

# PACS spectrum analysis with CASSIS in HIPE



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# Start with a spectrumId

1. Create a spectrumId, e.g. using the Spectral Extraction (single spaxel or area extraction) in the cubeAnalysisToolBox

2. save Product(s)

3. Right-click on the (spectrumId) variable

The screenshot displays the HIPE 7.0.0 software interface. The main window is titled "HIPE 7.0.0 - hpacss1342191353\_00HPSFITBS\_3v1". The "Spectral Extraction" tool is active, showing a plot of Flux (Jy) vs. Wavelength (micrometer) and a 2D image of the spectral cube. The "Single Spaxel Extraction" panel is visible, with options for "scientific Mode", "show current spectral value", "Gaussian Smoothing", and "Boxcar Filter". The "save Product(s)" button is highlighted with a red circle and an arrow pointing to it. A context menu is open over the "hpacss1342191353\_00HPSFITBS" variable in the "Variables" panel, with the "Cassis Spectrum1d Analysis" option selected. The "Outline" panel at the bottom right shows the variable's details: Name: hpacss1342191353\_00HPSFITBS, Class: Spectrum1d, Package: herschel.ia.dataset.spectro. The "Console" panel at the bottom left shows the command history, including the command to create the spectrumId.

```
HIPE> hpacss1342191353_00HPSFITBS_3v1 = fitsReader(file =  
'/Users/bottinelli/my_herschel_data/hpacss1342191353_00HPSFITBS_3v1.fits')  
HIPE>  
#hpacss1342191353_00HPSFITBS_3v1_singlepixspectr_PACS_Spectral_Cube_2_3=extractSinglePixelSpectrum(simplecube=hpacss  
1342191353_00HPSFITBS_3v1,posX=3 ,posY=2, scientificMode=False)# launched from the Cube Analysis Tool Box  
HIPE> # hpacss1342191353_00HPSFITBS_3v1_singlepixspectr_PACS_Spectral_Cube_2_3 : Spectrum1d created by the Cube  
Analysis Tool Box  
HIPE>
```

# Open with Spectrum Analysis

The screenshot shows the HIPE 7.0.0 software interface. The main window is titled "HIPE 7.0.0 - hpacss1342191353\_00HPSFITBS\_3v1\_singlepixspectr\_PACS\_Spectral\_Cube\_2\_3". The interface includes a menu bar (File, Edit, Run, Pipeline, Window, Tools, Help), a toolbar, and several panels:

- Editor:** Contains tabs for "obsid\_1342...].product", "obs\_hifi", "obs1342191...Dataset", "hpacss1342...FITBS\_3v1", and "hpacss1342...\_Cube\_2\_3". The "Data" section has a "Load" button and a text field containing "on='Target name', string='AFGL490'". The "Vlsr" field is set to "0" and the "km/s" unit is selected. The "Telescope" field is set to "PACS". The "Tuning" section has a "Range" field with "Min: 62.933" and "Max: 63.4306", and a "Signal Band" dropdown.
- Tasks:** Contains a list of tasks, including "All", "Applicable", and "By Category".
- Variables:** Contains a list of variables, including "hpacss1342191353\_00HPSFITBS", "hpacss1342191353\_00HPSFITBS", "obs1342191484\_herschel\_ia\_data", and "obs\_hifi".
- Outline:** Contains a table with the following data:

Name	Class	Package
hpacss1342191353_00HPSFITBS	Spectrum1d	herschel.ia.dataset.spectr
- History/Log/Console:** Contains a text area with the following text:

```
finalSpectrum, arrayOfPixel)
HIPE> hpacss1342191353_00HPSFITBS_3v1 = fitsReader(file =
'/Users/bottinelli/my_herschel_data/hpacss1342191353_00HPSFITBS_3v1.fits')
HIPE>
#hpacss1342191353_00HPSFITBS_3v1_singlepixspectr_PACS_Spectral_Cube_2_3=extractSinglePixelSpectrum(simplecube=hpacss
1342191353_00HPSFITBS_3v1,posX=3,posY=2, scientificMode=False)# launched from the Cube Analysis Tool Box
HIPE> # hpacss1342191353_00HPSFITBS_3v1_singlepixspectr_PACS_Spectral_Cube_2_3 : Spectrum1d created by the Cube
Analysis Tool Box
HIPE>
```

Red annotations highlight the "Telescope" field (labeled "(Automatic)"), the "Display" button, and the "Range" field. A red text box in the bottom left corner states: "Can change these to display a restricted range".

