

OSX and Astronomy?

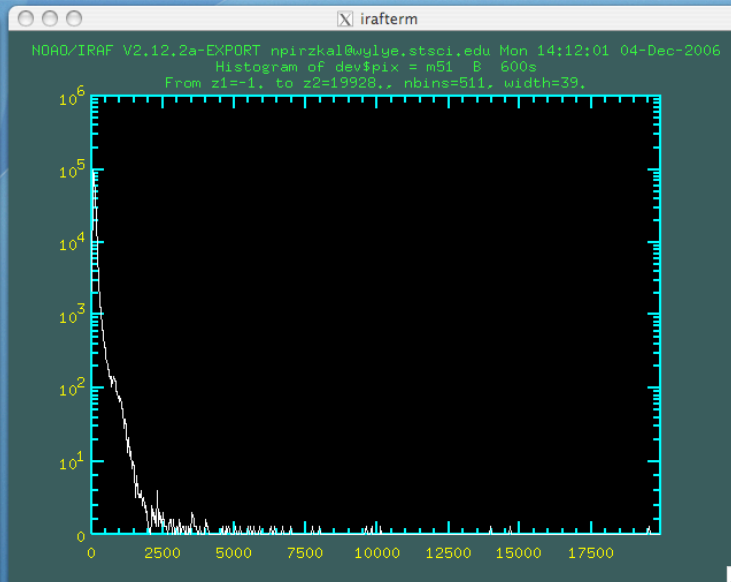
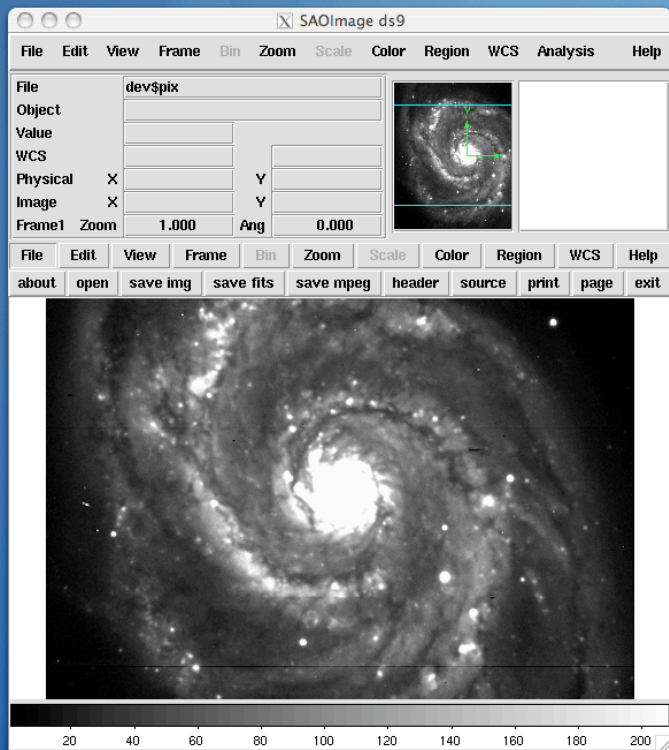
OSX *IS* Unix

- OSX underlying OS is Unix (BSD 4.4)
- Unix system is not hidden from user - you can tinker... and configure things
- Transition from Linux is pretty easy
- Transition from Solaris to OSX is the same as Solaris to Linux (minor shell command differences)

Really three ways...

- Use OSX as a dumb X11 terminal. Do mail via web interface. etc...
- Use OSX as Linux replacement machine. Rely on known Linux software and X11 interface
- Use features that make OSX strong: display PDF, native applications etc...
 - This is where you start to gain...

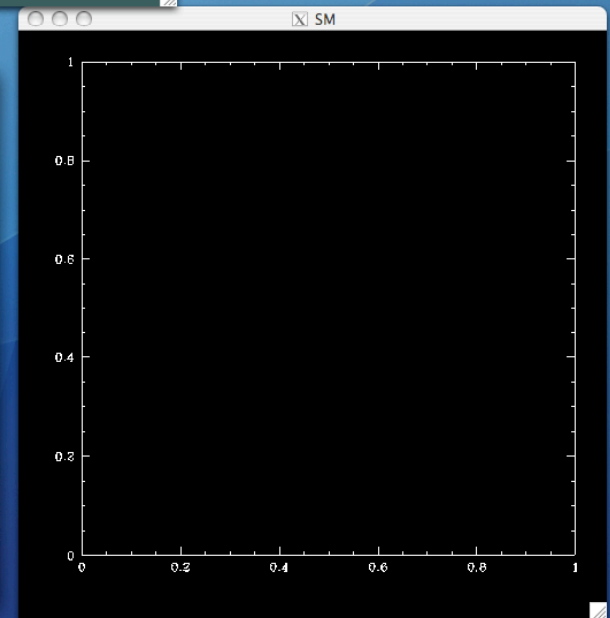
X11 Terminal?



