

CCD Commander Log File
Software v1.3.12
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22:41:03 Action starting.
22:41:03 Connecting to the Camera...
22:41:03 Connecting to the Mount...
22:41:04 Connecting to FocusMax...
22:41:04 Turning on Fan.
22:41:04 Turning on cooler.
22:41:04 Setting cooler = -15
22:41:04 Simple Temperature Control complete.
22:41:04 Waiting for altitude of 30 degrees...
22:41:04 Done waiting!
22:41:04 Running m51_red_30m.act
22:41:04 Starting move to action.
22:41:04 Precessing coordinates.
22:41:04 J2000 Coordinates: RA: 13h 33m 13.0s Dec: +47°45'31"
22:41:04 JNow Coordinates: RA: 13h 33m 28.4s Dec: +47°43'37"
22:41:05 Slewing to SAO 44653...
22:41:13 Done slewing!
22:41:13 Starting post slew delay.
22:41:16 Completed post slew delay.
22:41:16 Setting imager bin mode to 2x2.
22:41:16 Setting filter to Luminance.
22:41:19 Taking 5 second image for Plate Solve...
22:41:28 Saving Image...
22:41:28 Performing Plate Solve with CCDSoft...
22:41:29 Plate solve results:
22:41:29 Pixel Scale = 1.85 asp.
22:41:29 North Angle = 270.85 degrees.
22:41:29 J2000 Coordinates = RA: 13h 33m 13.1s Dec: +47°42'34"
22:41:29 Syncing to RA 13.55792, Dec 47.67789
22:41:38 Starting focus run...
22:43:21 Focus succeeded! HFD = 3.90
22:43:21 Starting move to action.
22:43:21 Precessing coordinates.
22:43:21 J2000 Coordinates: RA: 13h 30m 14.0s Dec: +47°13'51"
22:43:21 JNow Coordinates: RA: 13h 30m 29.6s Dec: +47°11'57"
22:43:21 Slewing to m 51...
22:43:27 Done slewing!
22:43:27 Starting post slew delay.
22:43:30 Completed post slew delay.
22:43:30 Setting imager bin mode to 2x2.
22:43:30 Setting filter to Luminance.
22:43:37 Taking 5 second image for Plate Solve...
22:43:55 Saving Image...
22:43:55 Performing Plate Solve with CCDSoft...
22:43:56 Plate solve results:
22:43:56 Pixel Scale = 1.86 asp.
22:43:56 North Angle = 270.86 degrees.
22:43:56 J2000 Coordinates = RA: 13h 30m 13.6s Dec: +47°14'29"
22:43:56 Syncing to RA 13.50810, Dec 47.20957
22:44:03 Setting image type to Light.
22:44:03 Setting imager bin mode to 2x2.
22:44:03 Setting filter to Red.
22:44:06 Setting imager to full frame.
22:44:06 Setting imager exposure time to 300 seconds.
22:44:07 Setting autoguider bin mode to 2x2.
22:44:07 Taking a 1 second autoguider exposure.
22:44:13 Beginning guide star search...
22:44:14 Taking a 1.8 second autoguider exposure.
22:44:23 Beginning guide star search...

22:44:24 Found possible guide star at 187, 87 with a max brightness of 13058 ADU.
22:44:24 Taking a 1.8 second autoguider exposure.
22:44:29 Beginning guide star search...
22:44:30 Found appropriate guide star at 187, 87 with a max brightness of 13763
ADU.
22:44:30 Trying to autoguide on star at 187.0,87.0.
22:44:30 Starting to autoguide.
22:44:37 Checking autoguider max error...
22:44:40 Autoguider error: X=-0.08 Y=0.76
22:44:40 Checking autoguider max error...
22:44:43 Autoguider error: X=-0.03 Y=-0.19
22:44:43 Autoguider max error < 0.4!
22:44:43 Stopping autoguider...
22:44:45 Automatic guide star acquisition successful!
22:44:45 Setting autoguider exposure time to 1.8 seconds.
22:44:45 Setting guide star position to 187.0,87.0.
22:44:45 Starting to autoguide.
22:44:52 Checking autoguider max error...
22:44:54 Autoguider error: X=0.32 Y=0.88
22:44:54 Checking autoguider max error...
22:44:57 Autoguider error: X=0.11 Y=-0.09
22:44:57 Autoguider max error < 0.4!
22:44:57 Starting imager exposure (1 of 4).
22:50:02 Imager exposure complete.
22:50:02 Stopping autoguider...
22:50:04 Setting autoguider exposure time to 1.8 seconds.
22:50:04 Setting guide star position to 189.0,87.0.
22:50:04 Starting to autoguide.
22:50:12 Checking autoguider max error...
22:50:14 Autoguider error: X=-1.89 Y=0.00
22:50:14 Checking autoguider max error...
22:50:18 Autoguider error: X=-1.74 Y=0.19
22:50:18 Checking autoguider max error...
22:50:21 Autoguider error: X=-1.58 Y=-0.22
22:50:21 Checking autoguider max error...
22:50:24 Autoguider error: X=-1.77 Y=-0.13
22:50:24 Checking autoguider max error...
22:50:27 Autoguider error: X=-1.76 Y=-0.30
22:50:27 Checking autoguider max error...
22:50:31 Autoguider error: X=-1.50 Y=-0.27
22:50:31 Checking autoguider max error...
22:50:34 Autoguider error: X=-0.21 Y=-0.16
22:50:34 Autoguider max error < 0.4!
22:50:34 Starting imager exposure (2 of 4).
22:55:39 Imager exposure complete.
22:55:39 Stopping autoguider...
22:55:41 Setting autoguider exposure time to 1.8 seconds.
22:55:41 Setting guide star position to 189.0,89.0.
22:55:41 Starting to autoguide.
22:55:48 Checking autoguider max error...
22:55:51 Autoguider error: X=0.02 Y=0.09
22:55:51 Autoguider max error < 0.4!
22:55:51 Starting imager exposure (3 of 4).
23:00:56 Imager exposure complete.
23:00:56 Stopping autoguider...
23:00:58 Setting autoguider exposure time to 1.8 seconds.
23:00:58 Setting guide star position to 187.0,89.0.
23:00:58 Starting to autoguide.
23:01:05 Checking autoguider max error...
23:01:08 Autoguider error: X=2.25 Y=0.17
23:01:08 Checking autoguider max error...
23:01:11 Autoguider error: X=1.07 Y=-0.20
23:01:11 Checking autoguider max error...
23:01:14 Autoguider error: X=0.18 Y=0.00
23:01:14 Autoguider max error < 0.4!

