VO ツール利用法
Specview

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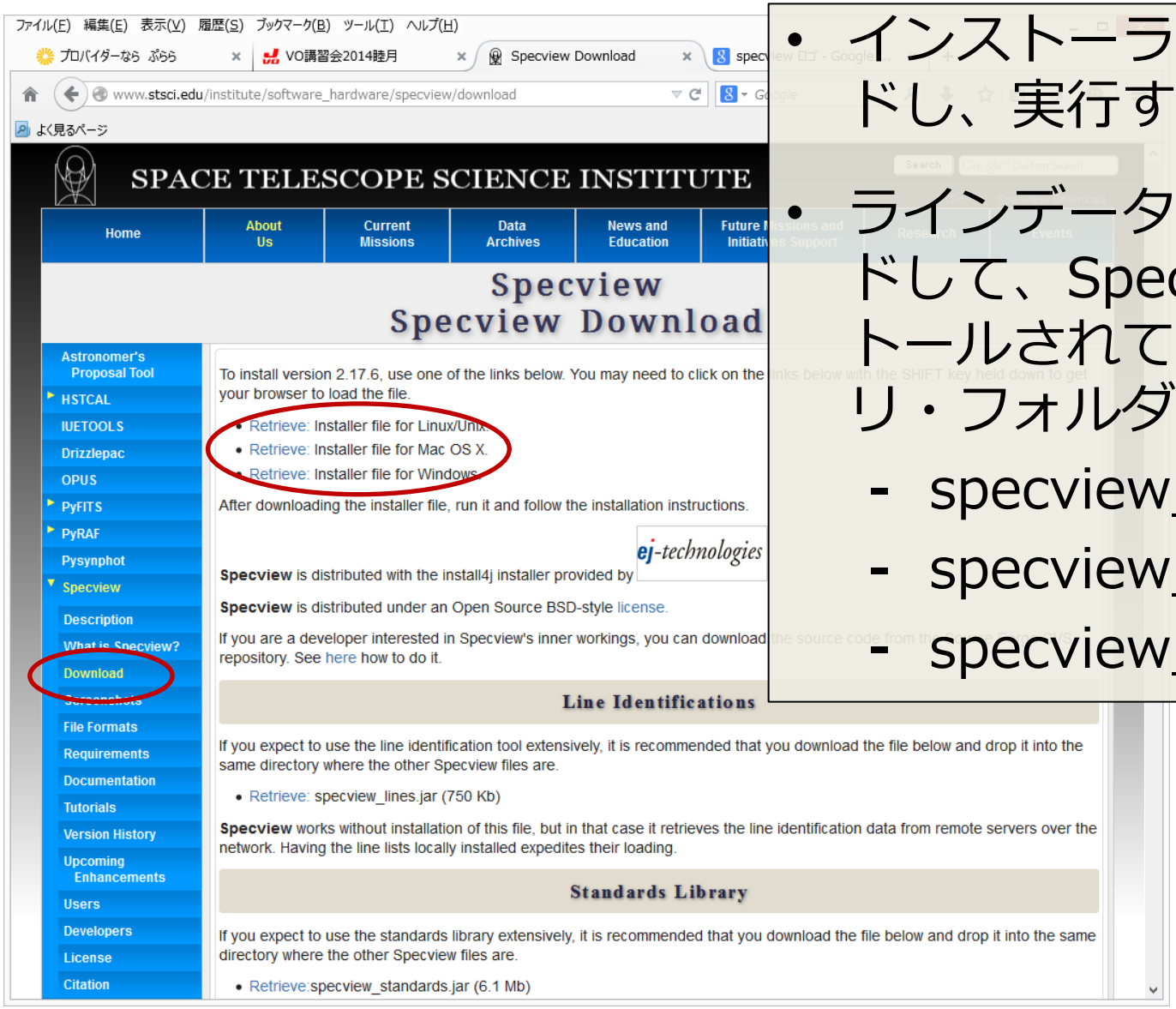
Specview

- スペクトルデータの表示
  - HSC の全データの他、主要な観測装置によるスペクトルデータ
  - 複数のスペクトルデータを同時にプロット
- スペクトルデータの解析
  - 複数のスペクトルデータを一つにまとめる。
  - ライン・吸収線の測定
  - モデルフィット
- VOサービスから直接データを取得

http://www.stsci.edu/institute/software_hardware/specview/

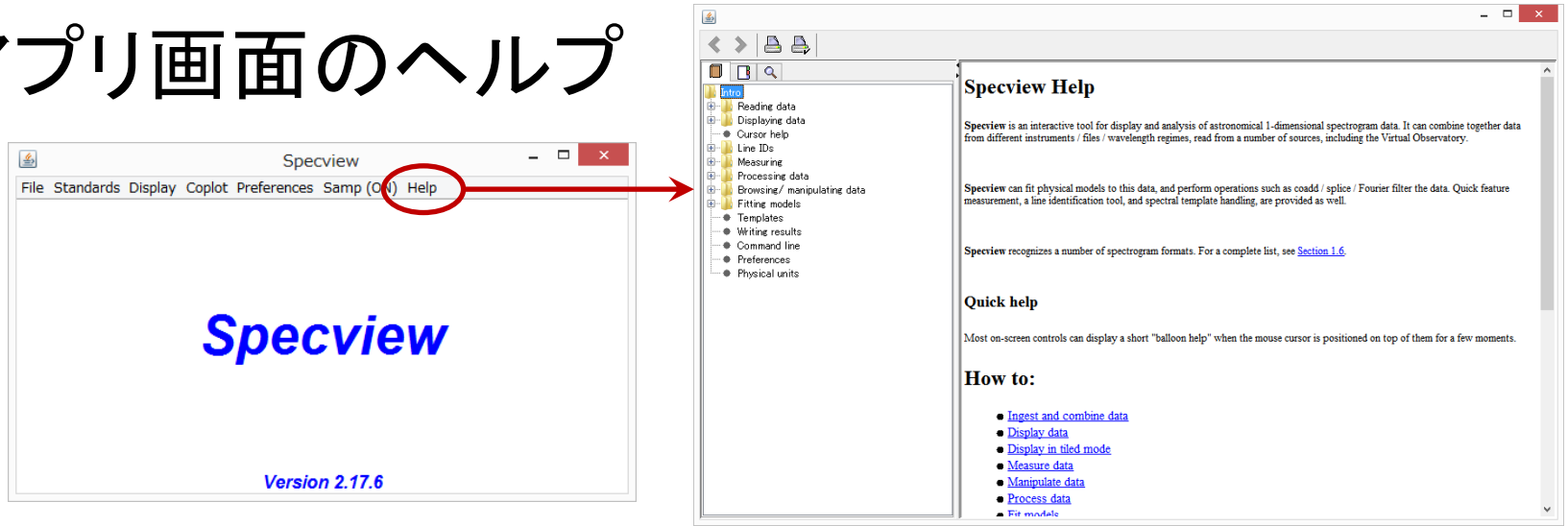
インストール



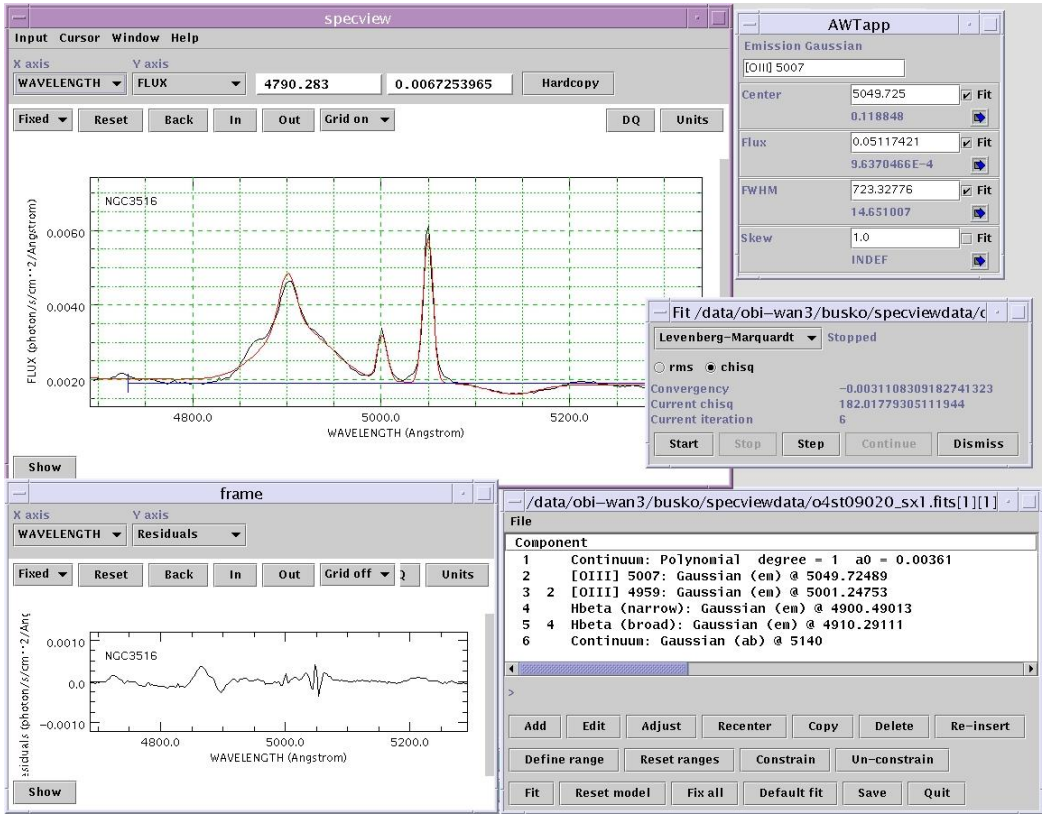
- インストーラーをダウンロードし、実行する。
- ラインデータ等もダウンロードして、Specview がインストールされているディレクトリ・フォルダに追加する。
  - specview_lines.jar
  - specview_standards.jar
  - specview_kurucz.jar

マニュアル類

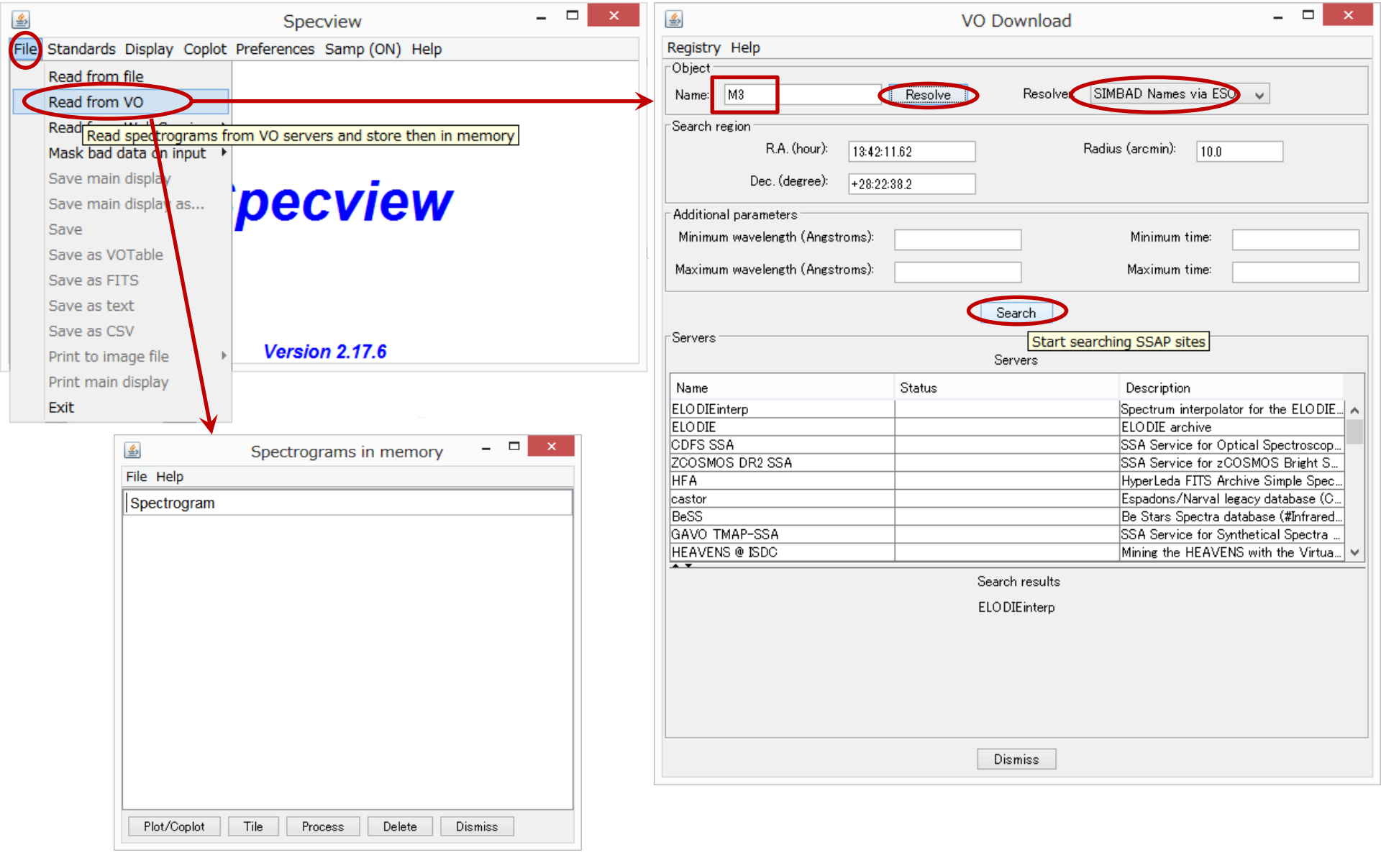
- 講習会ページ
  - http://jvo.nao.ac.jp/vos2015a/
- 本家マニュアル
  - オンラインヘルプ
    http://specview.stsci.edu/javahelp/Main.html
  - チュートリアル
    http://www.stsci.edu/institute/software_hardware/specview/tutorial
- アプリ画面のヘルプ