At the bottom of the window, the status bar shows "Jython Interpreter 100%" and "292 of 4092 M".

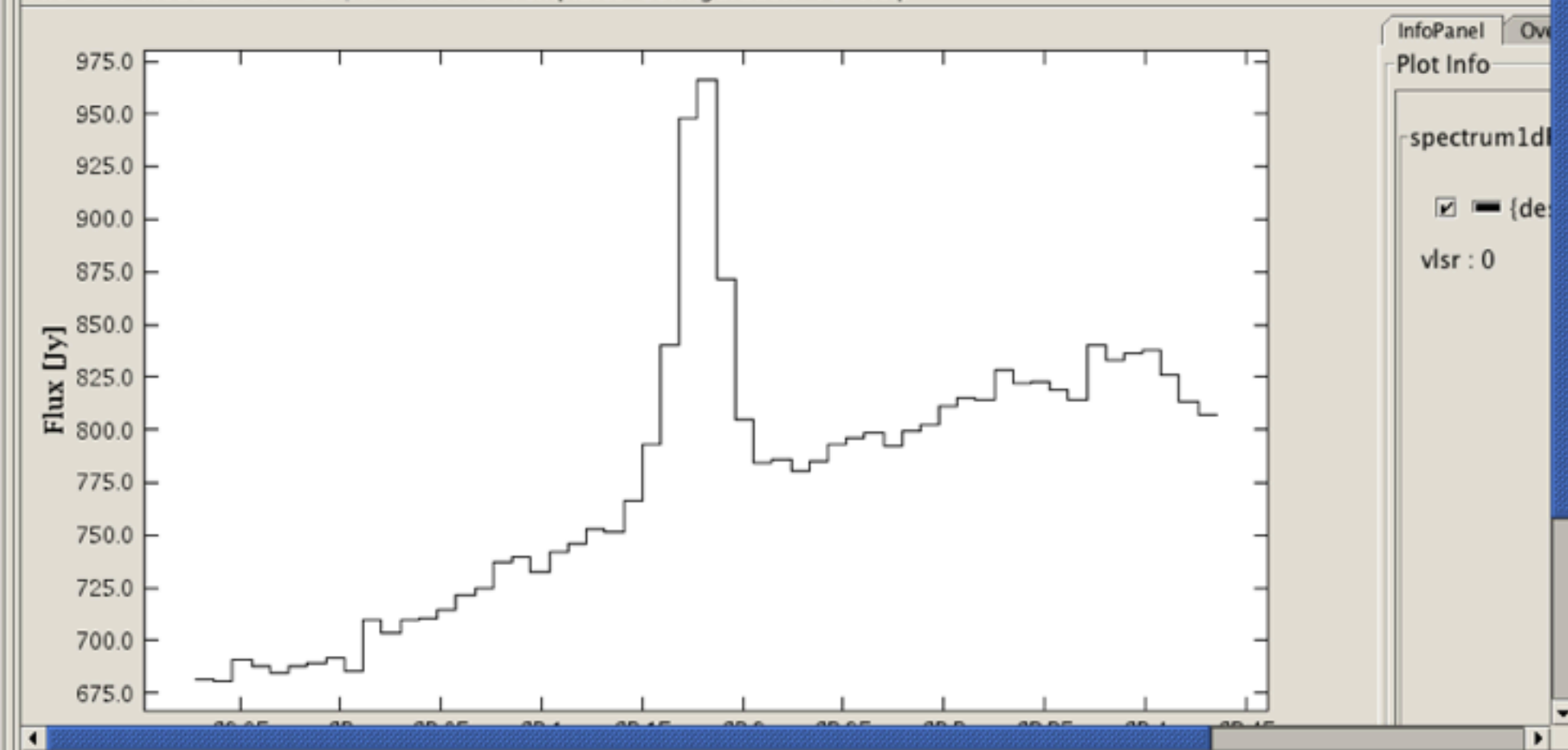




Editor x Double-click to maximize

t obs\_hifi obs1342191...Dataset\_ hpacss1342...FITBS\_3v1 hpacss1342...Cube\_2\_3 Full Spectrum x

