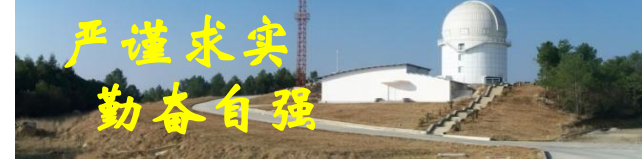


# YFOSC 数据质量控制

## 王建国





# 内容

- 2.4米望远镜和YFOSC简介
- 数据质量控制
- YFOSC数据质量控制
  - 数据自动处理
  - 数据质量控制

# 2.4米望远镜和YFOSC简介



主镜口径2.4米

丽江市玉龙县太安乡高美古

2007年建成

终端：YFOSC、HRS、  
CHILI、LiJET、  
PICCD等



# YFOSC



2011年投入使用

功能：图像

中低色散光谱（长缝、交叉色散）

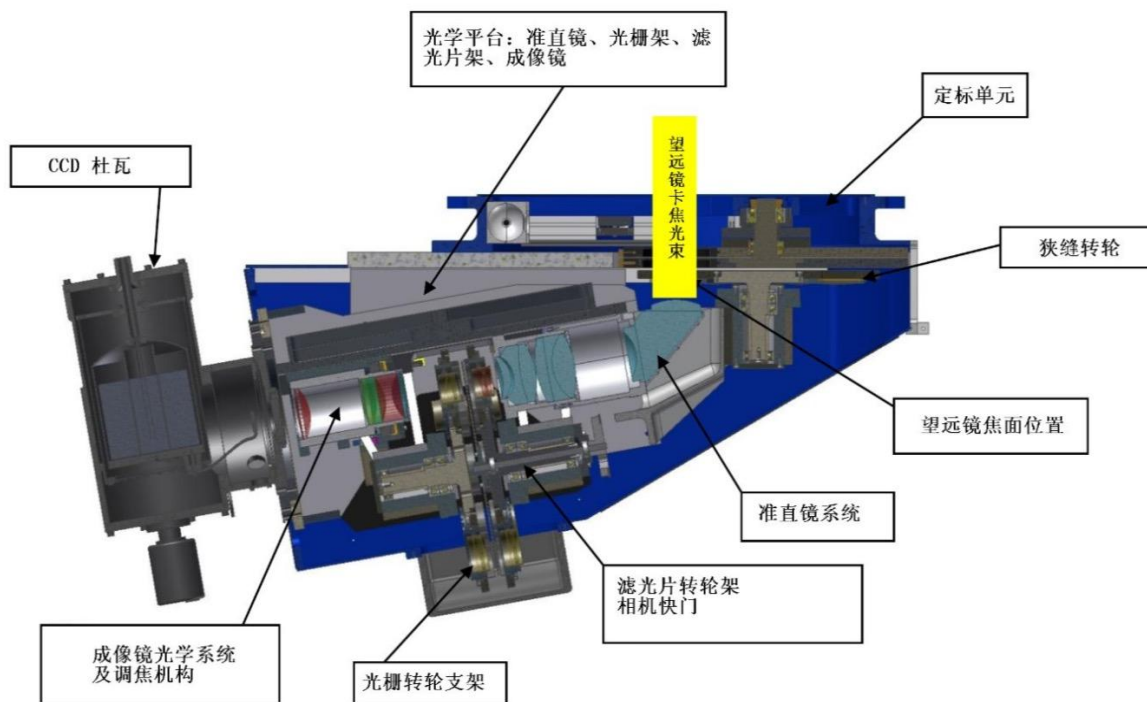
2.4米主力终端

~80%时间使用

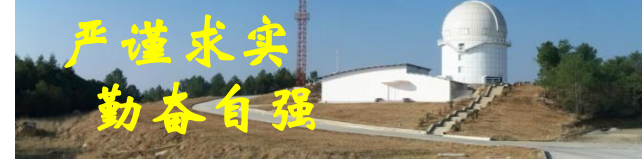
申请时间的~80%

YFOSC数据对用户  
和运维团队至关重要

数据是否满足需求  
设备是否正常



# 数据质量控制



In a more general sense, Quality Control (QC) deals with

- the quality of the raw data,
- the quality of the products and of the product creation process,
- the performance of the instrument component involved.

**Hanuschik (2002)**

+ 辅助观测

传统上：人眼检查

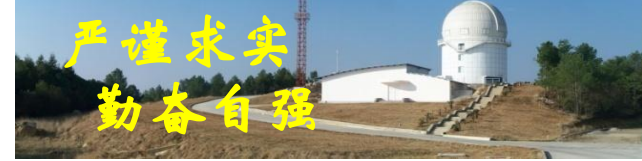
自动检查：

**VLT: Ballester et al. (2000)**

**Hanuschik et al. (2002, 2004)**

**Subaru: Furusawa et al. (2011, 2018)**

# YFOSC数据质量控制



pipeline: IDL (astrolib、idl\_spec2d.....) +

## ➤ 图像

**Overscan、Bias、Flat、Cosmic rays、Fringe**

**SExtractor (Bertin & Arnouts 1996)**

**PSFex (2011)**

**Astrometry.net (Lang 2010)**

## ➤ 光谱

**Overscan、Bias、Flat、Cosmic rays**

**tracing、sky background、extraction (Horne 1986)**

**wavelength calibration、flux calibration**

# YFOSC数据质量控制



自动扫描新数据、分类、质量控制、（警报）

ATV (Barth 2001)

Open Bin= 1

Min= 1194.06 Max= 3634.00

( 1323, 2412) 1208,0

12:12:12.001 -60:60:60.01 J2000

Scaling Zoom Invert Rotate InvertColor

Start PauseUpdate

File 20220430-0010-b00.fits.fz ObjName bias

ImgSpec= spec Filter= open Grism = Slit =

FindingChart PSF FWHM Ellipticity

Xmin 98.0143 Xmax 10.0000 Ymin 8.0000 Ymax 16.0000

# YFOSC数据质量控制



Open Bin= 1

Min= 10000.0 Max= 660280.

