

# Sacramento Mountains Spectroscopy Workshop

## Lessons Learned

And have we learned a lot!  
Mostly the hard way.



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- In the Settings Tab, Select English and then Restart ISIS to get English.



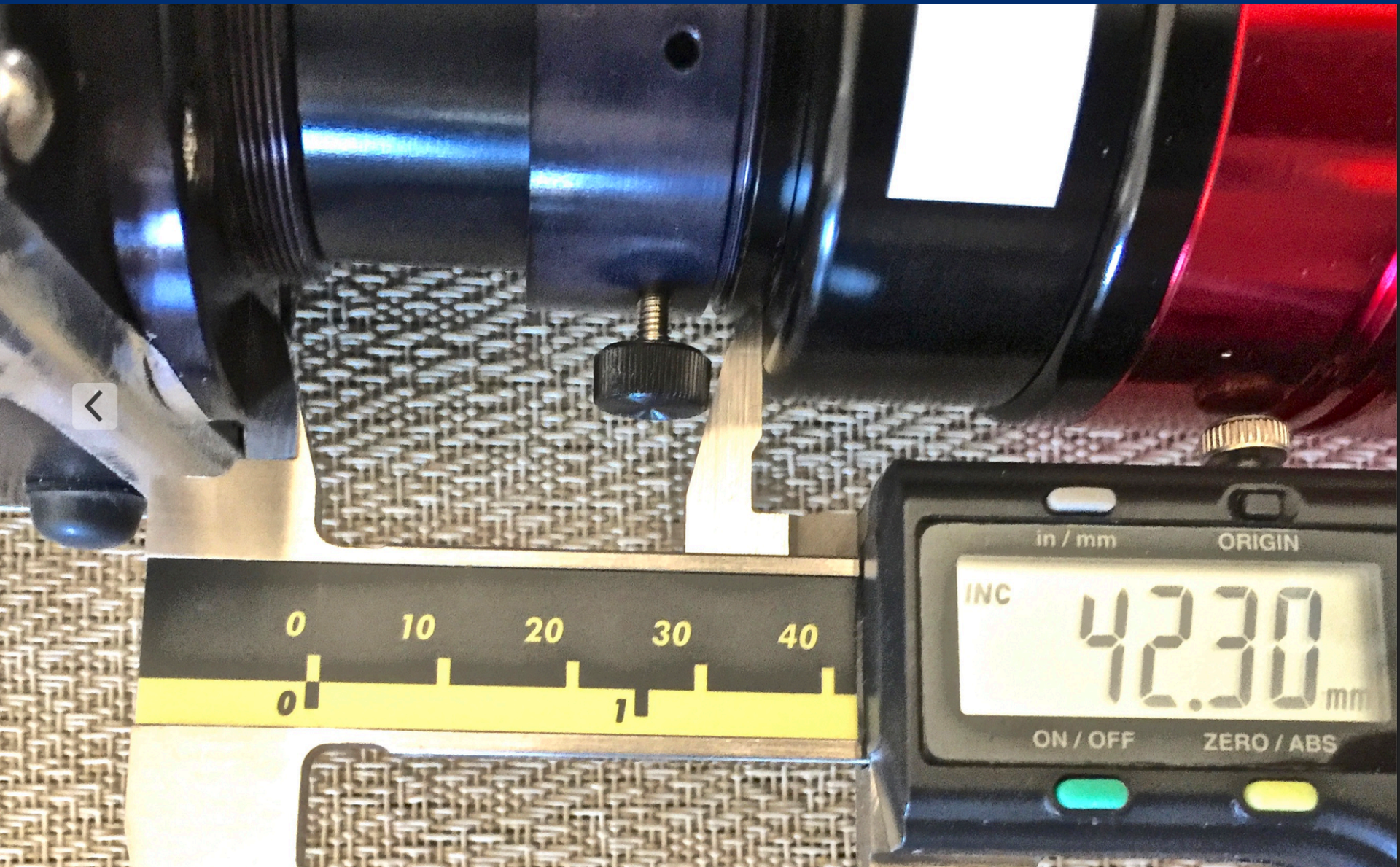
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- 1. For those with SCT – open observatory or setup at least 2-3 hours prior to imaging. You will loose focus quickly if SCT continues to cool rapidly after establishing initial focus.
- 2. Double, triple check the spacer length from your Atik 460 EX to the Lhires III.
- Total camera backspace = 54.85mm - 13.5mm  
backspace for Atik 460 = 41.35 mm +/- 2 mm





