Brief Guide to the Cube Toolbox which is accessed from within the Spectrum Explorer in Hipe

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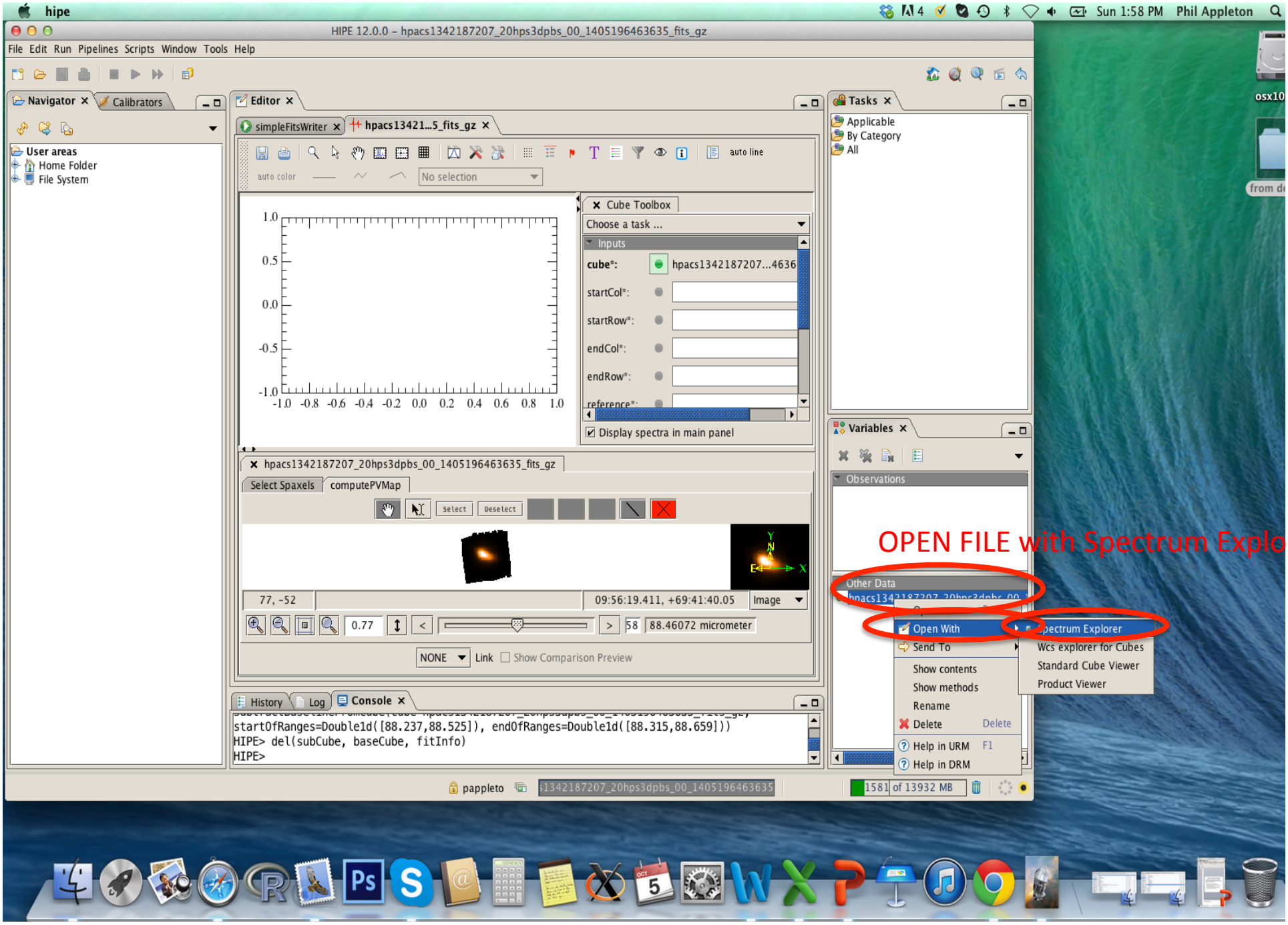
What is the Cube Toolbox?