File Edit Models View Scripts Windows Templates Configuration VO Help



History Log Console x

```
HIPE> hpacss1342191353_00HPSFITBS_3v1 = fitsReader(file =  
'/Users/bottinelli/my_herschel_data/hpacss1342191353_00HPSFITBS_3v1.fits')  
HIPE>  
#hpacss1342191353_00HPSFITBS_3v1_singlepixspectr_PACS_Spectral_Cube_2_3=extractSinglePixelSpectrum(simplecube=hpacss  
1342191353_00HPSFITBS_3v1,posX=3 ,posY=2, scientificMode=False)# launched from the Cube Analysis Tool Box  
HIPE> # hpacss1342191353_00HPSFITBS_3v1_singlepixspectr_PACS_Spectral_Cube_2_3 : Spectrum1d created by the Cube  
Analysis Tool Box  
HIPE> # Added variable: spectrum1dFromCassis_5  
HIPE>
```

Tasks x

All  
Applicable  
By Category

Variables x

hpacss1342191353\_00HPSFITBS\_3v1  
hpacss1342191353\_00HPSFITBS\_3v1  
obs1342191484\_herschel\_ia\_data  
obs\_hifi  
spectrum1dFromCassis\_5

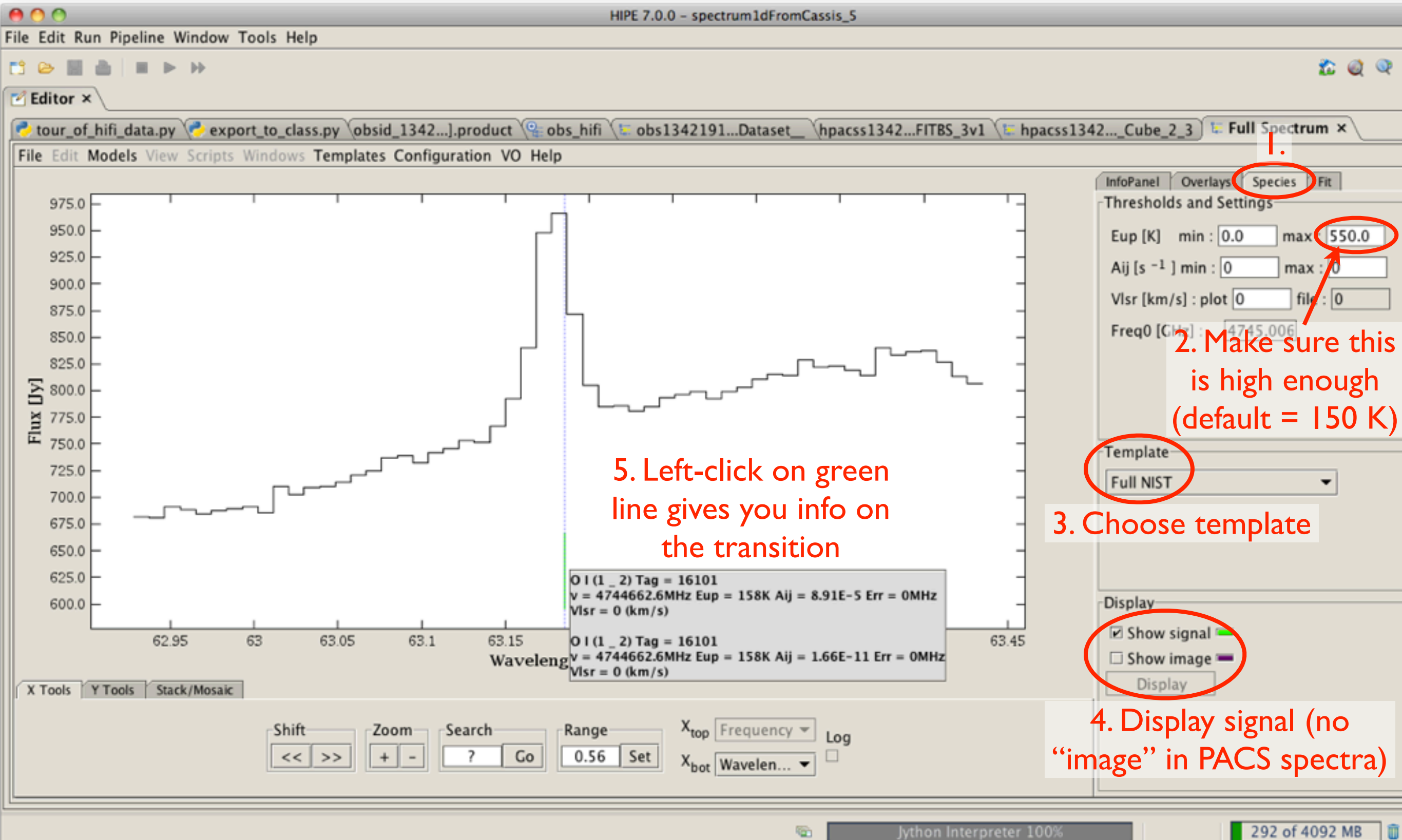
Outline x

Name	Class	Package
spectrum1dFromCassis_5	Spectrum1d	herschel.ia.dataset.spectr
spectrum1dFromCassis_5		