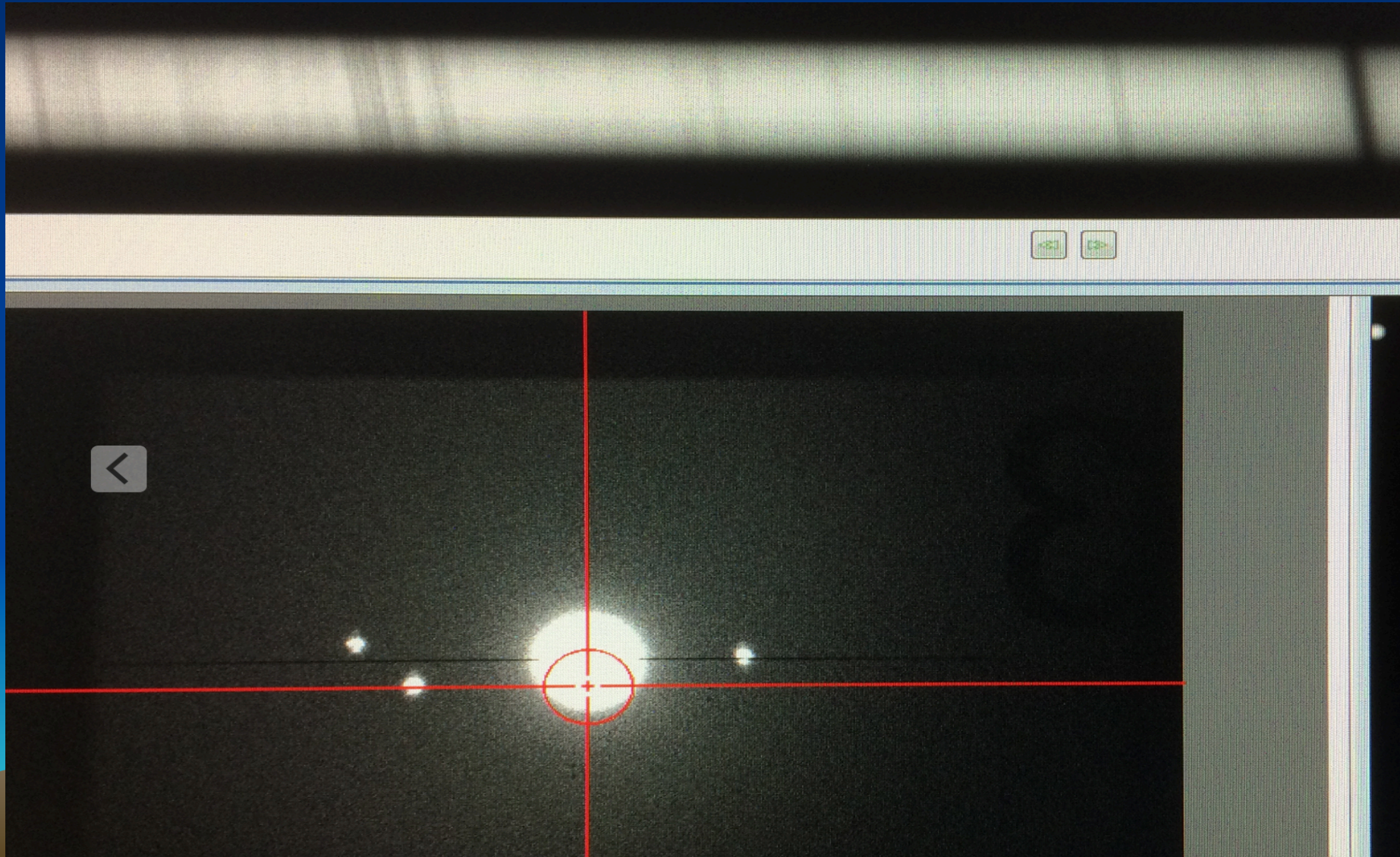
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Light where on the slit goes where on the spectra?