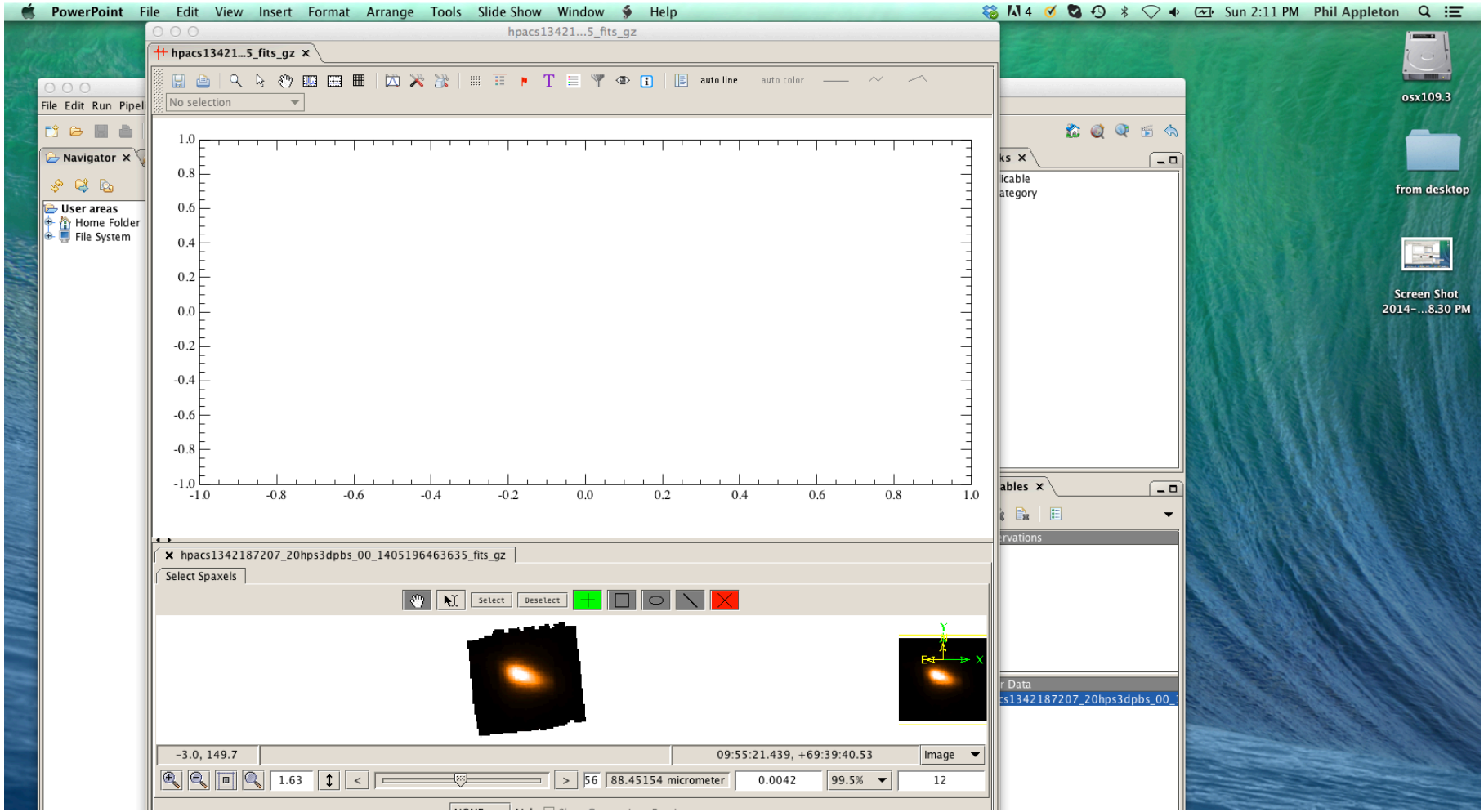
Allows some powerful interactive operations (tasks) to be performed on spectral cubes already loaded in Spectrum Explorer:

Tasks

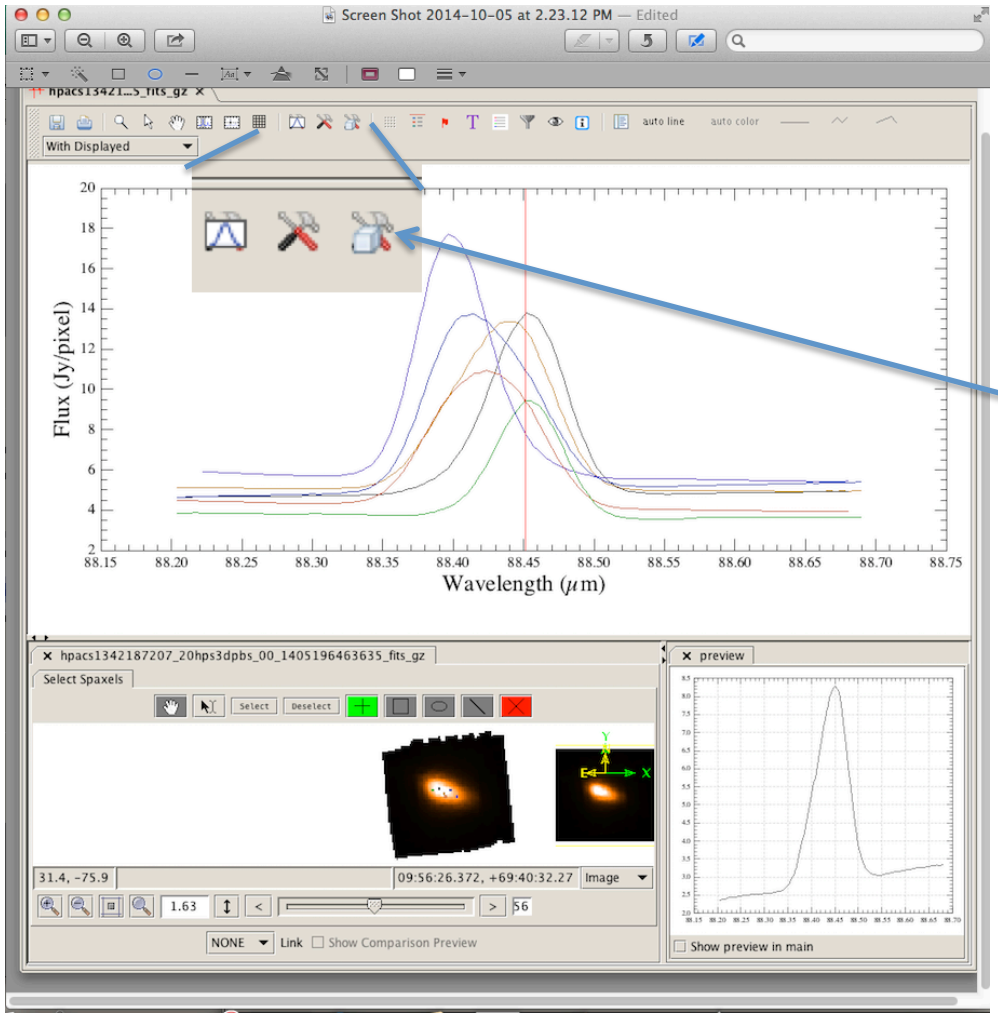
- *Subtract baselines from all spectra in cube*
- *Crop cube in ra/dec and frequency/wave/velocity*
- *Extract regions (rectangles, ellipses etc) from regions of cube to create average or summed spectra*
- *Create Browse quality Integrated Map of selected regions*
- *Create velocity field (and other moments) by two methods*
- *Create a PV diagram along given direction*


