



3rd Chandra/CIAO Workshop Hands–on Session

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Practical Information:

- There are 15 workstations available -- DEMO1, DEMO2, ... DEMO15. With 19 people registered for the workshop, some people will need to work in pairs.
- Users should log–in as cxcgustx, where x is the machine you are on; i.e. the user on DEMO1 is cxcgust1 ... DEMO15 is cxcgust15. The passwords will be revealed Monday afternoon.
- All the accounts are already setup to run CIAO2.2. On every window where you expect to run CIAO, you should simply type "ciao". For example:

```
unix% ciao
Warning: Not fully tested version of Solaris
CIAO configuration is complete...
CIAO version      : CIAO 2.2 Saturday, October 13, 2001
Proposal Toolkit version : NRA 4.0 Saturday, October 13, 2001
bin dir          : /soft/ciao/bin
```

The warning is issued because CIAO 2.2 has not been fully tested in Solaris v2.8, which this machine is running.

- Some useful checks:

```
unix% ciao -v
The current environment is already configured for:
CIAO version      : CIAO 2.2 Saturday, October 13, 2001
Proposal Toolkit version : NRA 4.0 Saturday, October 13, 2001
bin dir          : /soft/ciao/bin

unix% echo $PFILES
/home/cxcgust1/cxcds_param:/soft/ciao/param

unix% echo $CALDB
/soft/ciao/CALDB
```

- The workspace is in */data/ciao_demo/*. 15 subdirectories have been created called cxcgust1 through cxcgust15; please work in the one relative to your machine. A link to this location has been set up in the home directory of each account:

```
unix% pwd
/home/cxcgust1
unix% cd workshop/
unix% pwd
/data/ciao_demo/cxcgust1
```

- Chandra data used in the analysis threads can be found in */data/ciao_demo/threads*. A link to this location has been set up from the workspace:

```
unix% pwd
/data/ciao_demo/cxcgust1
unix% ls -l
```

```
total 0
lrwxrwxrwx  1 cxcgust1      11 Nov  2 14:21 data -> ../threads/
unix% ls data/
ChIPS          acis-i          acisletg       hrciletg
GUIDE          acis-s          hrc-i          hrcsletg
Sherpa         acishetg       hrc-s
```

The CIAO tools accept paths as part of the input file names, so it is not necessary to copy all the data to your working directory. You may also set up symbolic links to access the data.

- Beginning with CIAO 2.2, the scripts are included in the baseline software distribution. This means that they can be called from the command line in the same manner as the CIAO tools:

```
unix% which ciaover
/soft/ciao/contrib/ciaover

unix% ciaover

CIAO version: CIAO 2.2
CIAO series: CIAO2
Current directory is writeable
DM tools found in /soft/ciao/bin
DM library found in /soft/ciao/lib
```

Any script that has not yet been added to this directory may be downloaded from cxc.harvard.edu/ciao/download_scripts.html

Suggested Analysis Sessions:

All the threads listed below can be found from the CIAO 2.2 Threads page.

- **Beginners:**
 - Introduction to the Data Model
 - Introduction to *Firstlook*
 - Introduction to *Prism*
 - Data Filtering
 - Create True Color Image
 - Extract ACIS Spectra and Make RMFs and ARFs
 - Getting Started With Sherpa
 - Introducing Sherpa: ASCII Data & Errors and Single-Component Source Models
 - Fitting Spectral Data: FITS Data & Responses and Multi-Component Source Models
- **Grating Analysis:**
 - Examining PHA2 Files
 - Obtain Grating Spectra
 - Compute Grating ARFs
 - Create Grating RMFs
 - Extract Coadded and Grouped Nth-Order Source & Background Spectra and ARFs
 - Fitting Grating Data
 - GUIDE: Fitting and Identifying Spectral Lines
 - Extended Source Analysis:
- **Extended Source Analysis:**
 - Weighting ARFs and RMFs
 - Create an Image of Diffuse Emission
 - Create True Color Image
 - Obtain and Fit a Radial Profile
 - Compute an Exposure Map

Chandra/CIAO Workshop – CIAO 3.4

Create a PSF

- Source Detection:

Compute an Exposure Map

Detecting Sources in Imaging Observations

Estimating Source Counts in Imaging Observations

Obtain and Fit a Radial Profile

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URL:
http://cxc.harvard.edu/ciao3.4/workshop/nov01/hands_on.html

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