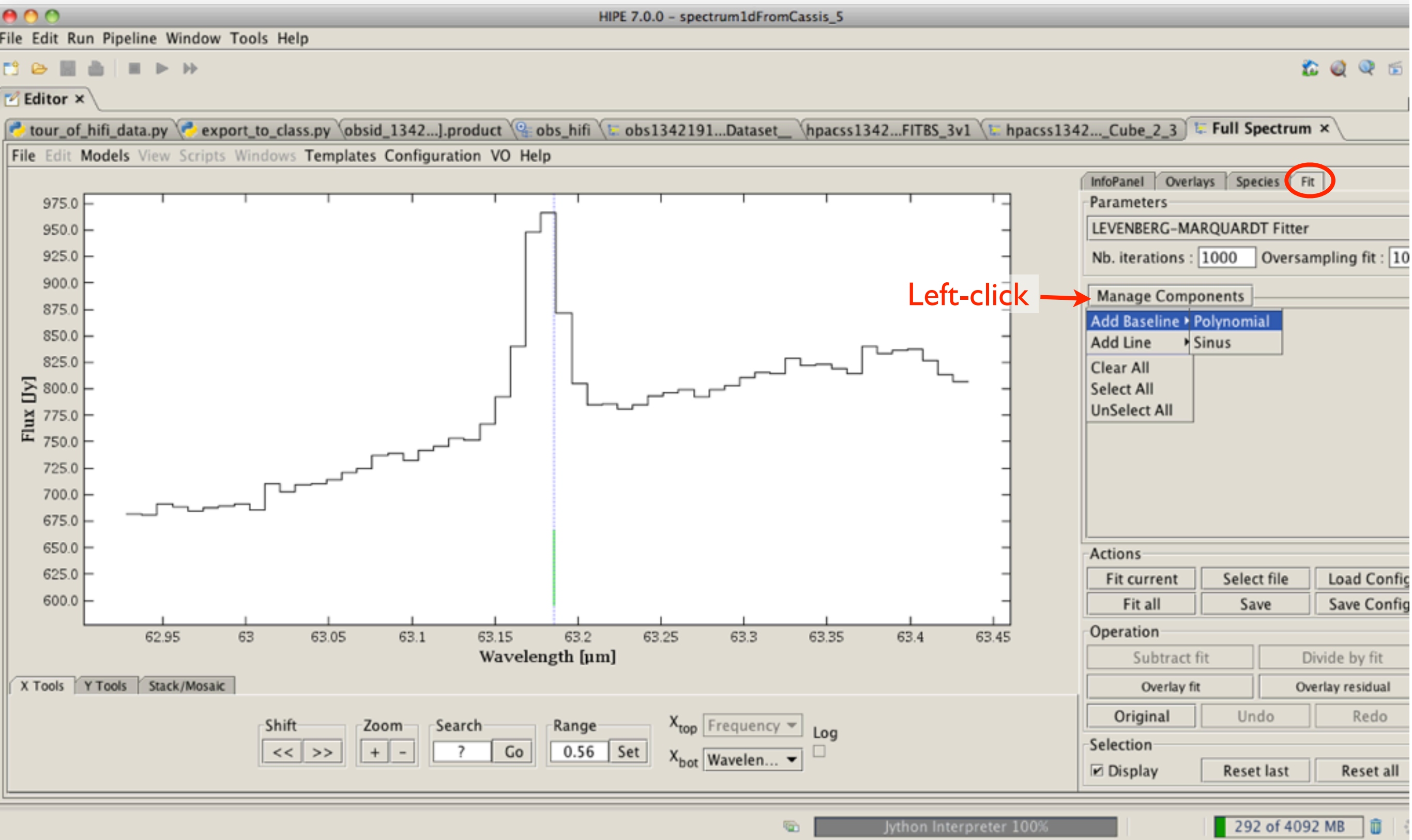
Navigator

Applic  
bin  
Boulo  
cassis  
Desk  
Docu  
Down  
Drop  
ensei  
herch  
hifi-d  
hipe-  
IDLWo  
Librar  
Movie  
Music  
my\_he  
i16.  
sbo  
sbo  
sbo  
hpa  
hpa  
hpa  
hpa  
hpa  
hpa  
hsp  
hsp  
i16.  
i16.  
i16.  
i16.  
i16.  
PAC  
sbo  
sbo  
sbo

