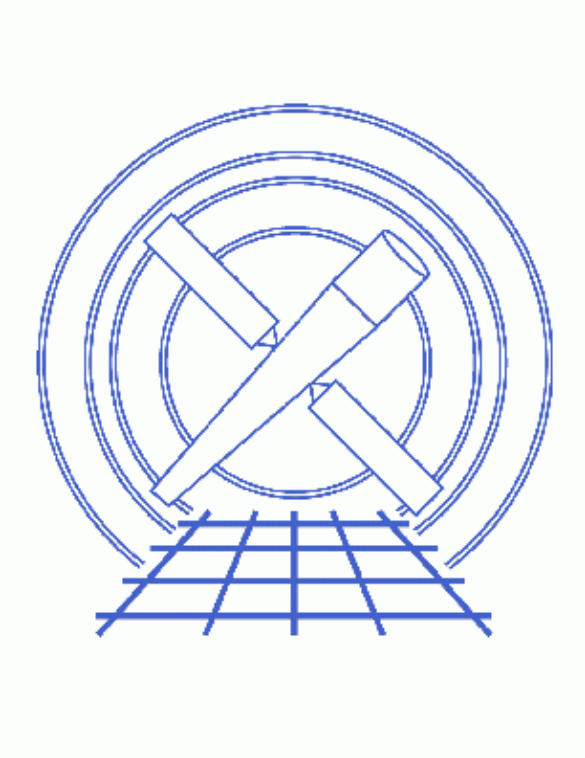
How to Download Chandra Data from the Archive



CIAO 3.4 Science Threads

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URL: http://cxc.harvard.edu/ciao/threads/archivedownload/ Last modified: 1 Dec 2006

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CIAO 3.4 Science Threads

Overview

Last Update: 1 Dec 2006 − reviewed for CIAO 3.4: no changes

Synopsis:

ChaSeR is a graphical user interface for browsing and/or obtaining data from the Chandra Data Archive. The Archive contains over 800 public−domain datasets, which consist of all observations for which the proprietary period has expired, as well as calibration data. Note that proprietary data may also be accessed via *ChaSeR*, but it is password−protected from the general community.

Purpose:

To download ObsID 1843 (ACIS−I, G21.5−0.9), which is used in all of the Introductory CIAO Threads.

Proceed to the HTML or hardcopy (PDF: A4 | letter) version of the thread.

Launching ChaSeR

Before beginning, download and install the Java application.

Once installed, launch *ChaSeR* from the command line:

```
unix% chaser &
```

Figure 1 shows the GUI that will appear.

WebChaSeR

If you do not wish to install *ChaSeR*, data may still be obtained through *WebChaSeR*, a web version of *ChaSeR*. While it has the same search capabilities as *ChaSeR*, it is not possible to select individual files for download. Using this interface, you can only select complete packages of primary and secondary products; see the "Select" step for information on the different packages.

Due to the slightly different functionality, portions of this thread − mainly the Three Steps to Using ChaSeR section − do not apply to users of *WebChaSeR*. The two applications are similar enough, however, that the thread may serve as a helpful guide.

The Three Steps to Using ChaSeR

Using *ChaSeR* to obtain data is a simple 3−step process:

1. Browse

Chandra Archive data may be browsed using any of the fields in the *ChaSeR* GUI, such as Instrument, Grating, ObsID, and Category. Since we are interested in an ACIS−I observation of G21.5−0.9, leave only the appropriate Instrument (ACIS−I) and Grating (NONE) options checked and enter the Target Name.

Figure 2 shows the completed form. Click the "Submit" button to enter the request.

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2. Select

The Search Results window brings up all the observations that match our search criteria, as shown in Figure 3. The "Order By..." menu can be used to sort the results; here we have ordered them by "Observation ID."

Click on ObsID 1843 to highlight the row. After doing so one may:

- Use the "Detail" button to display specifics about the observation; Figure 4.
- Click on the "Images" button to see preview images; Figure 5.
- Write the table information to a file ("Save").

Now the desired data products may be selected for download using the "Select primary products", "Select secondary products", and "Select supporting products" buttons.

The data products are arranged such that all products necessary for most analyses (e.g. the CIAO threads) are in the primary directory. If you are interested in reprocessing your data, you will also need the level 1 files, which are in the secondary directory. Each of the threads also includes a list of the files needed to complete it.

By default, all primary and secondary products are pre−selected. If you are only interested in downloading the specific files need for a thread, but need some help determing what those are, check the Standard Data Distribution Contents webpage. These tables list the file extensions (aka "Type") and the "Content"; the content keyword is how the products are labeled in the *ChaSeR* interface.

The selections are submitted using the "Add to retrieval list" button. You can then highlight a different observation and add the same (or different) data products to the cart for it. Once you have selected all the data you are interested in, proceed to the next step.

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3. Retrieve

Click on "View retrieval list" to view the observations and data products submitted for selection.