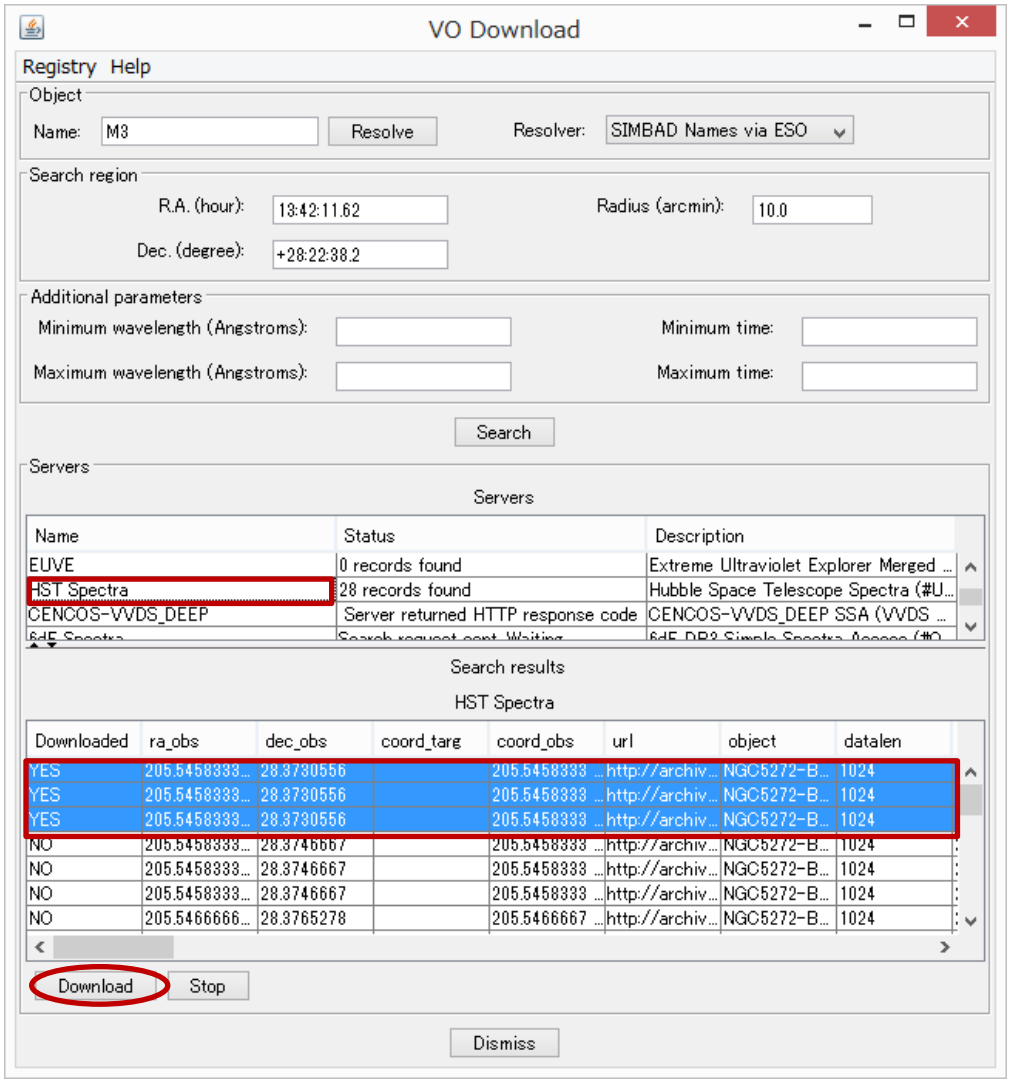
Specview

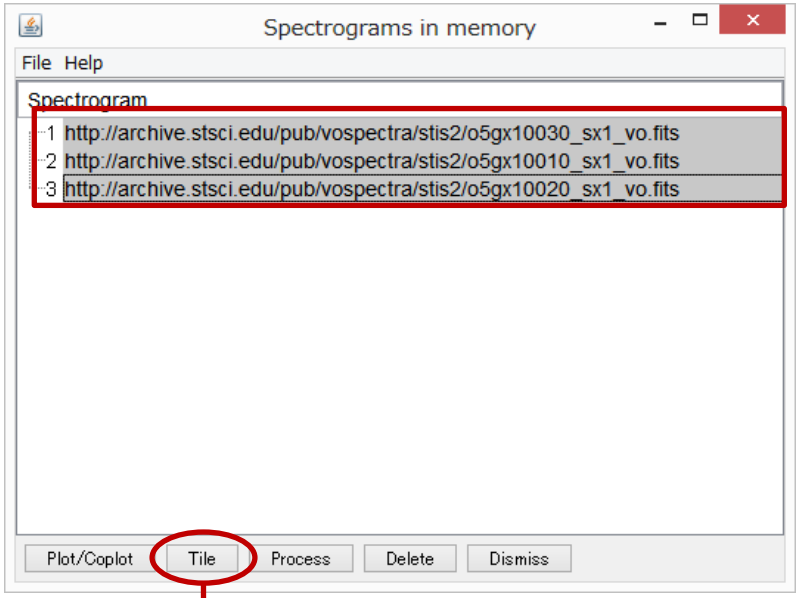

specview
Input Cursor Window Help
X axis
Y axis
WAVELENGTH
FLUX
4790.283
0.0067253965
Hardcopy
Fixed
Reset
Back
In
Out
Grid on
DQ
Units
NGC3516
FLUX (photon/s/cm**2/Angstrom)
0.0060
0.0040
0.0020
4800.0
5000.0
5200.0
WAVELENGTH (Angstrom)
Show
AWTapp
Emission Gaussian
[OIII] 5007
Center
5049.725
Fit
0.118848
Flux
0.05117421
9.6370466E-4
FWHM
723.32776
14.651007
Skew
1.0
INDEF
Fit /data/obi-wan3/busko/specviewdata/c
Levenberg-Marquardt
Stopped
rms
chisq
Convergency
-0.0031108309182741323
Current chisq
182.01779305111944
Current iteration
6
Start
Stop
Step
Continue
Dismiss
frame
X axis
Y axis
WAVELENGTH
Residuals
Fixed
Reset
Back
In
Out
Grid off
Units
NGC3516
0.0010
0.0
-0.0010
4800.0
5000.0
5200.0
WAVELENGTH (Angstrom)
Show
/data/obi-wan3/busko/specviewdata/o4st09020_sx1.fits[1][1]
File
Component
1 Continuum: Polynomial degree = 1 a0 = 0.00361
2 [OIII] 5007: Gaussian (em) @ 5049.72489
3 2 [OIII] 4959: Gaussian (em) @ 5001.24753
4 Hbeta (narrow): Gaussian (em) @ 4900.49013
5 4 Hbeta (broad): Gaussian (em) @ 4910.29111
6 Continuum: Gaussian (ab) @ 5140
Add
Edit
Adjust
Recenter
Copy
Delete
Re-insert
Define range
Reset ranges
Constrain
Un-constrain
Fit
Reset model
Fix all
Default fit
Save
Quit

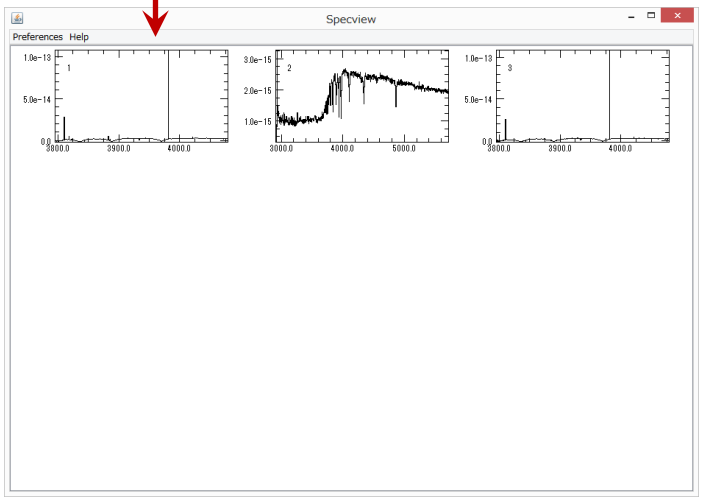
データの読み込み (1/2)


Specview
File Standards Display Coplot Preferences Samp (ON) Help
Read from file
Read from VO
Read spectrograms from VO servers and store then in memory
Mask bad data on input
Save main display
Save main display as...
Save
Save as VOTable
Save as FITS
Save as text
Save as CSV
Print to image file
Print main display
Exit
pecview
Version 2.17.6
VO Download
Registry Help
Object
Name: M3
Resolve
Resolver: SIMBAD Names via ESO
Search region
R.A. (hour): 13:42:11.62
Radius (arcmin): 10.0
Dec. (degree): +28:22:38.2
Additional parameters
Minimum wavelength (Angstroms):
Minimum time:
Maximum wavelength (Angstroms):
Maximum time:
Search
Start searching SSAP sites
Servers
Servers
Name Status Description
ELODIEinterp Spectrum interpolator for the ELODIE...
ELODIE ELODIE archive
CDFS SSA SSA Service for Optical Spectroscop...
ZCOSMOS DR2 SSA SSA Service for zCOSMOS Bright S...
HFA HyperLeda FITS Archive Simple Spec...
castor Espadons/Narval legacy database (C...
BeSS Be Stars Spectra database (#Infrared...
GAVO TMAP-SSA SSA Service for Synthetical Spectra ...
HEAVENS @ ISDC Mining the HEAVENS with the Virtua...
Search results
ELODIEinterp
Dismiss
Spectrograms in memory
File Help
Spectrogram
Plot/Coplot
Tile
Process
Delete
Dismiss

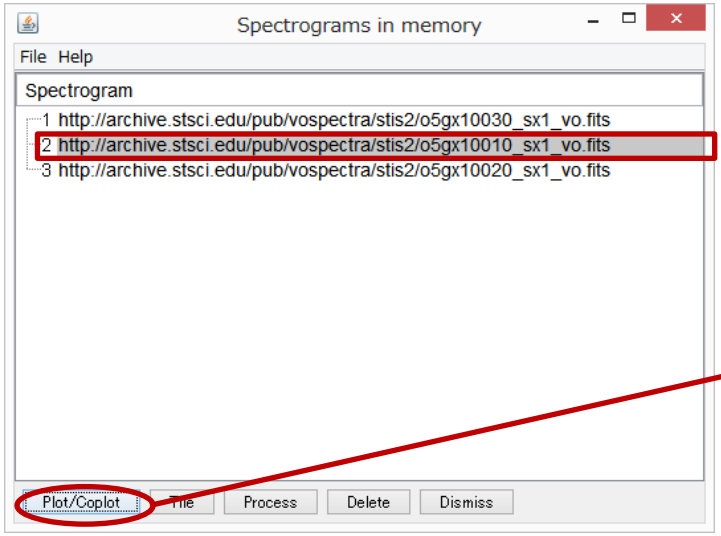
データの読み込み (2/2)