( 1248, 2774) 49200.

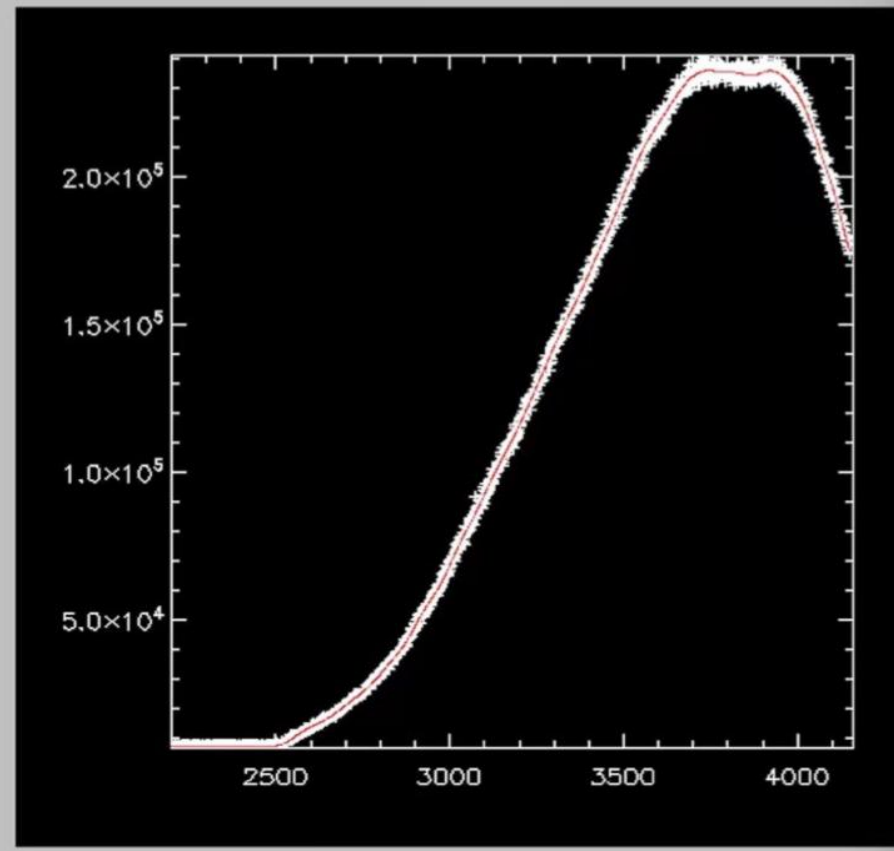
12:12:12.001 -60:60:60.01 J2000

Scaling Zoom Invert Rotate InvertColor

File 20220430-0011-x00.fits.fz ObjName Halogen

ImgSpec= spec Filter= uv-blockin Grism = grism3 Slit = slit2.51

FindingChart PSF FWHM Ellipticity



Start PauseUpdate

Xmin 2200.00 Xmax 4160.00 Ymin 6590.00 Ymax 240960.



# YFOSC数据质量控制



Open Bin= 1

Min= 17658.8 Max= 726899.

( 1074, 2306) 23871.