One may see the list of data filenames and sizes by clicking on the "Browse selected products" button. The total file size of the package list is listed at the top of the screen; use this information when considering available disk space.

The "Retrieve selected products" button is used to start the retrieval process. The files are compiled into a tarred package which is placed onto the anonymous FTP server (cda.harvard.edu) by default; the tarfile can also be saved directly to a local disk. When the download is complete, the *ChaSeR* window will look as shown in Figure 8. Note that the location of the logilfe (`chaser.log`) and the FTP directory in which

the tarfile was placed are both given at the bottom of the screen.

The name and location of the tarfile is recorded in `chaser.log`, along with the ObsID that was downloaded:

```
unix% more ~/chaser.log
[16/06/2005 09:53:39:463 EDT]  Request retrieval of 1843
[16/06/2005 09:53:40:041 EDT]  File(s) package_0_030616095338.tar.* will be
                               available at /pub/srftp/UoL7nEUa.edu:
```

When you are finished with *ChaSeR*, use the "Exit" button to close the GUI.

FTP and Unpack the Data

Get the data from the anonymous FTP server; note that the location of the tarfile will be different for your observation:

```
unix% ftp cda.harvard.edu
Connected to cda.
220 cda FTP server (Version wu−2.6.1(1) Mon Aug 7 15:20:43 EDT 2000) ready.
Name (cda.harvard.edu:username): anonymous
331 Guest login ok, send your complete e−mail address as password.
Password:
230−
230−    Welcome to the FTP server at the CXC Science Center
230−
230−            This server is cda.harvard.edu
230−
230−If your FTP client crashes or hangs shortly after login please try
230−using a dash (−) as the first character of your password.  This will
230−turn off the informational messages that may be confusing your FTP
230−client.
230−
230−Publicly available files are in /pub
230−
230−Problems with this ftp site?  Contact cxcftp@head−cfa.harvard.edu
230−
230−    +−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−+
230−    |                                                              |
230−    | PLEASE NOTE:         (ChaSeR users only)                     |
230−    |                                                              |
230−    |    If the directory provided to you by ChaSeR appears        |
230−    |    to be empty, this is a sign that your tar file is         |
230−    |    not yet ready.  Please try again in a little while.       |
230−    |                                                              |
230−    |    If your directory seems to contain several tar            |
230−    |    files, e.g., file.tar.0, file.tar.1, ...                  |
230−    |    retrieve all files, then untar as follows:                |
230−    |        cat file.tar.* | tar xvf −                            |
230−    |    We are limiting the size of individual files to           |
230−    |    less than 2 GB, but these files need to be                |
230−    |    concatenated before submitting them to tar.               |
230−    |                                                              |
230−    +−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−+
230−
230 Guest login ok, access restrictions apply.

ftp> cd /pub/srftp/UoL7nEUa
250 CWD command successful.

ftp> binary
```

```
200 Type set to I.

ftp> get package_0_030616095338.tar
200 PORT command successful.
150 Opening BINARY mode data connection for package_0_030616095338.tar (65309184 bytes).
226 Transfer complete.
local: package_0_030616095338.tar remote: package_0_030616095338.tar
65309184 bytes received in 1.3e+02 seconds (484.05 Kbytes/s)

ftp> bye
221-You have transferred 65309184 bytes in 1 files.
221-Total traffic for this session was 65311557 bytes in 2 transfers.
221-Thank you for using the FTP service on cda.
221 Goodbye.
```

Unpack the tarfile:

```
unix% tar xvf package_0_030616095338.tar
x ., 0 bytes, 0 tape blocks
x ./1843, 0 bytes, 0 tape blocks
x ./1843/primary, 0 bytes, 0 tape blocks
x ./1843/primary/acisf01843N001_src2.fits.gz, 9665 bytes, 19 tape blocks
x ./1843/primary/acisf01843N001_evt2.fits.gz, 16289515 bytes, 31816 tape blocks
.
. (output omited)
.
x ./1843/vv.1843.001.1.gz, 1985 bytes, 4 tape blocks
x ./1843/oif.fits, 25920 bytes, 51 tape blocks
x ./tar_030616095338.rpt, 66 bytes, 1 tape blocks

unix% ls
1843/                          tar_030616095338.rpt
package_0_030616095338.tar

unix% rm package_0_030616095338.tar
```

If you downloaded data from multiple ObsIds, a directory will be created for each of them.

