:48 Saving Image...
03:56:48 Performing Plate Solve with CCDSoft...
03:56:49 Plate solve results:
03:56:49 Pixel Scale = 1.86 asp.
03:56:49 North Angle = 312.34 degrees.
03:56:50 J2000 Coordinates = RA: 13h 19m 11.4s Dec: +40°29'39"
03:56:50 Syncing to RA 13.32441, Dec 40.46198
03:57:00 Starting focus run...
03:58:55 Focus succeeded! HFD = 4.65
03:58:55 Starting move to action.
03:58:55 Precessing coordnates.
03:58:55 J2000 Coordinates: RA: 13h 16m 02.0s Dec: +42°04'49"
03:58:55 JNow Coordinates: RA: 13h 16m 18.4s Dec: +42°02'53"
03:58:55 Slewing to M63...
03:59:03 Done slewing!
03:59:03 Starting post slew delay.
03:59:06 Completed post slew delay.
03:59:06 Setting image type to Light.
03:59:06 Setting imager bin mode to 1x1.
03:59:06 Setting filter to Luminance.
03:59:08 Setting imager to full frame.

03:59:08 Setting imager exposure time to 450 seconds.
03:59:09 Setting autoguider bin mode to 2x2.
03:59:09 Taking a 3 second autoguider exposure.
03:59:20 Beginning guide star search...
03:59:21 Taking a 14.22 second autoguider exposure.
03:59:54 Beginning guide star search...
03:59:55 Found possible guide star at 18, 50 with a max brightness of
3226 ADU.
03:59:55 Taking a 14.22 second autoguider exposure.
04:00:02 Skip ahead at 04:00 action is active. Skipping ahead.
04:00:02 Beginning guide star search...
04:00:02 Stopping autoguider...
04:00:03 Unable to find a guide star.
04:00:03 Take Images Action failed.
04:00:03 Skipping remainder of Action: Light 4x450s Luminance AS
"m63_lum", AG Dither every 1 exp.
04:00:04 Done running m63_lum_30m.act
04:00:04 Starting move to action.
04:00:04 Precessing coordindates.
04:00:04 J2000 Coordinates: RA: 18h 00m 03.0s Dec: +16°45'03"
04:00:04 JNow Coordinates: RA: 18h 00m 19.4s Dec: +16°45'03"
04:00:04 Flipping mount...
04:02:10 Slewing to SAO 103285...
04:03:04 Done slewing!
04:03:04 Starting post slew delay.
04:03:07 Completed post slew delay.
04:03:07 Running end_of_night.act
04:03:07 Setting image type to Dark.
04:03:07 Setting imager bin mode to 1x1.
04:03:07 Setting filter to Luminance.
04:03:09 Setting imager to full frame.
04:03:09 Setting imager exposure time to 450 seconds.
04:03:10 Starting imager exposure (1 of 10).
04:10:49 Imager exposure complete.
04:10:50 Starting imager exposure (2 of 10).
04:18:30 Imager exposure complete.
04:18:31 Starting imager exposure (3 of 10).
04:26:10 Imager exposure complete.
04:26:11 Starting imager exposure (4 of 10).
04:33:50 Imager exposure complete.
04:33:51 Starting imager exposure (5 of 10).
04:41:30 Imager exposure complete.
04:41:31 Starting imager exposure (6 of 10).
04:49:09 Imager exposure complete.
04:49:10 Starting imager exposure (7 of 10).
04:56:49 Imager exposure complete.
04:56:50 Starting imager exposure (8 of 10).
05:04:29 Imager exposure complete.
05:04:30 Starting imager exposure (9 of 10).
05:12:09 Imager exposure complete.
05:12:10 Starting imager exposure (10 of 10).
05:19:49 Imager exposure complete.
05:19:49 Take Images Action complete.
05:19:49 Setting image type to Dark.
05:19:49 Setting imager bin mode to 2x2.
05:19:49 Setting filter to Luminance.