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LAN RO 14 SCT Observatory - Full Control

Chart Settings - TheSkyX Professional Edition

File Edit Display Orientation Input Tools Telescope

Look North Look East Look South Look West Verify The

Find

Search for: HD6226

**HIP 4983**

Center Frame Show Photo+ Slew Close

Copy Text Add to List Lock On Abort

Details Advanced Log

Object Information Report

Object Name: HIP 4983  
 Name 2: SAO 36891  
 Object Type: Star  
 RA (Topocentric): 01h 04m 58.3682s  
 Dec (Topocentric): +47° 44' 43.297"  
 RA (2000.0): 01h 03m 53.3587s  
 Dec (2000.0): +47° 38' 32.262"  
 Azimuth: 352° 52' 22"  
 Altitude: +75° 00' 56"  
 Magnitude: 6.82  
 Rise Time: 07:25  
 Transit Time: 16:31  
 Set Time: 01:41  
 Hour Angle: 00h 10m 56s  
 Air Mass: 1.04  
 Sun Distance (au): 182,535,500  
 Name 3: GSC 3267:1681  
 Name 4: PPM 43594  
 Name 5: HD 6226  
 Name 6: B+46 245  
 Spectral: B2IV-V

Related Search Results

HD 6226

Header Information

OriginalName C:\Users\User\Desktop\Second try for 1-16-19-138-HD6226\HD\_6226-1.f