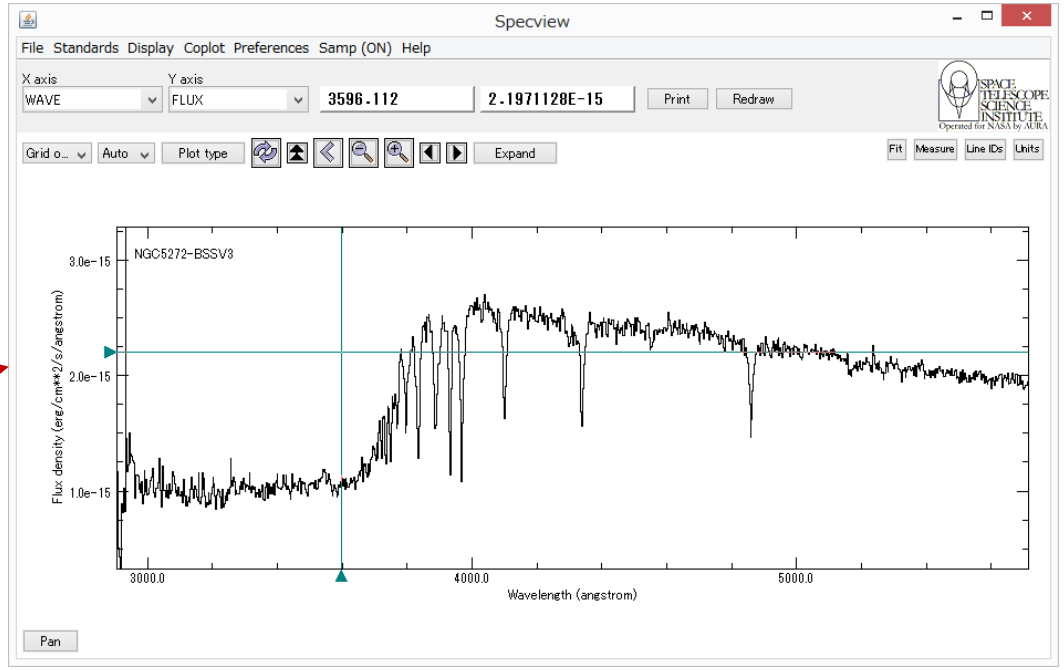

VO Download
Registry Help
Object
Name: M3
Resolve
Resolver: SIMBAD Names via ESO
Search region
R.A. (hour): 13:42:11.62
Radius (arcmin): 10.0
Dec. (degree): +28:22:38.2
Additional parameters
Minimum wavelength (Angstroms):
Minimum time:
Maximum wavelength (Angstroms):
Maximum time:
Search
Servers
Servers
Name
Status
Description
EUVE
0 records found
Extreme Ultraviolet Explorer Merged ...
HST Spectra
28 records found
Hubble Space Telescope Spectra (#U...
CENCOS-VVDS_DEEP
Server returned HTTP response code
CENCOS-VVDS_DEEP SSA (VVDS ...
Search results
HST Spectra
Downloaded
ra_obs
dec_obs
coord_targ
coord_obs
url
object
datalen
YES 205.5458333... 28.3730556 205.5458333 ... http://archiv... NGC5272-B... 1024
YES 205.5458333... 28.3730556 205.5458333 ... http://archiv... NGC5272-B... 1024
YES 205.5458333... 28.3730556 205.5458333 ... http://archiv... NGC5272-B... 1024
NO 205.5458333... 28.3746667 205.5458333 ... http://archiv... NGC5272-B... 1024
NO 205.5458333... 28.3746667 205.5458333 ... http://archiv... NGC5272-B... 1024
NO 205.5458333... 28.3746667 205.5458333 ... http://archiv... NGC5272-B... 1024
NO 205.5466666... 28.3765278 205.5466667 ... http://archiv... NGC5272-B... 1024
Download
Stop
Dismiss


Spectrograms in memory
File Help
Spectrogram
1 http://archive.stsci.edu/pub/vospectra/stis2/o5gx10030_sx1_vo.fits
2 http://archive.stsci.edu/pub/vospectra/stis2/o5gx10010_sx1_vo.fits
3 http://archive.stsci.edu/pub/vospectra/stis2/o5gx10020_sx1_vo.fits
Plot/Coplot
Tile
Process
Delete
Dismiss

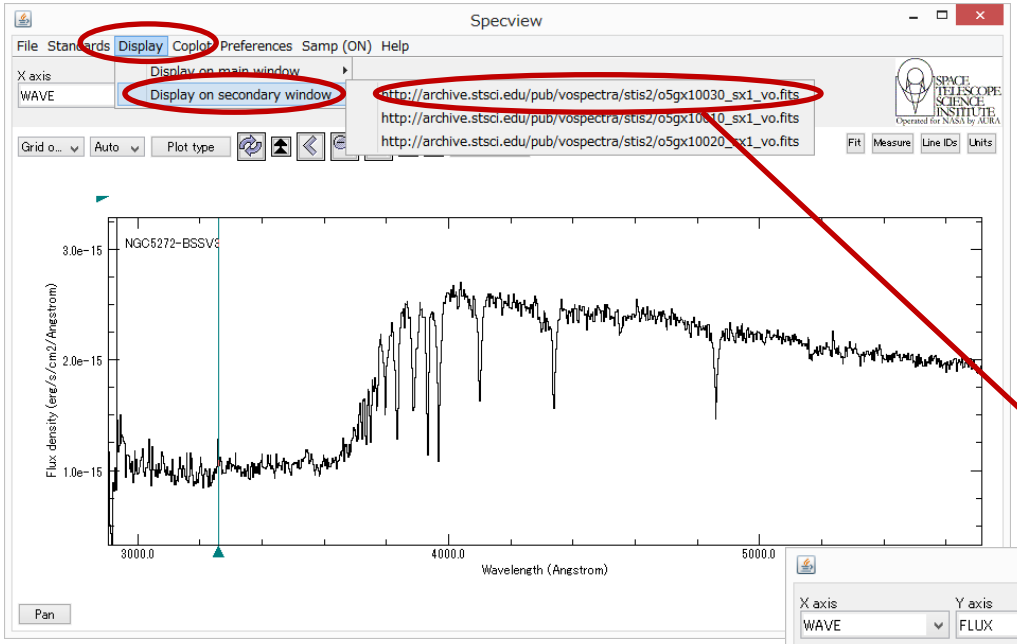

Specview
Preferences Help

データの表示


Spectrograms in memory
File Help
Spectrogram
1 http://archive.stsci.edu/pub/vospectra/stis2/o5gx10030_sx1_vo.fits
2 http://archive.stsci.edu/pub/vospectra/stis2/o5gx10010_sx1_vo.fits
3 http://archive.stsci.edu/pub/vospectra/stis2/o5gx10020_sx1_vo.fits
Plot/Coplot
Tile
Process
Delete
Dismiss

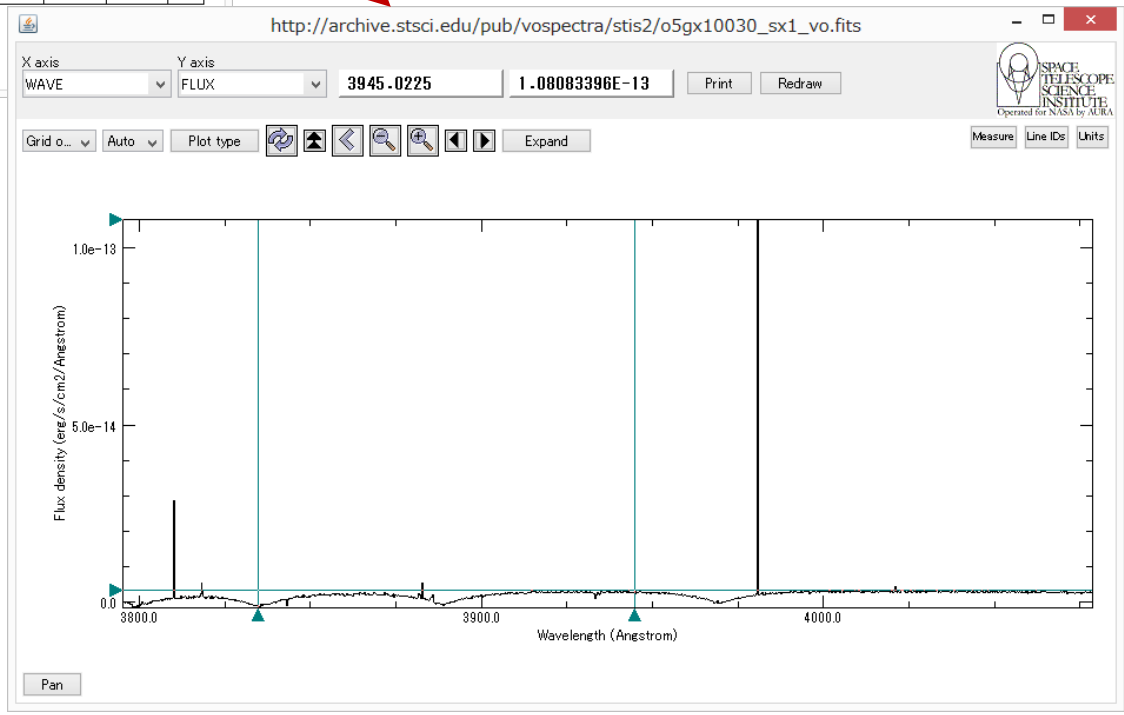

Specview
File Standards Display Coplot Preferences Samp (ON) Help
X axis
WAVE
Y axis
FLUX
3596.112
2.1971128E-15
Print
Redraw
Grid o...
Auto
Plot type
Expand
Fit
Measure
Line IDs
Units
NGC5272-BSSV3
3.0e-15
2.0e-15
1.0e-15
Flux density (erg/cm**2/s/angstrom)
3000.0
4000.0
5000.0
Wavelength (angstrom)
Pan

表示データの切り替え

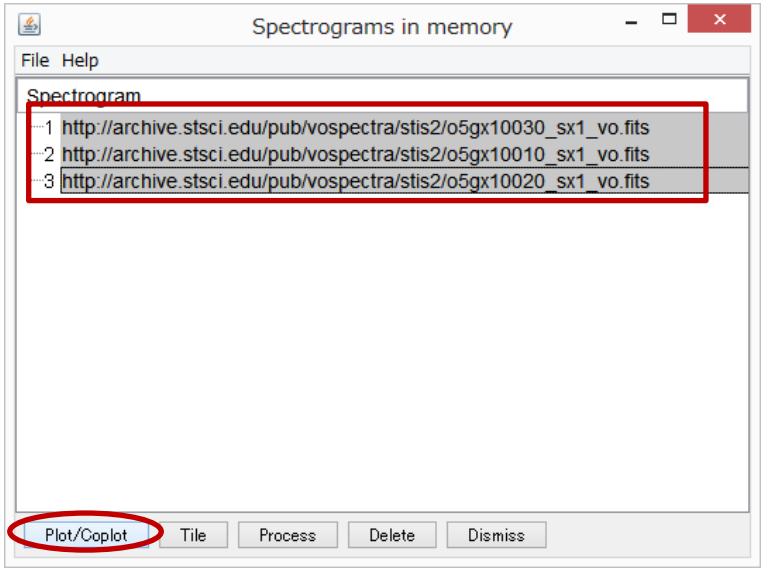


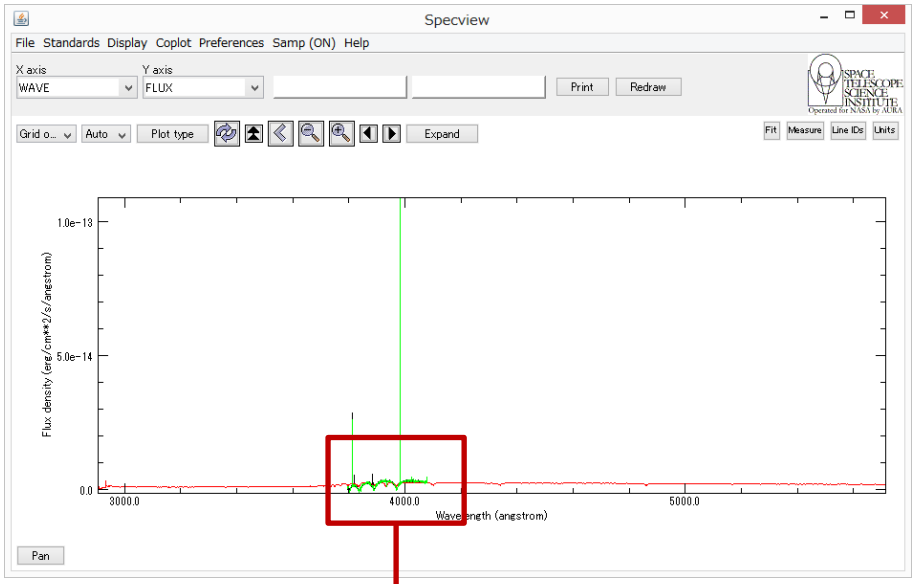
“Display” メニューの “Display on main window” を選択し、データを選択すると、選択したデータが同じ Window に表示される。もとのデータは消える。