hipe
Sun 1:58 PM Phil Appleton
HIPE 12.0.0 – hpacs1342187207_20hps3dpbs_00_1405196463635_fits_gz
File Edit Run Pipelines Scripts Window Tools Help
Navigator
Calibrators
User areas
Home Folder
File System
Editor
simpleFitsWriter
hpacs13421...5_fits_gz
auto line
auto color
No selection
Cube Toolbox
Choose a task ...
Inputs
cube*:
hpacs1342187207...4636
startCol*:
startRow*:
endCol*:
endRow*:
reference*:
Display spectra in main panel
hpacs1342187207_20hps3dpbs_00_1405196463635_fits_gz
Select Spaxels
computePVMap
Select
Deselect
77, -52
09:56:19.411, +69:41:40.05
Image
0.77
58
88.46072 micrometer
NONE
Link
Show Comparison Preview
History
Log
Console
startOfRanges=Double1d([88.237,88.525]), endOfRanges=Double1d([88.315,88.659]))
HIPE> del(subCube, baseCube, fitInfo)
HIPE>
Tasks
Applicable
By Category
All
Variables
Observations
Other Data
OPEN FILE with Spectrum Explo
Open With
Send To
Show contents
Show methods
Rename
Delete
Delete
Help in URM
F1
Help in DRM
Spectrum Explorer
Wcs explorer for Cubes
Standard Cube Viewer
Product Viewer
pappleto
1581 of 13932 MB

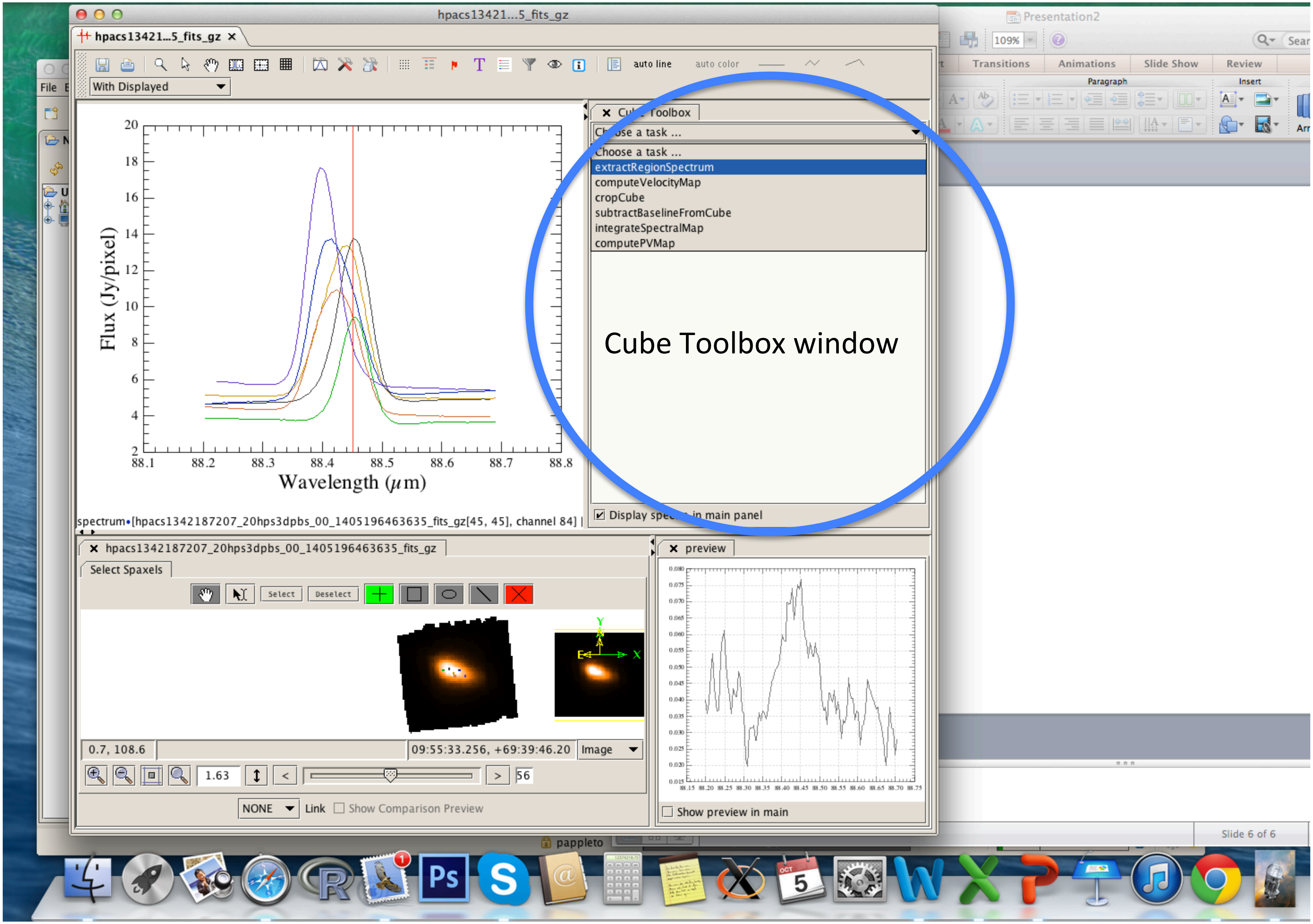
Undock and resize the SE window by holding down the left mouse button on the tab for the SE windown and drag it outside the HIPE region then resize