FileSourceType FITS

Camera ATIK Camera PlugIn 2.0

Observer

ExpDateTime 1/17/2019 3:18:00 AM

Exposure 600

Filter

Calibrated False

Temperature -15.03

Aperture 0

Focal\_length 0

Pixel\_size\_X 9.078

Pixel\_size\_Y 9.078

Binning X 2

Binning Y 2

Pedestal 100

Gain 2

ReadoutNoise 15

MaximumADU 50000

COMMENT start unedited lines from original header

EXTEND T / FITS dataset may contain extensions

COMMENT FITS (Flexible Image Transport System) format is defined in 'Astron

COMMENT and Astrophysics', volume 376, page 359; bibcode: 2001A&A...376...35

SBUUID '{Sde91e9d-4aaa-4717-9e7b-f670667f27a3}' / Photo UUID

DISPINCR 1 / Non zero to automatically display the image in

PICTTYPE 1 / Image type as index 0= Unknown 1=Light, 2=Bias,

IMAGETYP 'Light Frame' / SBIGFITSEXT Light, Dark, Bias or Flat

XORGSUBF 0 / SBIGFITSEXT Subframe x upper-left pixel in bin

YORGSUBF 0 / SBIGFITSEXT Subframe y upper-left pixel in bin

SET-TEMP -15. / SBIGFITSEXT The cooler setpoint in degrees C

SITELAT '+32 54 14.30' / SBIGFITSEXT Latitude of the imaging location

SITELONG '+105 31 53.50' / SBIGFITSEXT Longitude of the imaging locatio

LST '+04 00 56.06' / Local sidereal time

BTP 0 / Beyond the pole

CENTAZ 236.763584041425 / SBIGFITSEXT Azimuth of the center of the image

CENTALT 39.665366741356 / SBIGFITSEXT Altitude of the center of the image

AIRMASS 1.56660022807994 / Airmass of the telescope

TELEHA '+02 40 19.60' / Telescope hour angle

MOUNT '<No Mount Selected>' / The telescope mount

OBJCTRA '01 19 38.981' / SBIGFITSEXT The right ascension of the center

OBJCTDEC '-00 31 31.77' / SBIGFITSEXT The declination of the center of

OBJECT 'HIP 6226' / SBIGFITSEXT The name of the object imaged

READOUTM 'Higher Quality' / Image readout mode

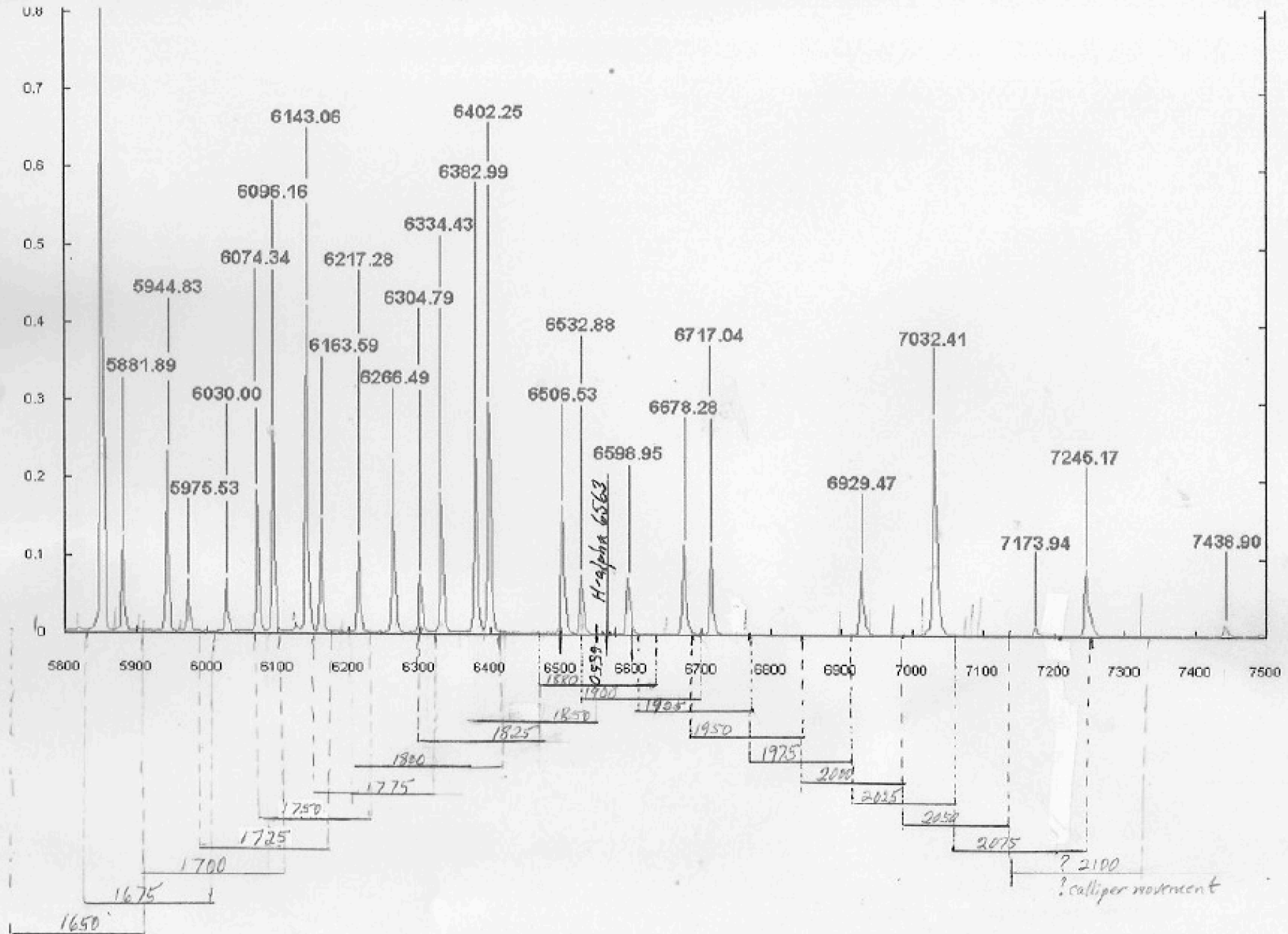
CDS 'Higher Quality' / Camera dependent setting

