NHSC Web-Tutorials

PACS-104

How to access and use PACS phot and spec data reduction scripts

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Purpose of this tutorial

The hipe distribution for PACS includes scripts for interactive data reduction. The collection of these scripts is known as the *ipipe*, for Interactive Pipeline. The standard scripts these are used for automatic pipeline processing, but are written so the they can easily be run interactively by stepping through line-by-line, or in blocks in of lines. Also included in the ipipe are special scripts, such as ChopNodSplitOnOff.py, that show you the guts of your observation in great detail, using plots and the MaskViewer. This tutorial will show you how to find and use these scripts.

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Pre-requisites:

You should have completed the following
tutorials:

- **PACS-101**: *How to use these tutorials.*
- **PACS-102**: *Creating (and Saving to a
  Pool) an Observation Context for your
  observation in your HIPE session*

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Step 1

Startup a new hipe session from your shell.

```
# <your hipe directory>/bin/hipe
```

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Step 2

Hipe comes with interactive pipeline scripts.   The next slide shows how to find these scripts.

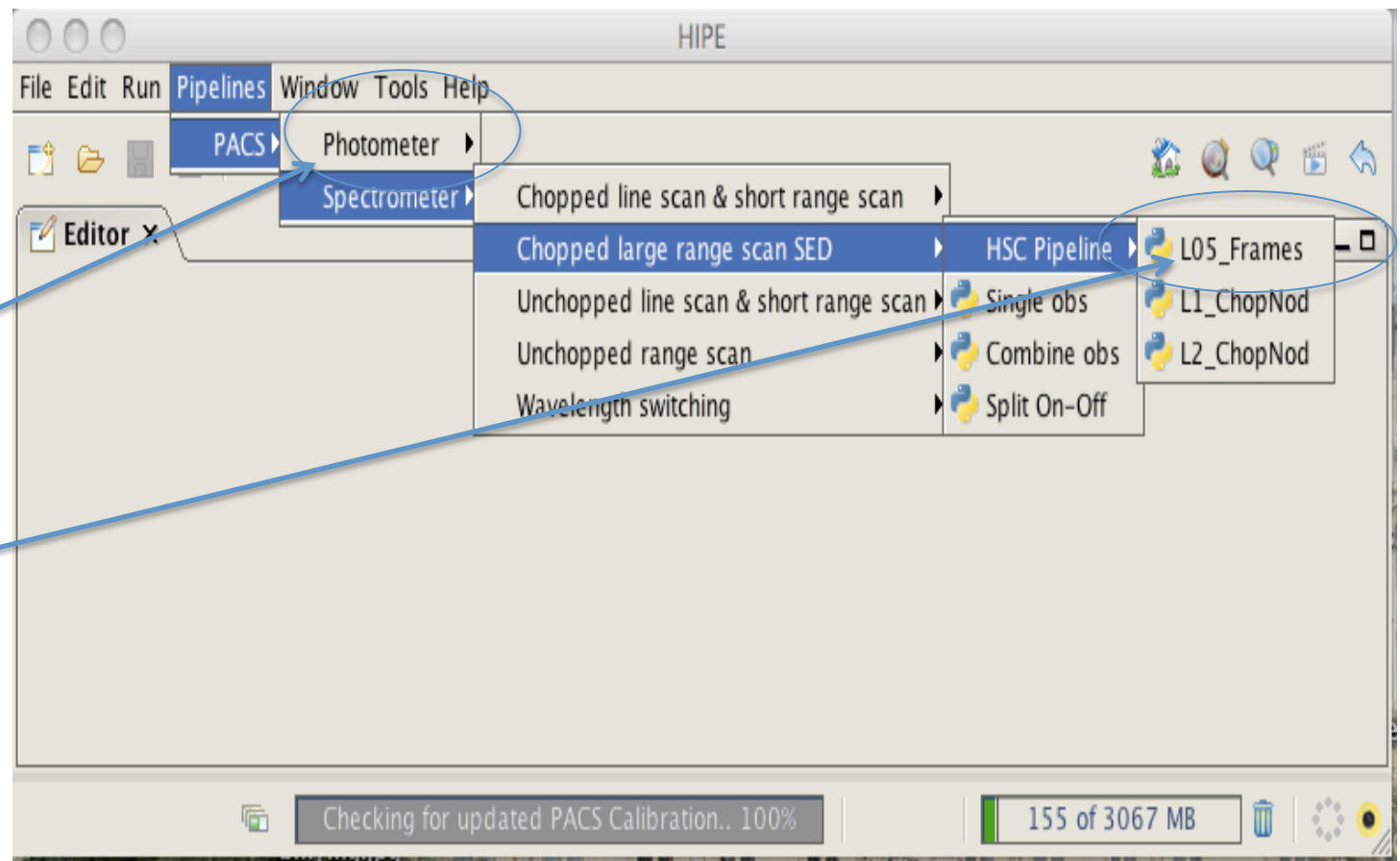*http://nhsc.ipac.caltech.edu/helpdesk*

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In this example you find the the pre-loaded ipipe scripts you can use to reduce your photometer data.

From the Pipeline Menu, Select PACS>Photometer->Scan map and ...-> HSC Pipeline L05_phot to load the Level 0 to Level 0.5 ipipe script.