12:12:12.001 -60:60:60.01 J2000

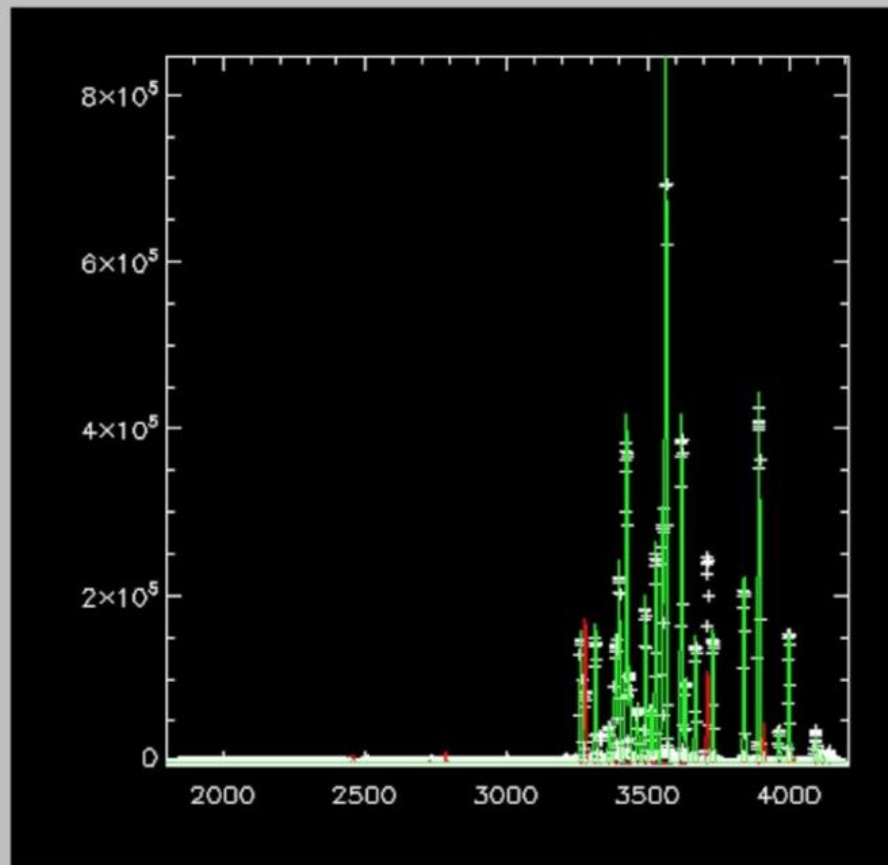
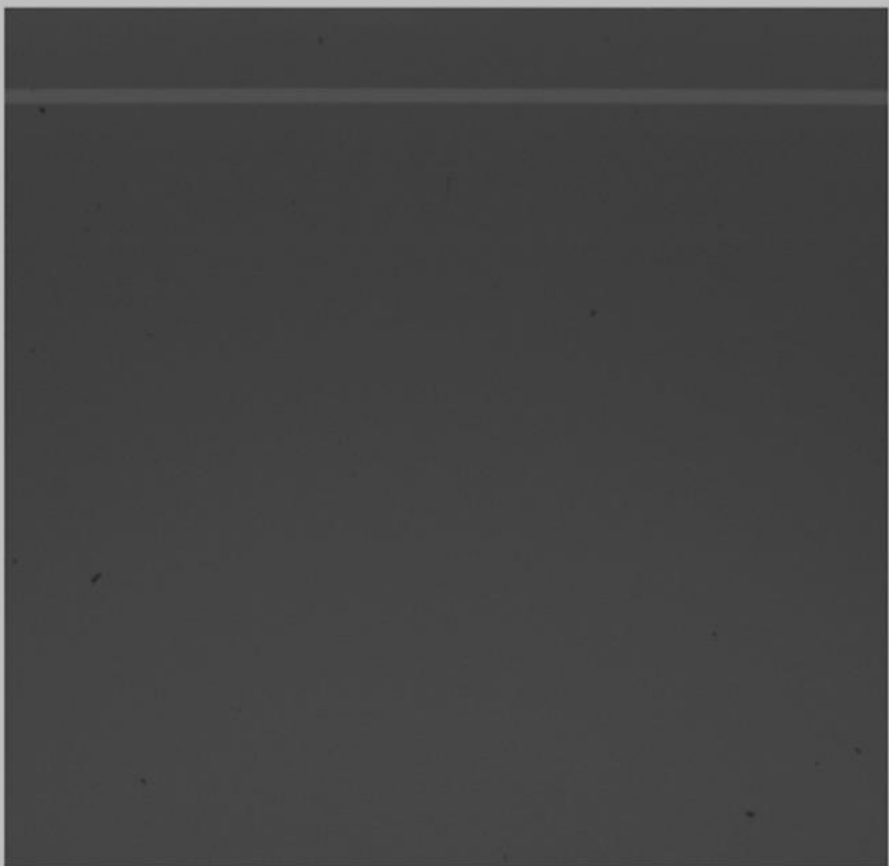
Scaling Zoom Invert Rotate Color

File 20220529-0161-e00.fits.gz ObjName HeNe

ImgSpec= spec Filter= uv-blockin Grism = grism14 Slit = slit2.51

He: too faint !

FindingChart PSF FWHM Ellipticity



Start PauseUpdate

Xmin 1800.00 Xmax 4210.00 Ymin -3647.85 Ymax 845900.

# YFOSC数据质量控制



Open Bin= 1

Min= 52843.4 Max= 120203.

( 898, 399) 52864.