23:01:14 Starting imager exposure (4 of 4).
23:06:19 Imager exposure complete.
23:06:19 Stopping autoguider...
23:06:21 Take Images Action complete.
23:06:21 Done running m51_red_30m.act
23:06:21 Running m51_grn_30m.act
23:06:21 Running Action List Iteration #1
23:06:21 Starting move to action.
23:06:21 Precessing coordinates.
23:06:21 J2000 Coordinates: RA: 13h 33m 13.0s Dec: +47°45'31"
23:06:21 JNow Coordinates: RA: 13h 33m 28.4s Dec: +47°43'37"
23:06:21 Slewing to SAO 44653...
23:06:30 Done slewing!
23:06:30 Starting post slew delay.
23:06:33 Completed post slew delay.
23:06:33 Setting imager bin mode to 2x2.
23:06:33 Setting filter to Luminance.
23:06:40 Taking 5 second image for Plate solve...
23:06:49 Saving Image...
23:06:49 Performing Plate solve with CCDSoft...
23:06:50 Plate solve results:
23:06:50 Pixel Scale = 1.86 asp.
23:06:50 North Angle = 270.86 degrees.
23:06:50 J2000 Coordinates = RA: 13h 33m 12.7s Dec: +47°45'11"
23:06:50 Syncing to RA 13.55781, Dec 47.72146
23:06:59 Starting focus run...
23:08:49 Focus succeeded! HFD = 3.35
23:08:49 Starting move to action.
23:08:49 Precessing coordinates.
23:08:49 J2000 Coordinates: RA: 13h 30m 14.0s Dec: +47°13'51"
23:08:49 JNow Coordinates: RA: 13h 30m 29.6s Dec: +47°11'57"
23:08:49 Slewing to m 51...
23:08:56 Done slewing!
23:08:56 Starting post slew delay.
23:08:59 Completed post slew delay.
23:08:59 Setting imager bin mode to 2x2.
23:08:59 Setting filter to Luminance.
23:09:05 Taking 5 second image for Plate solve...
23:09:23 Saving Image...
23:09:23 Performing Plate solve with CCDSoft...
23:09:24 Plate solve results:
23:09:24 Pixel Scale = 1.85 asp.
23:09:24 North Angle = 270.85 degrees.
23:09:24 J2000 Coordinates = RA: 13h 30m 13.9s Dec: +47°14'16"
23:09:24 Syncing to RA 13.50818, Dec 47.20615
23:09:29 Setting image type to Light.
23:09:29 Setting imager bin mode to 2x2.
23:09:29 Setting filter to Green.
23:09:33 Setting imager to full frame.
23:09:33 Setting imager exposure time to 300 seconds.
23:09:34 Setting autoguider bin mode to 2x2.
23:09:34 Taking a 1 second autoguider exposure.
23:09:40 Beginning guide star search...
23:09:41 Found possible guide star at 187, 87 with a max brightness of 10272 ADU.
23:09:41 Taking a 1 second autoguider exposure.
23:09:46 Beginning guide star search...
23:09:47 Found appropriate guide star at 187, 88 with a max brightness of 12677
ADU.
23:09:47 Trying to autoguide on star at 187.0,88.0.
23:09:47 Starting to autoguide.
23:09:51 Checking autoguider max error...
23:09:51 Autoguider error: X=0.34 Y=-0.33
23:09:51 Autoguider max error < 0.4!
23:09:51 Stopping autoguider...
23:09:53 Automatic guide star acquisition successful!

23:09:53 Setting autoguider exposure time to 1 seconds.
23:09:53 Setting guide star position to 187.0,88.0.
23:09:53 Starting to autoguide.
23:09:57 Checking autoguider max error...
23:09:58 Autoguider error: X=0.25 Y=0.21
23:09:58 Autoguider max error < 0.4!
23:09:58 Starting imager exposure (1 of 4).
23:15:03 Imager exposure complete.
23:15:03 Stopping autoguider...
23:15:05 Setting autoguider exposure time to 1 seconds.
23:15:05 Setting guide star position to 189.0,88.0.
23:15:05 Starting to autoguide.
23:15:09 Checking autoguider max error...
23:15:09 Autoguider error: X=-2.25 Y=0.31
23:15:09 Checking autoguider max error...
23:15:11 Autoguider error: X=-2.02 Y=0.04
23:15:11 Checking autoguider max error...
23:15:14 Autoguider error: X=-2.27 Y=-0.57
23:15:14 Checking autoguider max error...
23:15:16 Autoguider error: X=-2.31 Y=0.19
23:15:16 Checking autoguider max error...
23:15:18 Autoguider error: X=-2.39 Y=0.26
23:15:18 Checking autoguider max error...
23:15:20 Autoguider error: X=-1.98 Y=0.31
23:15:20 Checking autoguider max error...
23:15:22 Autoguider error: X=-0.11 Y=-0.05
23:15:22 Autoguider max error < 0.4!
23:15:22 Starting imager exposure (2 of 4).
23:20:28 Imager exposure complete.
23:20:28 Stopping autoguider...
23:20:30 Setting autoguider exposure time to 1 seconds.
23:20:30 Setting guide star position to 189.0,90.0.
23:20:30 Starting to autoguide.
23:20:34 Checking autoguider max error...
23:20:34 Autoguider error: X=-0.13 Y=-2.02
23:20:34 Checking autoguider max error...
23:20:37 Autoguider error: X=0.09 Y=-0.23
23:20:37 Autoguider max error < 0.4!
23:20:37 Starting imager exposure (3 of 4).
23:25:42 Imager exposure complete.
23:25:42 Stopping autoguider...
23:25:45 Setting autoguider exposure time to 1 seconds.
23:25:45 Setting guide star position to 187.0,90.0.
23:25:45 Starting to autoguide.
23:25:49 Checking autoguider max error...
23:25:49 Autoguider error: X=2.21 Y=-0.18
23:25:49 Checking autoguider max error...
23:25:51 Autoguider error: X=2.01 Y=0.41
23:25:51 Checking autoguider max error...
23:25:53 Autoguider error: X=1.03 Y=0.30
23:25:53 Checking autoguider max error...
23:25:55 Autoguider error: X=0.35 Y=0.23
23:25:55 Autoguider max error < 0.4!
23:25:55 Starting imager exposure (4 of 4).
23:31:01 Imager exposure complete.
23:31:01 Stopping autoguider...
23:31:03 Take Images Action complete.
23:31:03 Running Action List Iteration #2
23:31:03 Starting move to action.
23:31:03 Precessing coordinates.
23:31:03 J2000 Coordinates: RA: 13h 33m 13.0s Dec: +47°45'31"
23:31:03 JNow Coordinates: RA: 13h 33m 28.4s Dec: +47°43'37"
23:31:03 Slewing to SAO 44653...
23:31:12 Done slewing!
23:31:12 Starting post slew delay.

23:31:15 Completed post slew delay.
23:31:15 Setting imager bin mode to 2x2.
23:31:15 Setting filter to Luminance.
23:31:21 Taking 5 second image for Plate Solve...
23:31:30 Saving Image...
23:31:30 Performing Plate Solve with CCDSoft...
23:31:31 Plate solve results:
23:31:31 Pixel Scale = 1.86 asp.
23:31:31 North Angle = 270.85 degrees.
23:31:31 J2000 Coordinates = RA: 13h 33m 12.2s Dec: +47°45'12"
23:31:31 Syncing to RA 13.55765, Dec 47.72168
23:31:41 Starting focus run...
23:33:25 Focus succeeded! HFD = 3.26
23:33:25 Starting move to action.
23:33:25 Preprocessing coordinates.
23:33:25 J2000 Coordinates: RA: 13h 30m 14.0s Dec: +47°13'51"
23:33:25 JNow Coordinates: RA: 13h 30m 29.6s Dec: +47°11'57"
23:33:25 Slewing to m 51...
23:33:31 Done slewing!
23:33:31 Starting post slew delay.
23:33:35 Completed post slew delay.
23:33:35 Setting imager bin mode to 2x2.
23:33:35 Setting filter to Luminance.
23:33:37 Taking 5 second image for Plate Solve...
23:33:54 Saving Image...
23:33:55 Performing Plate Solve with CCDSoft...
23:33:56 Plate solve results:
23:33:56 Pixel Scale = 1.85 asp.
23:33:56 North Angle = 270.80 degrees.
23:33:56 J2000 Coordinates = RA: 13h 30m 15.3s Dec: +47°14'10"
23:33:56 Syncing to RA 13.50858, Dec 47.20441
23:34:01 Setting image type to Light.
23:34:01 Setting imager bin mode to 2x2.
23:34:01 Setting filter to Green.
23:34:04 Setting imager to full frame.
23:34:04 Setting imager exposure time to 300 seconds.
23:34:05 Setting autoguider bin mode to 2x2.
23:34:05 Taking a 1 second autoguider exposure.
23:34:12 Beginning guide star search...
23:34:13 Found possible guide star at 187, 89 with a max brightness of 13744 ADU.
23:34:13 Taking a 1 second autoguider exposure.
23:34:17 Beginning guide star search...
23:34:18 Found appropriate guide star at 187, 89 with a max brightness of 10733 ADU.
23:34:18 Trying to autoguide on star at 187.0,89.0.
23:34:18 Starting to autoguide.
23:34:22 Checking autoguider max error...
23:34:23 Autoguider error: X=0.43 Y=1.66
23:34:23 Checking autoguider max error...
23:34:25 Autoguider error: X=0.11 Y=0.07
23:34:25 Autoguider max error < 0.4!
23:34:25 Stopping autoguider...
23:34:27 Automatic guide star acquisition successful!
23:34:27 Setting autoguider exposure time to 1 seconds.
23:34:27 Setting guide star position to 187.0,89.0.
23:34:27 Starting to autoguide.
23:34:31 Checking autoguider max error...
23:34:31 Autoguider error: X=0.14 Y=0.96
23:34:31 Checking autoguider max error...
23:34:33 Autoguider error: X=0.39 Y=-0.15
23:34:33 Autoguider max error < 0.4!
23:34:33 Starting imager exposure (1 of 4).
23:39:39 Imager exposure complete.
23:39:39 Stopping autoguider...
23:39:41 Setting autoguider exposure time to 1 seconds.