The final step is to uncompress the files:

```
unix% cd 1843
unix% gunzip ./primary/*.gz
unix% gunzip ./secondary/*.gz

unix% ls *
oif.fits                vv.1843.001.1.gz

primary:
acisf01843N001_1_sum2.html              acisf01843N001_full_img2.jpg.log
acisf01843N001_1_sum2.html.log          acisf01843N001_src2.fits
acisf01843N001_2_sum2.html              acisf01843N001_src_img2.jpg
acisf01843N001_2_sum2.html.log          acisf01843N001_src_img2.jpg.log
acisf01843N001_3_sum2.html              acisf01843_000N001_bpix1.fits
acisf01843N001_3_sum2.html.log          orbitf082728300N001_eph1.fits
acisf01843N001_cntr_img2.fits           orbitf082987500N001_eph1.fits
acisf01843N001_cntr_img2.jpg            orbitf083333100N001_eph1.fits
acisf01843N001_cntr_img2.jpg.log        orbitf083592300N001_eph1.fits
acisf01843N001_evt2.fits                orbitf083937900N001_eph1.fits
acisf01843N001_full_img2.fits           orbitf084197100N001_eph1.fits
acisf01843N001_full_img2.jpg            pcadf084271087N001_asol1.fits

secondary:
acisf01843_000N001_aoff1.fits   acisf01843_000N001_soff1.fits
acisf01843_000N001_evt1.fits    acisf01843_000N001_stat1.fits
acisf01843_000N001_flt1.fits    aspect/
acisf01843_000N001_msk1.fits    ephem/
```

```
acisf01843_000N001_mtl1.fits

supporting:
```

Summary

For a description of the files that you just downloaded, read the Introduction to the Data Products thread.

History

03 Jan 2005	reviewed for CIAO 3.2: no changes
01 Dec 2005	reviewed for CIAO 3.3: no changes
01 Dec 2006	reviewed for CIAO 3.4: no changes