LOCALTIM '1/16/2019 08:18:00.650 PM STD' / Local time at exposure start

COMMENT end of unedited lines from original header

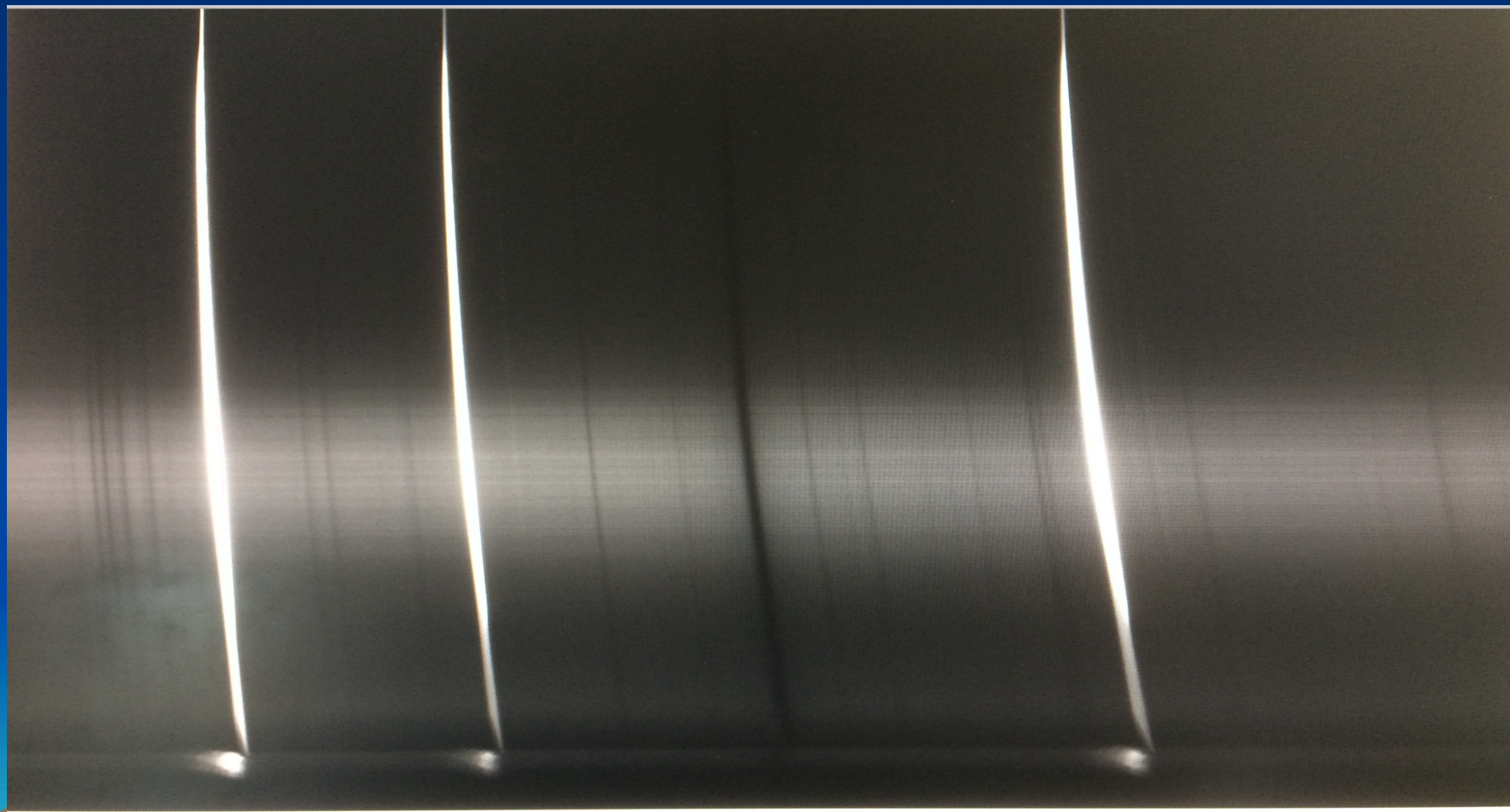


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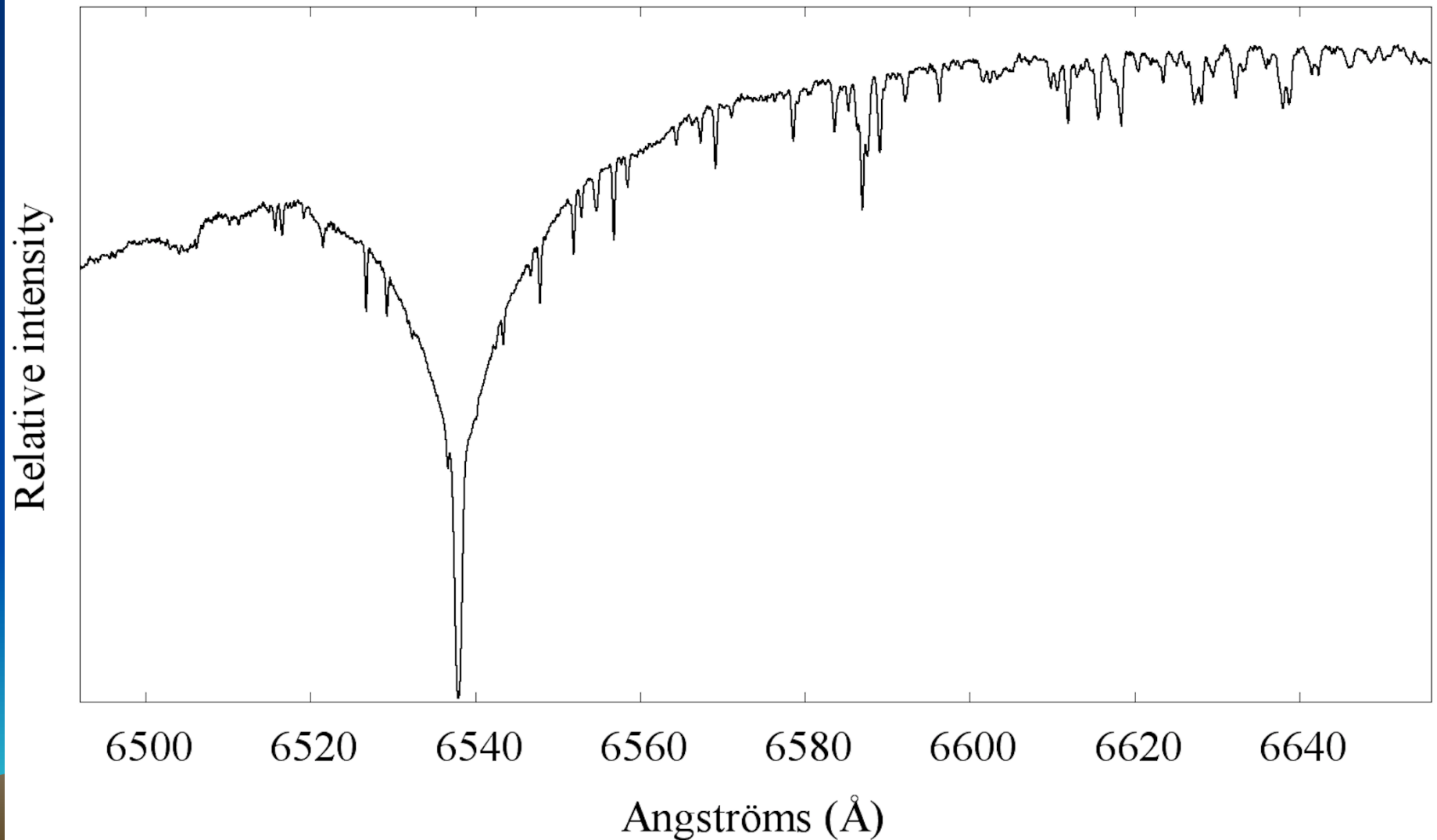