12:12:12.001 -60:60:60.01 J2000

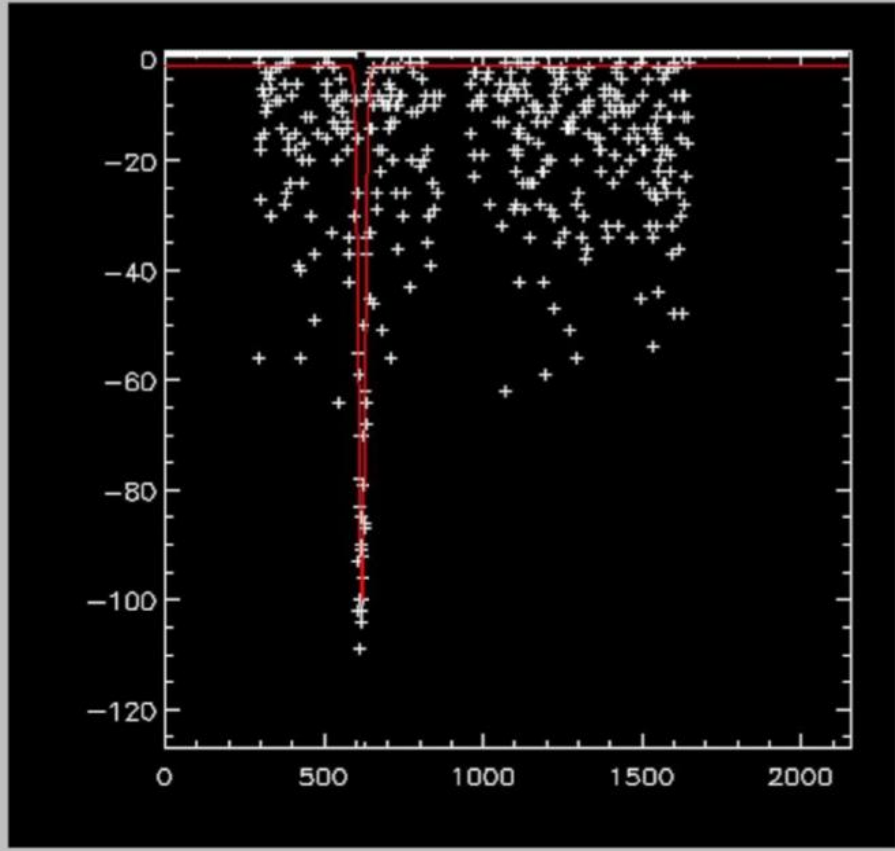
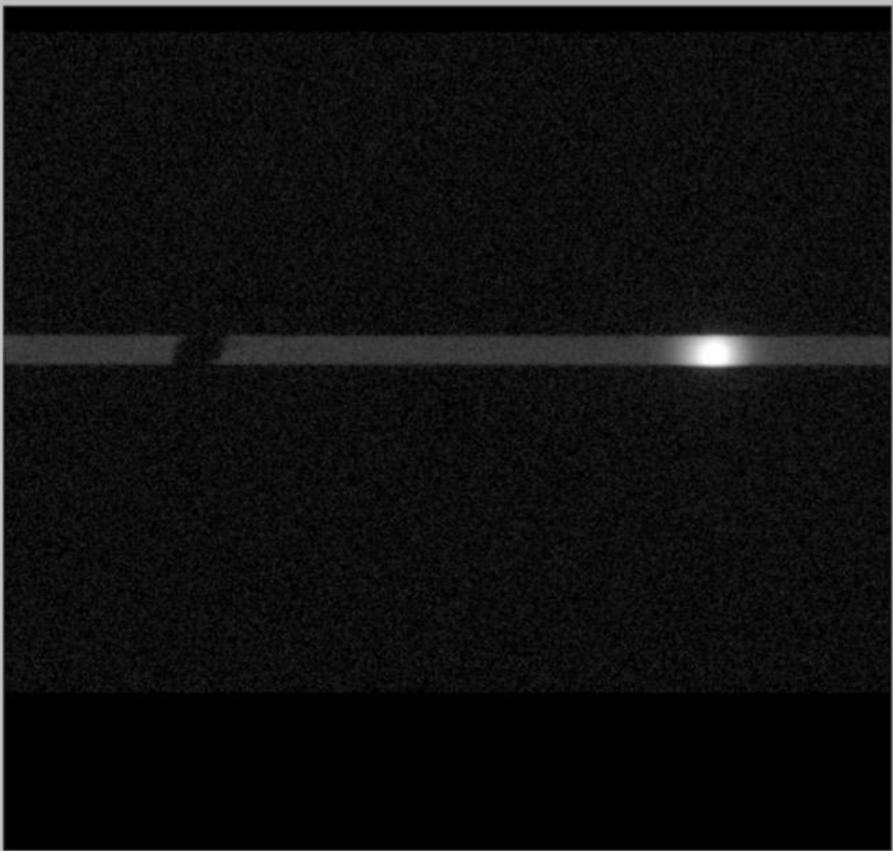
Scaling Zoom Invert Rotate Color

File 20161202-0185-e00.fits.fz ObjName hilt600

ImgSpec= jcdslit Filter= open Grism = 1 Slit = jslit5.05

Possible dust around: x= 619.000

FindingChart PSF FWHM Ellipticity



Start PauseUpdate

Xmin 0.00000 Xmax 2157.00 Ymin -127.000 Ymax 0.00000

# YFOSC数据质量控制



Open    Bin=

Min=     Max=

(  ,  )   