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Image 1: The ChaSeR GUI

Image 2: The completed search form

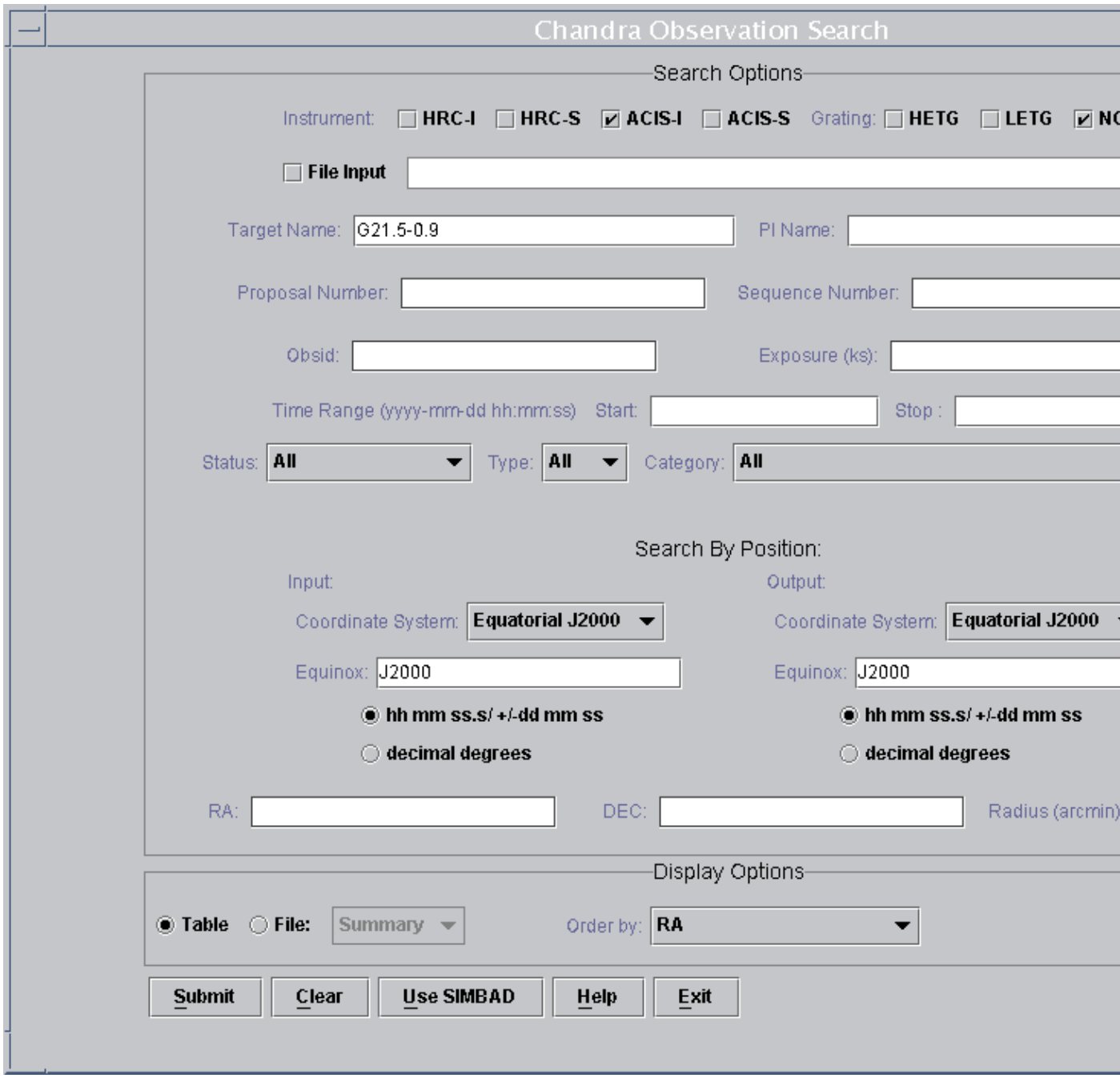