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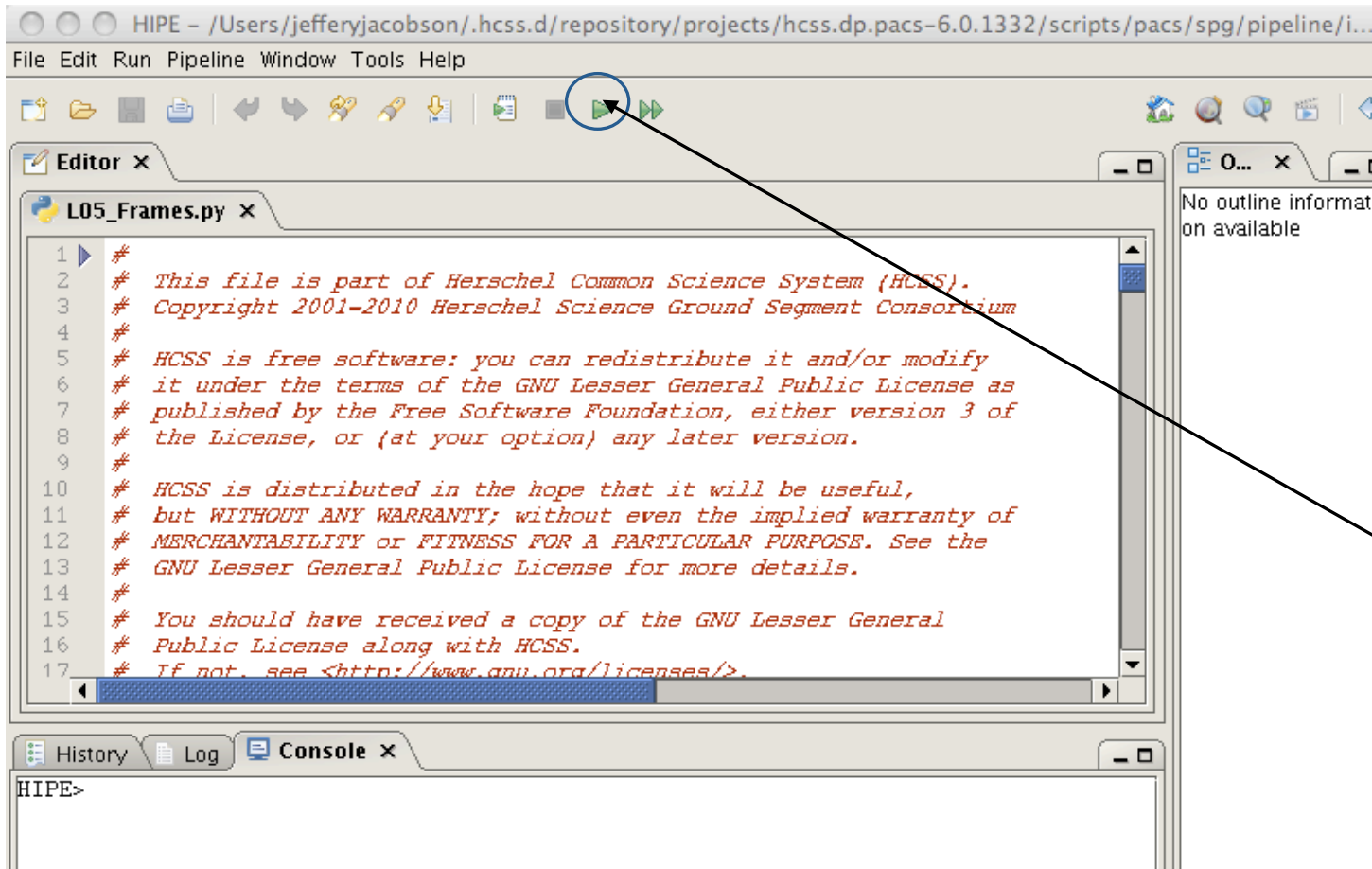
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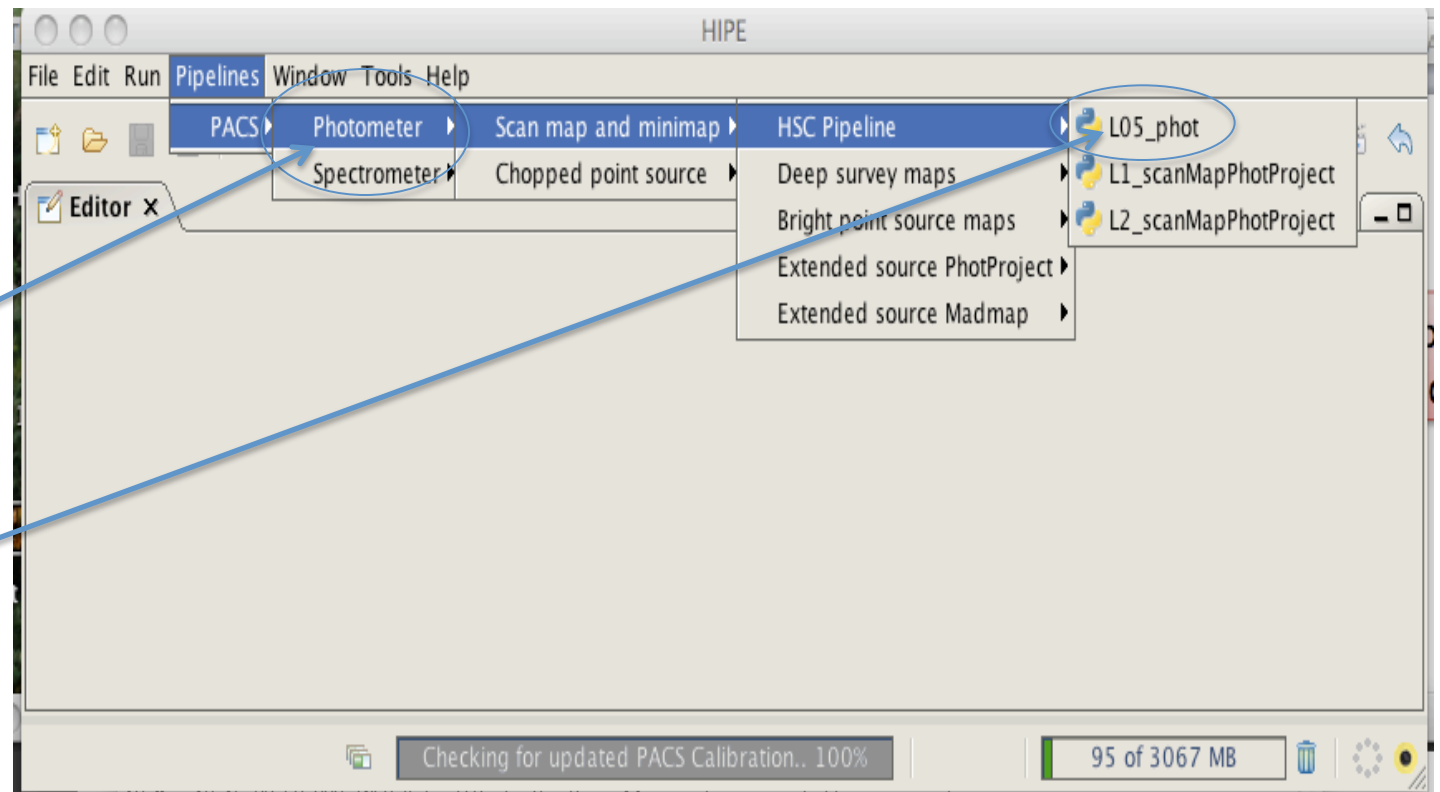
In this example you find the the pre-loaded ipipe scripts you can use to reduce your spectrometer data.