23:39:41 Setting guide star position to 189.0,89.0.
23:39:41 Starting to autoguide.
23:39:45 Checking autoguider max error...
23:39:46 Autoguider error: X=-2.04 Y=-0.13
23:39:46 Checking autoguider max error...
23:39:48 Autoguider error: X=-1.96 Y=0.38
23:39:48 Checking autoguider max error...
23:39:50 Autoguider error: X=-2.00 Y=0.06
23:39:50 Checking autoguider max error...
23:39:52 Autoguider error: X=-2.00 Y=0.22
23:39:52 Checking autoguider max error...
23:39:55 Autoguider error: X=-2.24 Y=0.31
23:39:55 Checking autoguider max error...
23:39:57 Autoguider error: X=-1.62 Y=0.81
23:39:57 Checking autoguider max error...
23:39:59 Autoguider error: X=0.07 Y=-0.52
23:39:59 Checking autoguider max error...
23:40:00 Autoguider error: X=0.28 Y=-0.39
23:40:00 Autoguider max error < 0.4!
23:40:00 Starting imager exposure (2 of 4).
23:45:06 Imager exposure complete.
23:45:06 Stopping autoguider...
23:45:08 Setting autoguider exposure time to 1 seconds.
23:45:08 Setting guide star position to 189.0,91.0.
23:45:08 Starting to autoguide.
23:45:12 Checking autoguider max error...
23:45:12 Autoguider error: X=0.12 Y=-2.17
23:45:12 Checking autoguider max error...
23:45:15 Autoguider error: X=-0.12 Y=-0.71
23:45:15 Checking autoguider max error...
23:45:17 Autoguider error: X=-0.09 Y=-0.18
23:45:17 Autoguider max error < 0.4!
23:45:17 Starting imager exposure (3 of 4).
23:50:23 Imager exposure complete.
23:50:23 Stopping autoguider...
23:50:25 Setting autoguider exposure time to 1 seconds.
23:50:25 Setting guide star position to 187.0,91.0.
23:50:25 Starting to autoguide.
23:50:29 Checking autoguider max error...
23:50:30 Autoguider error: X=2.48 Y=-0.25
23:50:30 Checking autoguider max error...
23:50:32 Autoguider error: X=2.18 Y=-0.25
23:50:32 Checking autoguider max error...
23:50:34 Autoguider error: X=2.10 Y=-0.02
23:50:34 Checking autoguider max error...
23:50:37 Autoguider error: X=2.01 Y=-0.24
23:50:37 Checking autoguider max error...
23:50:39 Autoguider error: X=0.70 Y=0.03
23:50:39 Checking autoguider max error...
23:50:41 Autoguider error: X=0.30 Y=-0.19
23:50:41 Autoguider max error < 0.4!
23:50:41 Starting imager exposure (4 of 4).
23:55:47 Imager exposure complete.
23:55:47 Stopping autoguider...
23:55:49 Take Images Action complete.
23:55:49 Done running m51_grn_30m.act
23:55:49 Running m51_blu_30m.act
23:55:49 Running Action List Iteration #1
23:55:49 Starting move to action.
23:55:49 Precessing coordinates.
23:55:49 J2000 Coordinates: RA: 13h 33m 13.0s Dec: +47°45'31"
23:55:49 JNow Coordinates: RA: 13h 33m 28.4s Dec: +47°43'37"
23:55:49 Slewing to SAO 44653...
23:55:57 Done slewing!
23:55:57 Starting post slew delay.

23:56:00 Completed post slew delay.
23:56:00 Setting imager bin mode to 2x2.
23:56:00 Setting filter to Luminance.
23:56:06 Taking 5 second image for Plate Solve...
23:56:16 Saving Image...
23:56:16 Performing Plate Solve with CCDSoft...
23:56:17 Plate solve results:
23:56:17 Pixel Scale = 1.85 asp.
23:56:17 North Angle = 270.84 degrees.
23:56:17 J2000 Coordinates = RA: 13h 33m 13.0s Dec: +47°45'12"
23:56:17 Syncing to RA 13.55788, Dec 47.72185
23:56:26 Starting focus run...
23:58:12 Focus succeeded! HFD = 3.08
23:58:12 Starting move to action.
23:58:12 Preprocessing coordinates.
23:58:12 J2000 Coordinates: RA: 13h 30m 14.0s Dec: +47°13'51"
23:58:12 JNow Coordinates: RA: 13h 30m 29.6s Dec: +47°11'57"
23:58:12 Slewing to m 51...
23:58:18 Done slewing!
23:58:18 Starting post slew delay.
23:58:21 Completed post slew delay.
23:58:21 Setting imager bin mode to 2x2.
23:58:21 Setting filter to Luminance.
23:58:27 Taking 5 second image for Plate Solve...
23:58:45 Saving Image...
23:58:45 Performing Plate Solve with CCDSoft...
23:58:46 Plate solve results:
23:58:46 Pixel Scale = 1.85 asp.
23:58:46 North Angle = 270.87 degrees.
23:58:46 J2000 Coordinates = RA: 13h 30m 14.4s Dec: +47°14'11"
23:58:46 Syncing to RA 13.50834, Dec 47.20472
23:58:52 Setting image type to Light.
23:58:52 Setting imager bin mode to 2x2.
23:58:52 Setting filter to Blue.
23:58:56 Setting imager to full frame.
23:58:56 Setting imager exposure time to 300 seconds.
23:58:57 Setting autoguider bin mode to 2x2.
23:58:57 Taking a 1 second autoguider exposure.
23:59:03 Beginning guide star search...
23:59:04 Found possible guide star at 186, 84 with a max brightness of 10957 ADU.
23:59:04 Taking a 1 second autoguider exposure.
23:59:08 Beginning guide star search...
23:59:10 Taking a 1.12 second autoguider exposure.
23:59:16 Beginning guide star search...
23:59:17 Found possible guide star at 186, 85 with a max brightness of 14633 ADU.
23:59:17 Taking a 1.12 second autoguider exposure.
23:59:21 Beginning guide star search...
23:59:22 Found appropriate guide star at 186, 85 with a max brightness of 11688 ADU.
23:59:22 Trying to autoguide on star at 186.0,85.0.
23:59:22 Starting to autoguide.
23:59:27 Checking autoguider max error...
23:59:28 Autoguider error: X=0.54 Y=0.15
23:59:28 Checking autoguider max error...
23:59:30 Autoguider error: X=0.46 Y=0.43
23:59:30 Checking autoguider max error...
23:59:32 Autoguider error: X=0.33 Y=0.57
23:59:32 Checking autoguider max error...
23:59:34 Autoguider error: X=0.20 Y=0.32
23:59:34 Autoguider max error < 0.4!
23:59:34 Stopping autoguider...
23:59:36 Automatic guide star acquisition successful!
23:59:36 Setting autoguider exposure time to 1.12 seconds.
23:59:36 Setting guide star position to 186.0,85.0.
23:59:36 Starting to autoguide.