Click on the cube to create a few spectra in
The upper plot region. Explore cube
To understand the extent of the emission



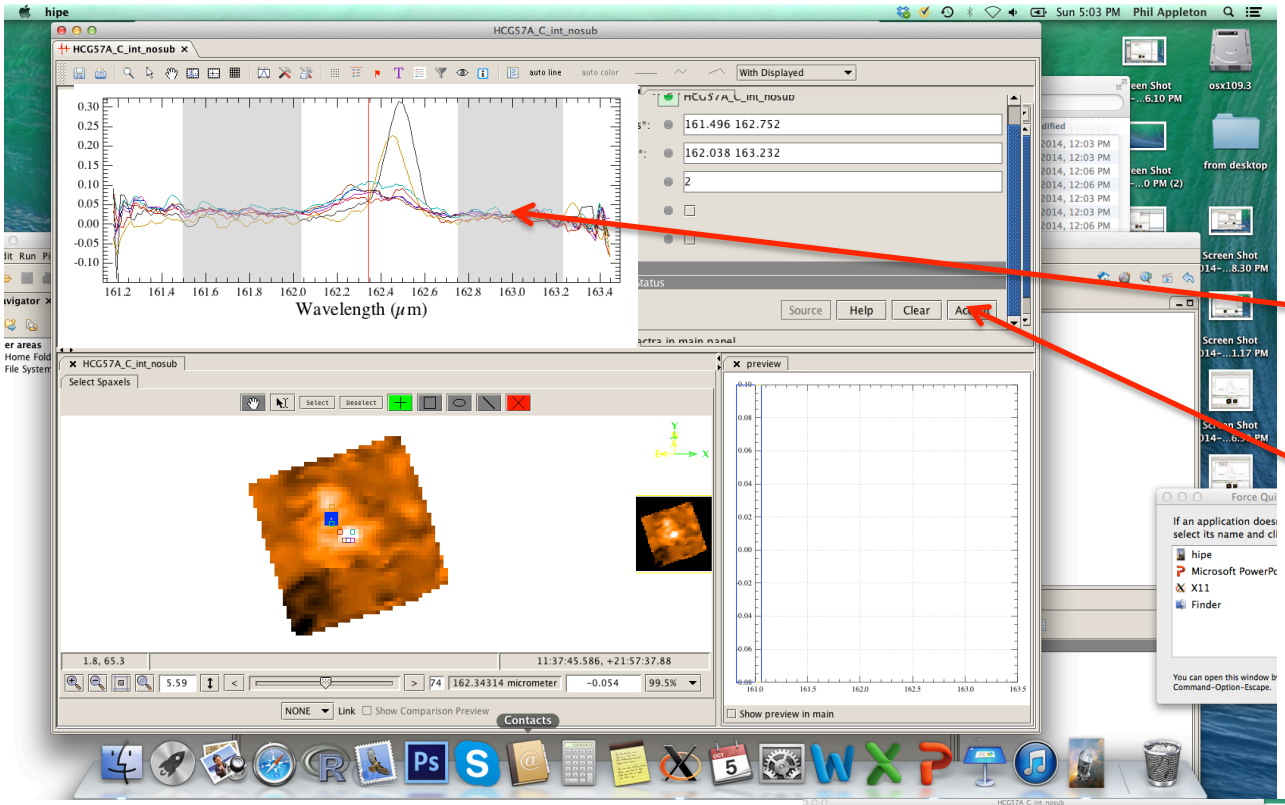
Then click on the cube toolbox icon


hpacs13421...5_fits_gz
With Displayed
auto line
auto color
Flux (Jy/pixel)
Wavelength (μm)
spectrum•[hpacs1342187207_20hps3dpbs_00_1405196463635_fits_gz[45, 45], channel 84]
Cube Toolbox
Choose a task ...
extractRegionSpectrum
computeVelocityMap
cropCube
subtractBaselineFromCube
integrateSpectralMap
computePVMap
Cube Toolbox window
Display spectra in main panel
hpacs1342187207_20hps3dpbs_00_1405196463635_fits_gz
Select Spaxels
Select
Deselect
0.7, 108.6
09:55:33.256, +69:39:46.20
Image
1.63
56
NONE
Link
Show Comparison Preview
preview
Show preview in main
Presentation2
Transitions
Animations
Slide Show
Review
Paragraph
Insert
Slide 6 of 6

I will only show a few options which share common sequences

- Select Toolbox options from drop down
- Make sure a spectrum is visible in the top left window
- Use the center mouse button to select a range over the spectrum that is applied to the task
- If option requires it—select spatial region in cube image