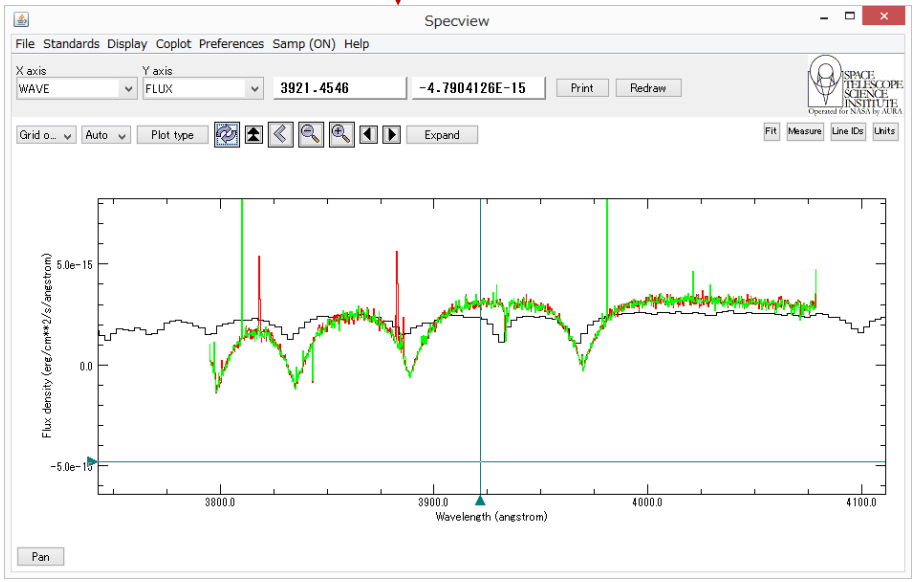
“Display” メニューの “Display on secondary window” を選択し、データを選択すると、選択したデータが別の Window に表示される。もとのデータはそのまま残る。



複数データを重ねてプロット

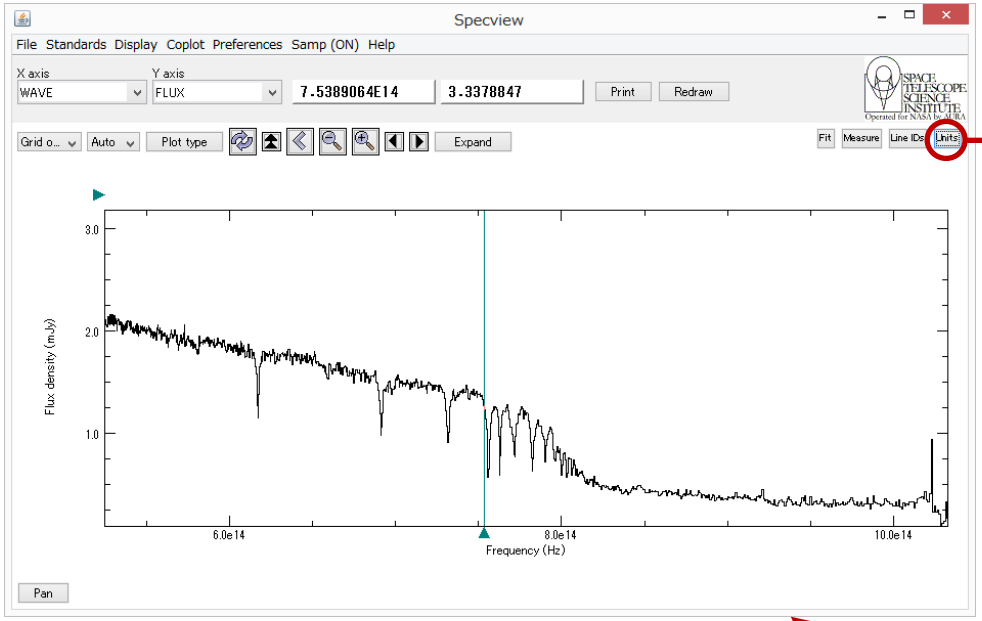


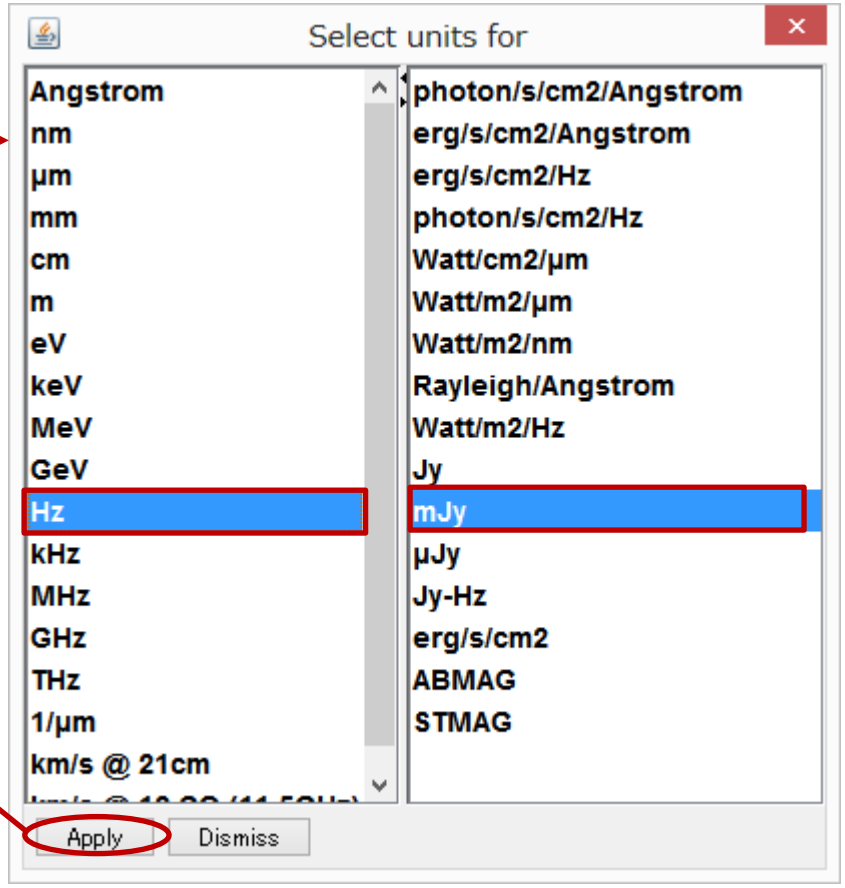




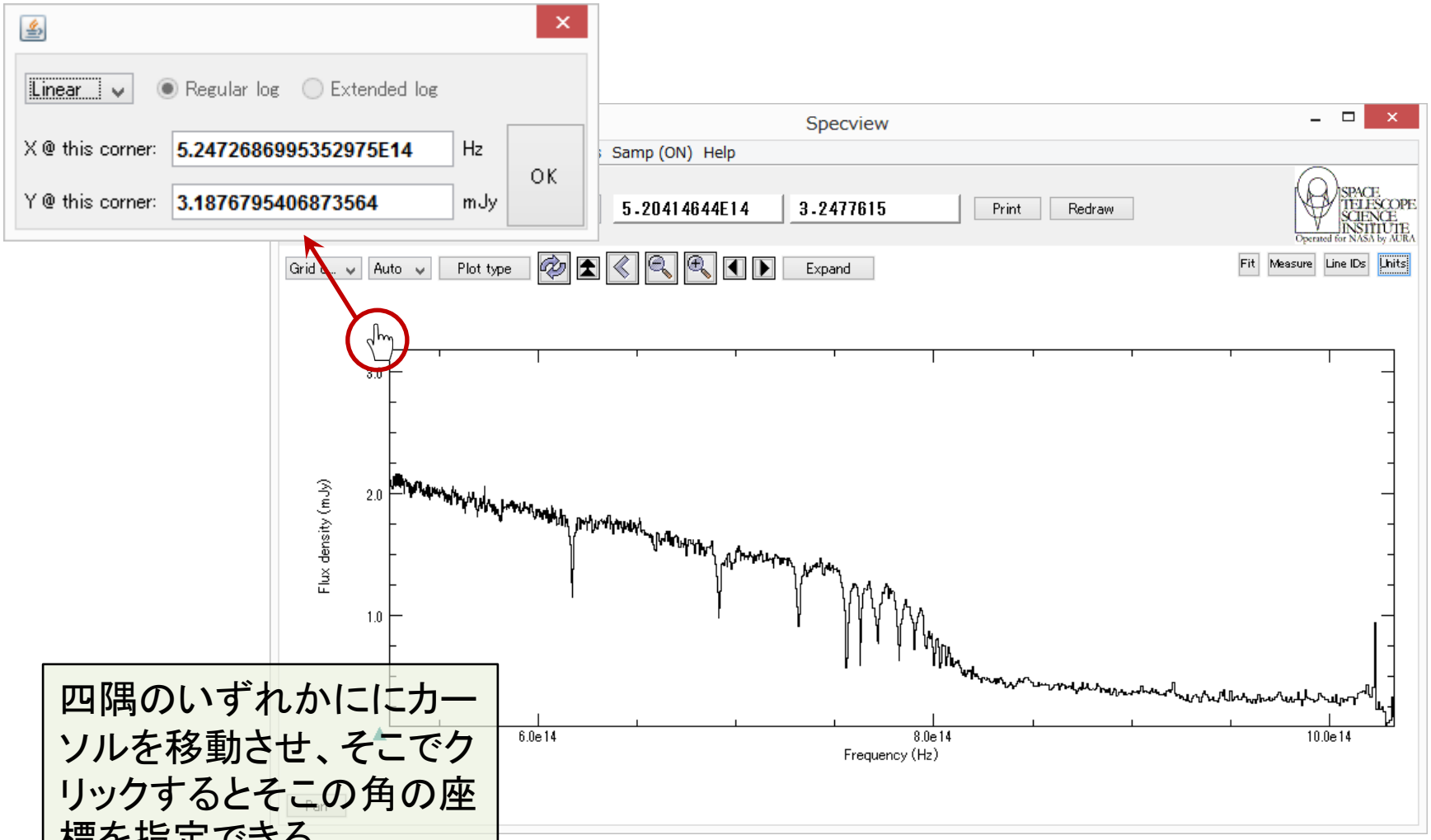
- シフトキーを押しながら複数データを選択し、“Plot/Coplot”ボタンを押すと選択したデータが重ねて表示される。
- マウス操作で拡大したい領域を選択するとことができある。

X,Y 軸の単位変更


Specview
File Standards Display Coplot Preferences Samp (ON) Help
X axis
WAVE
Y axis
FLUX
7.5389064E14
3.3378847
Print
Redraw
Grid o...
Auto
Plot type
Expand
Fit
Measure
Line IDs
Units
Flux density (mJy)
3.0
2.0
1.0
6.0e14
8.0e14
10.0e14
Frequency (Hz)
Pan


Select units for
Angstrom
nm
μm
mm
cm
m
eV
keV
MeV
GeV
Hz
kHz
MHz
GHz
THz
1/μm
km/s @ 21cm
photon/s/cm2/Angstrom
erg/s/cm2/Angstrom
erg/s/cm2/Hz
photon/s/cm2/Hz
Watt/cm2/μm
Watt/m2/μm
Watt/m2/nm
Rayleigh/Angstrom
Watt/m2/Hz
Jy
mJy
μJy
Jy-Hz
erg/s/cm2
ABMAG
STMAG
Apply
Dismiss