23:59:41 Checking autoguider max error...
23:59:41 Autoguider error: X=0.21 Y=-0.20
23:59:41 Autoguider max error < 0.4!
23:59:41 Starting imager exposure (1 of 4).
00:04:46 Imager exposure complete.
00:04:46 Stopping autoguider...
00:04:48 Setting autoguider exposure time to 1.12 seconds.
00:04:48 Setting guide star position to 188.0,85.0.
00:04:48 Starting to autoguide.
00:04:53 Checking autoguider max error...
00:04:53 Autoguider error: X=-2.16 Y=0.35
00:04:53 Checking autoguider max error...
00:04:56 Autoguider error: X=-2.13 Y=0.30
00:04:56 Checking autoguider max error...
00:04:58 Autoguider error: X=-0.88 Y=0.00
00:04:58 Checking autoguider max error...
00:05:00 Autoguider error: X=-0.04 Y=0.01
00:05:00 Autoguider max error < 0.4!
00:05:00 Starting imager exposure (2 of 4).
00:10:06 Imager exposure complete.
00:10:06 Stopping autoguider...
00:10:08 Setting autoguider exposure time to 1.12 seconds.
00:10:08 Setting guide star position to 188.0,87.0.
00:10:08 Starting to autoguide.
00:10:12 Checking autoguider max error...
00:10:13 Autoguider error: X=0.03 Y=-2.10
00:10:13 Checking autoguider max error...
00:10:15 Autoguider error: X=-0.02 Y=-0.19
00:10:15 Autoguider max error < 0.4!
00:10:15 Starting imager exposure (3 of 4).
00:15:20 Imager exposure complete.
00:15:21 Stopping autoguider...
00:15:23 Setting autoguider exposure time to 1.12 seconds.
00:15:23 Setting guide star position to 186.0,87.0.
00:15:23 Starting to autoguide.
00:15:27 Checking autoguider max error...
00:15:28 Autoguider error: X=1.76 Y=-0.18
00:15:28 Checking autoguider max error...
00:15:30 Autoguider error: X=1.53 Y=-0.10
00:15:30 Checking autoguider max error...
00:15:32 Autoguider error: X=0.19 Y=-0.38
00:15:32 Autoguider max error < 0.4!
00:15:32 Starting imager exposure (4 of 4).
00:20:38 Imager exposure complete.
00:20:38 Stopping autoguider...
00:20:40 Take Images Action complete.
00:20:40 Running Action List Iteration #2
00:20:40 Starting move to action.
00:20:40 Precessing coordinates.
00:20:40 J2000 Coordinates: RA: 13h 33m 13.0s Dec: +47°45'31"
00:20:40 JNow Coordinates: RA: 13h 33m 28.4s Dec: +47°43'37"
00:20:40 Slewing to SAO 44653...
00:20:48 Done slewing!
00:20:48 Starting post slew delay.
00:20:51 Completed post slew delay.
00:20:51 Setting imager bin mode to 2x2.
00:20:51 Setting filter to Luminance.
00:20:57 Taking 5 second image for Plate solve...
00:21:07 Saving Image...
00:21:07 Performing Plate Solve with CCDSoft...
00:21:08 Plate solve results:
00:21:08 Pixel Scale = 1.85 asp.
00:21:08 North Angle = 270.87 degrees.
00:21:08 J2000 Coordinates = RA: 13h 33m 12.0s Dec: +47°45'15"
00:21:08 Syncing to RA 13.55762, Dec 47.72269

00:21:18 Starting focus run...
00:23:12 Focus succeeded! HFD = 2.98
00:23:12 Starting move to action.
00:23:12 Precessing coordnates.
00:23:12 J2000 Coordinates: RA: 13h 30m 14.0s Dec: +47°13'51"
00:23:12 JNow Coordinates: RA: 13h 30m 29.6s Dec: +47°11'57"
00:23:12 Slewing to m 51...
00:23:18 Done slewing!
00:23:18 Starting post slew delay.
00:23:21 Completed post slew delay.
00:23:21 Setting imager bin mode to 2x2.
00:23:21 Setting filter to Luminance.
00:23:28 Taking 5 second image for Plate Solve...
00:23:45 Saving Image...
00:23:45 Performing Plate Solve with CCDSoft...
00:23:47 Plate solve results:
00:23:47 Pixel Scale = 1.85 asp.
00:23:47 North Angle = 270.91 degrees.
00:23:47 J2000 Coordinates = RA: 13h 30m 14.6s Dec: +47°14'14"
00:23:47 Syncing to RA 13.50838, Dec 47.20549
00:23:52 Setting image type to Light.
00:23:52 Setting imager bin mode to 2x2.
00:23:52 Setting filter to Blue.
00:23:56 Setting imager to full frame.
00:23:56 Setting imager exposure time to 300 seconds.
00:23:57 Setting autoguider bin mode to 2x2.
00:23:57 Taking a 1 second autoguider exposure.
00:24:03 Beginning guide star search...
00:24:04 Found possible guide star at 189, 92 with a max brightness of 11417 ADU.
00:24:04 Taking a 1 second autoguider exposure.
00:24:08 Beginning guide star search...
00:24:10 Found appropriate guide star at 189, 92 with a max brightness of 10155
ADU.
00:24:10 Trying to autoguide on star at 189.0,92.0.
00:24:10 Starting to autoguide.
00:24:14 Checking autoguider max error...
00:24:14 Autoguider error: X=-0.28 Y=-0.02
00:24:14 Autoguider max error < 0.4!
00:24:14 Stopping autoguider...
00:24:16 Automatic guide star acquisition successful!
00:24:16 Setting autoguider exposure time to 1 seconds.
00:24:16 Setting guide star position to 189.0,92.0.
00:24:16 Starting to autoguide.
00:24:20 Checking autoguider max error...
00:24:20 Autoguider error: X=-0.12 Y=0.10
00:24:20 Autoguider max error < 0.4!
00:24:20 Starting imager exposure (1 of 4).
00:29:26 Imager exposure complete.
00:29:26 Stopping autoguider...
00:29:28 Setting autoguider exposure time to 1 seconds.
00:29:28 Setting guide star position to 191.0,92.0.
00:29:28 Starting to autoguide.
00:29:32 Checking autoguider max error...
00:29:32 Autoguider error: X=-2.02 Y=-0.08
00:29:32 Checking autoguider max error...
00:29:35 Autoguider error: X=-2.08 Y=-0.07
00:29:35 Checking autoguider max error...
00:29:37 Autoguider error: X=-1.93 Y=-0.34
00:29:37 Checking autoguider max error...
00:29:39 Autoguider error: X=-2.23 Y=0.04
00:29:39 Checking autoguider max error...
00:29:41 Autoguider error: X=-2.31 Y=-0.24
00:29:41 Checking autoguider max error...
00:29:43 Autoguider error: X=-2.31 Y=-0.44
00:29:43 Checking autoguider max error...

00:29:46 Autoguider error: X=-0.84 Y=-0.04
00:29:46 Checking autoguider max error...
00:29:48 Autoguider error: X=0.21 Y=-0.02
00:29:48 Autoguider max error < 0.4!
00:29:48 Starting imager exposure (2 of 4).
00:34:53 Imager exposure complete.
00:34:53 Stopping autoguider...
00:34:55 Setting autoguider exposure time to 1 seconds.
00:34:55 Setting guide star position to 191.0,94.0.
00:34:55 Starting to autoguide.
00:34:59 Checking autoguider max error...
00:34:59 Autoguider error: X=0.27 Y=-2.21
00:34:59 Checking autoguider max error...
00:35:02 Autoguider error: X=-0.35 Y=-0.89
00:35:02 Checking autoguider max error...
00:35:04 Autoguider error: X=-0.04 Y=-0.26
00:35:04 Autoguider max error < 0.4!
00:35:04 Starting imager exposure (3 of 4).
00:40:09 Imager exposure complete.
00:40:09 Stopping autoguider...
00:40:11 Setting autoguider exposure time to 1 seconds.
00:40:11 Setting guide star position to 189.0,94.0.
00:40:11 Starting to autoguide.
00:40:15 Checking autoguider max error...
00:40:16 Autoguider error: X=2.01 Y=0.25
00:40:16 Checking autoguider max error...
00:40:18 Autoguider error: X=2.01 Y=0.08
00:40:18 Checking autoguider max error...
00:40:20 Autoguider error: X=2.12 Y=-0.35
00:40:20 Checking autoguider max error...
00:40:22 Autoguider error: X=1.95 Y=0.29
00:40:22 Checking autoguider max error...
00:40:24 Autoguider error: X=1.72 Y=0.42
00:40:24 Checking autoguider max error...
00:40:26 Autoguider error: X=0.63 Y=-0.17
00:40:26 Checking autoguider max error...
00:40:28 Autoguider error: X=0.59 Y=-0.41
00:40:28 Checking autoguider max error...
00:40:30 Autoguider error: X=0.18 Y=-0.06
00:40:30 Autoguider max error < 0.4!
00:40:30 Starting imager exposure (4 of 4).
00:45:36 Imager exposure complete.
00:45:36 Stopping autoguider...
00:45:38 Take Images Action complete.
00:45:38 Done running m51_blu_30m.act
00:45:38 Running m51_lum_30m.act
00:45:38 Running Action List Iteration #1
00:45:38 Starting move to action.
00:45:38 Precessing coordindates.
00:45:38 J2000 Coordinates: RA: 13h 33m 13.0s Dec: +47°45'31"
00:45:38 JNow Coordinates: RA: 13h 33m 28.4s Dec: +47°43'37"
00:45:38 Slewing to SAO 44653...
00:45:46 Done slewing!
00:45:46 Starting post slew delay.
00:45:49 Completed post slew delay.
00:45:49 Setting imager bin mode to 2x2.
00:45:49 Setting filter to Luminance.
00:45:55 Taking 5 second image for Plate solve...
00:46:05 Saving Image...
00:46:05 Performing Plate Solve with CCDSoft...
00:46:06 Plate solve results:
00:46:06 Pixel Scale = 1.85 asp.
00:46:06 North Angle = 270.86 degrees.
00:46:06 J2000 Coordinates = RA: 13h 33m 11.7s Dec: +47°45'14"
00:46:06 Syncing to RA 13.55752, Dec 47.72219

