

ETC-42 for Wish

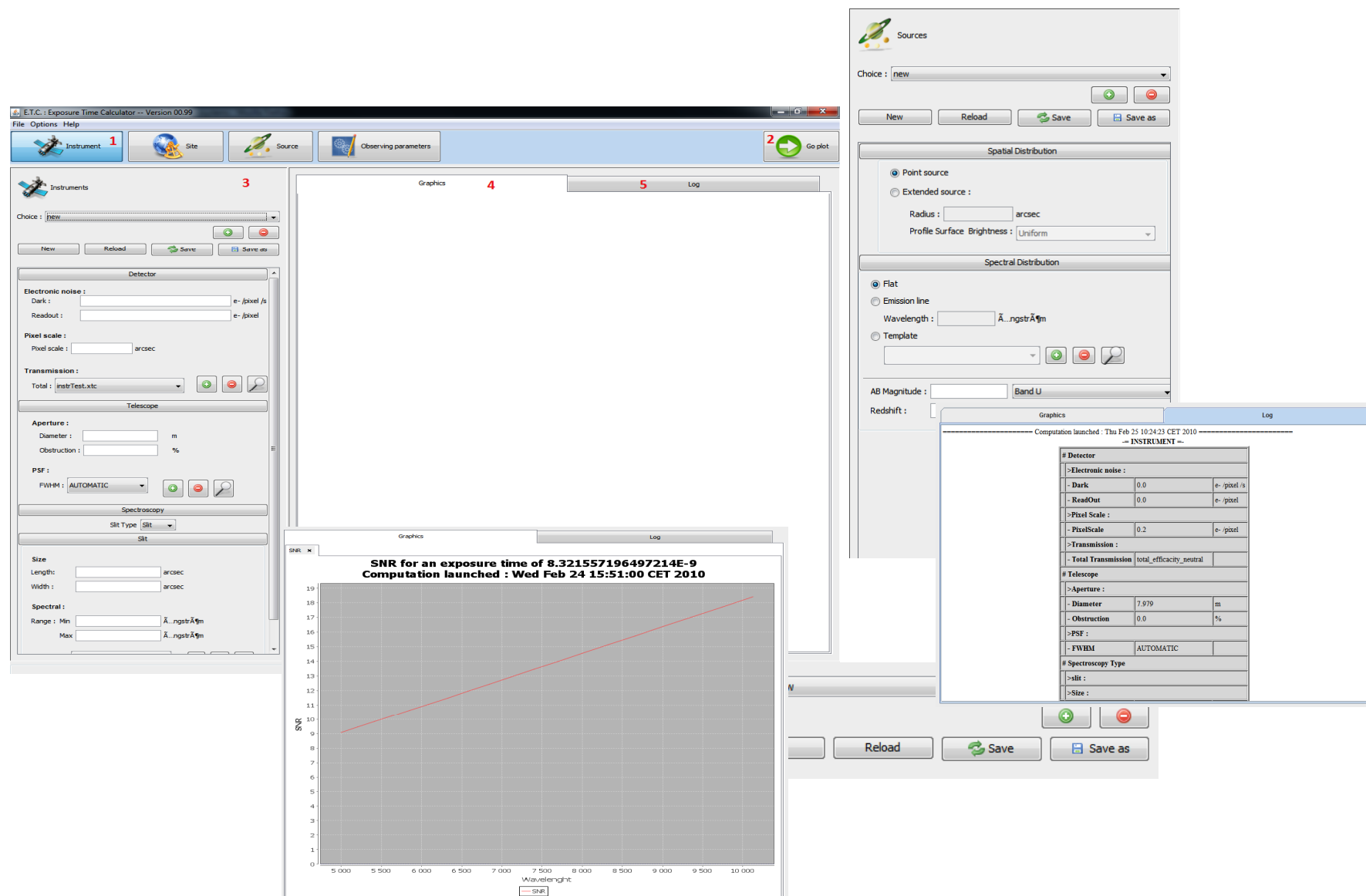
Christian Surace, Jean-Charles Meunier, Anthony Gross