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silon\_Gem - 1/18/2019 3:13 AM - C14 LhiresIII\_2400 Atik\_460EX\_bin2x2 - 19 x 4





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- Must check the orientation of your Atik 460 spectra camera. It's round, so no natural orientation.
- The spectra image must be level.
- AND
- The spectra image must be oriented correctly and this can fool you.
- Blue is on the Left & Red on the Right.
- You must check specifically for this.
- Turn micrometer clockwise (in) and calibration lines move to the Right.



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- How to focus the collimation mirror on the Lhires III
- Use ISIS to measure the FWHM on your calibration lines.

1. Image | 2. General | 3. Calibration | 4. Go | 5. Profile | 6. Gnuplot | Masters | Tools | Misc | Instruments | Settings

Image to process : HIP10559-1    Display    <    >    Next    Save

Calibration image : cal-1    Display    Header

Tilt angle : -0.04    Slant angle : -3.06    Vertical coordinate : 526    ☒ Auto    Binning zone adjustment    ☒ Graticule

X coordinate of line at wavelength 6532.882    A = 20 (pixels)

FWHM X = 3.03    FWHM Y = 2.29  
Pos X = 585.82    Pos Y = 530.24

FWHM    Statistic    Tilt    Slant    Smile    Line PSF

X : 798  
Y : 623  
I : 339

Displayed image : c:\users\jldaglen\desktop\smsw conf data\practice data\1-23-19 hip\_1 2019-01-24T01:18:49.826    Exposure : 0.1 s    Domain

Seuil haut : 5013    32767  
Seuil bas : 0    0

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|   |      |      |      |
|---|------|------|------|
|   | 2.33 | 3.35 | 5.51 |
| T | 2.33 | 3.19 | 5.08 |
| T | 2.18 | 2.96 | 4.71 |
| T | 2.32 | 2.59 | 4.24 |
| T | 2.26 | 2.52 | 3.98 |
| T | 2.37 | 2.37 | 3.66 |
| B | 2.33 | 2.23 | 3.27 |
| T | 2.56 | 2.29 | 3.28 |
| B | 2.50 | 2.18 | 3.14 |
| B | 2.51 | 2.17 | 3.15 |



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- Simbad Astronomical Database
- [Simbad.Harvard.edu/simbad/](http://Simbad.Harvard.edu/simbad/)
- Invaluable resource for star names, alternate names, and attribute information
- If you change your wavelength range, you must get/use a new response target with that same range.



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- How to make it easier to confirm you are looking at your target star with the Sky X?
- 1. Slew to target star.
- 2. Click “Closed Loop Slew”. Your “auto guider camera” will take an image and do an image link (plate solve), and move the telescope to almost exactly center the star in the image. The auto guider camera will again take an image to show you the final centered star position.
- 3. Now try to match the star pattern in your image with the star pattern on the SkyX star field screen.



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- Sometimes that will be easy to do, but sometimes not because the Sky X planetarium view may be rotated compared to the camera image.
- 4. A way to greatly simplify this is to now click on the photo dropdown tab in the upper left hand corner of your image. In the drop down menu choose “To Image Link”, and then click under the “Search” tab on “Find Astrometric Solution” for you camera image. The planetarium field of view will rotate to exactly match the orientation of your camera image. It’s magic! This makes comparing the two fields very easy!





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Initially using the calibration light, you may see evidence for Hydrogen.