00:46:14 Starting focus run...
00:48:00 Focus succeeded! HFD = 2.92
00:48:00 Starting move to action.
00:48:00 Precessing coordnates.
00:48:01 J2000 Coordinates: RA: 13h 30m 14.0s Dec: +47°13'51"
00:48:01 JNow Coordinates: RA: 13h 30m 29.6s Dec: +47°11'57"
00:48:01 Slewing to M 51...
00:48:07 Done slewing!
00:48:07 Starting post slew delay.
00:48:10 Completed post slew delay.
00:48:10 Setting imager bin mode to 2x2.
00:48:10 Setting filter to Luminance.
00:48:12 Taking 5 second image for Plate Solve...
00:48:29 Saving Image...
00:48:30 Performing Plate Solve with CCDSoft...
00:48:31 Plate solve results:
00:48:31 Pixel Scale = 1.85 asp.
00:48:31 North Angle = 270.83 degrees.
00:48:31 J2000 Coordinates = RA: 13h 30m 14.9s Dec: +47°14'12"
00:48:31 Syncing to RA 13.50846, Dec 47.20487
00:48:36 Setting image type to Light.
00:48:36 Setting imager bin mode to 1x1.
00:48:36 Setting filter to Luminance.
00:48:38 Setting imager to full frame.
00:48:38 Setting imager exposure time to 450 seconds.
00:48:39 Setting autoguider bin mode to 2x2.
00:48:39 Taking a 1 second autoguider exposure.
00:48:46 Beginning guide star search...
00:48:47 Found possible guide star at 185, 88 with a max brightness of 32458 ADU.
00:48:47 Taking a 1 second autoguider exposure.
00:48:51 Beginning guide star search...
00:48:52 Found appropriate guide star at 185, 88 with a max brightness of 36046 ADU.
00:48:52 Trying to autoguide on star at 185.0,88.0.
00:48:52 Starting to autoguide.
00:48:56 Checking autoguider max error...
00:48:57 Autoguider error: X=0.32 Y=0.12
00:48:57 Autoguider max error < 0.4!
00:48:57 Stopping autoguider...
00:48:59 Automatic guide star acquisition successful!
00:48:59 Setting autoguider exposure time to 1 seconds.
00:48:59 Setting guide star position to 185.0,88.0.
00:48:59 Starting to autoguide.
00:49:03 Checking autoguider max error...
00:49:03 Autoguider error: X=0.25 Y=0.59
00:49:03 Checking autoguider max error...
00:49:05 Autoguider error: X=0.39 Y=-0.12
00:49:05 Autoguider max error < 0.4!
00:49:05 Starting imager exposure (1 of 4).
00:56:46 Imager exposure complete.
00:56:46 Stopping autoguider...
00:56:48 Setting autoguider exposure time to 1 seconds.
00:56:48 Setting guide star position to 187.0,88.0.
00:56:48 Starting to autoguide.
00:56:52 Checking autoguider max error...
00:56:53 Autoguider error: X=-2.12 Y=0.00
00:56:53 Checking autoguider max error...
00:56:55 Autoguider error: X=-0.28 Y=-0.41
00:56:55 Checking autoguider max error...
00:56:57 Autoguider error: X=0.04 Y=-0.11
00:56:57 Autoguider max error < 0.4!
00:56:57 Starting imager exposure (2 of 4).
01:04:37 Imager exposure complete.
01:04:37 Stopping autoguider...
01:04:39 Setting autoguider exposure time to 1 seconds.

01:04:39 Setting guide star position to 187.0,90.0.
01:04:39 Starting to autoguide.
01:04:43 Checking autoguider max error...
01:04:44 Autoguider error: X=-0.16 Y=-2.81
01:04:44 Checking autoguider max error...
01:04:46 Autoguider error: X=-0.10 Y=-1.48
01:04:46 Checking autoguider max error...
01:04:48 Autoguider error: X=-0.03 Y=-0.04
01:04:48 Autoguider max error < 0.4!
01:04:48 Starting imager exposure (3 of 4).
01:12:28 Imager exposure complete.
01:12:28 Stopping autoguider...
01:12:30 Setting autoguider exposure time to 1 seconds.
01:12:30 Setting guide star position to 185.0,90.0.
01:12:30 Starting to autoguide.
01:12:34 Checking autoguider max error...
01:12:34 Autoguider error: X=2.01 Y=-0.78
01:12:35 Checking autoguider max error...
01:12:37 Autoguider error: X=1.71 Y=-0.01
01:12:37 Checking autoguider max error...
01:12:39 Autoguider error: X=1.98 Y=-0.13
01:12:39 Checking autoguider max error...
01:12:41 Autoguider error: X=2.08 Y=-0.69
01:12:41 Checking autoguider max error...
01:12:43 Autoguider error: X=1.30 Y=-0.18
01:12:43 Checking autoguider max error...
01:12:45 Autoguider error: X=0.57 Y=-0.03
01:12:45 Checking autoguider max error...
01:12:47 Autoguider error: X=0.54 Y=0.02
01:12:47 Checking autoguider max error...
01:12:49 Autoguider error: X=0.14 Y=0.01
01:12:49 Autoguider max error < 0.4!
01:12:49 Starting imager exposure (4 of 4).
01:20:29 Imager exposure complete.
01:20:29 Stopping autoguider...
01:20:31 Take Images Action complete.
01:20:31 Running Action List Iteration #2
01:20:31 Starting move to action.
01:20:31 Precessing coordnates.
01:20:31 J2000 Coordinates: RA: 13h 33m 13.0s Dec: +47°45'31"
01:20:31 JNow Coordinates: RA: 13h 33m 28.4s Dec: +47°43'37"
01:20:31 Slewing to SAO 44653...
01:20:39 Done slewing!
01:20:39 Starting post slew delay.
01:20:42 Completed post slew delay.
01:20:42 Setting imager bin mode to 2x2.
01:20:42 Setting filter to Luminance.
01:20:44 Taking 5 second image for Plate Solve...
01:20:54 Saving Image...
01:20:54 Performing Plate solve with CCDSoft...
01:20:55 Plate solve results:
01:20:55 Pixel Scale = 1.86 asp.
01:20:55 North Angle = 270.87 degrees.
01:20:55 J2000 Coordinates = RA: 13h 33m 12.8s Dec: +47°45'25"
01:20:55 Syncing to RA 13.55785, Dec 47.72543
01:21:03 Starting focus run...
01:22:53 Focus succeeded! HFD = 2.90
01:22:53 Starting move to action.
01:22:53 Precessing coordnates.
01:22:53 J2000 Coordinates: RA: 13h 30m 14.0s Dec: +47°13'51"
01:22:53 JNow Coordinates: RA: 13h 30m 29.6s Dec: +47°11'57"
01:22:54 Slewing to M 51...
01:23:00 Done slewing!
01:23:00 Starting post slew delay.
01:23:03 Completed post slew delay.

