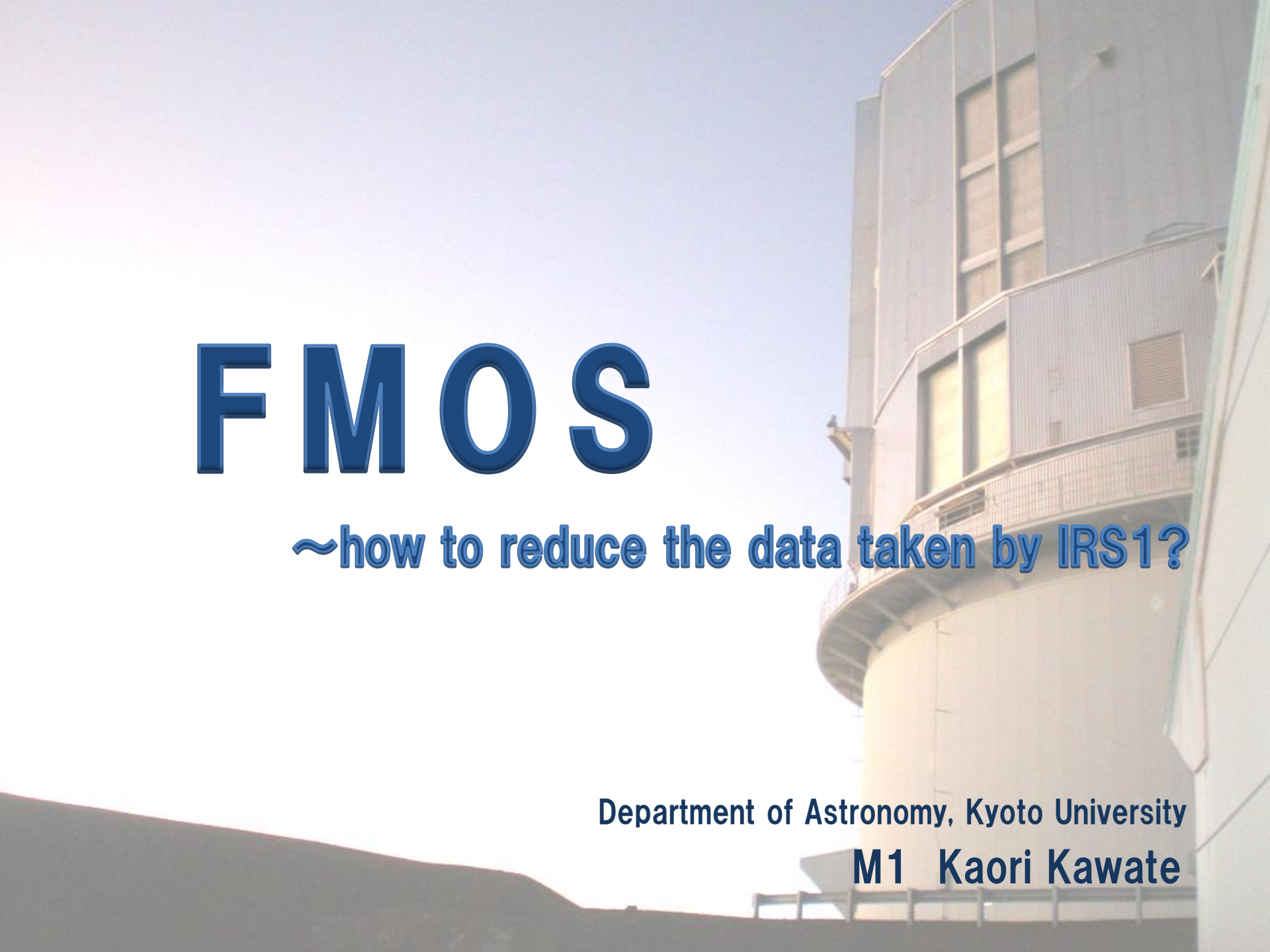


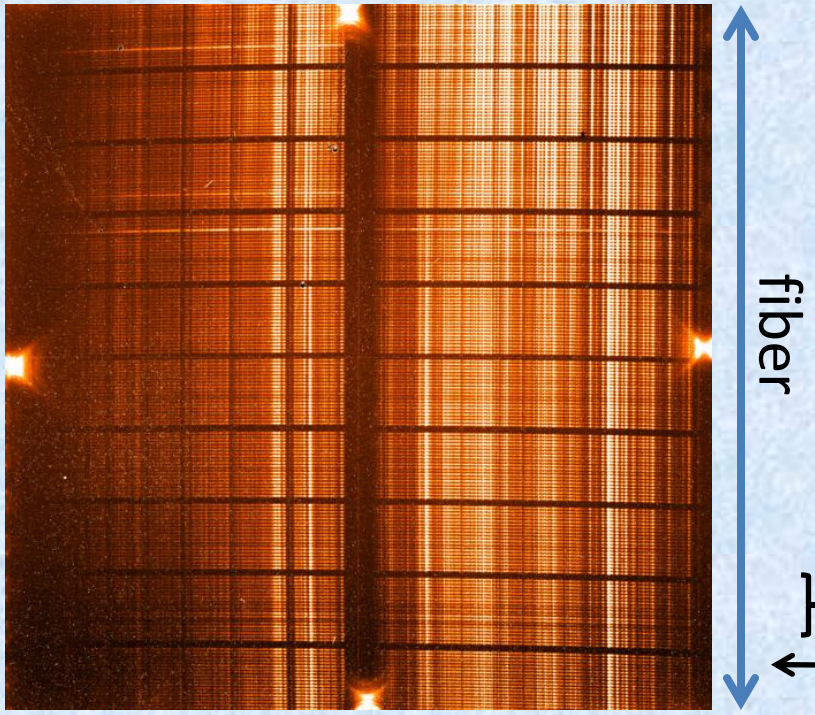
FMOS

～how to reduce the data taken by IRS1？

Department of Astronomy, Kyoto University

M1　Kaori Kawate

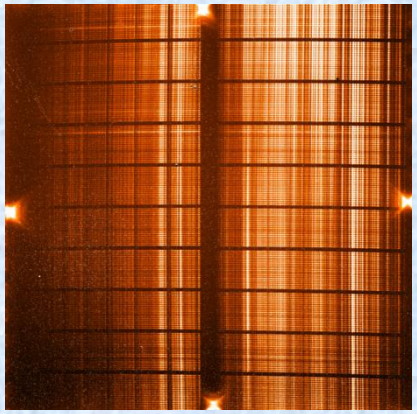
How to Reduce?



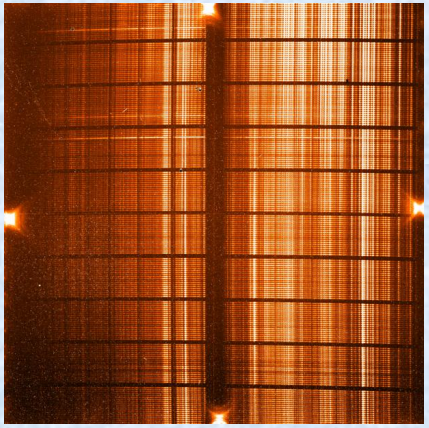