Image 3: The Search Results window

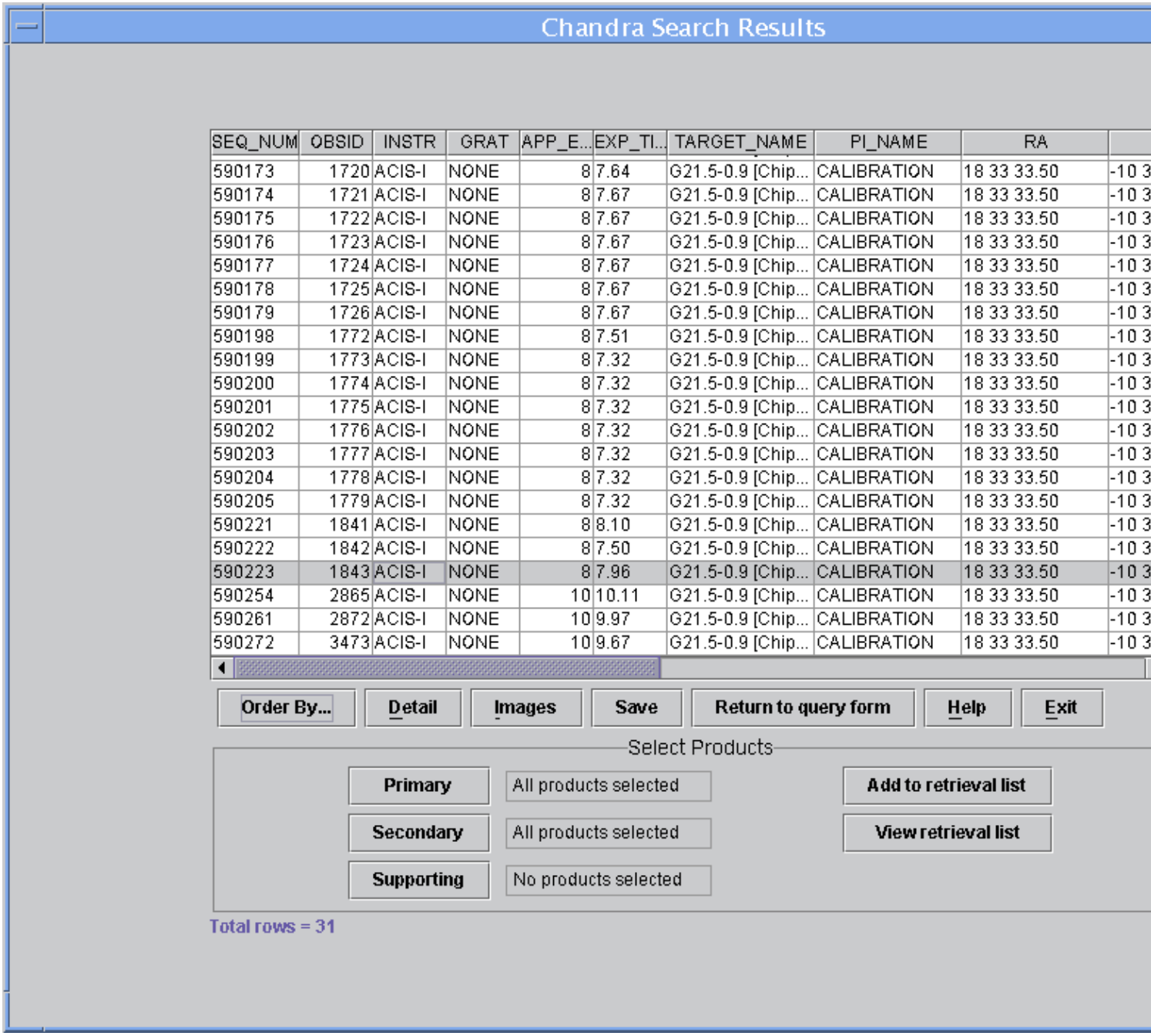

Image 4: Details of the observation

Use the "Save" button to write this information to a text file.