05:19:51 Setting imager to full frame.
05:19:51 Setting imager exposure time to 180 seconds.
05:19:52 Starting imager exposure (1 of 10).
05:22:56 Imager exposure complete.
05:22:57 Starting imager exposure (2 of 10).
05:26:02 Imager exposure complete.
05:26:03 Starting imager exposure (3 of 10).
05:29:07 Imager exposure complete.
05:29:08 Starting imager exposure (4 of 10).
05:32:13 Imager exposure complete.
05:32:14 Starting imager exposure (5 of 10).
05:35:18 Imager exposure complete.
05:35:19 Starting imager exposure (6 of 10).
05:38:23 Imager exposure complete.
05:38:25 Starting imager exposure (7 of 10).
05:41:29 Imager exposure complete.
05:41:30 Starting imager exposure (8 of 10).
05:44:34 Imager exposure complete.
05:44:35 Starting imager exposure (9 of 10).
05:47:40 Imager exposure complete.
05:47:41 Starting imager exposure (10 of 10).
05:50:45 Imager exposure complete.
05:50:45 Take Images Action complete.
05:50:45 In Auto Flat Action.
05:50:45 Waiting for dawn twilight...
06:34:46 Slewing to flat target location.
06:34:46 Moving to Alt-Az position: Alt: 85°00' 00.0" Az: 270°00'00"
06:36:38 Done slewing!
06:36:38 Starting post slew delay.
06:36:41 Completed post slew delay.
06:36:42 Setting imager bin mode to 1x1.
06:36:42 Setting filter to Luminance.
06:36:44 Setting imager to full frame.
06:36:53 Setting imager exposure time to 1.0 seconds.
06:36:53 Starting imager exposure...
06:37:01 Exposure complete. Computing average ADU.
06:37:02 Average ADU = 738
06:37:02 Target ADU = 20000
06:37:02 New exposure time computed to be 27.1
06:37:05 Setting imager exposure time to 27.1 seconds.
06:37:05 Starting imager exposure...
06:37:40 Exposure complete. Computing average ADU.
06:37:40 Average ADU = 15099
06:37:40 Target ADU = 20000
06:37:40 New exposure time computed to be 35.9
06:37:45 Setting imager exposure time to 35.9 seconds.
06:37:45 Starting imager exposure...
06:38:29 Exposure complete. Computing average ADU.
06:38:29 Average ADU = 24474
06:38:29 Target ADU = 20000
06:38:29 New exposure time computed to be 29.3
06:38:35 Setting imager exposure time to 29.3 seconds.
06:38:35 Starting imager exposure...
06:39:11 Exposure complete. Computing average ADU.
06:39:11 Average ADU = 24673
06:39:11 Target ADU = 20000

06:39:11 New exposure time computed to be 23.8
06:39:17 Setting imager exposure time to 23.8 seconds.
06:39:17 Starting imager exposure...
06:39:48 Exposure complete. Computing average ADU.
06:39:48 Average ADU = 24011
06:39:48 Target ADU = 20000
06:39:48 New exposure time computed to be 19.8
06:39:54 Setting imager exposure time to 19.8 seconds.
06:39:54 Starting imager exposure...
06:40:21 Exposure complete. Computing average ADU.
06:40:21 Average ADU = 23361
06:40:21 Target ADU = 20000
06:40:21 New exposure time computed to be 17.0
06:40:27 Setting imager exposure time to 17.0 seconds.
06:40:27 Starting imager exposure...
06:40:51 Exposure complete. Computing average ADU.
06:40:51 Average ADU = 23096
06:40:51 Target ADU = 20000
06:40:51 New exposure time computed to be 14.7
06:40:57 Setting imager exposure time to 14.7 seconds.
06:40:57 Starting imager exposure...
06:41:19 Exposure complete. Computing average ADU.
06:41:19 Average ADU = 22679
06:41:19 Target ADU = 20000
06:41:19 New exposure time computed to be 13.0
06:41:23 Setting imager exposure time to 13.0 seconds.
06:41:23 Starting imager exposure...
06:41:43 Exposure complete. Computing average ADU.
06:41:43 Average ADU = 22339
06:41:43 Target ADU = 20000
06:41:43 New exposure time computed to be 11.6
06:41:47 Setting imager exposure time to 11.6 seconds.
06:41:47 Starting imager exposure...
06:42:06 Exposure complete. Computing average ADU.
06:42:06 Average ADU = 22041
06:42:06 Target ADU = 20000
06:42:06 New exposure time computed to be 10.5
06:42:10 Setting imager exposure time to 10.5 seconds.
06:42:10 Starting imager exposure...
06:42:28 Exposure complete. Computing average ADU.
06:42:28 Average ADU = 21916
06:42:28 Target ADU = 20000
06:42:28 Current exposure time good! Taking Flats.
06:42:31 Setting imager exposure time to 10.5 seconds.
06:42:31 Starting imager exposure #1
06:42:50 Exposure complete. Computing average ADU.
06:42:51 Average ADU = 23982
06:42:51 Recomputing exposure time...
06:42:51 New exposure time computed to be 8.0
06:42:54 Setting imager exposure time to 8.0 seconds.
06:42:54 Starting imager exposure #2
06:43:10 Exposure complete. Computing average ADU.
06:43:10 Average ADU = 19962
06:43:10 Recomputing exposure time...
06:43:10 New exposure time computed to be 7.3
06:43:13 Setting imager exposure time to 7.3 seconds.