From the Pipeline Menu, Select PACS>Spectrometer ->Chopped large ...->HSC Pipeline L05_Frames to load the Level 0 to Level 0.5 ipipe script.

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This should look like something like this when read in:

HIPE – /Users/jefferyjacobson/.hcss.d/repository/projects/hcss.dp.pacs-6.0.1332/scripts/pacs/spg/pipeline/i...

File Edit Run Pipeline Window Tools Help

Editor ×

L05_Frames.py ×

```
1   #
2   #  This file is part of Herschel Common Science System (HCSS).
3   #  Copyright 2001-2010 Herschel Science Ground Segment Consortium
4   #
5   #  HCSS is free software: you can redistribute it and/or modify
6   #  it under the terms of the GNU Lesser General Public License as
7   #  published by the Free Software Foundation, either version 3 of
8   #  the License, or (at your option) any later version.
9   #
10  #  HCSS is distributed in the hope that it will be useful,
11  #  but WITHOUT ANY WARRANTY; without even the implied warranty of
12  #  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
13  #  GNU Lesser General Public License for more details.
14  #
15  #  You should have received a copy of the GNU Lesser General
16  #  Public License along with HCSS.
17  #  If not, see <http://www.gnu.org/licenses/>.
```

O... ×

No outline informati on available

History Log Console ×

HIPE>

You can step to the first line of executable code by clicking on the single arrow.

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You can also run more than one line of selected code.
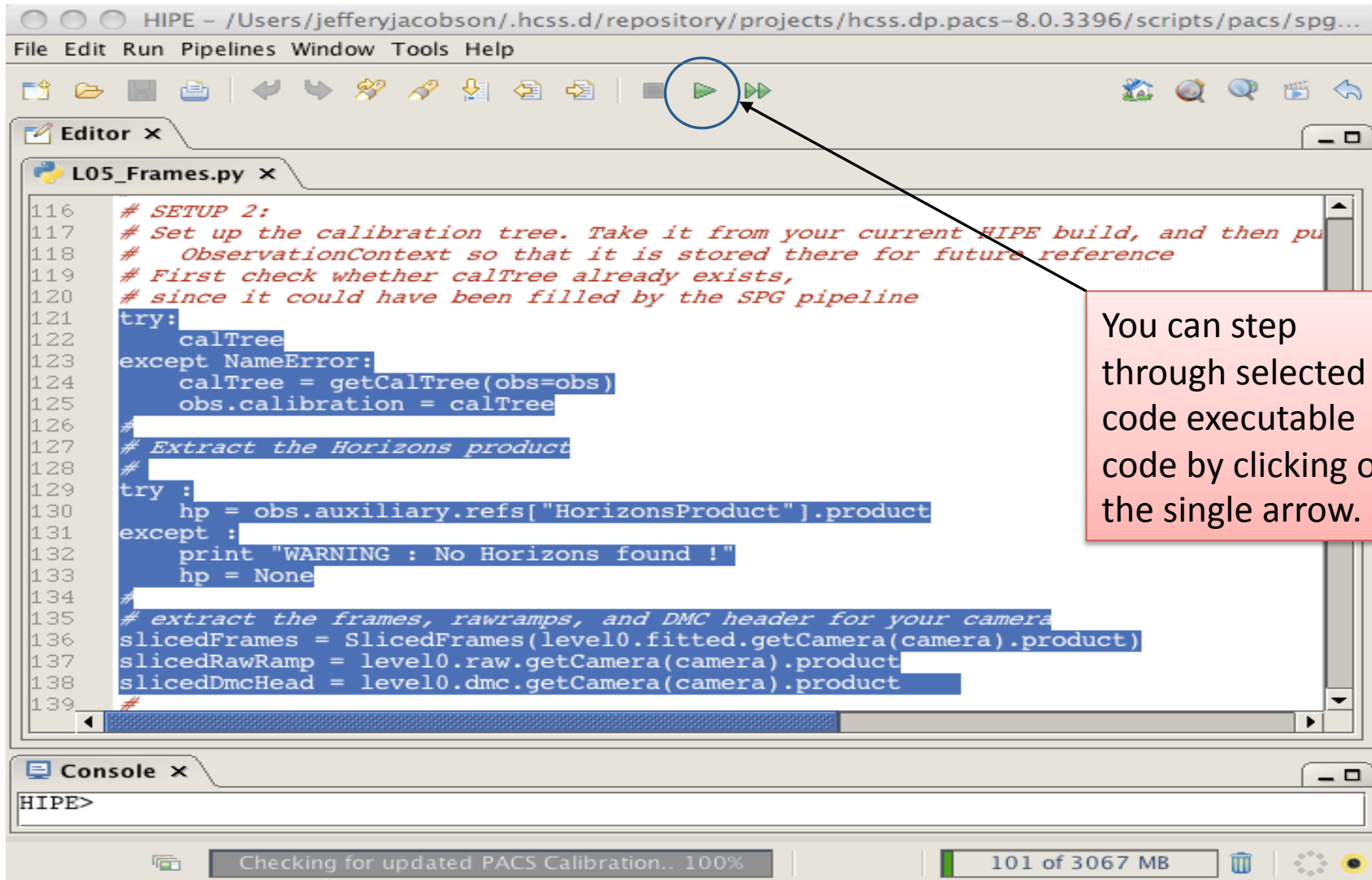
You can step through selected code executable code by clicking on the single arrow.