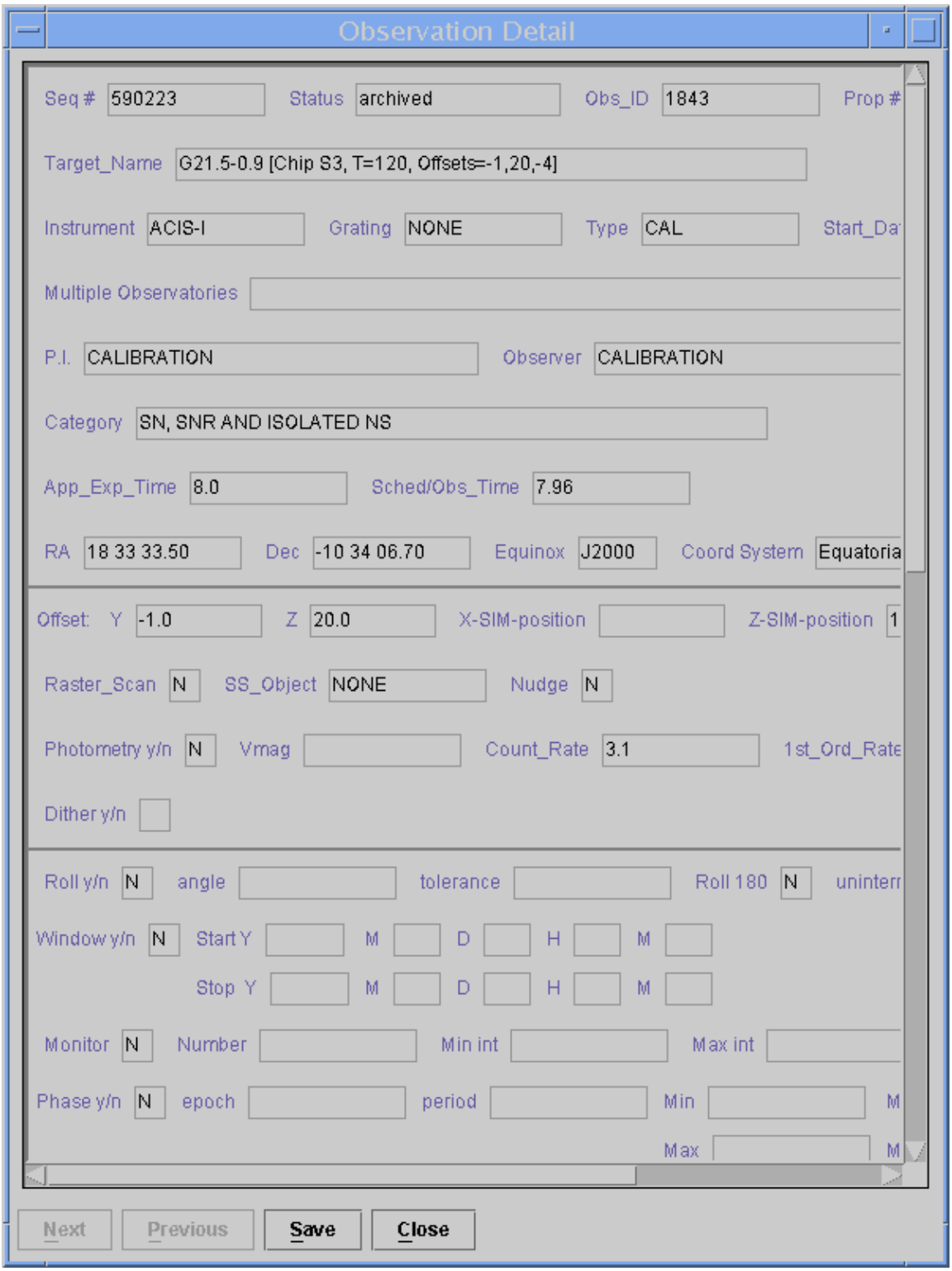

Image 5: The second of three preview images

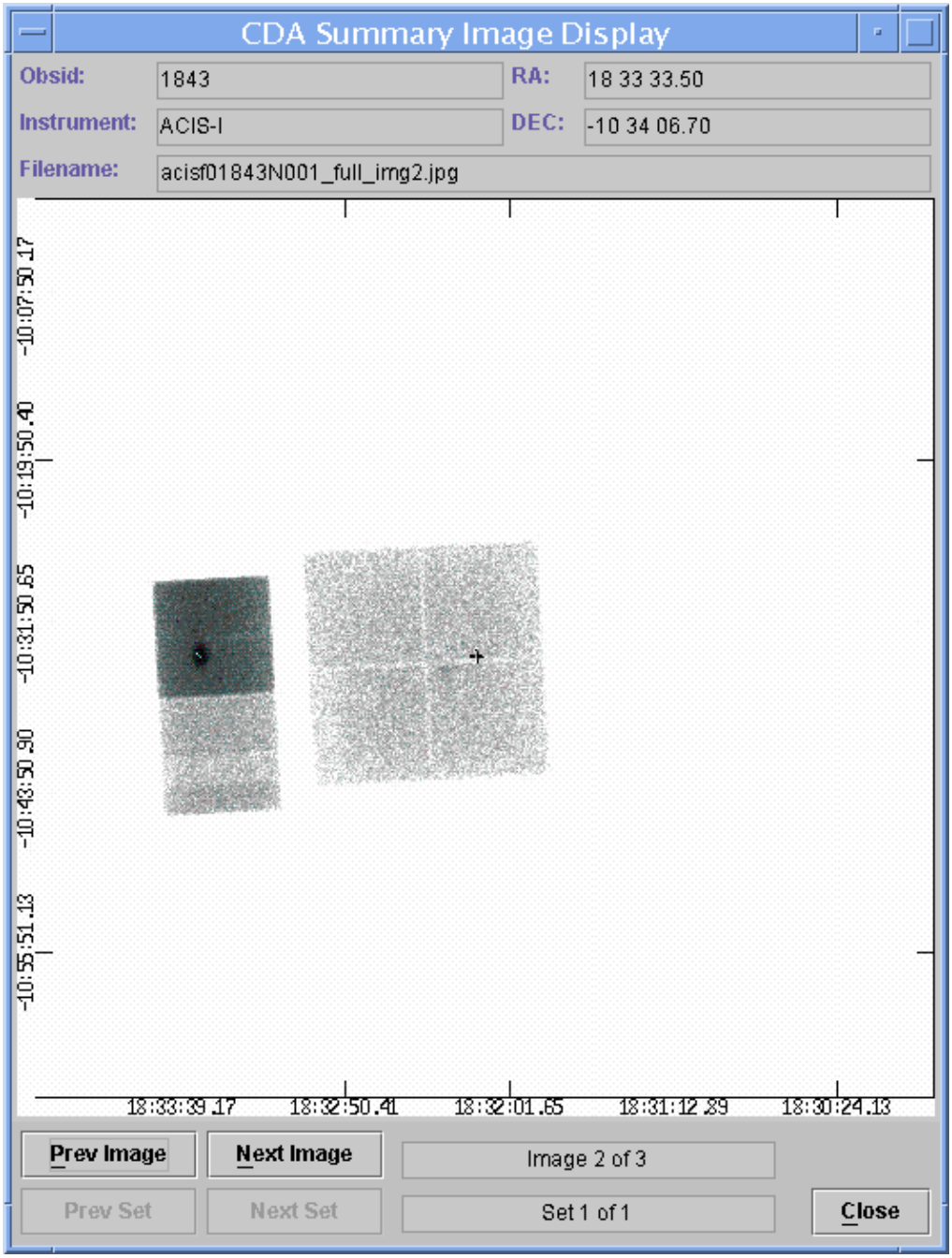

Image 6: The Retrieval List

Since *all* the primary and secondary products were selected for retrieval, only the categories are listed. If specific files are chosen, they are listed individually.