X,Y軸範囲指定



四隅のいずれかににカーソルを移動させ、そこでクリックするとそこの角の座標を指定できる。

表示領域の移動、拡大･縮小

一つ前の表示に戻る

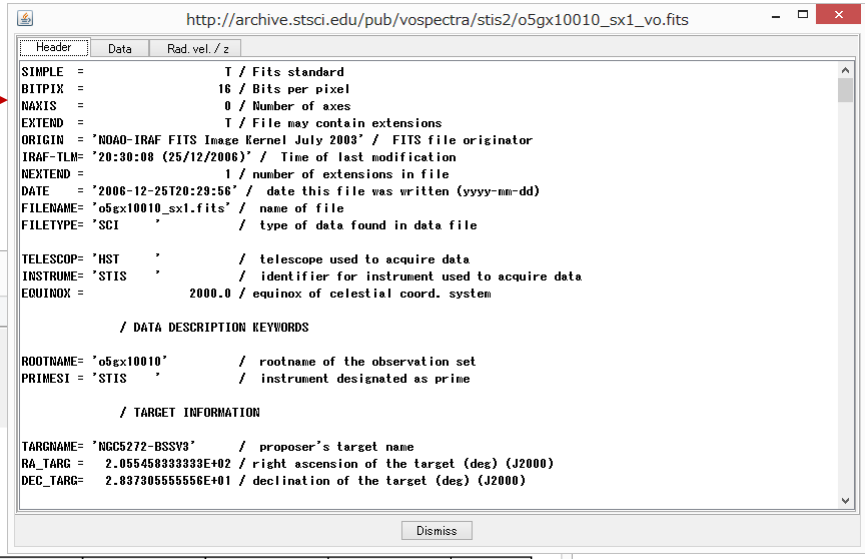
表示領域の拡大･縮小

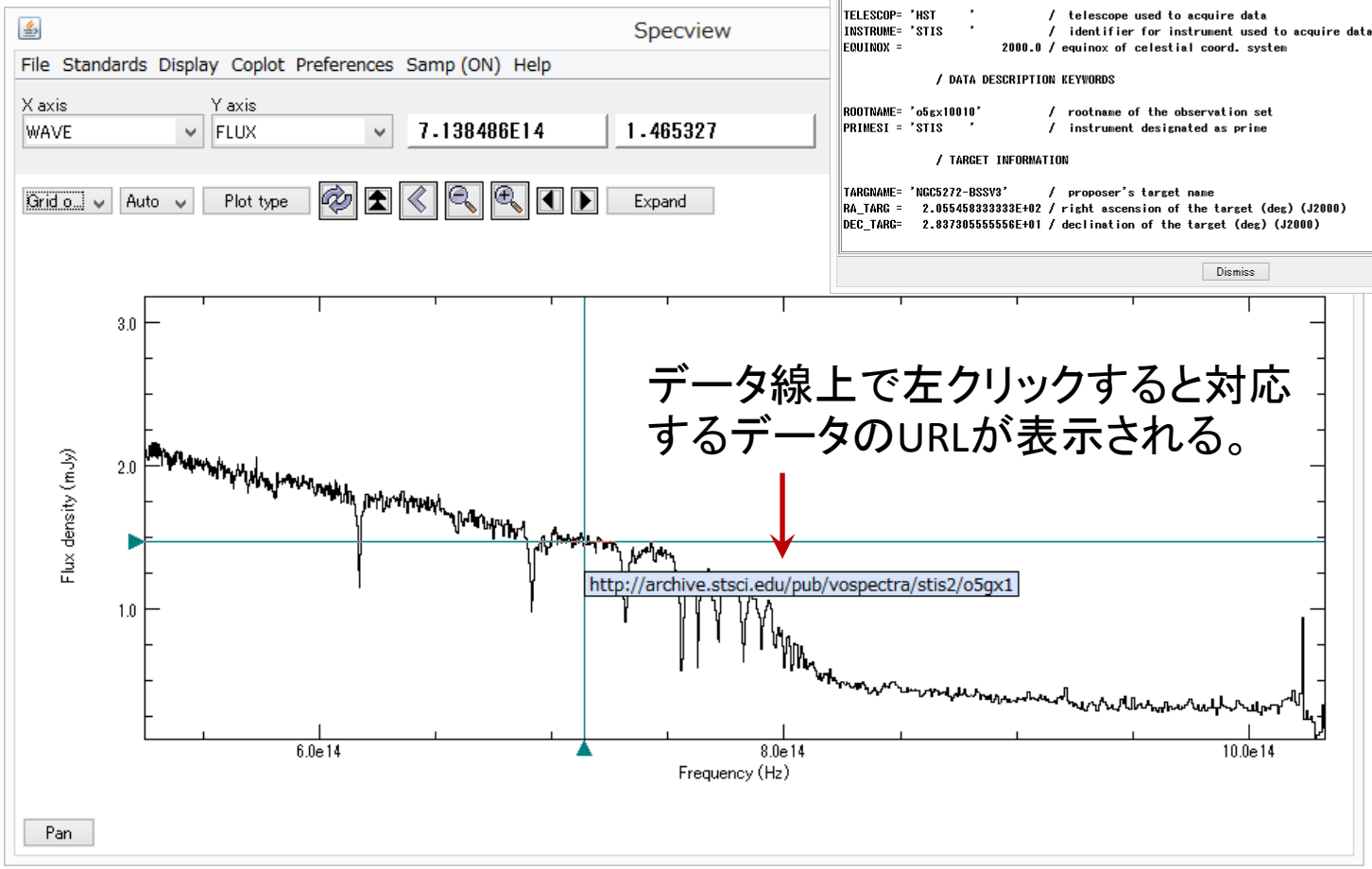
表示領域を左右に移動

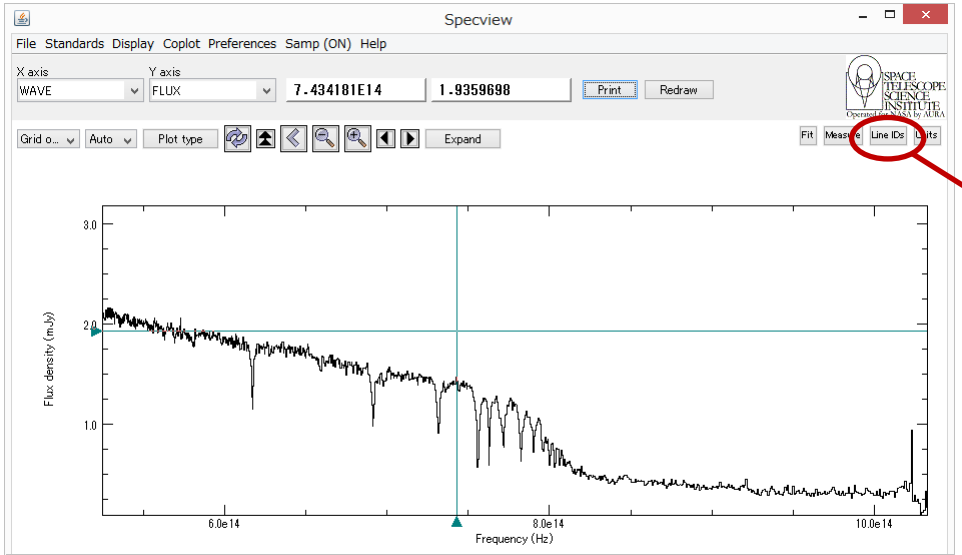
シフトキー＋マウスホイール操作でX軸の拡大縮小

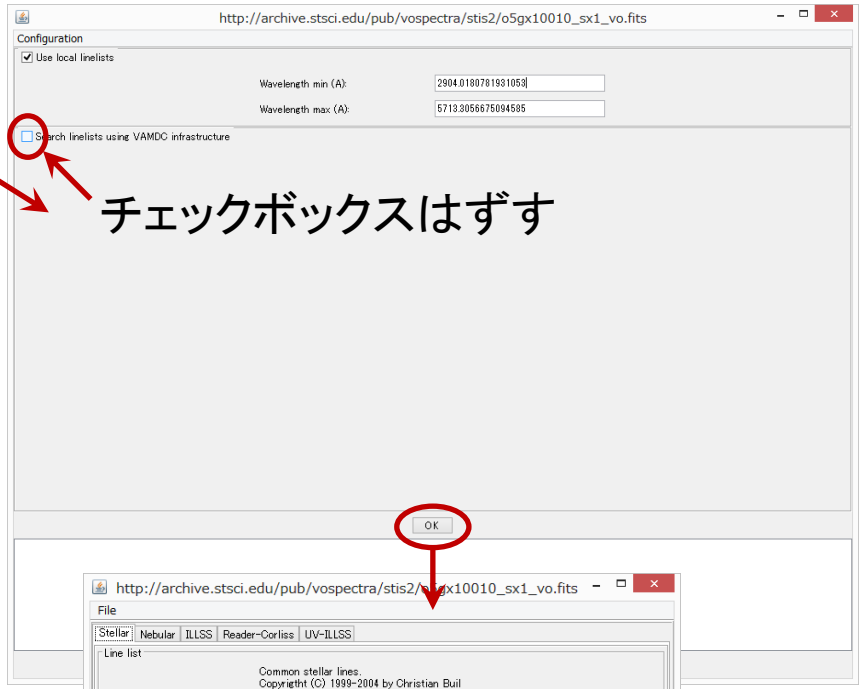
表示データの情報表示

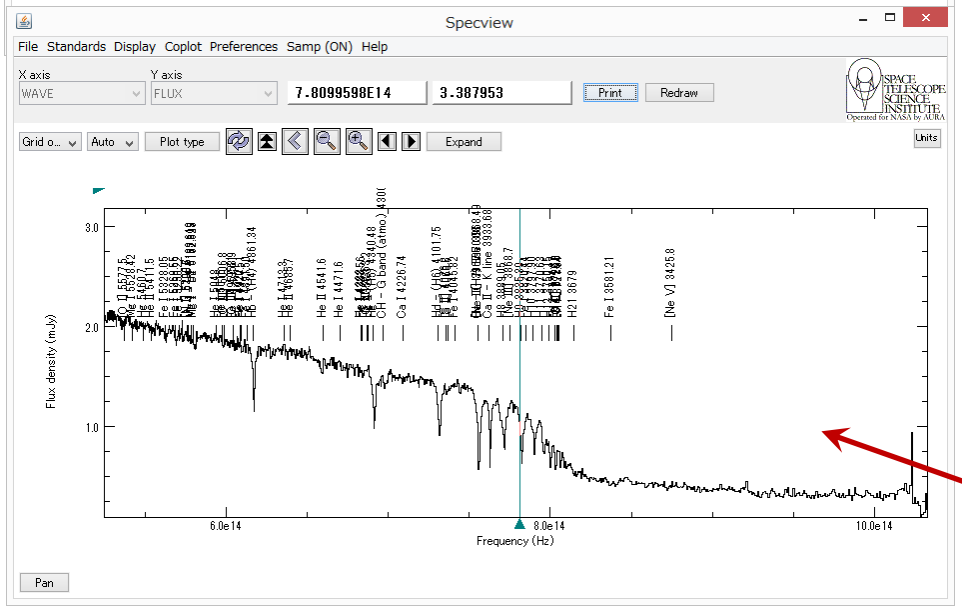
データ線上で右クリックすると対応するデータの FITS ヘッダーが表示される。

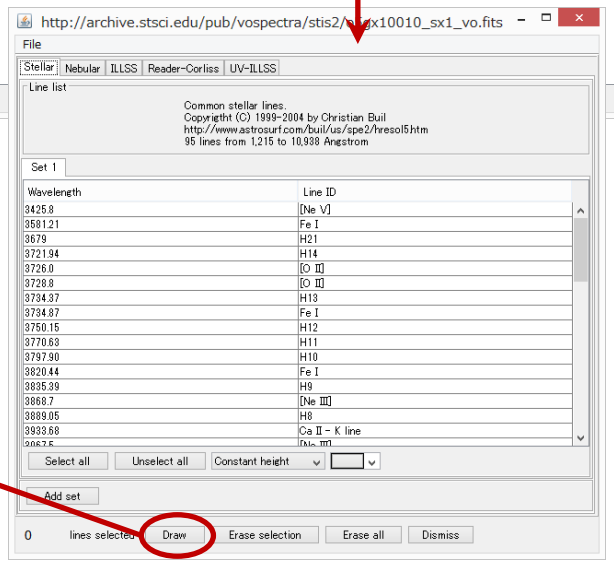





Specview
File Standards Display Coplot Preferences Samp (ON) Help
X axis
WAVE
Y axis
FLUX
7.434181E14
1.9359698
Print
Redraw
Grid o...
Auto
Plot type
Expand
Fit
Measure
Line IDs
Units
Flux density (m.Jy)
Frequency (Hz)
6.0e14
8.0e14
10.0e14

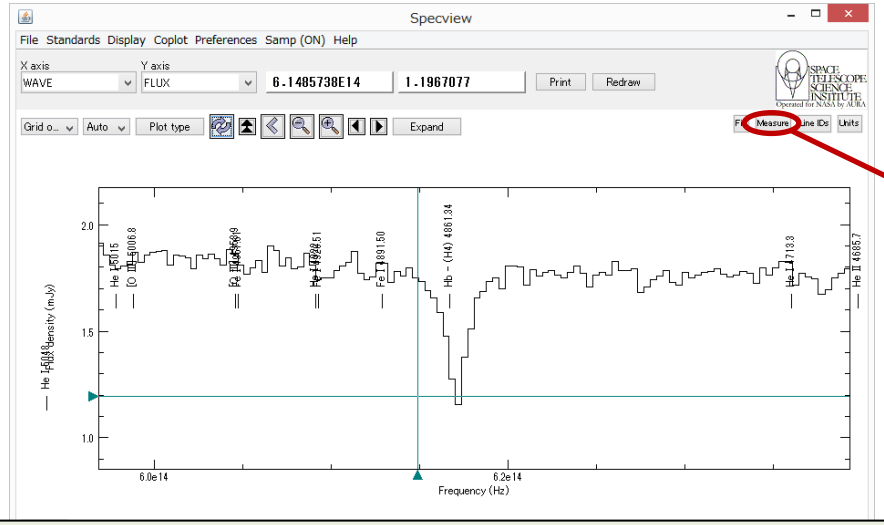

http://archive.stsci.edu/pub/vospectra/stis2/o5gx10010_sx1_vo.fits
Configuration
Use local linelists
Wavelength min (A):
2904.0180781931053
Wavelength max (A):
5713.3056675094585
Search linelists using VAMDC infrastructure
チェックボックスはずす
OK