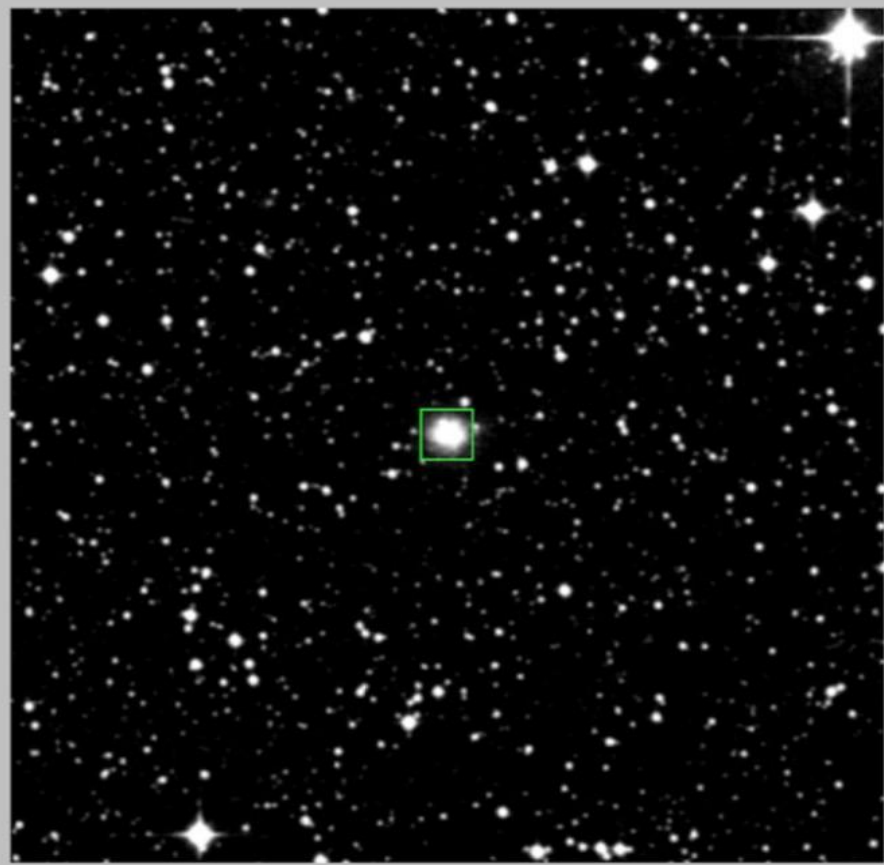
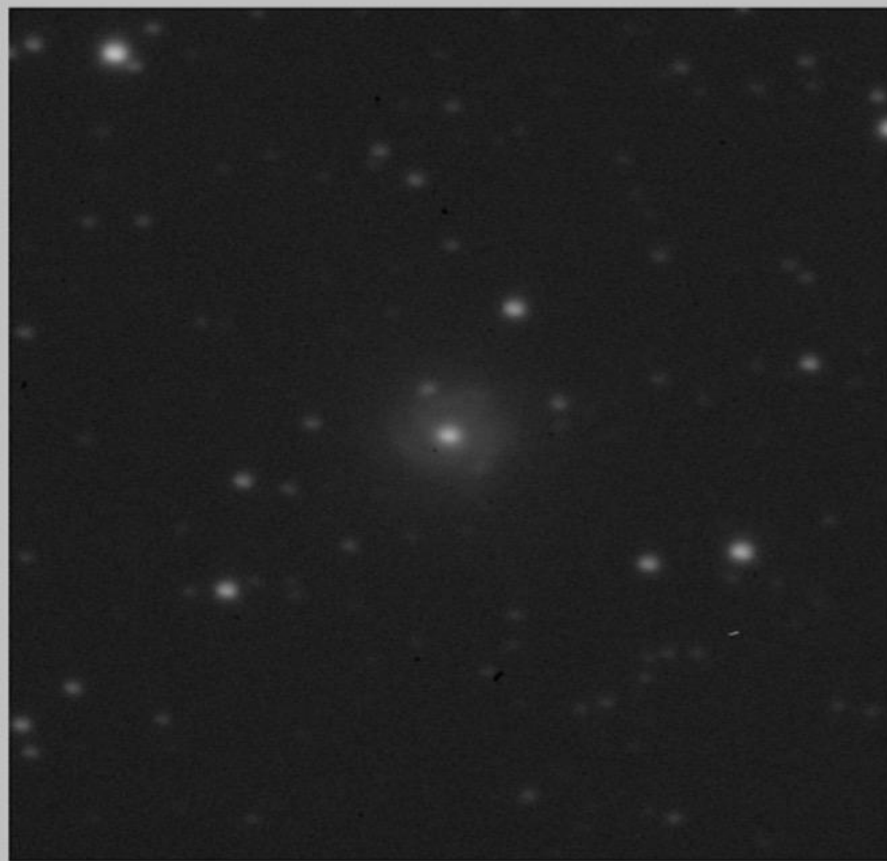
Scaling     Zoom     Invert     Rotate     Color



File     ObjName

ImgSpec=     Filter=     Grism =     Slit =

FindingChart     PSF     FWHM     Ellipticity



Start     PauseUpdate

Xmin     Xmax     Ymin     Ymax

# YFOSC数据质量控制



严谨求实  
勤奋自强

Open Bin= 1

Min= 20888.4 Max= 167011.

( 1074. 2306) 20983.