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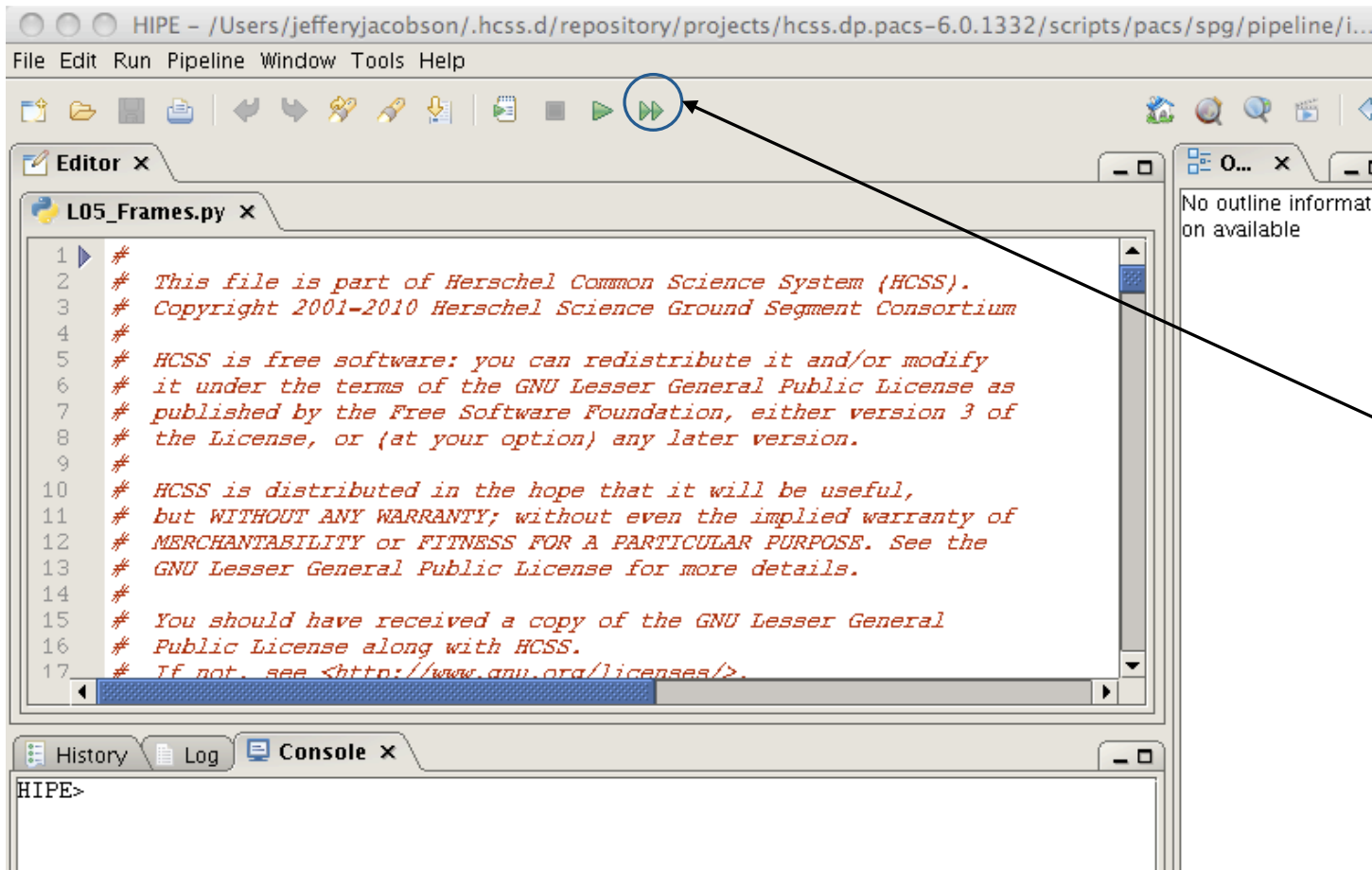
You can run the entire file by clicking on the double arrow.

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What do these scripts do?

There are detailed comments in each script, describing inputs and outputs. script, but for a full explanation see the PACS Data Reduction Guide (PDRG)