- ETC as generic tool

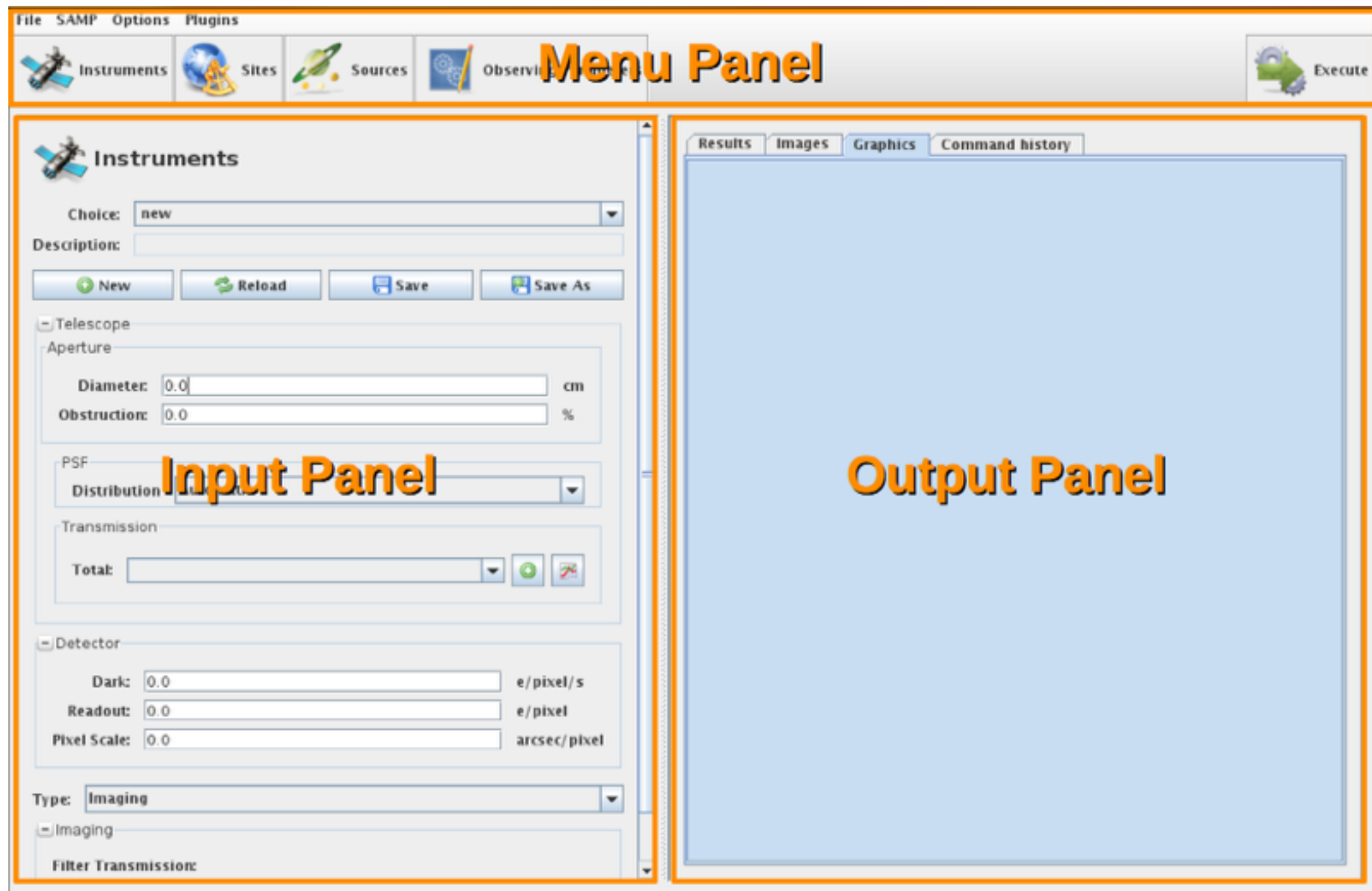
ETC-42 Introduction

- What is it?
- Don't we have enough of them already?
- ETC-42 is a **generic** ETC
 - Not designed for a specific instrument Very flexible calculation of the SNR
 - Easily extensible to reach any requirements Targets a broader range of users
- ETC-42 for wish
 - use the fixture wish :
 - *java -Detc.fixtures=wish -jar ETC.jar*
- Needs for wish
 - extend zodiacal light spectrum
 - characteristics of transmission curve
 - information on filtes
 - information on observational modes

DEMO



ETC-42 Main Window



Menu Panel

File SAMP Options Plugins

Instruments Sites Sources Observations Execute

Input Panel

Instruments

Choice: new

Description:

New Reload Save Save As

Telescope

Aperture

Diameter: 0.0 cm

Obstruction: 0.0 %

PSF

Distribution: 

Transmission

Total:  