Baseline subtraction

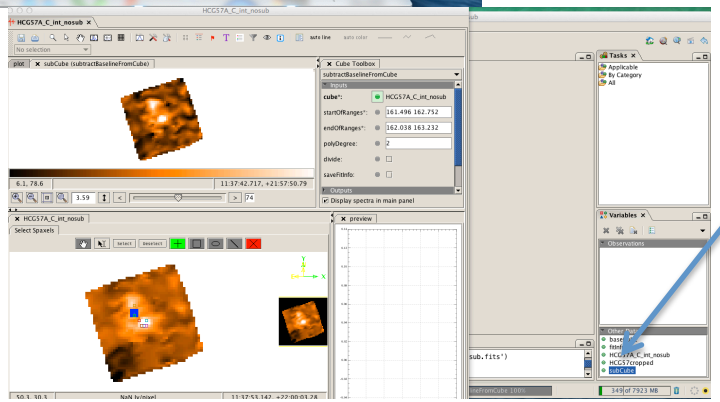


1) Open Subtractbaselinefromcube

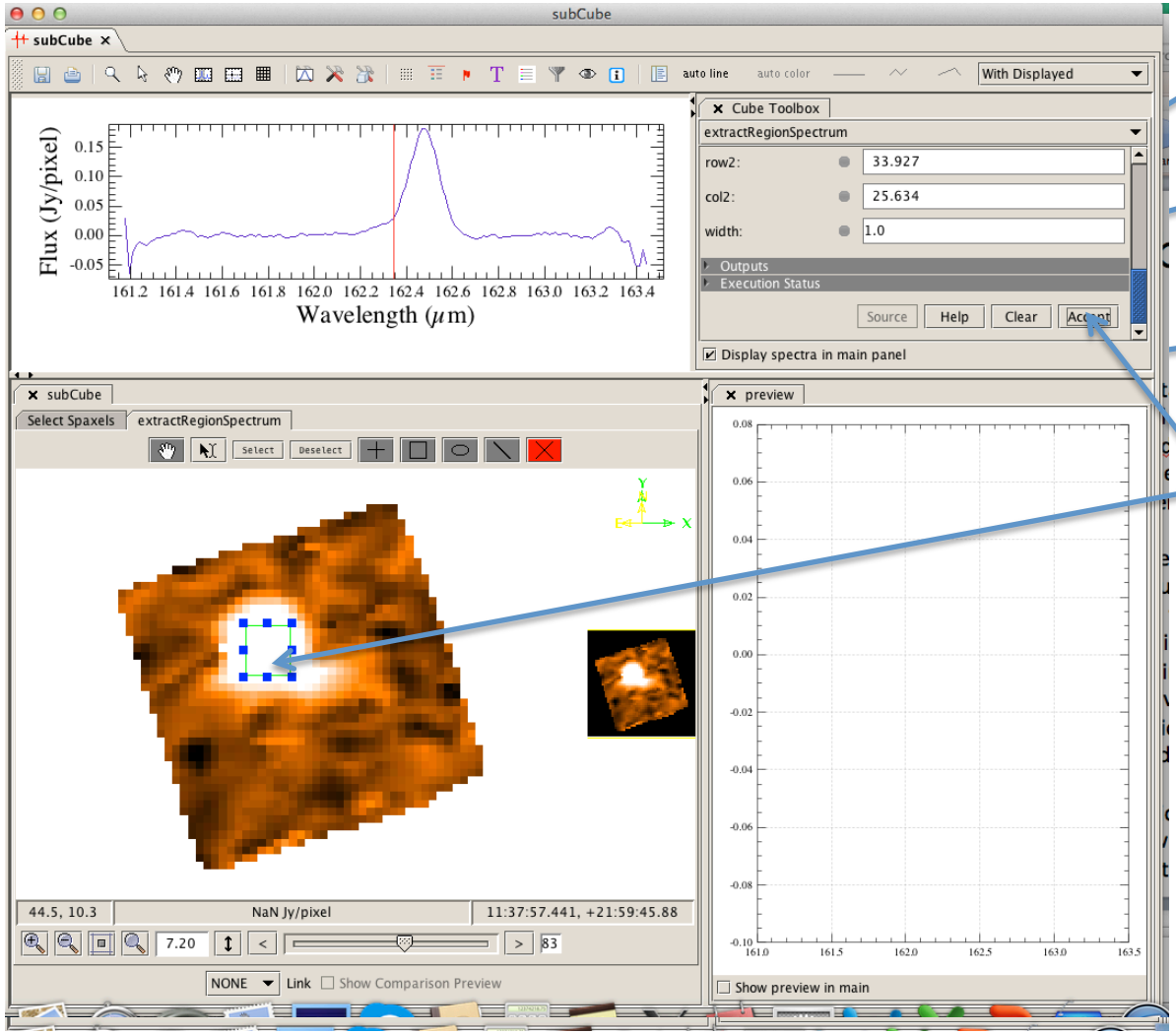
2) Use middle mouse button To select regions for baseline Fitting