-> Help Menu -> Data Reduction -> PACS Data Reduction
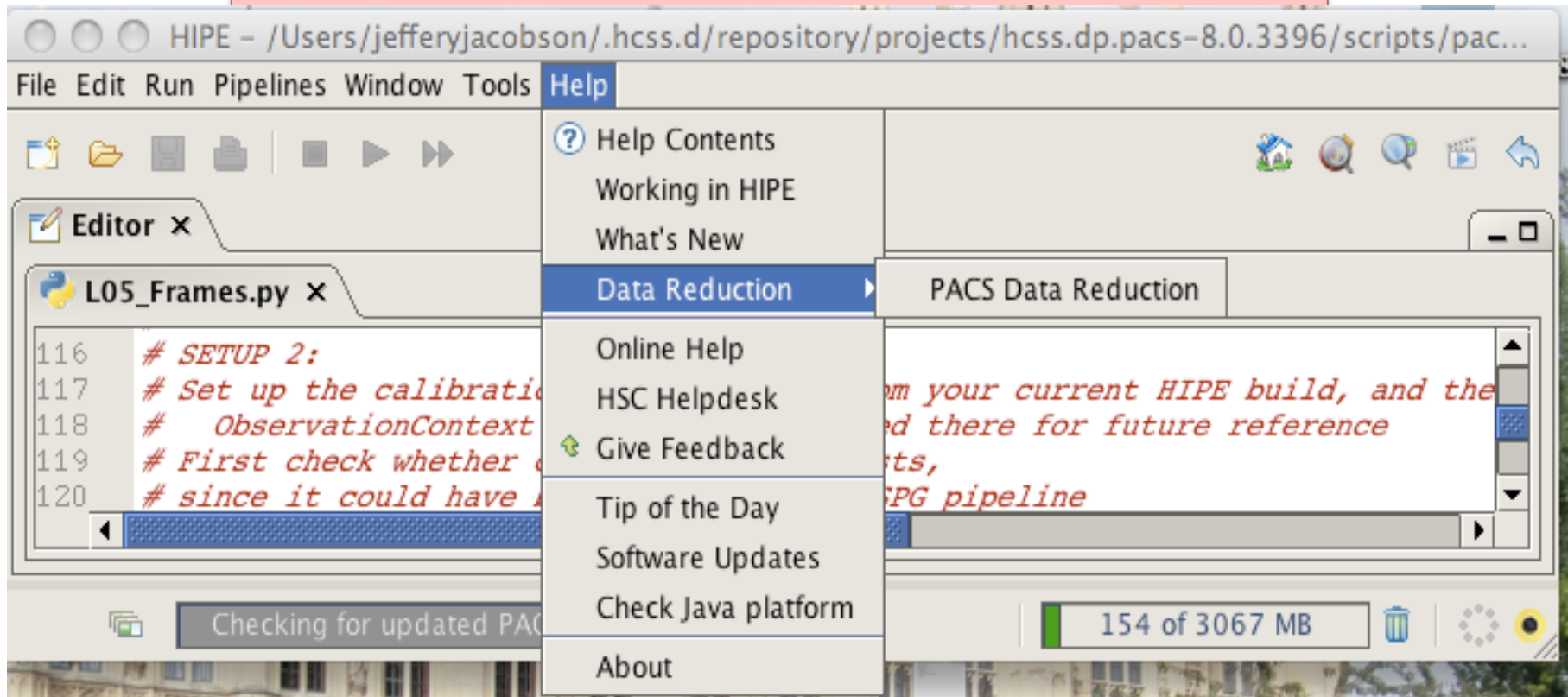
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Chapter 2. Introduction to PACS Data

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2.1. A PACS observation
2.2. The data structure (simple version)
2.3. The spectrometer pipeline steps
2.4. The photometer pipeline steps
2.5. The Levels

2.1. A PACS observation

If you are not familiar with how PACS works we recommend you re
Documentation (see here). PACS observations involve the synchro
purpose of exploring the spatial and spectral space your AOR spec
observation you can have: chopper movements between two mirro
rastering to make a bigger map or looking at off-positions: grating r

Step 3

Run one of the extended scripts on your own obsid.
This will required changing the ipipe script. We
recommend that you save the file to a new file name.
Otherwise, you will replace the file in you HIPE
distribution. Save it using File->Save As