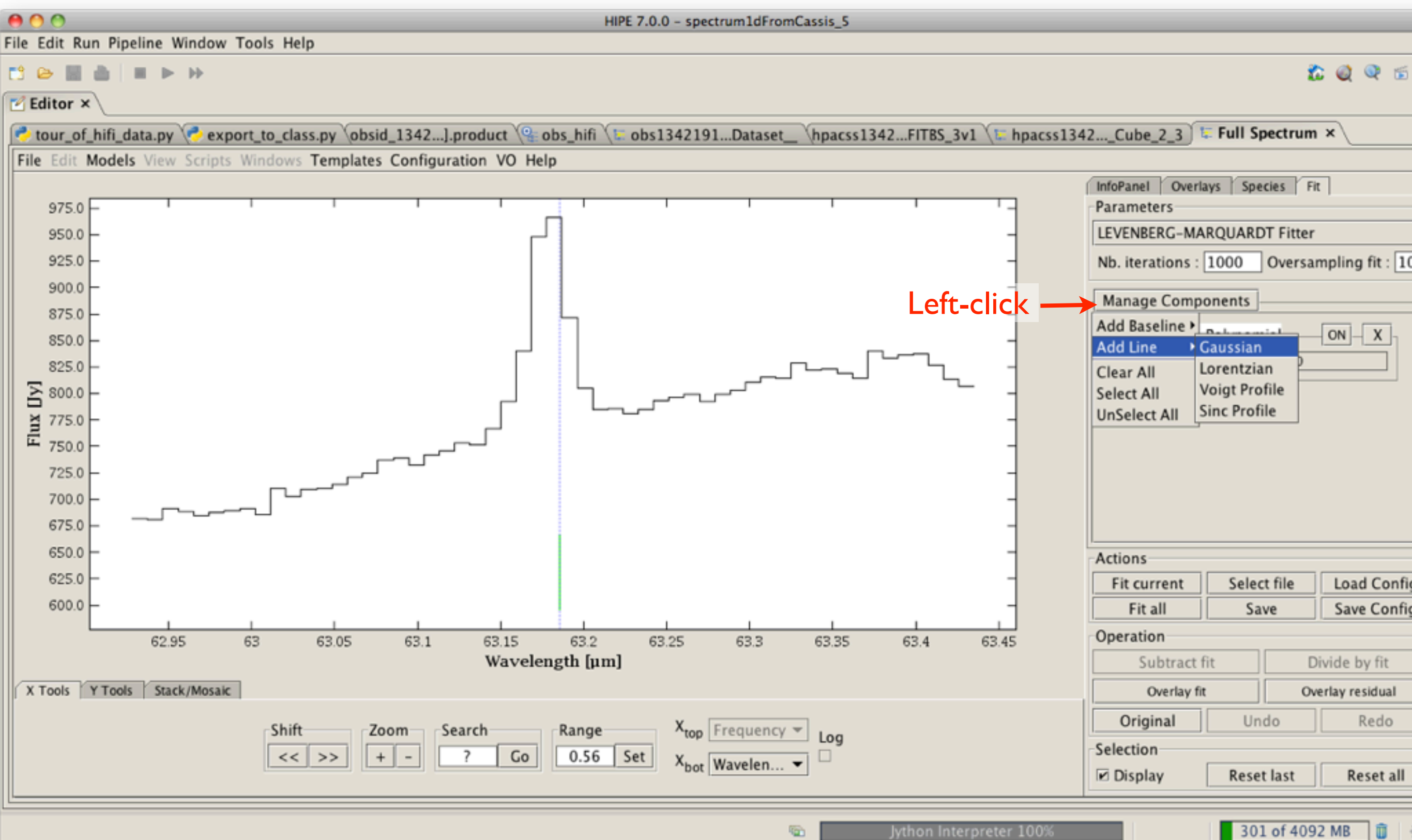
# Display species in $\lambda$ range



# Fitting baseline+line