Detector

Dark: 0.0 e/pixel/s

Readout: 0.0 e/pixel

Pixel Scale: 0.0 arcsec/pixel

Type: Imaging

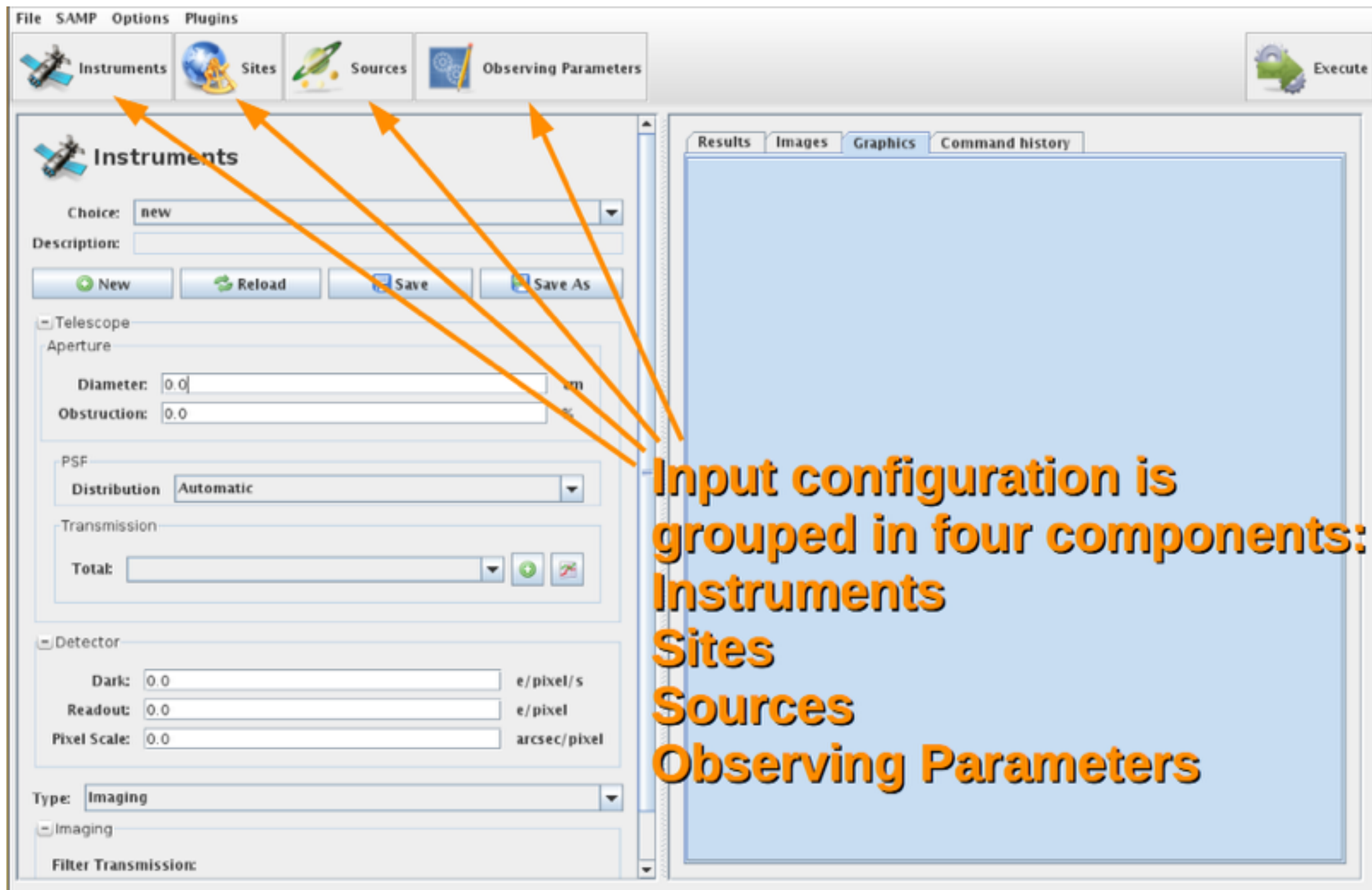
Imaging

Filter Transmission:

Output Panel

Results Images Graphics Command history

Input configuration



File SAMP Options Plugins

 Instruments  Sites  Sources  Observing Parameters  Execute

Obstruction: 0.0 %

PSF
Distribution: Automatic

Transmission
Total:  

☐ Detector
Dark: 0.0 e/pixel/s
Readout: 0.0 e/pixel
Pixel Scale: 0.0 arcsec/pixel

Type: Spectrograph

☐ Spectrograph
Range
Min: 0.0 A
Max: 0.0 A
Spectral Resolution (per pixel):  