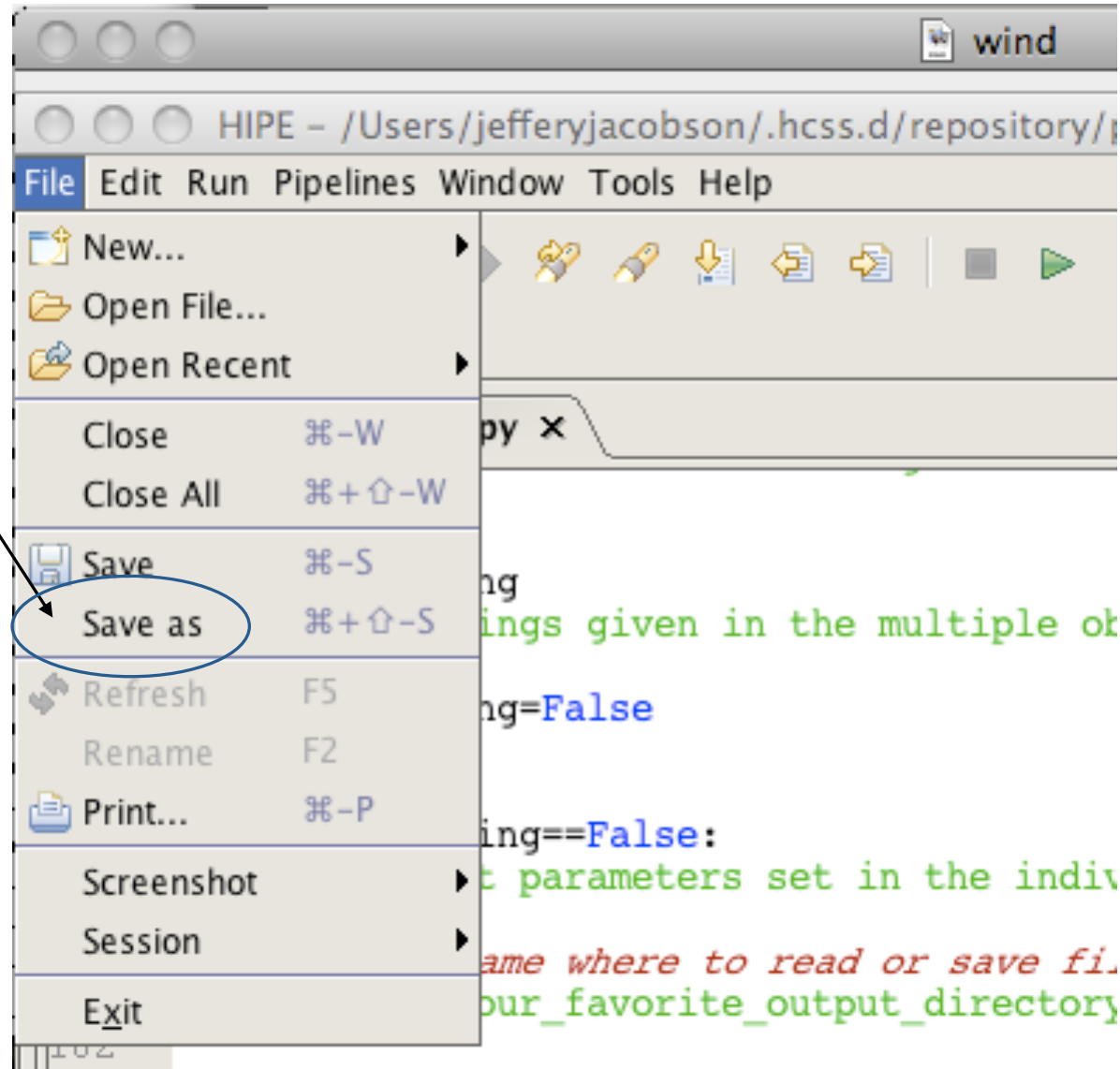*http://nhsc.ipac.caltech.edu/helpdesk*

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For example, find the scanMapDeepSurvey photometer pipeline script. Click to load it.

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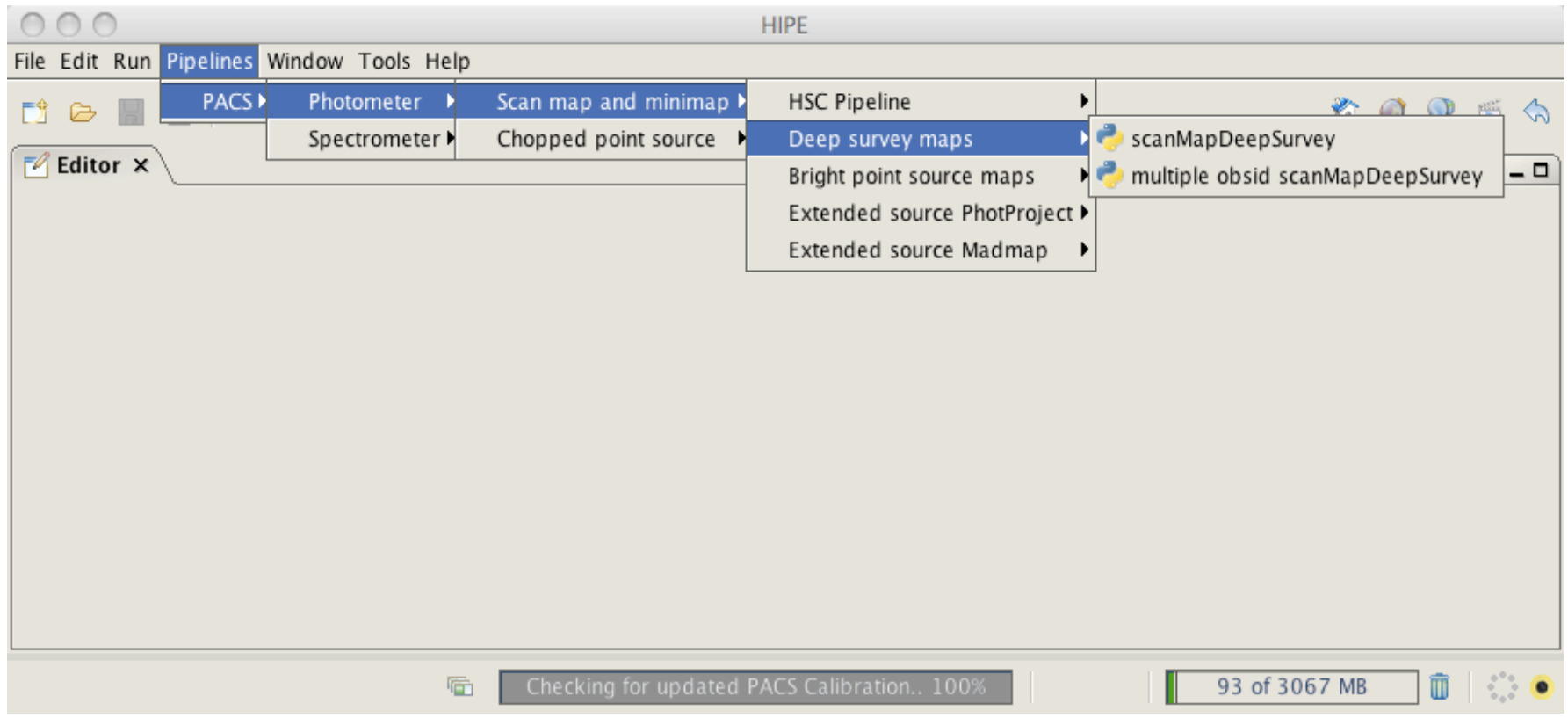
Edit the file, change the directory for saveng your files, and the obsid.
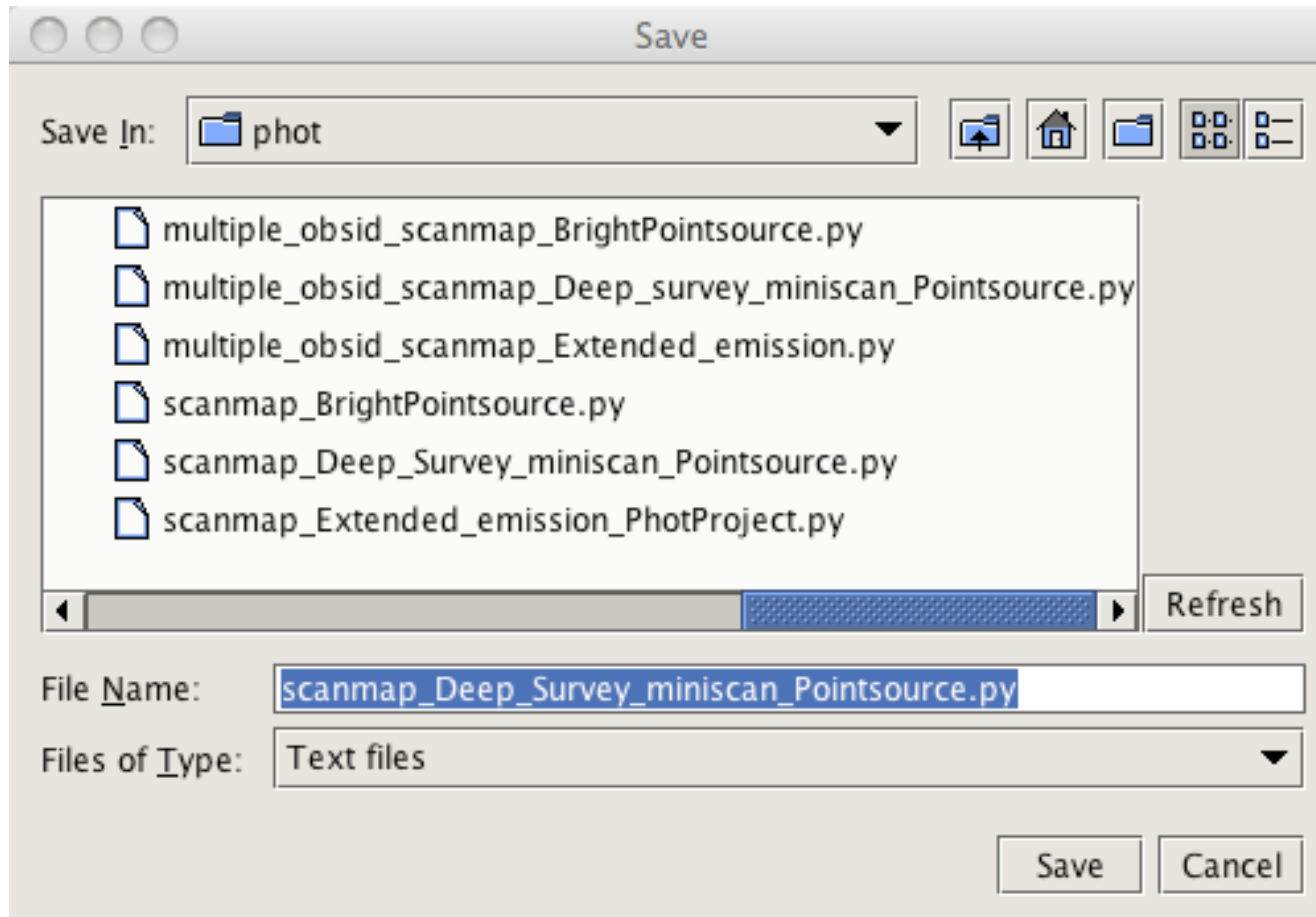
```
89    """
90    try:
91        input_setting
92        print "settings given in the multiple obsid script"
93    except:
94        input_setting=False
95
96
97    if input_setting==False:
98        print "input parameters set in the individual obsid script"
99    #
100   # directory name where to read or save files.
101   direc = "/your_favorite_output_directory/
102   """
103   The settings for this data reduction are collected all in this section.
104   If the user wants to use this script in the loop contained in the
105   multiple_obsid_Brightsource.py, this section can be completely commented
106   and the settings will be contained in the multiple_obsid.py script .
107   """
108   #
109   obsid="000000000"        #give here the obsid number
110   camera = "red"
111   #camera="blue"
112   print "Reducing OBSID:" obsid  "camera:"  camera
```