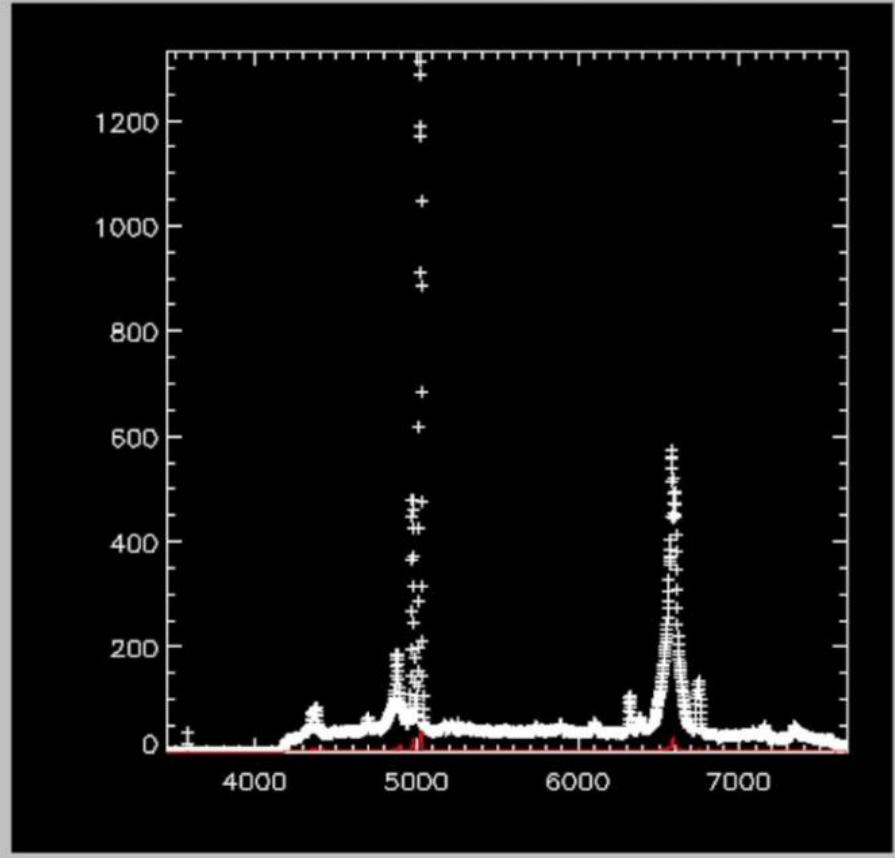
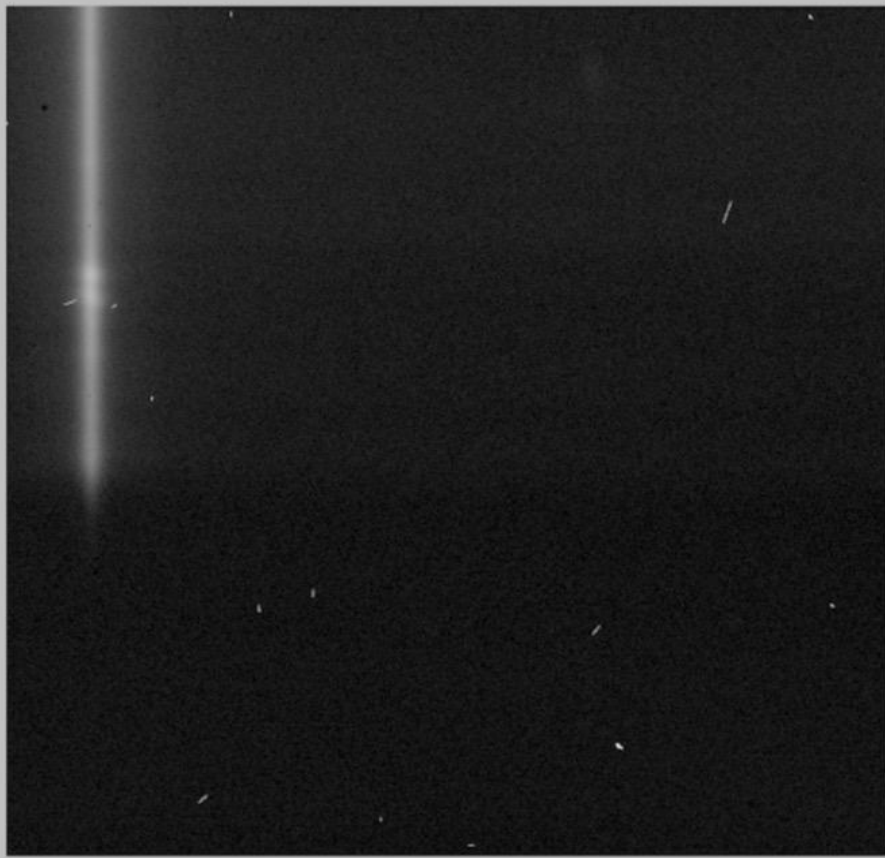
12:12:12.001 -60:60:60.01 J2000

Scaling Zoom Invert Rotate Color

File 20220529-0160-e00.fits.fz ObjName j4151

IngSpec= spec Filter= uv-blockin Grism = grism14 Slit = slit2.51

FindingChart PSF FWHM Ellipticity



Start PauseUpdate

Xmin 3451.24 Xmax 7669.06 Ymin -0.45964 Ymax 1331.10

# YFOSC数据质量控制



Open Bin= 1

Min= 20961.5 Max= 65094.0

( 1328, 2091) 21018.