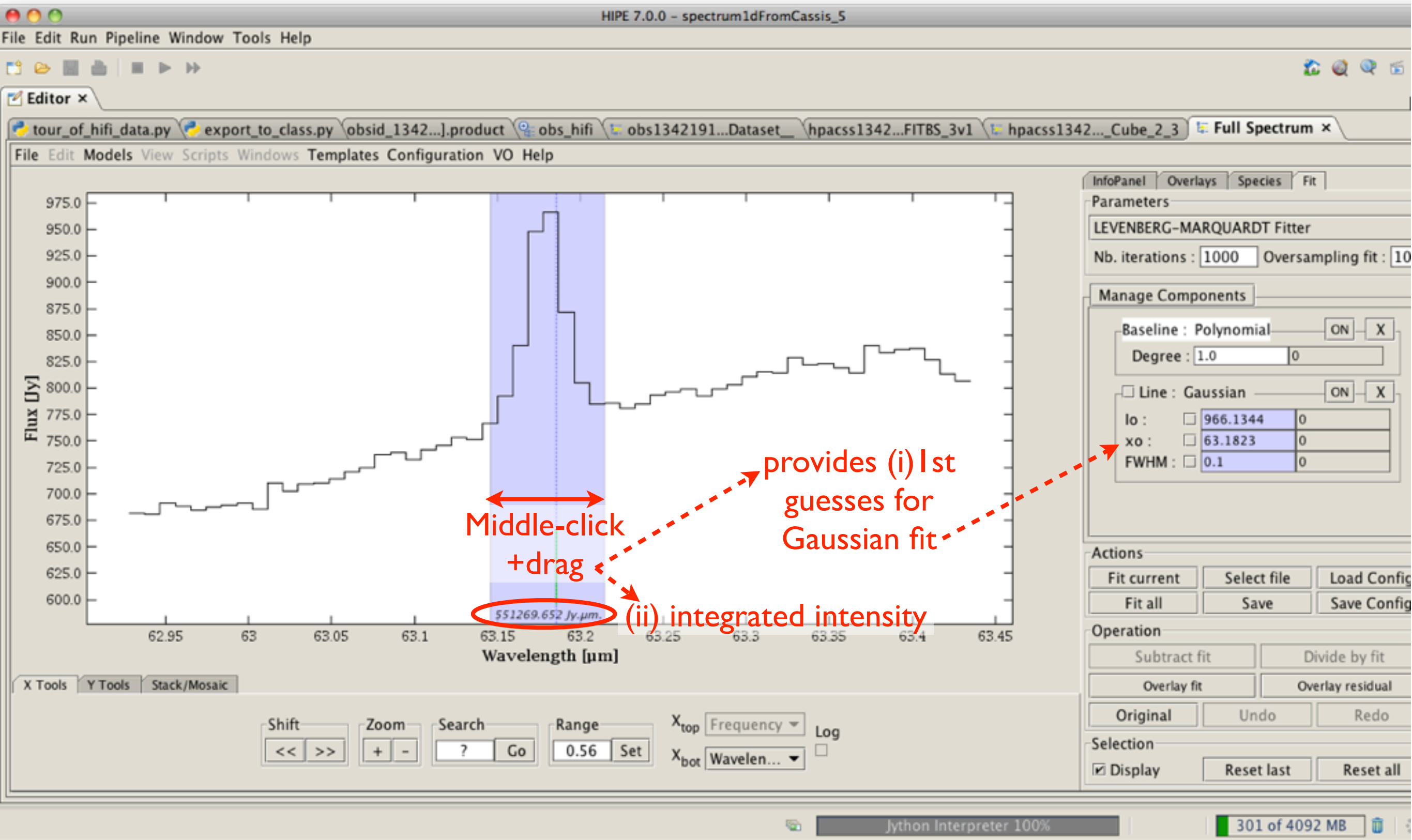


# Fitting baseline+line



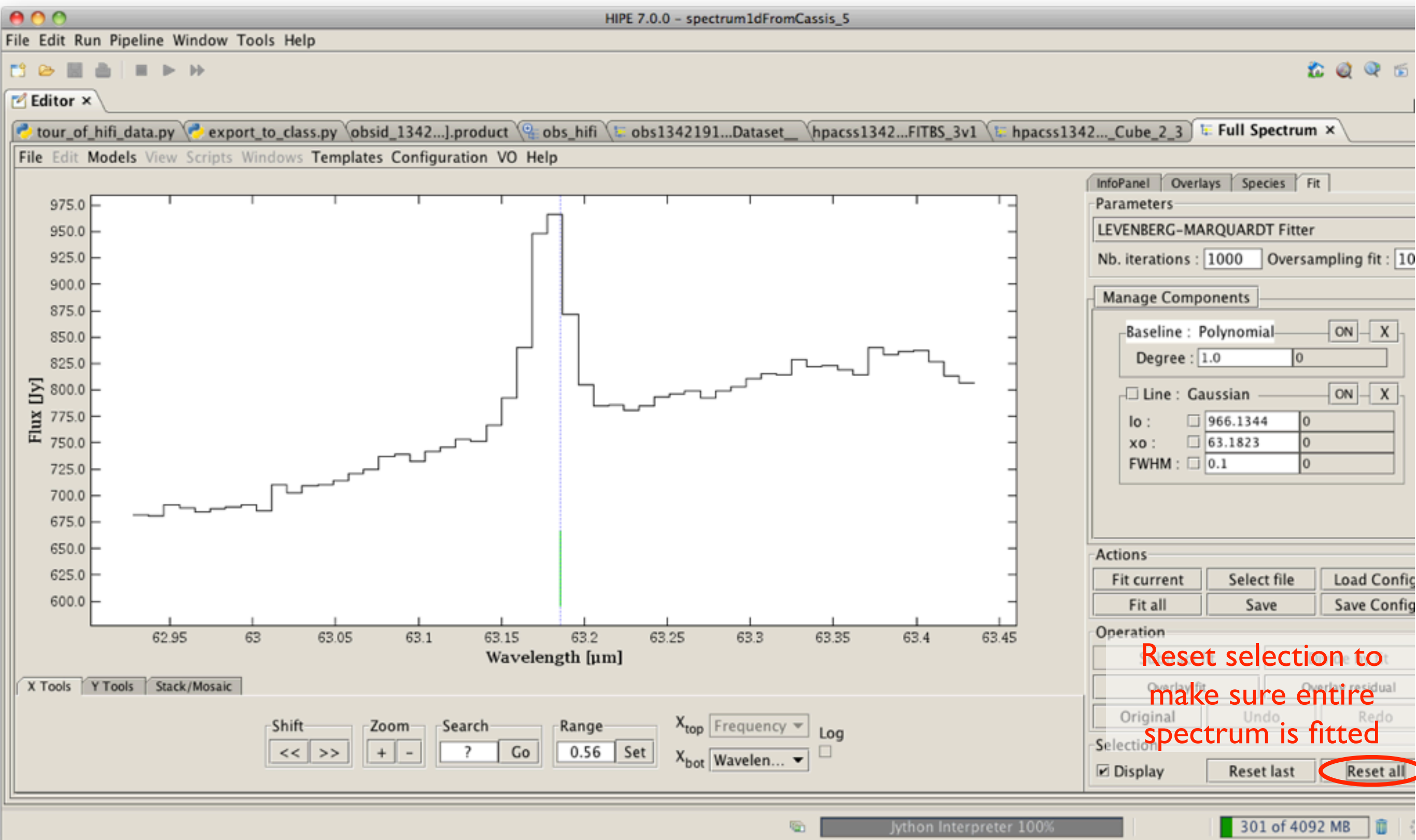


# Fitting baseline+line





# Fitting baseline+line



# Fitting baseline+line