- background subtraction
- bad pixels rejection
- distortion correction
- image combine
- flux & wavelength calibration
- absorption correction

Object data
Date : 09/12/2(HST)
Target : SXDS field
Exposure Time : 15min

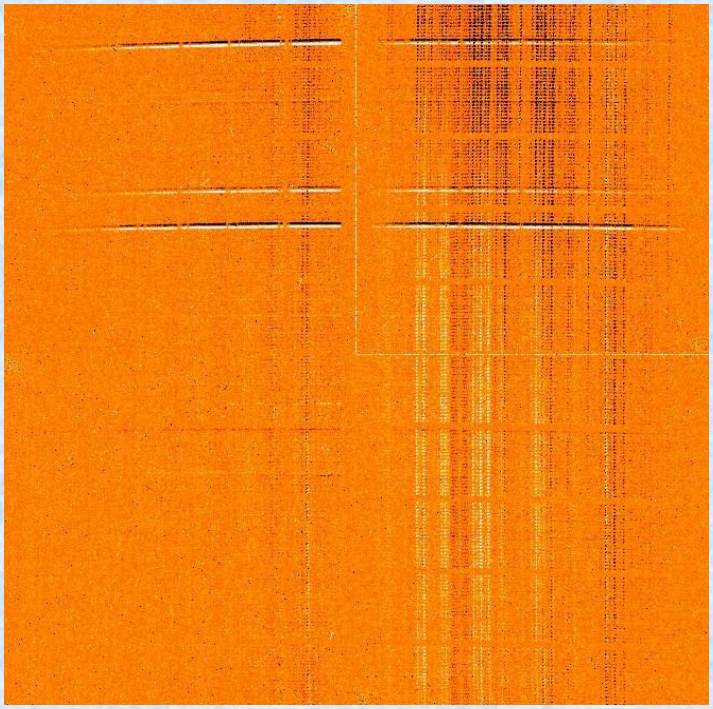
Data Reduction (1)