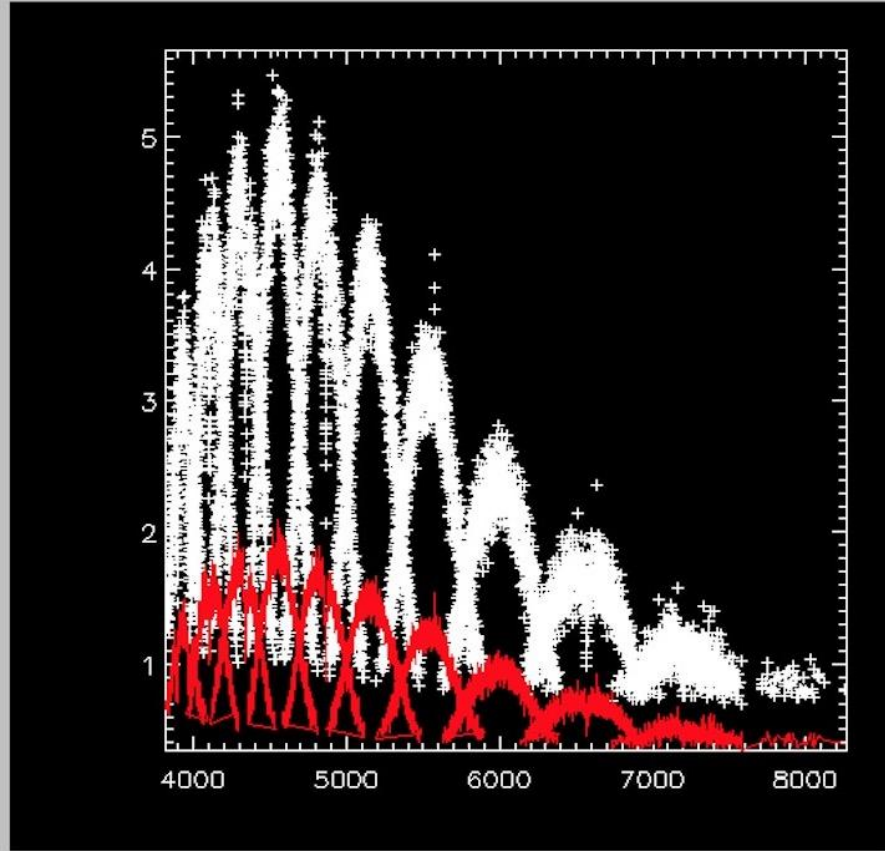
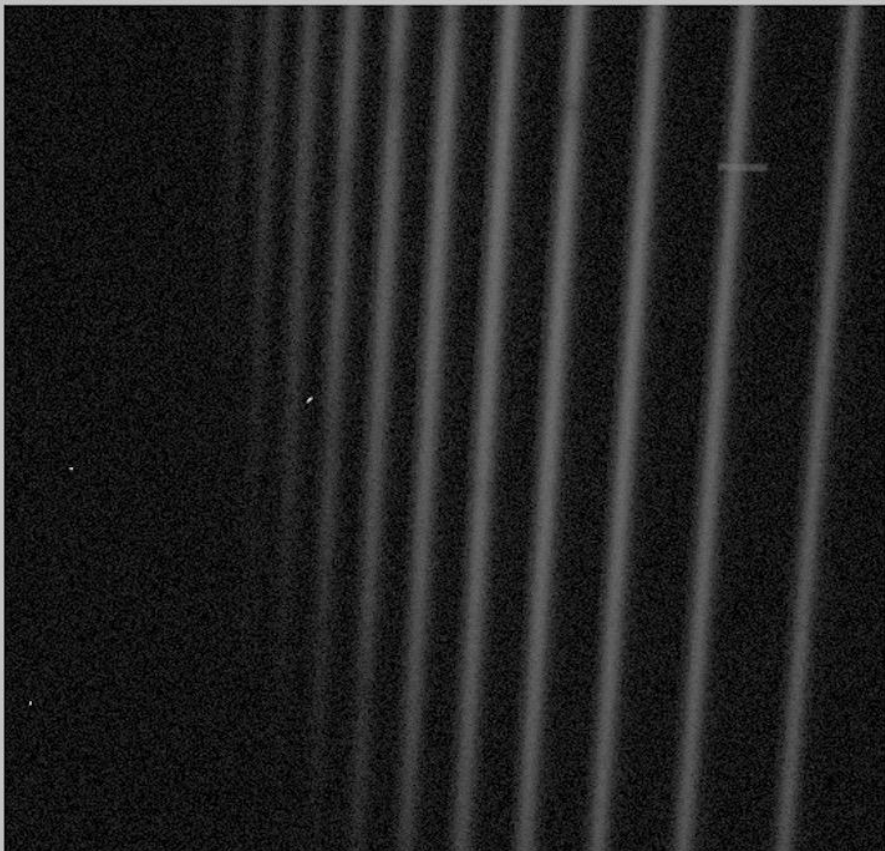
12:12:12.001 -60:60:60.01 J2000