xgterm window showing a NEWS message. The title bar reads 'xgterm'. The message content is: 'NEWS: IRAFX has been upgraded to v2.12.2a Jul 26 2004 For questions or problems contact help@stsci.edu'. Below the message is a list of software tools and their locations, followed by terminal commands and error messages.

```
apropos      fitsutil.   mem0.       spptools.  
aned.        focus.      mscrd.      stef.  
aspec.       gemini.     nctools.    stlocal.  
ci28.        gmisc.     newired.    stpoa.  
color.       guiapps.    nicred.     stsdas.  
crutil.      hst_pipeline. rmisc.      system.  
ctio.        images.     noao.       tables.  
dataio.      incrv.     obsolete.   utilities.  
dbms.        iue.       plot.       vol.  
esoufi.     language.  proto.      xray.  
euvs.       lists.     rvsao.  
finder.     local.     softools.
```

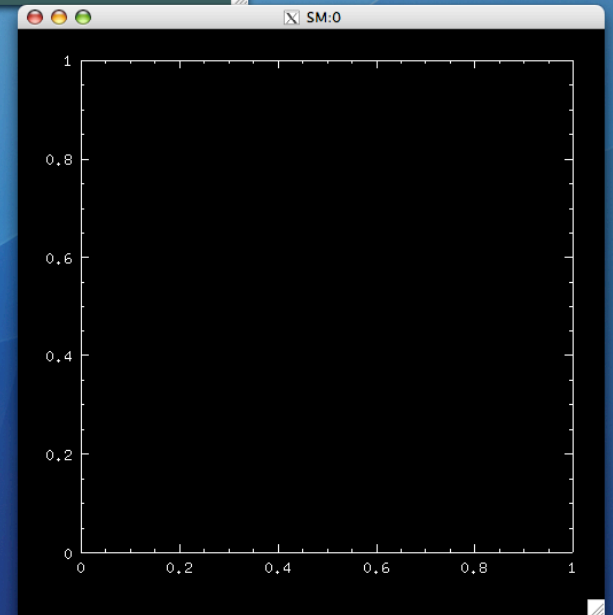
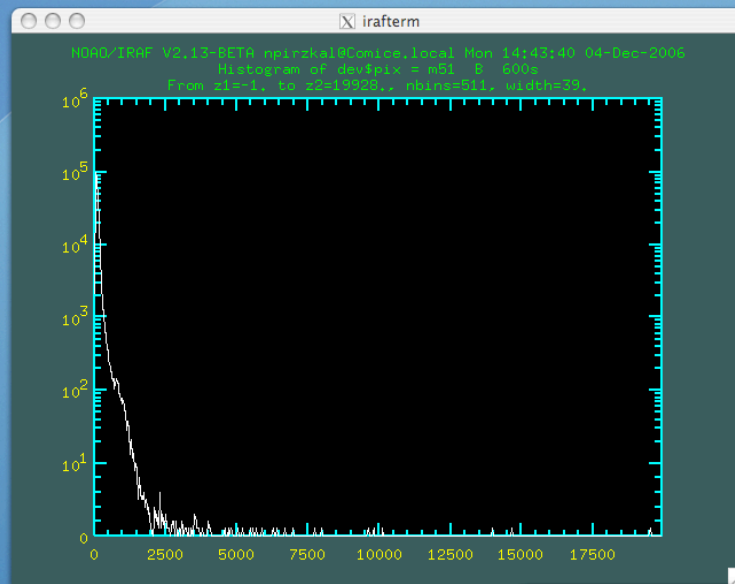
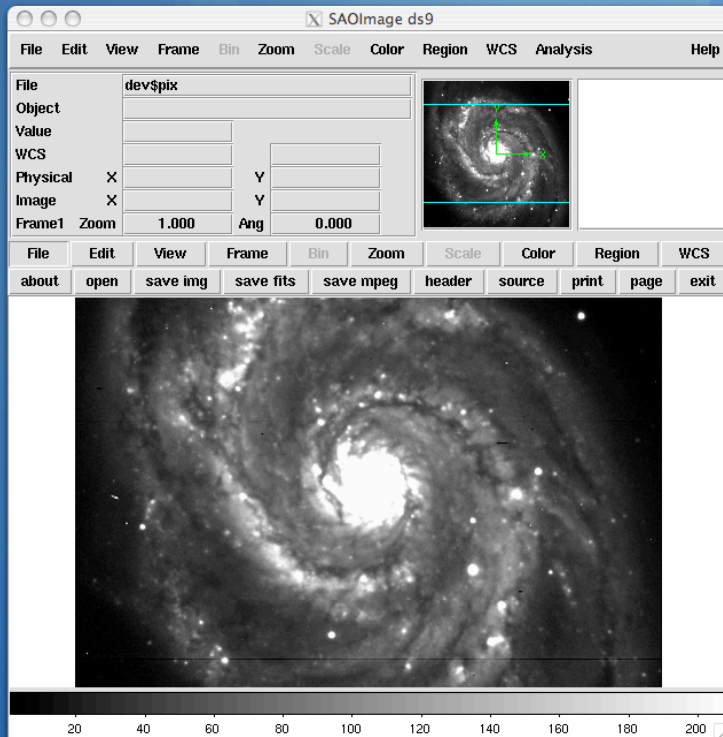
```
c> disp dev$pix 1  
z1=35, z2=346,0218  
c> inhist dev$pix 1  
ERROR: too many positional arguments for `inhistogram'  
c> inhist 1  
ERROR: Cannot open image (1)  
c> inhist dev$pix  
c>
```