06:43:13 Starting imager exposure #3
06:43:28 Exposure complete. Computing average ADU.
06:43:29 Average ADU = 19687
06:43:29 Recomputing exposure time...
06:43:29 New exposure time computed to be 6.7
06:43:32 Setting imager exposure time to 6.7 seconds.
06:43:32 Starting imager exposure #4
06:43:47 Exposure complete. Computing average ADU.
06:43:47 Average ADU = 19473
06:43:47 Recomputing exposure time...
06:43:47 New exposure time computed to be 6.3
06:43:50 Setting imager exposure time to 6.3 seconds.
06:43:50 Starting imager exposure #5
06:44:04 Exposure complete. Computing average ADU.
06:44:05 Average ADU = 19662
06:44:05 Recomputing exposure time...
06:44:05 New exposure time computed to be 5.8
06:44:08 Setting imager exposure time to 5.8 seconds.
06:44:08 Starting imager exposure #6
06:44:22 Exposure complete. Computing average ADU.
06:44:22 Average ADU = 19397
06:44:22 Recomputing exposure time...
06:44:22 New exposure time computed to be 5.4
06:44:26 Setting imager exposure time to 5.4 seconds.
06:44:26 Starting imager exposure #7
06:44:39 Exposure complete. Computing average ADU.
06:44:39 Average ADU = 19315
06:44:39 Recomputing exposure time...
06:44:39 New exposure time computed to be 5.1
06:44:43 Setting imager exposure time to 5.1 seconds.
06:44:43 Starting imager exposure #8
06:44:56 Exposure complete. Computing average ADU.
06:44:56 Average ADU = 19423
06:44:56 Recomputing exposure time...
06:44:56 New exposure time computed to be 4.8
06:45:00 Setting imager exposure time to 4.8 seconds.
06:45:00 Starting imager exposure #9
06:45:12 Exposure complete. Computing average ADU.
06:45:13 Average ADU = 19515
06:45:13 Recomputing exposure time...
06:45:13 New exposure time computed to be 4.5
06:45:16 Setting imager exposure time to 4.5 seconds.
06:45:16 Starting imager exposure #10
06:45:28 Exposure complete. Computing average ADU.
06:45:29 Average ADU = 19447
06:45:29 Recomputing exposure time...
06:45:29 New exposure time computed to be 4.2
06:45:29 Automatic Flat Action complete.
06:45:29 Turning on Fan.
06:45:29 Warming up camera...
06:45:29 Setting camera temperature to -4.8
06:45:29 Waiting for temperature to rise...
06:46:29 Waiting for temperature to rise...
06:47:29 Setting camera temperature to 5.6
06:47:29 Waiting for temperature to rise...
06:48:30 Waiting for temperature to rise...

06:49:10 Setting camera temperature to 15.8
06:49:10 Waiting for temperature to rise...
06:50:10 Waiting for temperature to rise...
06:50:30 Shutting down cooler.
06:50:30 Done running end_of_night.act
06:50:30 Action complete.