Fiber Position1



Fiber Position 2



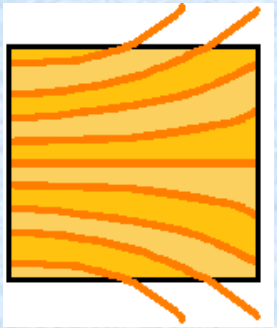
After sky subtraction

- Subtract Pos.2 from Pos.1
  to reduce the primary
  component of background

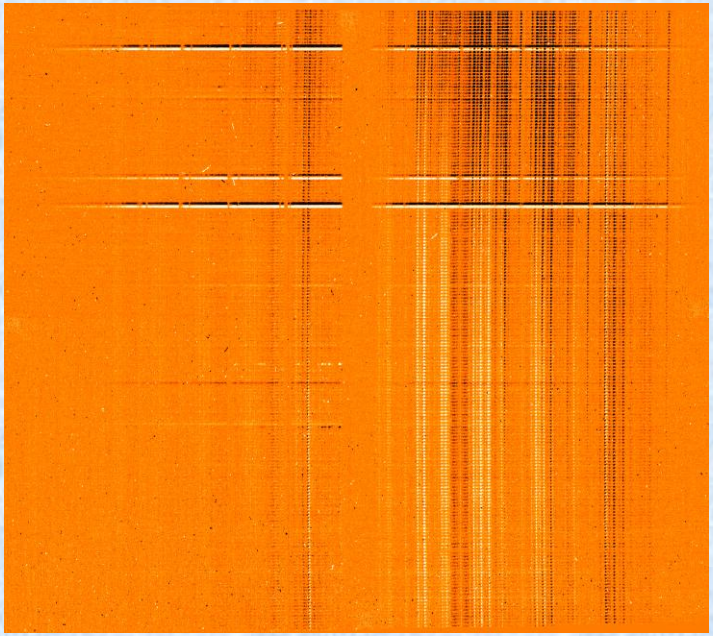
(The objects are pointed alternately in "bean swtching" mode.)

Data Reduction (2)

- Do flat fielding
- Reject bad pixels
- Correct distortion along Y axis



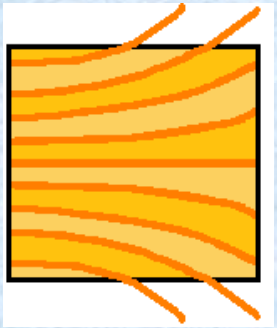
caused by
chromatic aberration
of the camera lenses



After the distortion correction

Data Reduction (2)

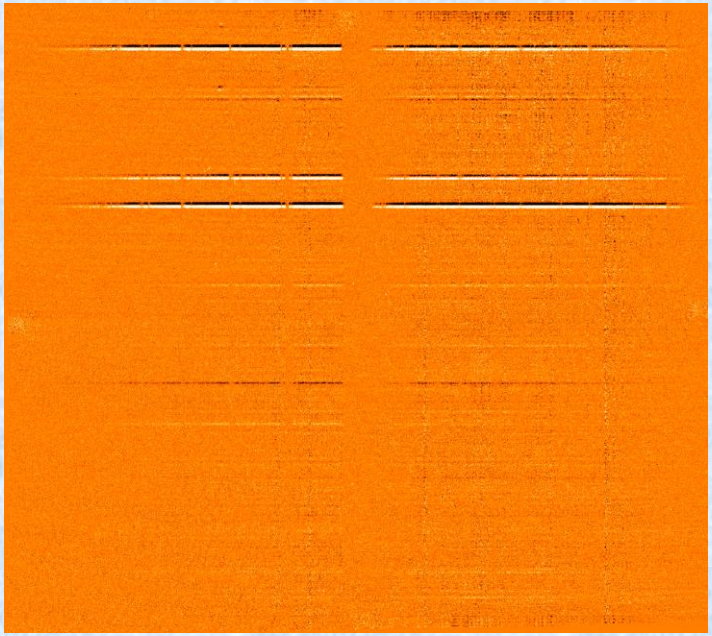
- Do flat fielding
- Reject bad pixels
- Correct distortion along Y axis