xterm window showing a shell prompt. The title bar reads 'xterm'. The window content shows a prompt and a message: 'Hello Norbert, please give me a command'. Below the message are several lines of text: ': dev x11', ': box', and ': '.

```
Hello Norbert, please give me a command  
: dev x11  
: box  
: 
```

OSX X11?



```
Terminal - sm - 80x24
By accessing and using this computer system you are consenting to
system monitoring, including the monitoring of keystrokes.
Unauthorized use of, or access to, this computer system may
subject you to disciplinary action and possible federal criminal
prosecution.

Comice:~ npirzka$ sm

Hello Nor, please give me a command
: dev x11
: box
: 
```

```
xgterm
Welcome to IRAF. To list the available commands, type ? or ??. To get
detailed information about a command, type 'help <command>'. To run a
command or load a package, type its name. Type 'bye' to exit a
package, or 'logout' to get out of the CL.

Please visit http://iraf.net if you have questions, to report problems,
or would like to help to support this project.

The following commands or packages are currently defined:

color. fitsutil. images. nlocal. plot. system.
ctio. gemini. language. nmisc. proto. tables.
dataio. gmisc. lists. noao. softools. utilities.
dbs. guiapps. mscred. obsolete. stdas. vol.

ecl> disp dev$pix 1
z1=35, z2=346,0218
ecl> inhist dev$pix
ecl> 
```

Less X11?

The image displays a collection of macOS-style windows illustrating a workflow for astronomical data analysis:

- SAOImage ds9:** A software interface for image analysis showing a galaxy image with a green circle around the core and various toolbars.
- graphics1:** A window displaying a histogram of pixel intensities with a logarithmic y-axis.
- Fancy graphs:** An email client window showing an email to `bigboss@sycsci.edu` with the subject "Fancy graphs", containing a link to a plot and a thumbnail of the galaxy image.
- Terminal:** A terminal window showing shell commands and their outputs, including a search for "aqt" in a package directory.
- File Manager:** A window showing a file system tree with folders like iDisk, Network, and various PDF files.

```
Comice:~ npirzkal$ ls
Hello Nor, please give me a command
: dev aqt
Can't find entry for aqt in any of /scisoft/1386/Packages/sm-2.4.16/lib/sm/graph
hcap.local /scisoft/1386/Packages/sm-2.4.16/lib/sm/graphcap
Can't get graphcap entry for aqt
No such device aqt
: dev aqt
: box
: 
```

```
clpackage/:
clpackage/
color/
ctio/
data/
dms/
fitsutil/
PyRAF 1.3 (2006N
Python 2.4.3 Cop
Python/CL comman
.help describes executive commands
--> disp dev$pix 1
z1=35. z2=346.0218
--> !mhist dev$pix
--> 
```

The Tools

- Pretty much any tool you might be using under Linux will work under OSX
- Use X11 based application you know, if needed (XV, Xemacs, etc...)
 - Most Linux X11 and/or text based packages have been ported (e.g. Fink)
- But, there are many few or low cost tools in OSX that take full advantage of the OS

Why OSX helps?

- Consistent display and printing: use PDF for everything
- Use non X11 based tools and you have OSX integration to work with (e.g. PDF, seamless field format conversion etc...)
- Consistent behavior: e.g. cut-and-paste of text and graphics between all OSX applications: mail, web browser, terminal, etc... and even X11 for text

IRAF and other tools?

- IRAF, MIDAS etc... are fully ported to OSX
- Pyraf works even better
- Note: Need to move from ximtool to DS9 though
- Supermongo, Gnuplot: with a PDF display interfaces in OSX
- Choice of applications is *LARGE*

LaTeX?

- LaTeX is well supported
- Classic shell / vi mode or,
- TeXShop like interface
- Built-in syntax highlighting,
 - Default use of PDF figures and outputs clear PDF

OSX at STScl

- OSX offers several advantages:
 - You retain superuser / administrator privileges: *you* can install software when *you* need to
 - Stable platform
 - Excellent support for printing, peripherals (thumb drives, CD / DVD writing etc...

Bottom Line

- OSX does not get in the way
- Most of the tools you use today still work under OSX
- But, better tools **are** available under OSX
- You can get working immediately w/o having to learn the system, and
- You can get to make use of the features OSX has to offer as time goes by: ask other OSX users etc...