Specview
File Standards Display Coplot Preferences Samp (ON) Help
X axis
WAVE
Y axis
FLUX
7.8099598E14
3.387953
Print
Redraw
Grid o...
Auto
Plot type
Expand
Units
Flux density (m.Jy)
Frequency (Hz)
6.0e14
8.0e14
10.0e14
Pan

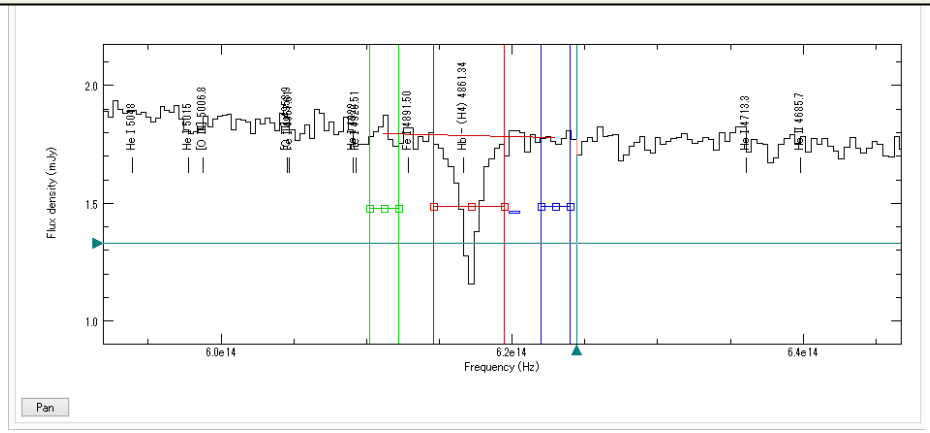

http://archive.stsci.edu/pub/vospectra/stis2/o5gx10010_sx1_vo.fits
File
Stellar
Nebular
ILLSS
Reader-Corliss
UV-ILLSS
Line list
Common stellar lines.
Copyrigtht (C) 1999-2004 by Christian Buil
http://www.astrosurf.com/buil/us/spe2/hresol5.htm
95 lines from 1,215 to 10,938 Angstrom
Set 1
Wavelength
Line ID
3425.8 [Ne V]
3581.21 Fe I
3679 H21
3721.94 H14
3726.0 [O II]
3728.8 [O II]
3734.37 H13
3734.87 Fe I
3750.15 H12
3770.63 H11
3797.90 H10
3820.44 Fe I
3835.39 H9
3868.7 [Ne III]
3889.05 H8
3933.68 Ca II - K line
Select all
Unselect all
Constant height
Add set
0
lines selected
Draw
Erase selection
Erase all
Dismiss

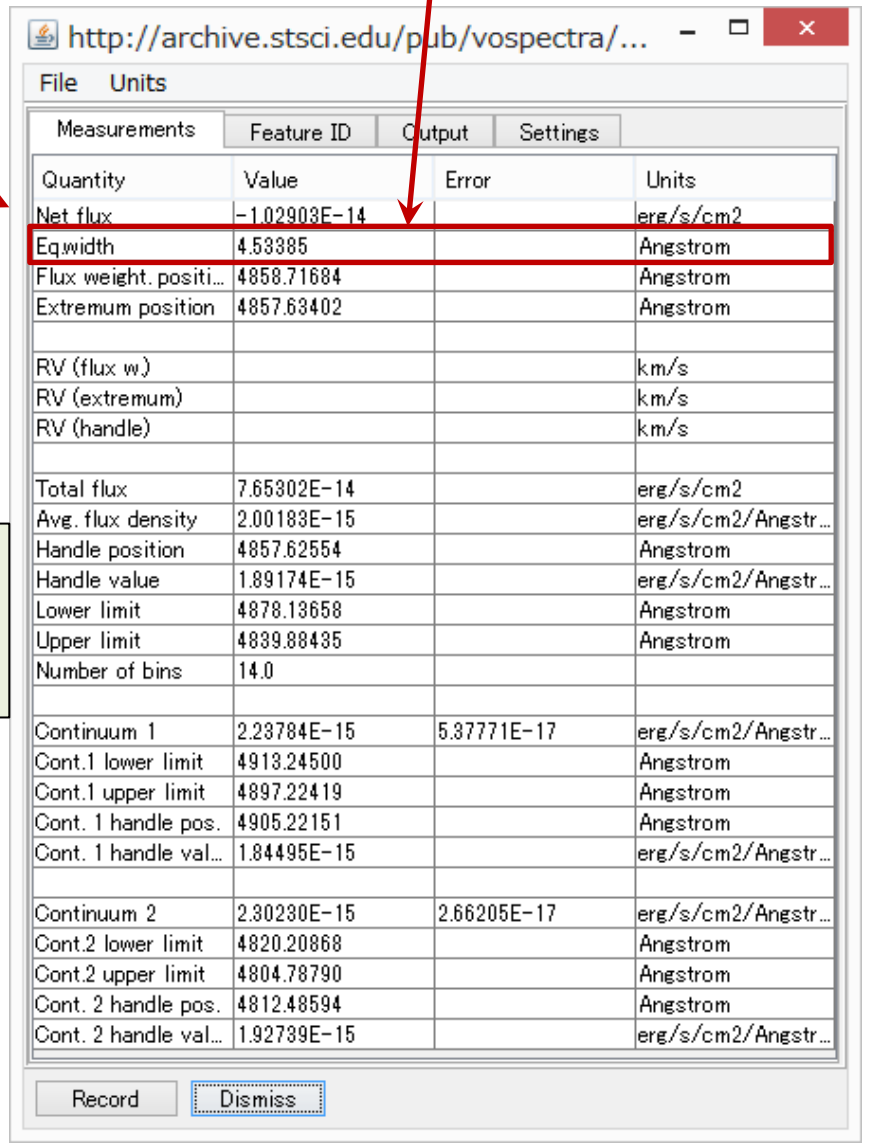
ライン測定

等価幅



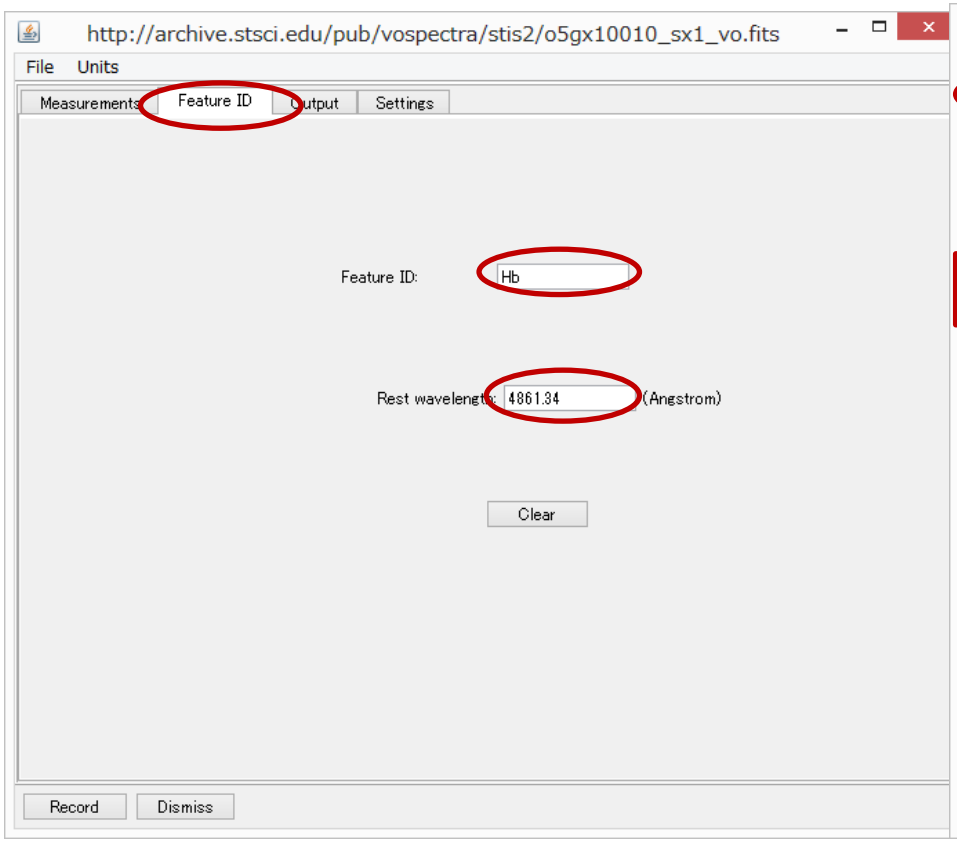
赤線の範囲を吸収線領域、緑と青の領域の平均値を直線で結ぶ線を baseline としてライン幅などを測定

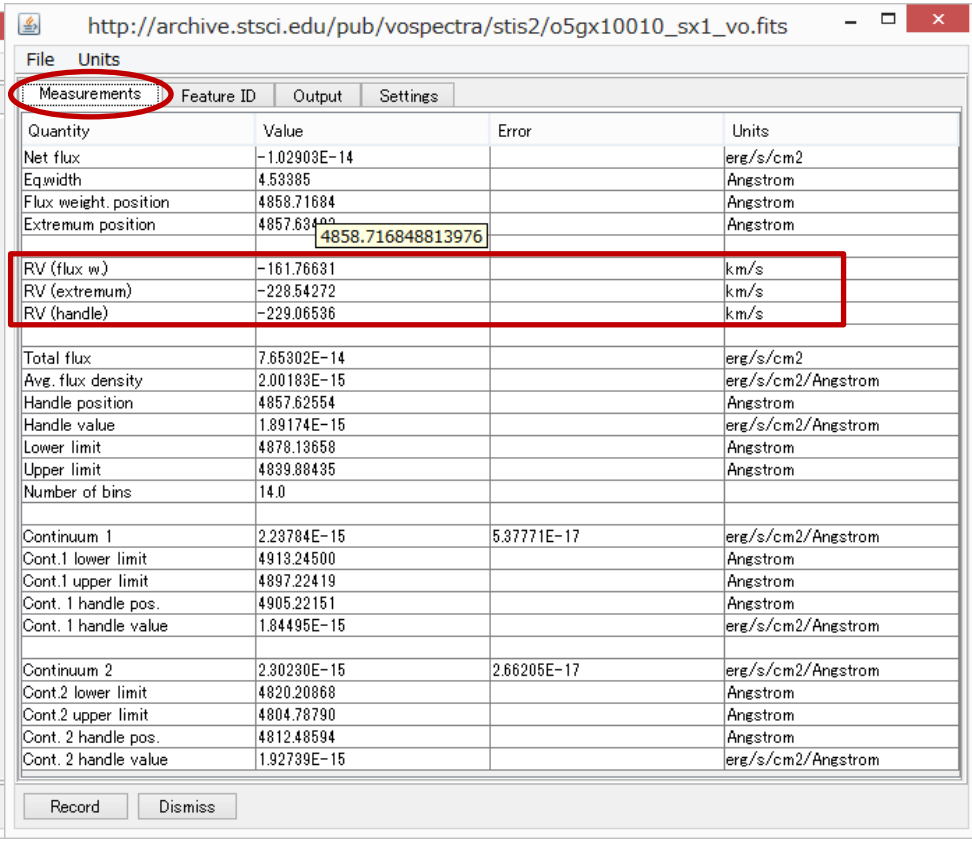




Quantity	Value	Error	Units
Net flux	-1.02903E-14		erg/s/cm2
Eq.width	4.53385		Angstrom
Flux weight. positi...	4858.71684		Angstrom
Extremum position	4857.63402		Angstrom
RV (flux w.)			km/s
RV (extremum)			km/s
RV (handle)			km/s
Total flux	7.65302E-14		erg/s/cm2
Avg. flux density	2.00183E-15		erg/s/cm2/Angstr...
Handle position	4857.62554		Angstrom
Handle value	1.89174E-15		erg/s/cm2/Angstr...
Lower limit	4878.13658		Angstrom
Upper limit	4839.88435		Angstrom
Number of bins	14.0		
Continuum 1	2.23784E-15	5.37771E-17	erg/s/cm2/Angstr...
Cont.1 lower limit	4913.24500		Angstrom
Cont.1 upper limit	4897.22419		Angstrom
Cont. 1 handle pos.	4905.22151		Angstrom
Cont. 1 handle val...	1.84495E-15		erg/s/cm2/Angstr...
Continuum 2	2.30230E-15	2.66205E-17	erg/s/cm2/Angstr...
Cont.2 lower limit	4820.20868		Angstrom
Cont.2 upper limit	4804.78790		Angstrom
Cont. 2 handle pos.	4812.48594		Angstrom
Cont. 2 handle val...	1.92739E-15		erg/s/cm2/Angstr...