01:23:03 Setting imager bin mode to 2x2.
01:23:03 Setting filter to Luminance.
01:23:05 Taking 5 second image for Plate solve...
01:23:23 Saving Image...
01:23:23 Performing Plate Solve with CCDSoft...
01:23:24 Plate solve results:
01:23:24 Pixel Scale = 1.85 asp.
01:23:24 North Angle = 270.85 degrees.
01:23:24 J2000 Coordinates = RA: 13h 30m 16.2s Dec: +47°14'36"
01:23:24 Syncing to RA 13.50882, Dec 47.21171
01:23:29 Setting image type to Light.
01:23:29 Setting imager bin mode to 1x1.
01:23:29 Setting filter to Luminance.
01:23:31 Setting imager to full frame.
01:23:31 Setting imager exposure time to 450 seconds.
01:23:32 Setting autoguider bin mode to 2x2.
01:23:32 Taking a 1 second autoguider exposure.
01:23:39 Beginning guide star search...
01:23:40 Found possible guide star at 208, 84 with a max brightness of 39413 ADU.
01:23:40 Taking a 1 second autoguider exposure.
01:23:44 Beginning guide star search...
01:23:45 Found appropriate guide star at 208, 85 with a max brightness of 29582 ADU.
01:23:45 Trying to autoguide on star at 208.0,85.0.
01:23:45 Starting to autoguide.
01:23:49 Checking autoguider max error...
01:23:50 Autoguider error: X=-0.18 Y=1.11
01:23:50 Checking autoguider max error...
01:23:52 Autoguider error: X=-0.06 Y=0.01
01:23:52 Autoguider max error < 0.4!
01:23:52 Stopping autoguider...
01:23:54 Automatic guide star acquisition successful!
01:23:54 Setting autoguider exposure time to 1 seconds.
01:23:54 Setting guide star position to 208.0,85.0.
01:23:54 Starting to autoguide.
01:23:58 Checking autoguider max error...
01:23:58 Autoguider error: X=0.07 Y=0.41
01:23:58 Checking autoguider max error...
01:24:00 Autoguider error: X=0.15 Y=0.32
01:24:00 Autoguider max error < 0.4!
01:24:00 Starting imager exposure (1 of 4).
01:31:40 Imager exposure complete.
01:31:41 Stopping autoguider...
01:31:43 Setting autoguider exposure time to 1 seconds.
01:31:43 Setting guide star position to 210.0,85.0.
01:31:43 Starting to autoguide.
01:31:47 Checking autoguider max error...
01:31:47 Autoguider error: X=-1.98 Y=0.66
01:31:47 Checking autoguider max error...
01:31:49 Autoguider error: X=-0.33 Y=-0.04
01:31:49 Autoguider max error < 0.4!
01:31:49 Starting imager exposure (2 of 4).
01:39:29 Imager exposure complete.
01:39:29 Stopping autoguider...
01:39:31 Setting autoguider exposure time to 1 seconds.
01:39:31 Setting guide star position to 210.0,87.0.
01:39:31 Starting to autoguide.
01:39:36 Checking autoguider max error...
01:39:36 Autoguider error: X=0.11 Y=-1.45
01:39:36 Checking autoguider max error...
01:39:38 Autoguider error: X=-0.11 Y=-0.63
01:39:38 Checking autoguider max error...
01:39:39 Autoguider error: X=-0.06 Y=0.05
01:39:39 Autoguider max error < 0.4!
01:39:39 Starting imager exposure (3 of 4).

01:47:20 Imager exposure complete.
01:47:20 Stopping autoguider...
01:47:22 Setting autoguider exposure time to 1 seconds.
01:47:22 Setting guide star position to 208.0,87.0.
01:47:22 Starting to autoguide.
01:47:26 Checking autoguider max error...
01:47:26 Autoguider error: X=1.93 Y=0.41
01:47:26 Checking autoguider max error...
01:47:28 Autoguider error: X=1.68 Y=-0.19
01:47:28 Checking autoguider max error...
01:47:30 Autoguider error: X=2.16 Y=-0.19
01:47:30 Checking autoguider max error...
01:47:32 Autoguider error: X=2.16 Y=0.12
01:47:32 Checking autoguider max error...
01:47:34 Autoguider error: X=2.15 Y=0.02
01:47:34 Checking autoguider max error...
01:47:36 Autoguider error: X=1.97 Y=-0.19
01:47:36 Checking autoguider max error...
01:47:39 Autoguider error: X=1.60 Y=-0.08
01:47:39 Checking autoguider max error...
01:47:41 Autoguider error: X=0.56 Y=0.23
01:47:41 Checking autoguider max error...
01:47:42 Autoguider error: X=0.23 Y=0.11
01:47:42 Autoguider max error < 0.4!
01:47:42 Starting imager exposure (4 of 4).
01:55:23 Imager exposure complete.
01:55:23 Stopping autoguider...
01:55:25 Take Images Action complete.
01:55:25 Running Action List Iteration #3
01:55:25 Starting move to action.
01:55:25 Precessing coordnates.
01:55:25 J2000 Coordinates: RA: 13h 33m 13.0s Dec: +47°45'31"
01:55:25 JNow Coordinates: RA: 13h 33m 28.4s Dec: +47°43'37"
01:55:25 Slewing to SAO 44653...
01:55:33 Done slewing!
01:55:33 Starting post slew delay.
01:55:36 Completed post slew delay.
01:55:36 Setting imager bin mode to 2x2.
01:55:36 Setting filter to Luminance.
01:55:38 Taking 5 second image for Plate Solve...
01:55:47 Saving Image...
01:55:47 Performing Plate Solve with CCDSoft...
01:55:48 Plate solve results:
01:55:48 Pixel Scale = 1.85 asp.
01:55:48 North Angle = 270.88 degrees.
01:55:48 J2000 Coordinates = RA: 13h 33m 14.4s Dec: +47°45'60"
01:55:48 Syncing to RA 13.55828, Dec 47.71834
01:55:56 Starting focus run...
01:57:43 Focus succeeded! HFD = 2.84
01:57:43 Starting move to action.
01:57:43 Precessing coordnates.
01:57:43 J2000 Coordinates: RA: 13h 30m 14.0s Dec: +47°13'51"
01:57:43 JNow Coordinates: RA: 13h 30m 29.6s Dec: +47°11'57"
01:57:43 Slewing to M 51...
01:57:50 Done slewing!
01:57:50 Starting post slew delay.
01:57:53 Completed post slew delay.
01:57:53 Setting imager bin mode to 2x2.
01:57:53 Setting filter to Luminance.
01:57:54 Taking 5 second image for Plate Solve...
01:58:12 Saving Image...
01:58:12 Performing Plate Solve with CCDSoft...
01:58:13 Plate solve results:
01:58:13 Pixel Scale = 1.85 asp.
01:58:13 North Angle = 270.89 degrees.