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Open File->
Click on
"Save As".
This will
bring up a
dialog box.
See the next
slide.

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Use this dialog to change the directory and filename.

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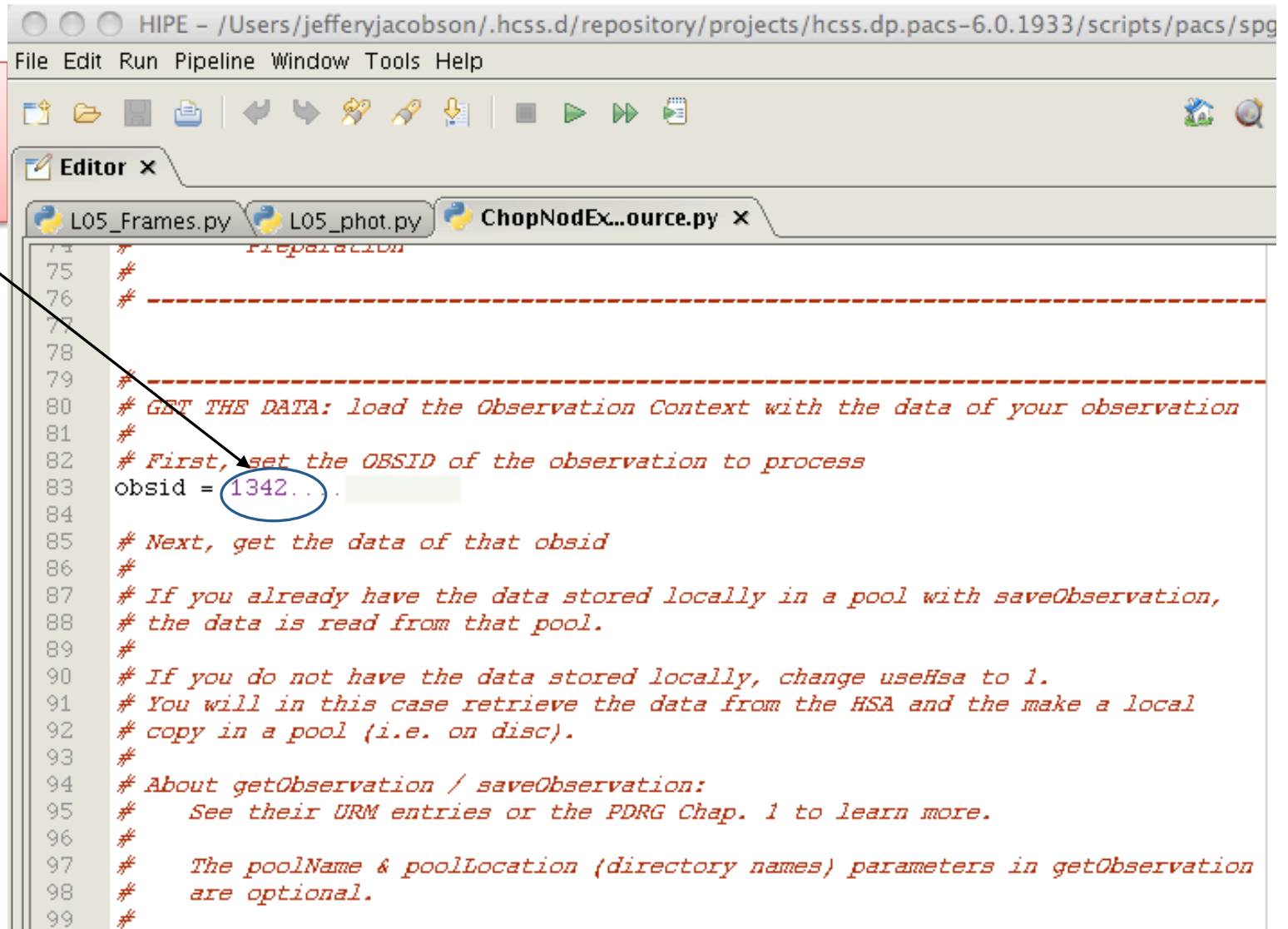
For a spectroscopy example, find a Chopped line scan ipipe script. Click on lineScanExtendedSource to load it.