caused by
chromatic aberration
of the camera lenses

- Subtract remaining background
  and fit the residual airglow

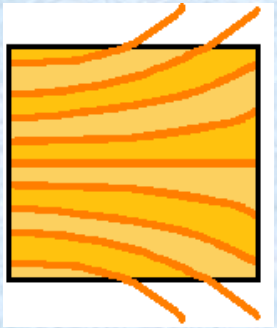
use the value of the gap as background



After background subtraction

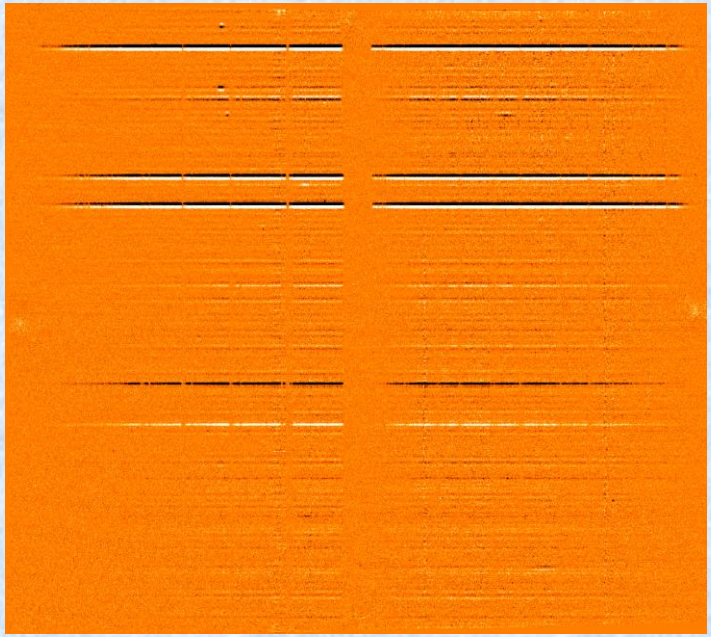
Data Reduction (2)

- Do flat fielding
- Reject bad pixels
- Correct distortion along Y axis



caused by
chromatic aberration
of the camera lenses

- Subtract remaining background
  and fit the residual airglow
  use the value of the gap as background
- Combine images to improve S/N
  This figure :15min × 8images