Scaling Zoom Invert Rotate Color

File 20220330-0017-e00.fits.fz ObjName j1454

IngSpec= crossdisp Filter= g10 Grism = e9 Slit = sslit1.00

FindingChart PSF FWHM Ellipticity



Start PauseUpdate

Xmin 3817.04 Xmax 8266.12 Ymin 0.342480 Ymax 5.65787

# YFOSC数据质量控制



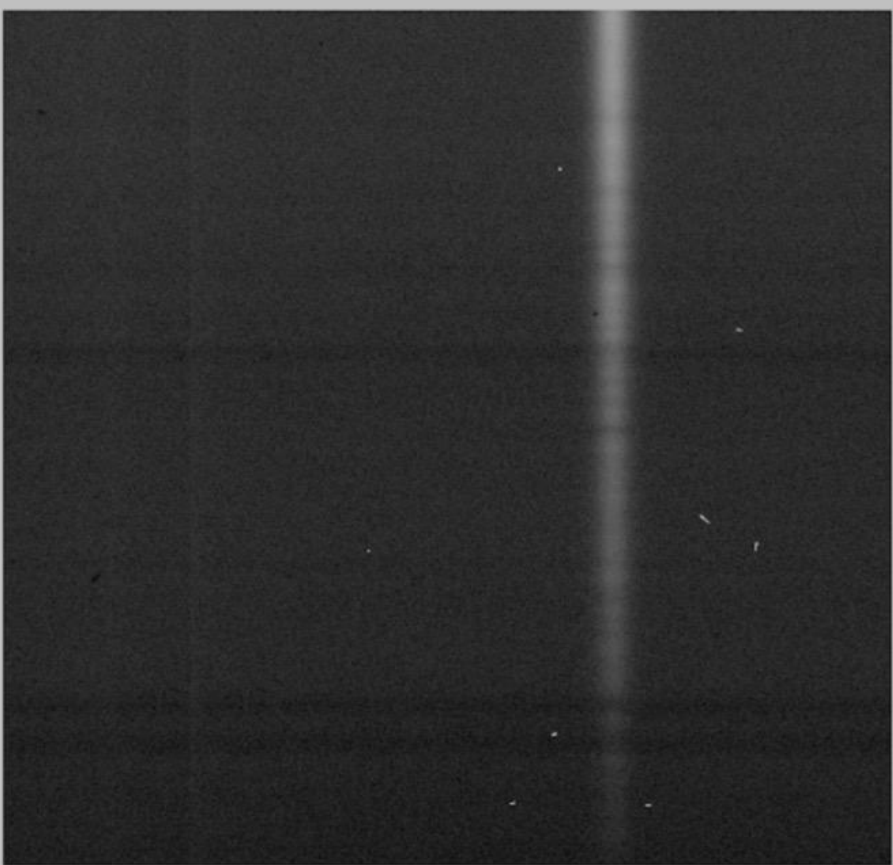
Open Bin= 1

Min= 20030.2 Max= 85486.0

( 1074, 2306) 20200.

12:12:12.001 -60:60:60.01 J2000

Scaling Zoom Invert Rotate Color

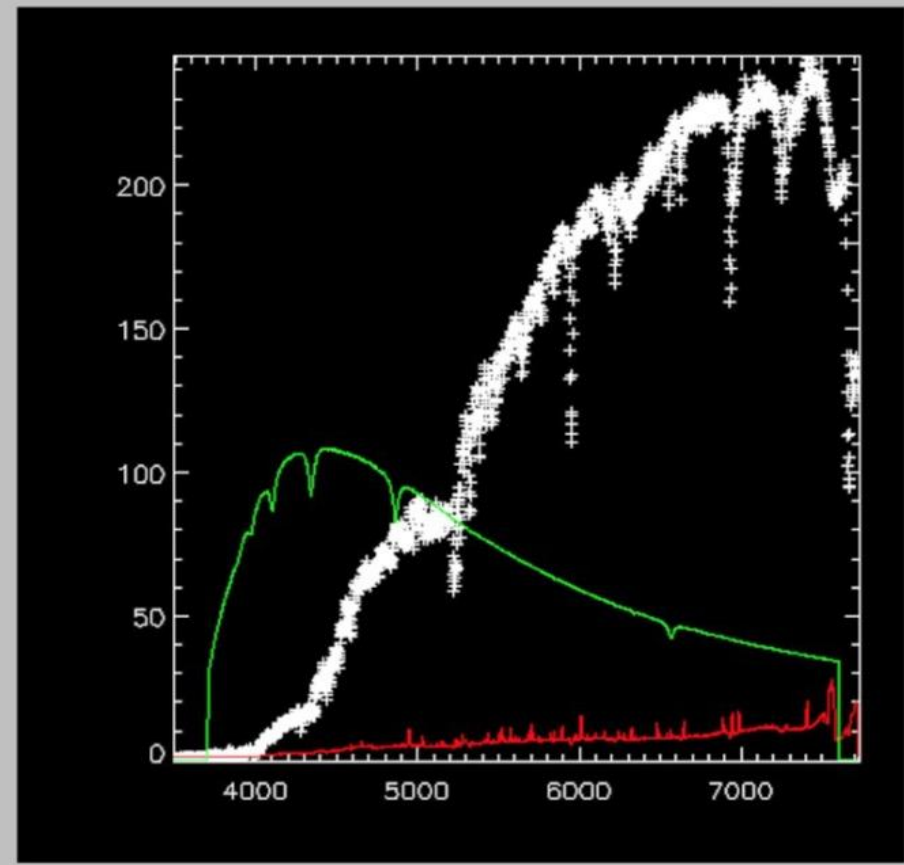


File 20200211-0017-e00.fits.fz ObjName g191b2b

ImgSpec= spec Filter= open Grism = grism14 Slit = slit1.81

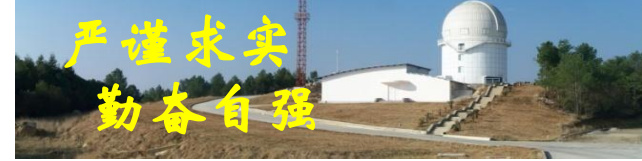
Wrong standard star ?

FindingChart PSF FWHM Ellipticity



Start PauseUpdate

Xmin 3494.56 Xmax 7732.11 Ymin -0.67115 Ymax 244.948



# 总结

开发YFOOSC数据质量控制软件

运行以来，可以及时发现终端问题

辅助观测

方便用户及时检查数据

注意: 安排研究生观测，标准星若选G191-B2B\*、  
BD+08d2015等附近有亮星的目标时，一定要仔细证认!

**谢谢!**