01:58:13 J2000 Coordinates = RA: 13h 30m 14.7s Dec: +47°14'10"
01:58:13 Syncing to RA 13.50842, Dec 47.20449
01:58:18 Setting image type to Light.
01:58:18 Setting imager bin mode to 1x1.
01:58:18 Setting filter to Luminance.
01:58:20 Setting imager to full frame.
01:58:20 Setting imager exposure time to 450 seconds.
01:58:21 Setting autoguider bin mode to 2x2.
01:58:21 Taking a 1 second autoguider exposure.
01:58:27 Beginning guide star search...
01:58:29 Found possible guide star at 187, 88 with a max brightness of 35870 ADU.
01:58:29 Taking a 1 second autoguider exposure.
01:58:33 Beginning guide star search...
01:58:34 Found appropriate guide star at 187, 88 with a max brightness of 37862
ADU.
01:58:34 Trying to autoguide on star at 187.0,88.0.
01:58:34 Starting to autoguide.
01:58:38 Checking autoguider max error...
01:58:39 Autoguider error: X=0.15 Y=0.98
01:58:39 Checking autoguider max error...
01:58:41 Autoguider error: X=0.25 Y=0.76
01:58:41 Checking autoguider max error...
01:58:42 Autoguider error: X=0.06 Y=0.34
01:58:42 Autoguider max error < 0.4!
01:58:42 Stopping autoguider...
01:58:44 Automatic guide star acquisition successful!
01:58:44 Setting autoguider exposure time to 1 seconds.
01:58:44 Setting guide star position to 187.0,88.0.
01:58:44 Starting to autoguide.
01:58:48 Checking autoguider max error...
01:58:49 Autoguider error: X=0.02 Y=0.15
01:58:49 Autoguider max error < 0.4!
01:58:49 Starting imager exposure (1 of 4).
02:06:31 Imager exposure complete.
02:06:31 Stopping autoguider...
02:06:33 Setting autoguider exposure time to 1 seconds.
02:06:33 Setting guide star position to 189.0,88.0.
02:06:33 Starting to autoguide.
02:06:37 Checking autoguider max error...
02:06:37 Autoguider error: X=-2.00 Y=-0.03
02:06:38 Checking autoguider max error...
02:06:40 Autoguider error: X=0.41 Y=0.29
02:06:40 Checking autoguider max error...
02:06:41 Autoguider error: X=0.45 Y=0.05
02:06:42 Checking autoguider max error...
02:06:43 Autoguider error: X=0.29 Y=-0.21
02:06:43 Autoguider max error < 0.4!
02:06:43 Starting imager exposure (2 of 4).
02:14:24 Imager exposure complete.
02:14:24 Stopping autoguider...
02:14:26 Setting autoguider exposure time to 1 seconds.
02:14:26 Setting guide star position to 189.0,90.0.
02:14:26 Starting to autoguide.
02:14:30 Checking autoguider max error...
02:14:30 Autoguider error: X=0.09 Y=-1.69
02:14:30 Checking autoguider max error...
02:14:32 Autoguider error: X=0.21 Y=-0.41
02:14:32 Checking autoguider max error...
02:14:34 Autoguider error: X=-0.12 Y=-0.56
02:14:34 Checking autoguider max error...
02:14:36 Autoguider error: X=-0.07 Y=-0.32
02:14:36 Autoguider max error < 0.4!
02:14:36 Starting imager exposure (3 of 4).
02:22:17 Imager exposure complete.
02:22:17 Stopping autoguider...

02:22:19 Setting autoguider exposure time to 1 seconds.
02:22:19 Setting guide star position to 187.0,90.0.
02:22:19 Starting to autoguide.
02:22:23 Checking autoguider max error...
02:22:23 Autoguider error: X=1.91 Y=0.54
02:22:23 Checking autoguider max error...
02:22:25 Autoguider error: X=1.85 Y=-0.23
02:22:25 Checking autoguider max error...
02:22:27 Autoguider error: X=1.65 Y=0.36
02:22:27 Checking autoguider max error...
02:22:30 Autoguider error: X=1.75 Y=0.40
02:22:30 Checking autoguider max error...
02:22:32 Autoguider error: X=1.91 Y=-0.07
02:22:32 Checking autoguider max error...
02:22:34 Autoguider error: X=1.48 Y=0.31
02:22:34 Checking autoguider max error...
02:22:36 Autoguider error: X=1.05 Y=0.15
02:22:36 Checking autoguider max error...
02:22:38 Autoguider error: X=0.42 Y=0.43
02:22:38 Checking autoguider max error...
02:22:40 Autoguider error: X=0.64 Y=-0.03
02:22:40 Checking autoguider max error...
02:22:41 Autoguider error: X=0.31 Y=-0.18
02:22:41 Autoguider max error < 0.4!
02:22:41 Starting imager exposure (4 of 4).
02:30:22 Imager exposure complete.
02:30:22 Stopping autoguider...
02:30:24 Take Images Action complete.
02:30:24 Running Action List Iteration #4
02:30:24 Starting move to action.
02:30:24 Precessing coordinates.
02:30:24 J2000 Coordinates: RA: 13h 33m 13.0s Dec: +47°45'31"
02:30:24 JNow Coordinates: RA: 13h 33m 28.4s Dec: +47°43'37"
02:30:24 Slewing to SAO 44653...
02:30:32 Done slewing!
02:30:32 Starting post slew delay.
02:30:35 Completed post slew delay.
02:30:35 Setting imager bin mode to 2x2.
02:30:35 Setting filter to Luminance.
02:30:37 Taking 5 second image for Plate Solve...
02:30:47 Saving Image...
02:30:47 Performing Plate Solve with CCDSoft...
02:30:48 Plate solve results:
02:30:48 Pixel Scale = 1.85 asp.
02:30:48 North Angle = 270.89 degrees.
02:30:48 J2000 Coordinates = RA: 13h 33m 13.7s Dec: +47°45'32"
02:30:48 Syncing to RA 13.55807, Dec 47.72734
02:30:55 Starting focus run...
02:32:42 Focus succeeded! HFD = 2.84
02:32:42 Starting move to action.
02:32:42 Precessing coordinates.
02:32:42 J2000 Coordinates: RA: 13h 30m 14.0s Dec: +47°13'51"
02:32:42 JNow Coordinates: RA: 13h 30m 29.6s Dec: +47°11'57"
02:32:42 Slewing to M 51...
02:32:48 Done slewing!
02:32:48 Starting post slew delay.
02:32:51 Completed post slew delay.
02:32:51 Setting imager bin mode to 2x2.
02:32:51 Setting filter to Luminance.
02:32:53 Taking 5 second image for Plate Solve...
02:33:11 Saving Image...
02:33:11 Performing Plate Solve with CCDSoft...
02:33:12 Plate solve results:
02:33:12 Pixel Scale = 1.85 asp.
02:33:12 North Angle = 270.91 degrees.

02:33:12 J2000 Coordinates = RA: 13h 30m 15.4s Dec: +47°14'11"
02:33:12 Syncing to RA 13.50860, Dec 47.20477
02:33:17 Setting image type to Light.
02:33:17 Setting imager bin mode to 1x1.
02:33:17 Setting filter to Luminance.
02:33:19 Setting imager to full frame.
02:33:19 Setting imager exposure time to 450 seconds.
02:33:20 Setting autoguider bin mode to 2x2.
02:33:20 Taking a 1 second autoguider exposure.
02:33:27 Beginning guide star search...
02:33:28 Found possible guide star at 185, 89 with a max brightness of 31603 ADU.
02:33:28 Taking a 1 second autoguider exposure.
02:33:32 Beginning guide star search...
02:33:33 Taking a 15.36 second autoguider exposure.
02:34:08 Beginning guide star search...
02:34:10 Taking a 40 second autoguider exposure.
02:35:34 Beginning guide star search...
02:35:36 Cannot find star greater then 10000 ADU.
02:35:36 Stopping autoguider...
02:35:37 Unable to find a guide star.
02:35:37 Take Images Action failed.
02:35:37 Running Action List Iteration #5
02:35:37 Starting move to action.
02:35:37 Precessing coordinates.
02:35:37 J2000 Coordinates: RA: 13h 33m 13.0s Dec: +47°45'31"
02:35:37 JNow Coordinates: RA: 13h 33m 28.4s Dec: +47°43'37"
02:35:37 Slewing to SAO 44653...
02:35:46 Done slewing!
02:35:46 Starting post slew delay.
02:35:49 Completed post slew delay.
02:35:49 Setting imager bin mode to 2x2.
02:35:49 Setting filter to Luminance.
02:35:50 Taking 5 second image for Plate Solve...
02:36:00 Saving Image...
02:36:00 Performing Plate solve with CCDSoft...
02:36:01 Plate solve results:
02:36:01 Pixel Scale = 1.85 asp.
02:36:01 North Angle = 270.89 degrees.
02:36:01 J2000 Coordinates = RA: 13h 33m 12.4s Dec: +47°45'17"
02:36:01 Syncing to RA 13.55771, Dec 47.72323
02:36:08 Starting focus run...
02:37:52 Focus succeeded! HFD = 2.73
02:37:52 Starting move to action.
02:37:52 Precessing coordinates.
02:37:52 J2000 Coordinates: RA: 13h 30m 14.0s Dec: +47°13'51"
02:37:52 JNow Coordinates: RA: 13h 30m 29.6s Dec: +47°11'57"
02:37:52 Slewing to M 51...
02:37:59 Done slewing!
02:37:59 Starting post slew delay.
02:38:02 Completed post slew delay.
02:38:02 Setting imager bin mode to 2x2.
02:38:02 Setting filter to Luminance.
02:38:04 Taking 5 second image for Plate solve...
02:38:21 Saving Image...
02:38:21 Performing Plate solve with CCDSoft...
02:38:22 Plate solve results:
02:38:22 Pixel Scale = 1.85 asp.
02:38:22 North Angle = 270.91 degrees.
02:38:22 J2000 Coordinates = RA: 13h 30m 14.1s Dec: +47°14'15"
02:38:22 Syncing to RA 13.50823, Dec 47.20577
02:38:29 Setting image type to Light.
02:38:29 Setting imager bin mode to 1x1.
02:38:29 Setting filter to Luminance.
02:38:31 Setting imager to full frame.
02:38:31 Setting imager exposure time to 450 seconds.