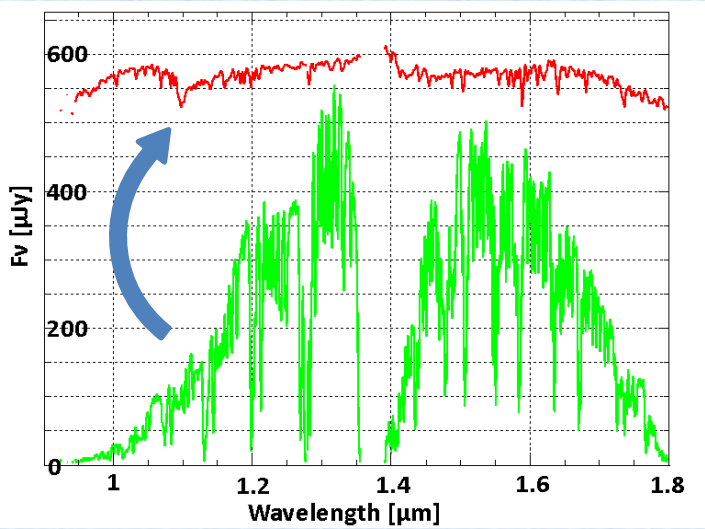


After image combine

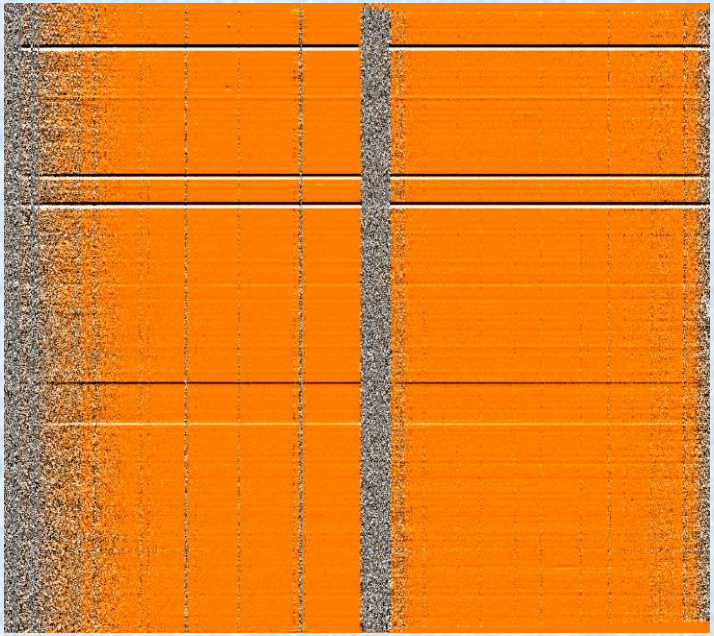
Data Reduction (3)

- Calibrate flux by stellar spectra
  and Correct absorption feature

green : before correction
red : after correction



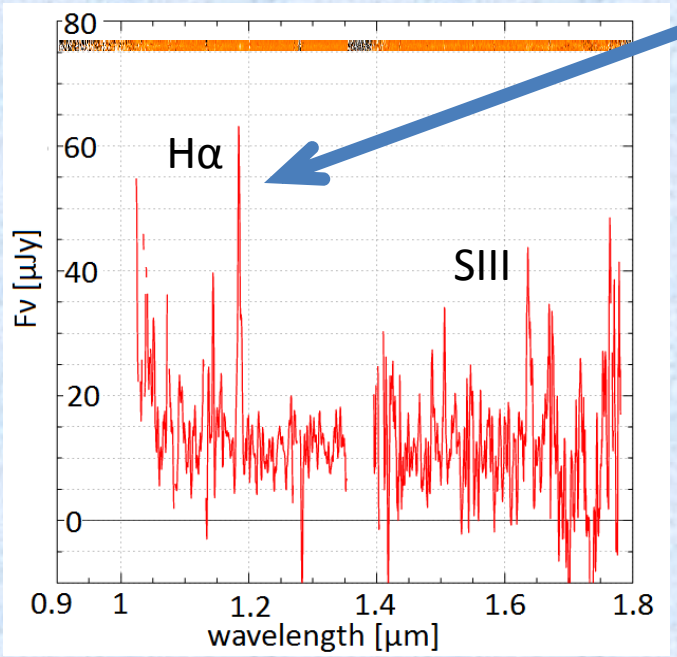
Slit No.136
Target : SXDS5_8892
mag : 16.706

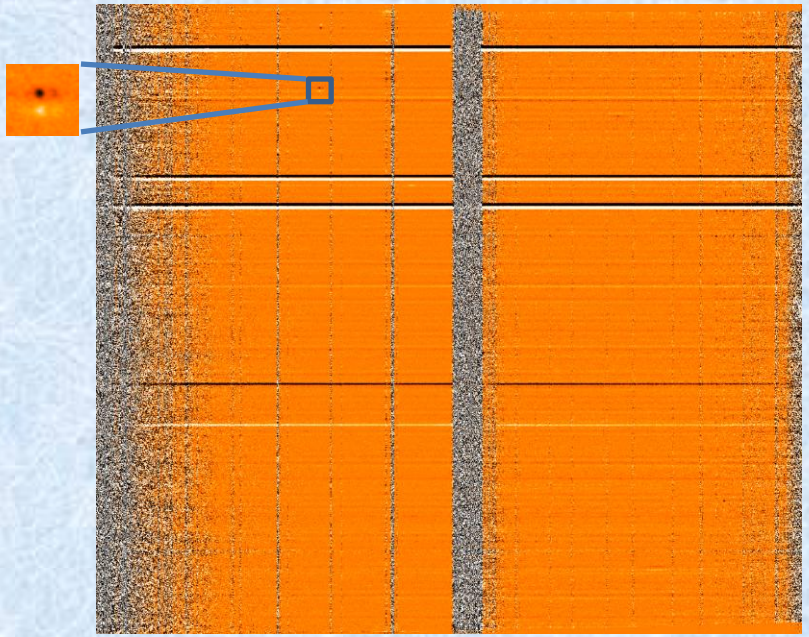


After flux calibration

Data Reduction (3)