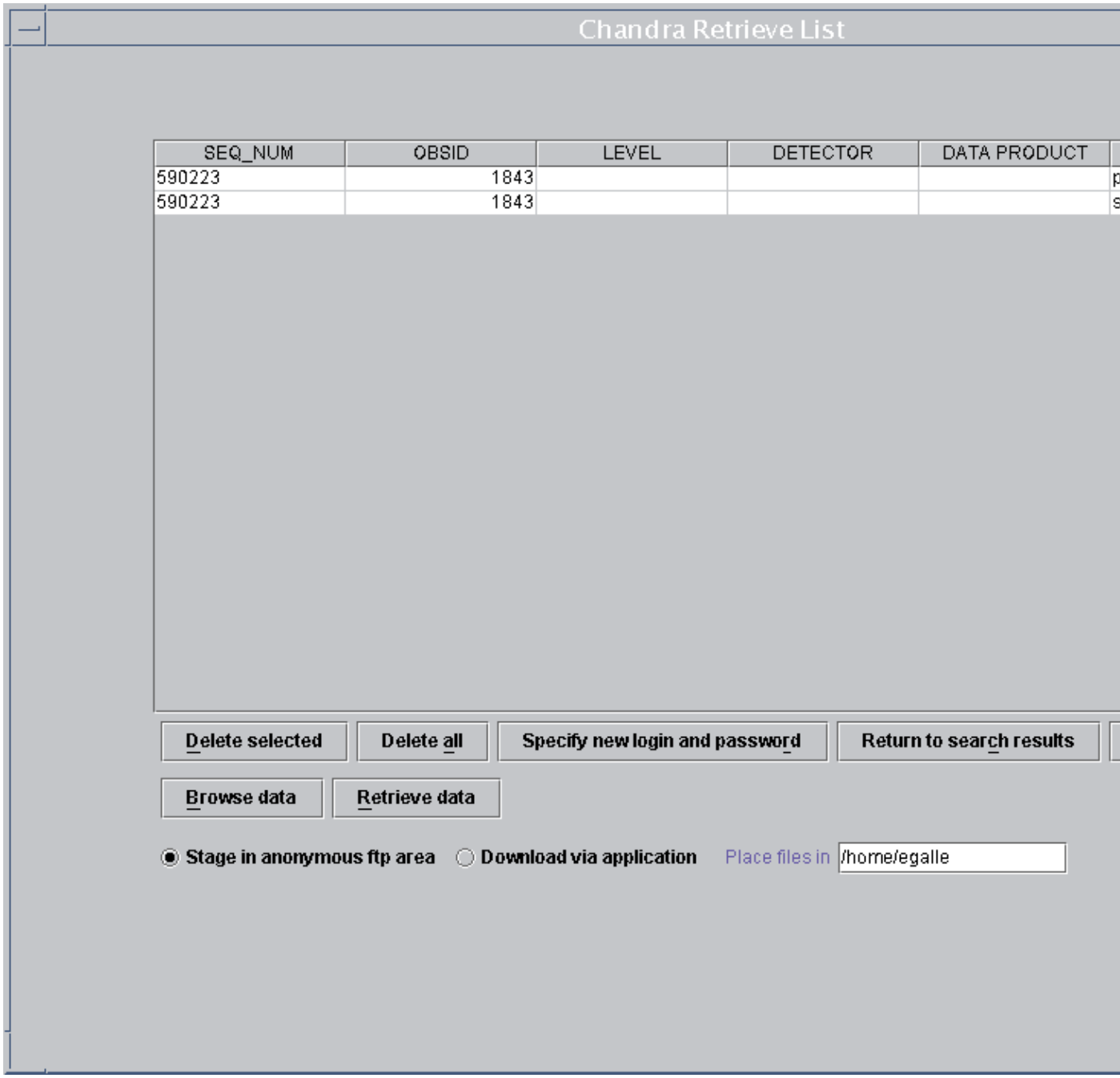

Image 7: Browse Results window

The total file size of the package (115 MB in this example) is listed at the top of the screen. Use this information to make sure there is sufficient disk space to download and unpack the data.