3) Click accept in the task panel

4) Look for new subtracted Cube in variable list In main HIPE session



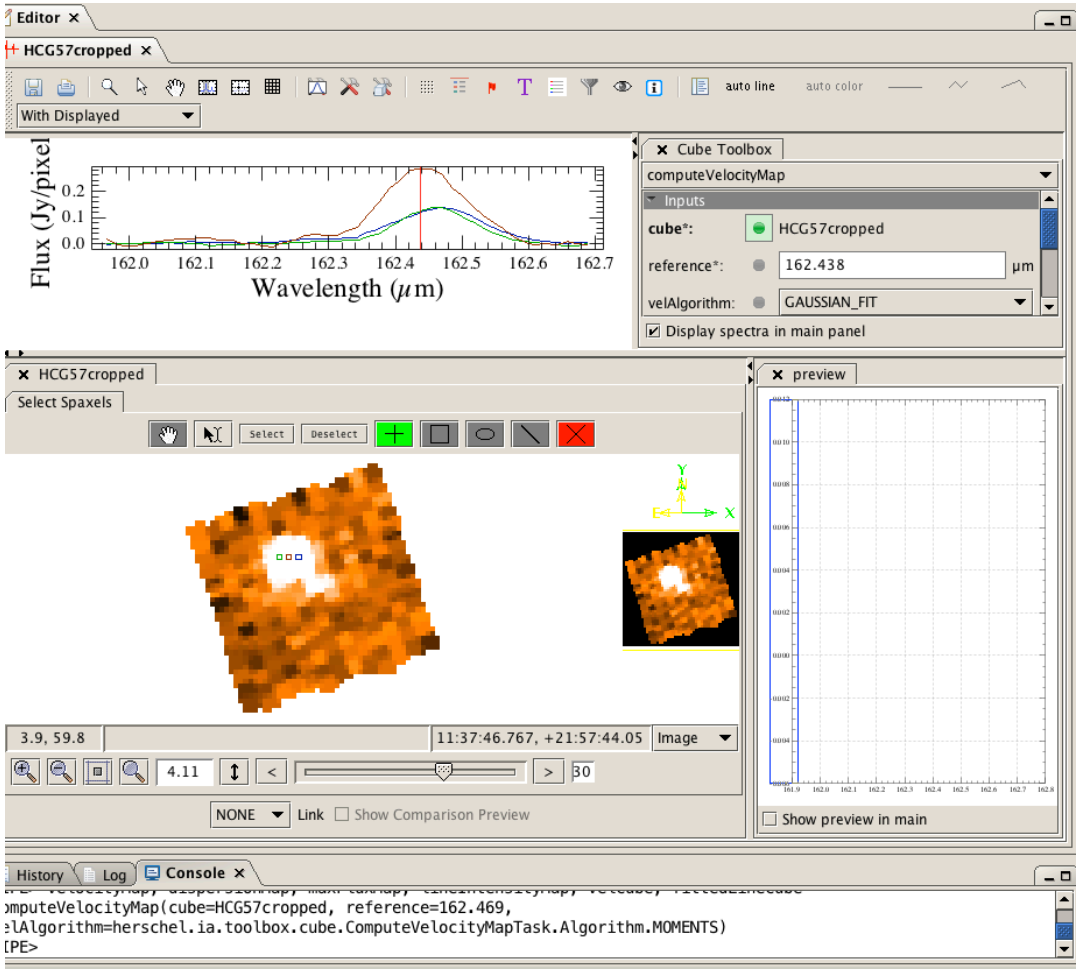
Extracting Spectra from the Cube in Selected regions



1) Choose “rectangle”
2) Increase real estate by sliding boundary between plot and cube image up
3) Click on green rectangle icon
4) Click on cube and grab corner of square and expand until you have the right region
5) Click “accept” in main box
6) You may move the selected region around until you find the region you want.
7) Went you click accept it create a new spectrum in the variables list

Creating Moment maps

(Integrated map, velocity map and velocity dispersion)



1) Select compute velocity map
From dropdown
2) Select “Moments”
(othe roption “gaussian”
Sometimes fails—use with care
3)Move slider to select “0” Velocity
4) Hit “Accept”

Main results are

a) Intergrated map
b) Velocity map
c) Dispersion map

One result of the operation
Is a new cube called
Velocity cube which has
Velocity as the third
Dimension