- Transform image into one-dimensional spectra





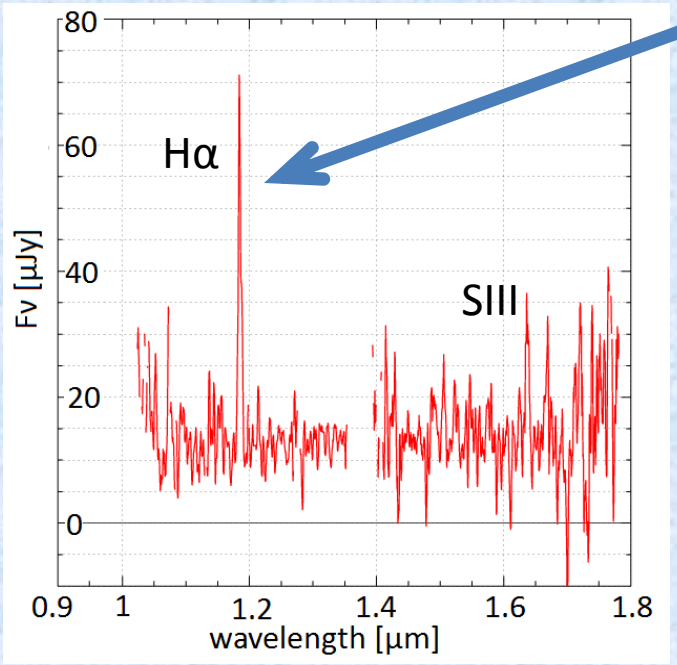
After flux calibration

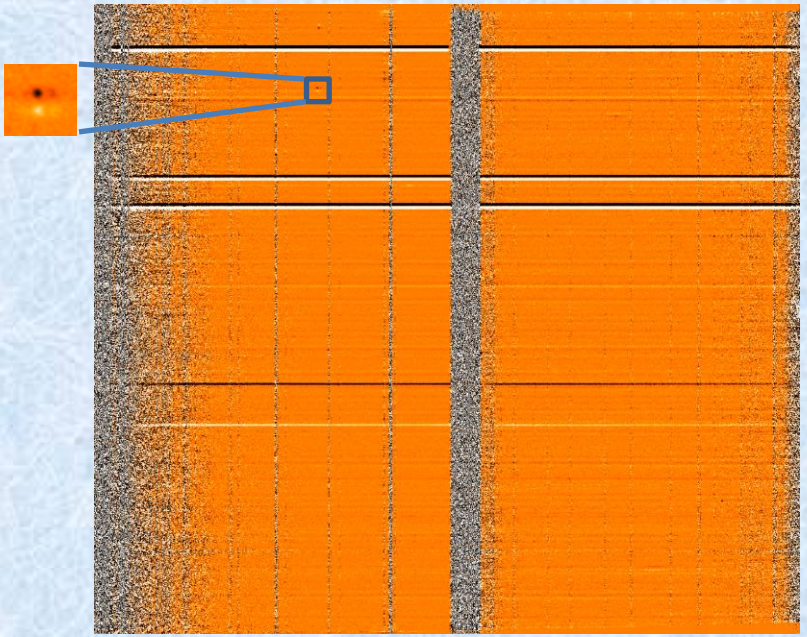
Slit No.173
Exposure Time : 2h

Target : SXDS5_16486
mag : 19.818(AB)
SpecZ : 0.805

Data Reduction (3)

- Transform image into one-dimensional spectra





After flux calibration

Slit No.173
Exposure Time : 4h

Target : SXDS5_16486
mag : 19.818(AB)
SpecZ : 0.805