視線速度の決定

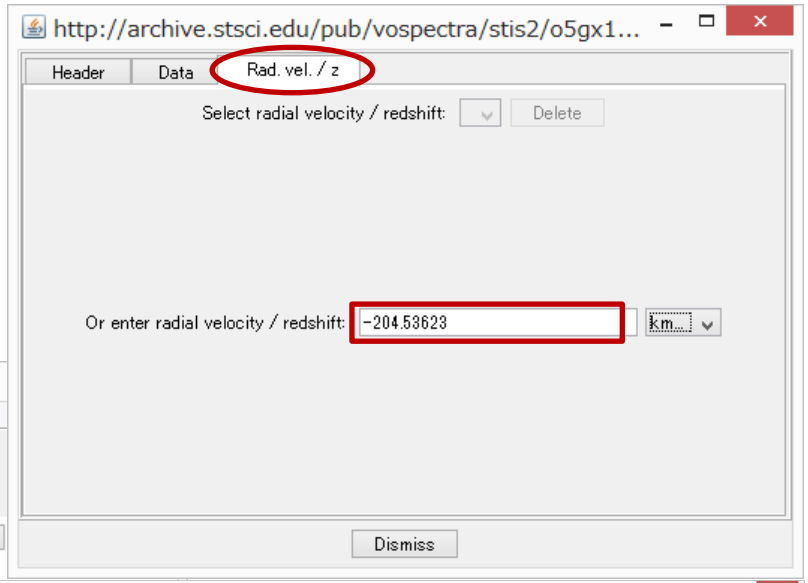


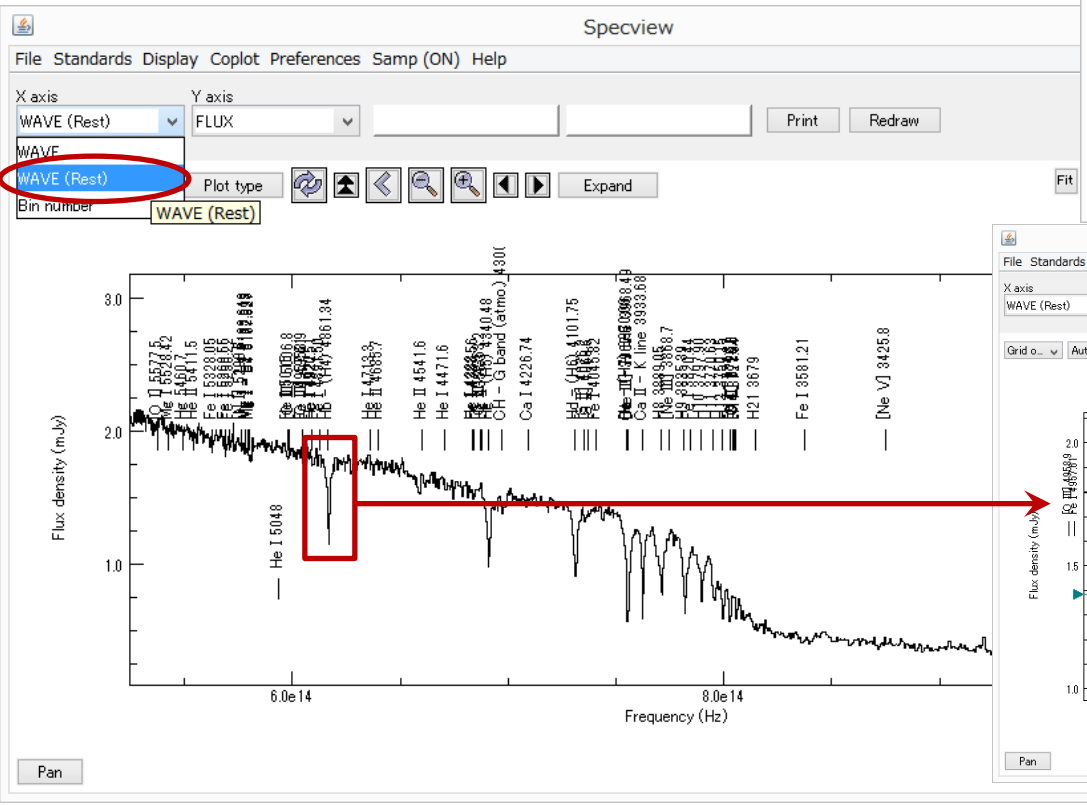


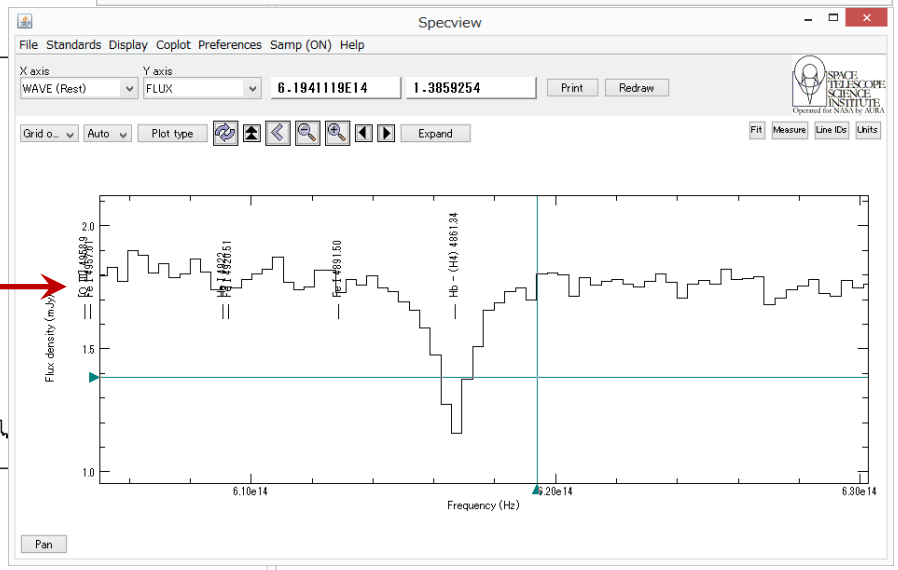
Quantity	Value	Error	Units
Net flux	-1.02903E-14		erg/s/cm2
Eq.width	4.53385		Angstrom
Flux weight. position	4858.71684		Angstrom
Extremum position	4857.63		Angstrom
RV (flux w.)	-161.76631		km/s
RV (extremum)	-228.54272		km/s
RV (handle)	-229.06536		km/s
Total flux	7.65302E-14		erg/s/cm2
Avg. flux density	2.00183E-15		erg/s/cm2/Angstrom
Handle position	4857.62554		Angstrom
Handle value	1.89174E-15		erg/s/cm2/Angstrom
Lower limit	4878.13658		Angstrom
Upper limit	4839.88435		Angstrom
Number of bins	14.0		
Continuum 1	2.23784E-15	5.37771E-17	erg/s/cm2/Angstrom
Cont.1 lower limit	4913.24500		Angstrom
Cont.1 upper limit	4897.22419		Angstrom
Cont. 1 handle pos.	4905.22151		Angstrom
Cont. 1 handle value	1.84495E-15		erg/s/cm2/Angstrom
Continuum 2	2.30230E-15	2.66205E-17	erg/s/cm2/Angstrom
Cont.2 lower limit	4820.20868		Angstrom
Cont.2 upper limit	4804.78790		Angstrom
Cont. 2 handle pos.	4812.48594		Angstrom
Cont. 2 handle value	1.92739E-15		erg/s/cm2/Angstrom

横軸を Rest frame 周波数に変換

1. データ線上で右クリックし FITS ヘッダー表示
2. “Rad vel / z” タブを開いて、視線速度を入力し、リターンキーを押す
3. “X axis” で “WAVE (Rest)” を選択