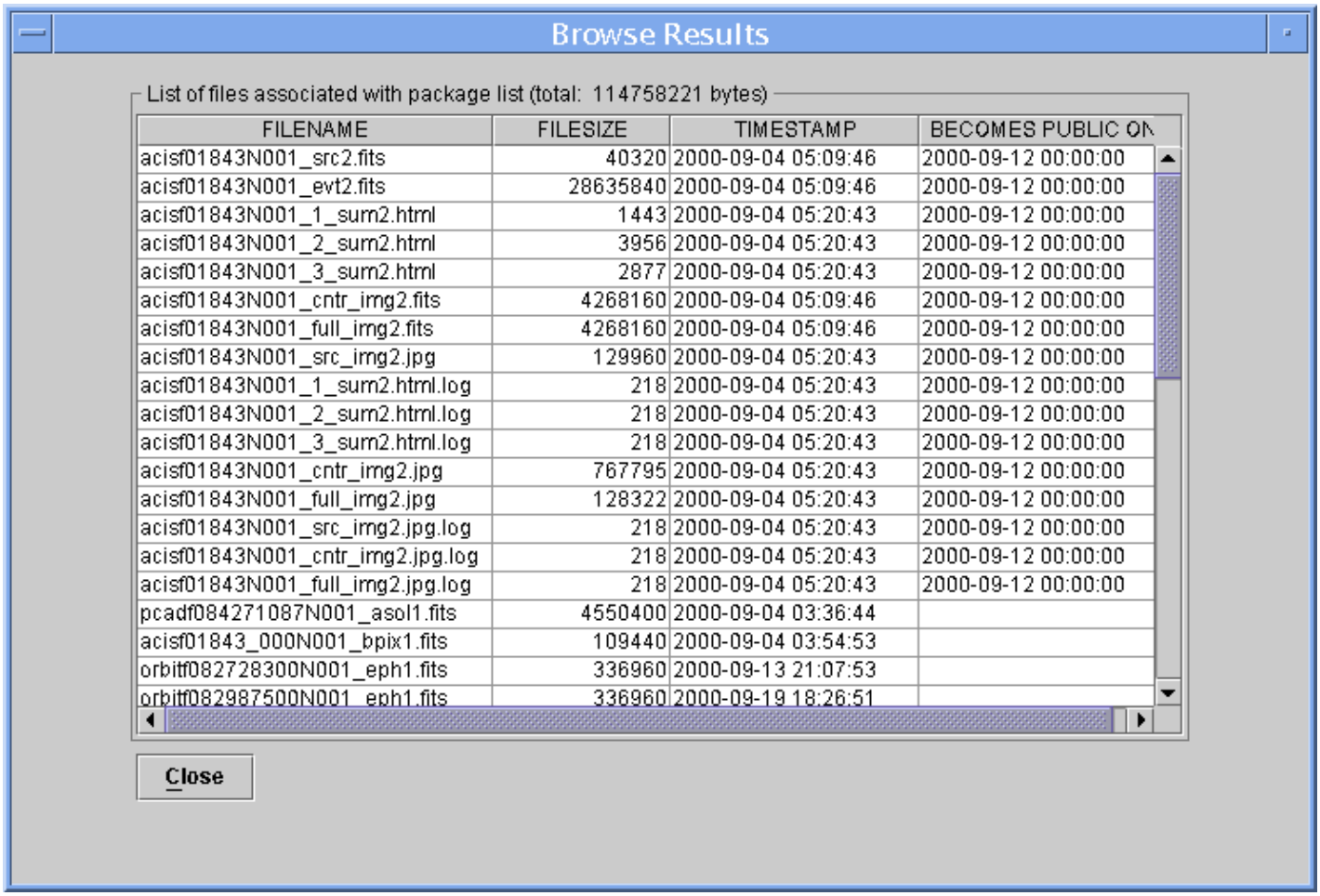

Image 8: Completed download screen

The location of the logfile (`chaser.log`) and the ftp directory in which the tarfile was placed are both given at the bottom of the screen.

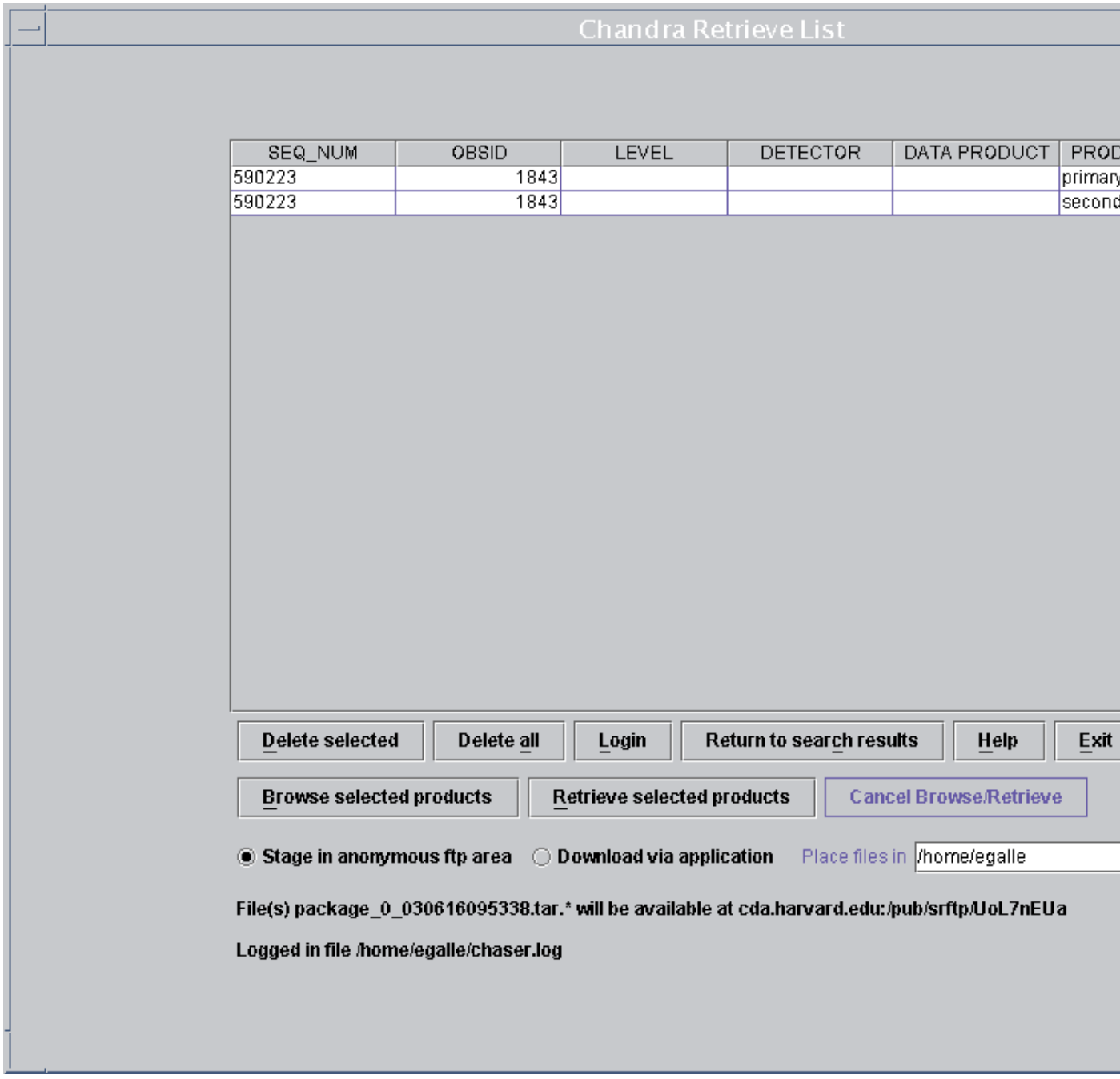

Image 8: Completed download screen