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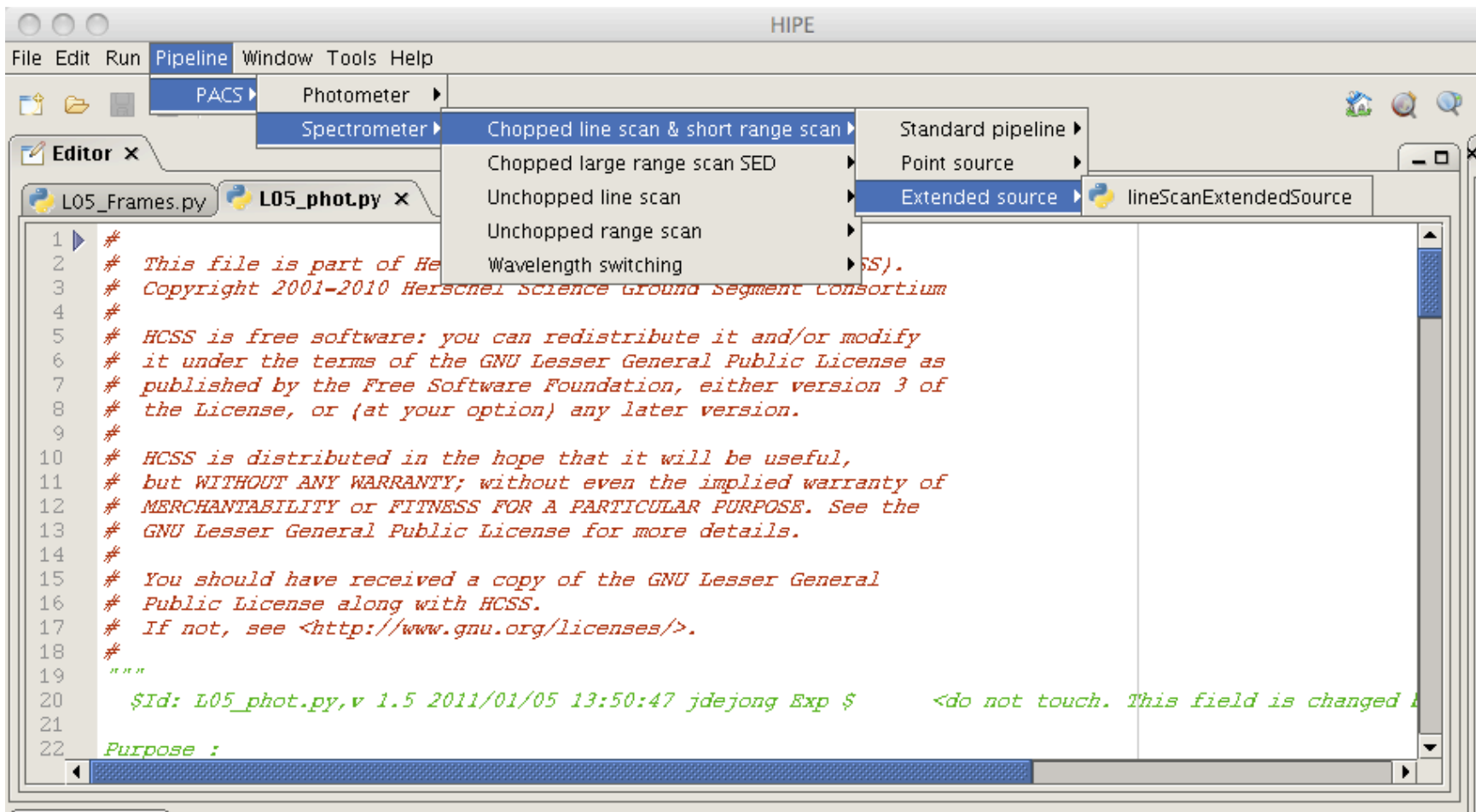
Edit the file, changing the obsid.

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Open File-> Click on "Save As". This will bring up a dialog box. See the next slide.

HIPE – /Users/jefferyjacobson/.hcss.d/repository/projects/hcss.dp.pa

File Edit Run Pipeline Window Tools Help

New...
Open File...
Open Recent

L05_phot.py   *ChopNodE...ource.py ✕

Close   ⌘-W
Close All

Save   ⌘-S
Save as

Refresh   F5
Rename   F2

Print...   ⌘-P

Screenshot
Session

Exit

88   # the data is read from that pool.
89   #
90   # If you do not have the data stored locally, change use

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Use this dialog to change the directory and filename.

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