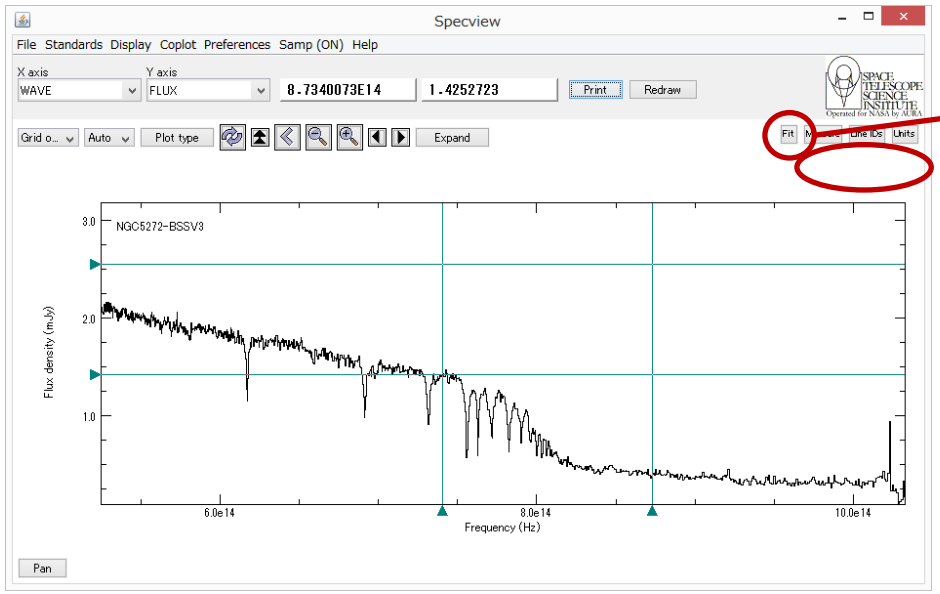


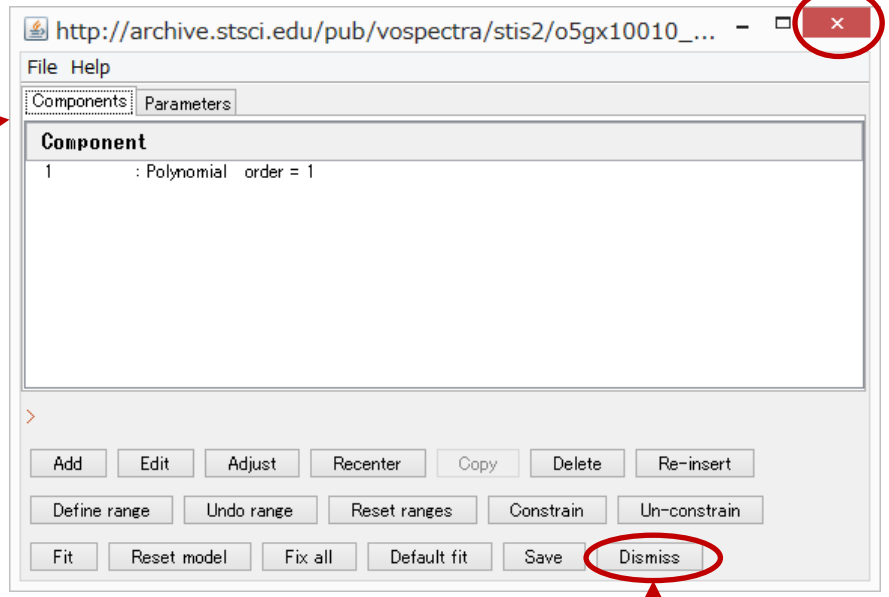




スペクトルフィット

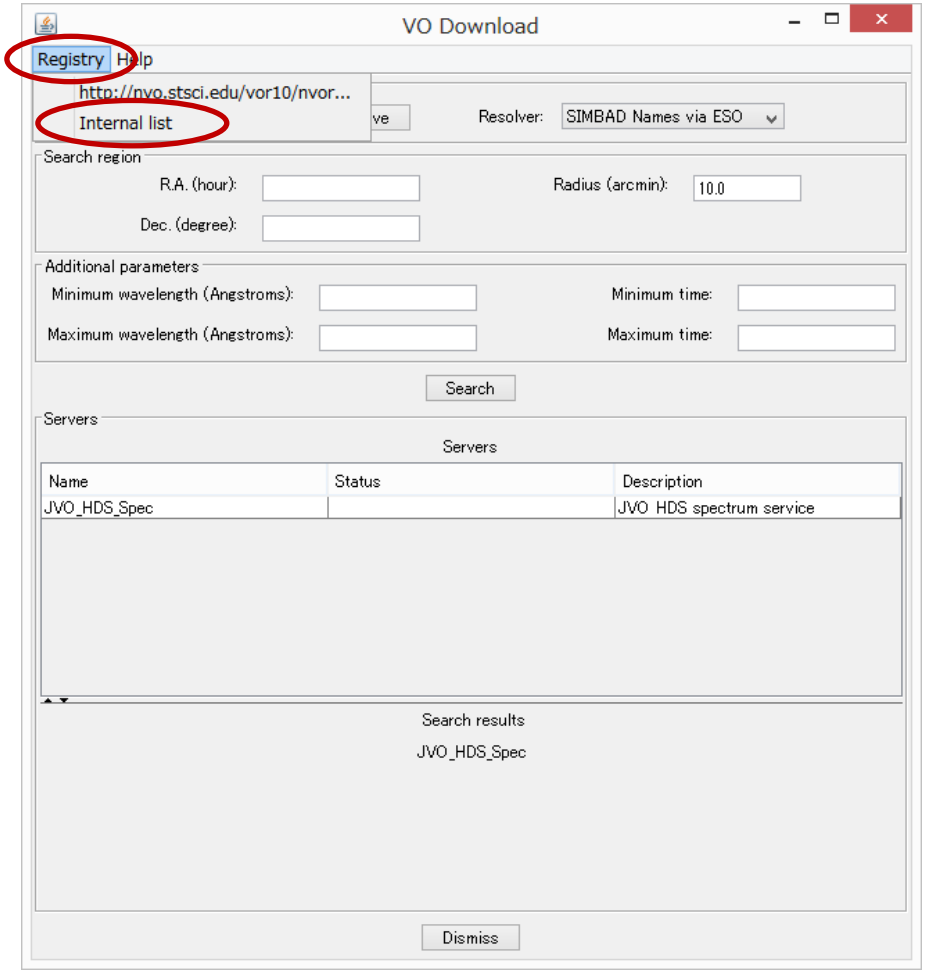
ここをクリックして閉じないこと。
閉じるとフィットができなくなる。

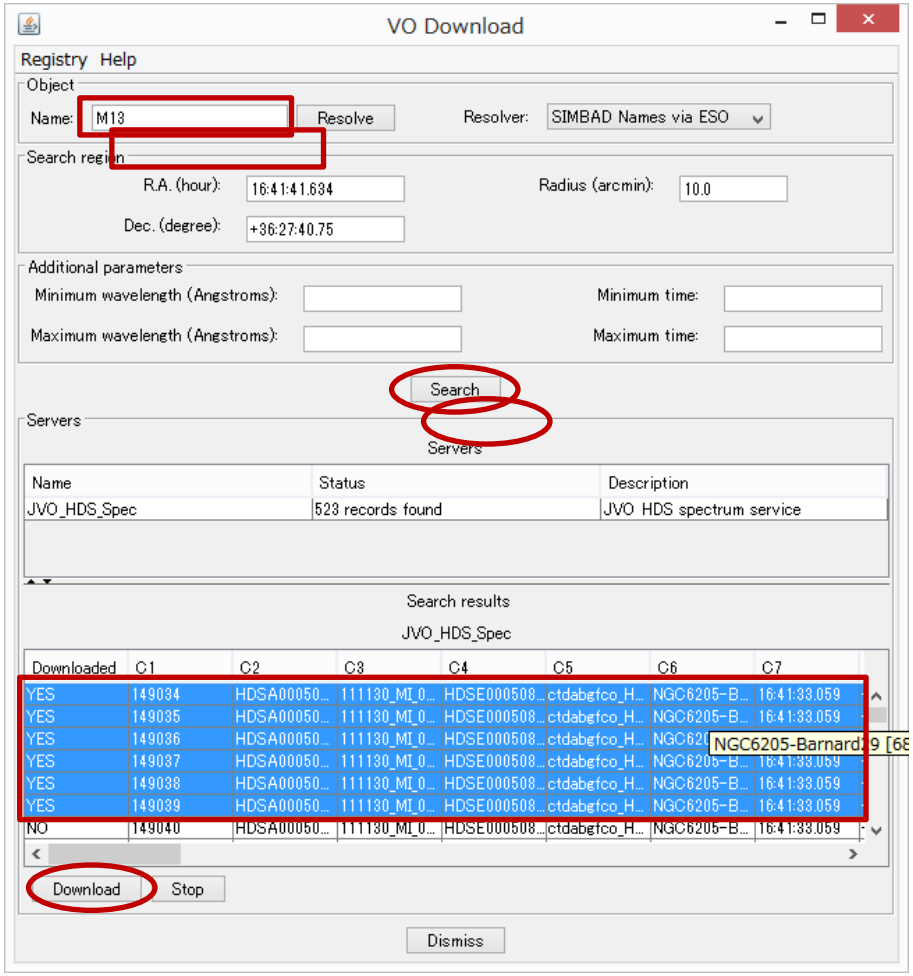


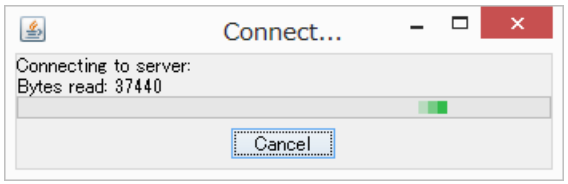


ここをクリックして閉じる。

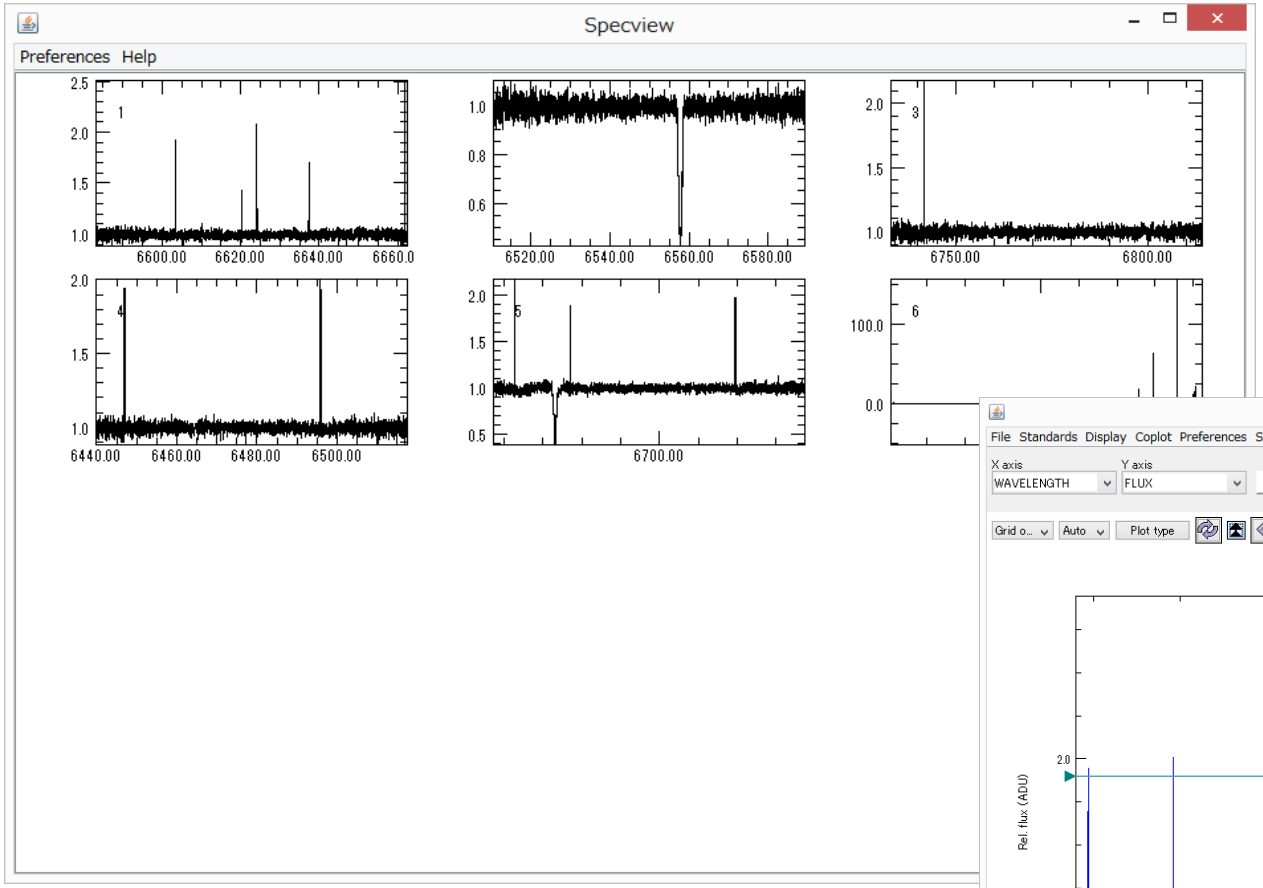
HDS データの検索

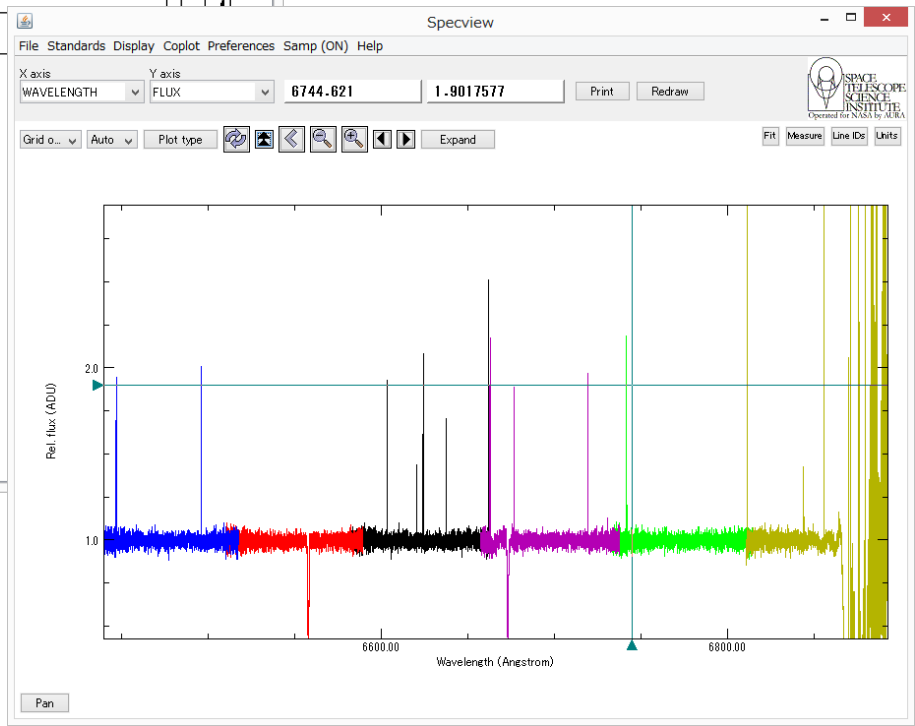

VO Download
Registry Help
http://nvo.stsci.edu/vor10/nvor...
Internal list
Resolver: SIMBAD Names via ESO
Search region
R.A. (hour):
Radius (arcmin): 10.0
Dec. (degree):
Additional parameters
Minimum wavelength (Angstroms):
Minimum time:
Maximum wavelength (Angstroms):
Maximum time:
Search
Servers
Servers
Name
Status
Description
JVO_HDS_Spec
JVO HDS spectrum service
Search results
JVO_HDS_Spec
Dismiss


VO Download
Registry Help
Object
Name: M13
Resolve
Resolver: SIMBAD Names via ESO
Search region
R.A. (hour): 16:41:41.634
Radius (arcmin): 10.0
Dec. (degree): +36:27:40.75
Additional parameters
Minimum wavelength (Angstroms):
Minimum time:
Maximum wavelength (Angstroms):
Maximum time:
Search
Servers
Servers
Name
Status
Description
JVO_HDS_Spec
523 records found
JVO HDS spectrum service
Search results
JVO_HDS_Spec
Downloaded
C1
C2
C3
C4
C5
C6
C7
YES 149034 HDSA00050... 111130_MI_0... HDSE000508... ctdabgfco_H... NGC6205-B... 16:41:33.059
YES 149035 HDSA00050... 111130_MI_0... HDSE000508... ctdabgfco_H... NGC6205-B... 16:41:33.059
YES 149036 HDSA00050... 111130_MI_0... HDSE000508... ctdabgfco_H... NGC620
NGC6205-Barnard
YES 149037 HDSA00050... 111130_MI_0... HDSE000508... ctdabgfco_H... NGC6205-B... 16:41:33.059
YES 149038 HDSA00050... 111130_MI_0... HDSE000508... ctdabgfco_H... NGC6205-B... 16:41:33.059
YES 149039 HDSA00050... 111130_MI_0... HDSE000508... ctdabgfco_H... NGC6205-B... 16:41:33.059
NO 149040 HDSA00050... 111130_MI_0... HDSE000508... ctdabgfco_H... NGC6205-B... 16:41:33.059
Download
Stop
Dismiss


Connect...
Connecting to server:
Bytes read: 37440
Cancel

タイル・重ね表示


Specview
Preferences Help
1
2
3
4
5
6


Specview
File Standards Display Coplot Preferences Samp (ON) Help
X axis
WAVELENGTH
Y axis
FLUX
6744.621
1.9017577
Print
Redraw
Grid o...
Auto
Plot type
Expand
Fit
Measure
Line IDs
Units
Rel. flux (ADU)
Wavelength (Angstrom)
Pan

スペクトルデータの結合