02:38:32 Setting autoguider bin mode to 2x2.
02:38:32 Taking a 1 second autoguider exposure.
02:38:38 Beginning guide star search...
02:38:39 Found possible guide star at 188, 87 with a max brightness of 27965 ADU.
02:38:39 Taking a 1 second autoguider exposure.
02:38:43 Beginning guide star search...
02:38:45 Found appropriate guide star at 189, 87 with a max brightness of 36634 ADU.
02:38:45 Trying to autoguide on star at 189.0,87.0.
02:38:45 Starting to autoguide.
02:38:49 Checking autoguider max error...
02:38:49 Autoguider error: X=-0.30 Y=0.05
02:38:49 Autoguider max error < 0.4!
02:38:49 Stopping autoguider...
02:38:51 Automatic guide star acquisition successful!
02:38:51 Setting autoguider exposure time to 1 seconds.
02:38:51 Setting guide star position to 189.0,87.0.
02:38:51 Starting to autoguide.
02:38:55 Checking autoguider max error...
02:38:55 Autoguider error: X=-0.74 Y=0.31
02:38:55 Checking autoguider max error...
02:38:57 Autoguider error: X=0.28 Y=0.01
02:38:57 Autoguider max error < 0.4!
02:38:57 Starting imager exposure (1 of 4).
02:46:38 Imager exposure complete.
02:46:38 Stopping autoguider...
02:46:40 Setting autoguider exposure time to 1 seconds.
02:46:40 Setting guide star position to 191.0,87.0.
02:46:40 Starting to autoguide.
02:46:44 Checking autoguider max error...
02:46:45 Autoguider error: X=-1.66 Y=0.29
02:46:45 Checking autoguider max error...
02:46:47 Autoguider error: X=-0.59 Y=-0.55
02:46:47 Checking autoguider max error...
02:46:49 Autoguider error: X=0.17 Y=0.03
02:46:49 Autoguider max error < 0.4!
02:46:49 Starting imager exposure (2 of 4).
02:54:29 Imager exposure complete.
02:54:29 Stopping autoguider...
02:54:31 Setting autoguider exposure time to 1 seconds.
02:54:31 Setting guide star position to 191.0,89.0.
02:54:31 Starting to autoguide.
02:54:35 Checking autoguider max error...
02:54:36 Autoguider error: X=-0.12 Y=-1.79
02:54:36 Checking autoguider max error...
02:54:38 Autoguider error: X=-0.03 Y=-1.03
02:54:38 Checking autoguider max error...
02:54:39 Autoguider error: X=-0.02 Y=0.15
02:54:39 Autoguider max error < 0.4!
02:54:39 Starting imager exposure (3 of 4).
03:00:04 Skip ahead at 03:00 action is active. Skipping ahead.
03:00:04 Stopping autoguider...
03:00:04 Skipping remainder of Action: Light 4x450s Luminance AS "m51_lum", AG Dither every 1 exp.
03:00:05 Running Action List Iteration #6
03:00:05 Skipping Action: Move to SAO 44653.
03:00:05 Skipping Action: Plate Solve, Sync, and Reslew.
03:00:05 Skipping Action: Focus with Luminance filter.
03:00:05 Skipping Action: Move to M 51.
03:00:05 Skipping Action: Plate Solve, Sync, and Reslew.
03:00:05 Skipping Action: Light 4x450s Luminance AS "m51_lum", AG Dither every 1 exp.
03:00:05 Running Action List Iteration #7
03:00:05 Skipping Action: Move to SAO 44653.
03:00:05 Skipping Action: Plate Solve, Sync, and Reslew.

03:00:05 Skipping Action: Focus with Luminance filter.
03:00:05 Skipping Action: Move to M 51.
03:00:05 Skipping Action: Plate Solve, Sync, and Reslew.
03:00:05 Skipping Action: Light 4x450s Luminance AS "m51_lum", AG Dither every 1 exp.
03:00:05 Running Action List Iteration #8
03:00:05 Skipping Action: Move to SAO 44653.
03:00:05 Skipping Action: Plate Solve, Sync, and Reslew.
03:00:05 Skipping Action: Focus with Luminance filter.
03:00:05 Skipping Action: Move to M 51.
03:00:05 Skipping Action: Plate Solve, Sync, and Reslew.
03:00:05 Skipping Action: Light 4x450s Luminance AS "m51_lum", AG Dither every 1 exp.
03:00:05 Done running m51_lum_30m.act
03:00:05 Starting move to action.
03:00:06 Preprocessing coordinates.
03:00:06 J2000 Coordinates: RA: 17h 34m 56.0s Dec: +12°33'36"
03:00:06 JNow Coordinates: RA: 17h 35m 13.2s Dec: +12°33'23"
03:00:06 Slewing to Rasalhague...
03:00:59 Done slewing!
03:00:59 Starting post slew delay.
03:01:02 Completed post slew delay.
03:01:02 Setting image type to Dark.
03:01:02 Setting imager bin mode to 1x1.
03:01:02 Setting filter to Luminance.
03:01:04 Setting imager to full frame.
03:01:04 Setting imager exposure time to 450 seconds.
03:01:05 Starting imager exposure (1 of 5).
03:08:44 Imager exposure complete.
03:08:45 Starting imager exposure (2 of 5).
03:16:24 Imager exposure complete.
03:16:25 Starting imager exposure (3 of 5).
03:24:04 Imager exposure complete.
03:24:05 Starting imager exposure (4 of 5).
03:31:43 Imager exposure complete.
03:31:45 Starting imager exposure (5 of 5).
03:39:23 Imager exposure complete.
03:39:23 Take Images Action complete.
03:39:23 Setting image type to Dark.
03:39:24 Setting imager bin mode to 2x2.
03:39:24 Setting filter to Luminance.
03:39:25 Setting imager to full frame.
03:39:25 Setting imager exposure time to 300 seconds.
03:39:26 Starting imager exposure (1 of 5).
03:44:31 Imager exposure complete.
03:44:32 Starting imager exposure (2 of 5).
03:49:36 Imager exposure complete.
03:49:37 Starting imager exposure (3 of 5).
03:54:41 Imager exposure complete.
03:54:42 Starting imager exposure (4 of 5).
03:59:46 Imager exposure complete.
03:59:47 Starting imager exposure (5 of 5).
04:04:52 Imager exposure complete.
04:04:52 Take Images Action complete.
04:04:52 In Auto Flat Action.
04:04:52 Waiting for dawn twilight...
04:25:37 User aborted! Stopping imager and autoguider...
04:25:37 Setting imager bin mode to 1x1.
04:25:37 Automatic Flat Action complete.
04:25:37 Action stopped.