Type: Slit

Slit
Length: 0.0 arcsec
Slit Width: 0.0 arcsec

Results Images Graphics Command history

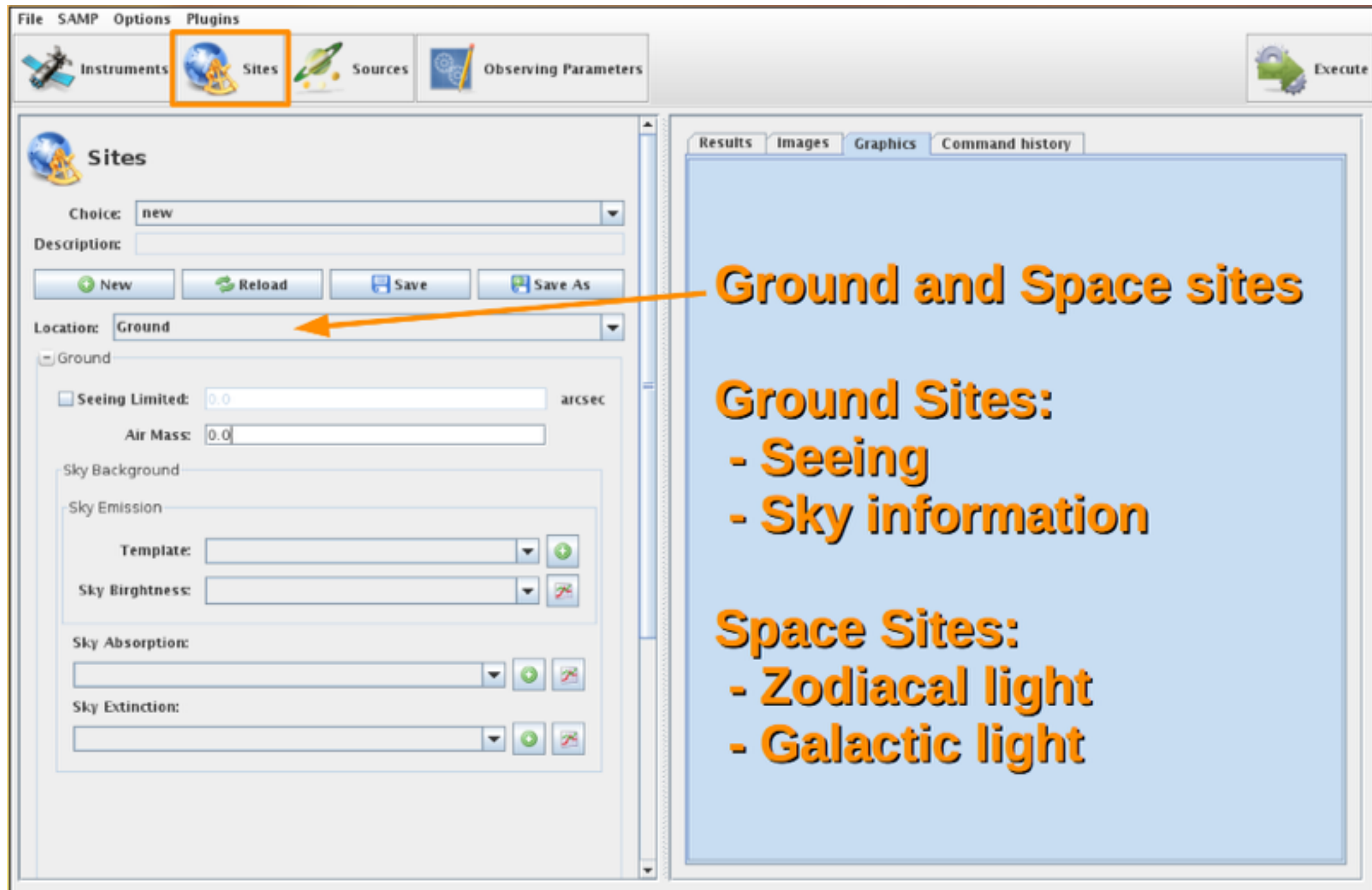
PSF modes:

- Automatic
- Gaussian FWHM profile

Instrument types:

- Imager
- Slit Spectrograph
- Fiber Spectrograph
- Slitless Spectrograph

Site Configuration



Ground and Space sites

Ground Sites:

- Seeing
- Sky information

Space Sites:

- Zodiacal light
- Galactic light

Source configuration

Sources

Choice: new

Description:

New Reload Save Save As

☐ Magnitude

AB Magnitude: 0.0

Band: U (3600)

☐ Spatial Distribution

Type: Extended Source

Extended Source

Radius: 0.0 arcsec

Surface Brightness Profile: Uniform

☐ Spectral Distribution

Type: Black Body

Black Body

Temperature: 0.0 K

Spatial Distribution:

- Point Source
- Extended Source (circularly symmetric)

Spectral Distribution:

- Continuum
- Black Body
- Emission Line
- Template

Observing parameters configuration

Observing Parameters

Choice: new

Description:

New Reload Save Save As

Fixed Parameter: Fixed Exposure Time

Fixed Exposure Time

Exposure Time: 0.0 sec

Time Sample

☒ DIT: 0.0 sec

☐ N. expo: 0

Spectral Quantum

☐ Spectral Pixel

☒ Spectral Resolution Element

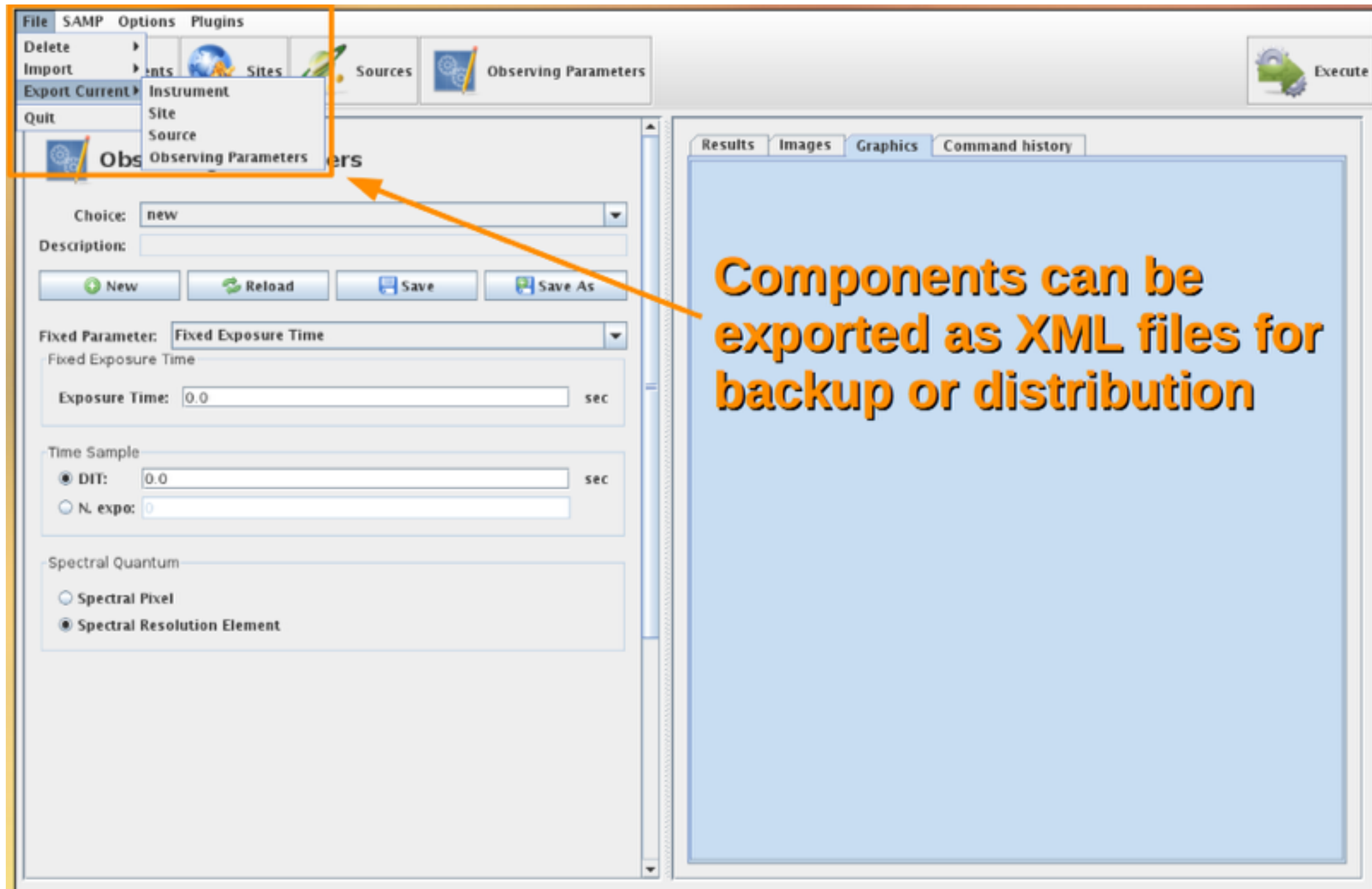
Calculation for:

- Fixed exposure time
- Fixed SNR

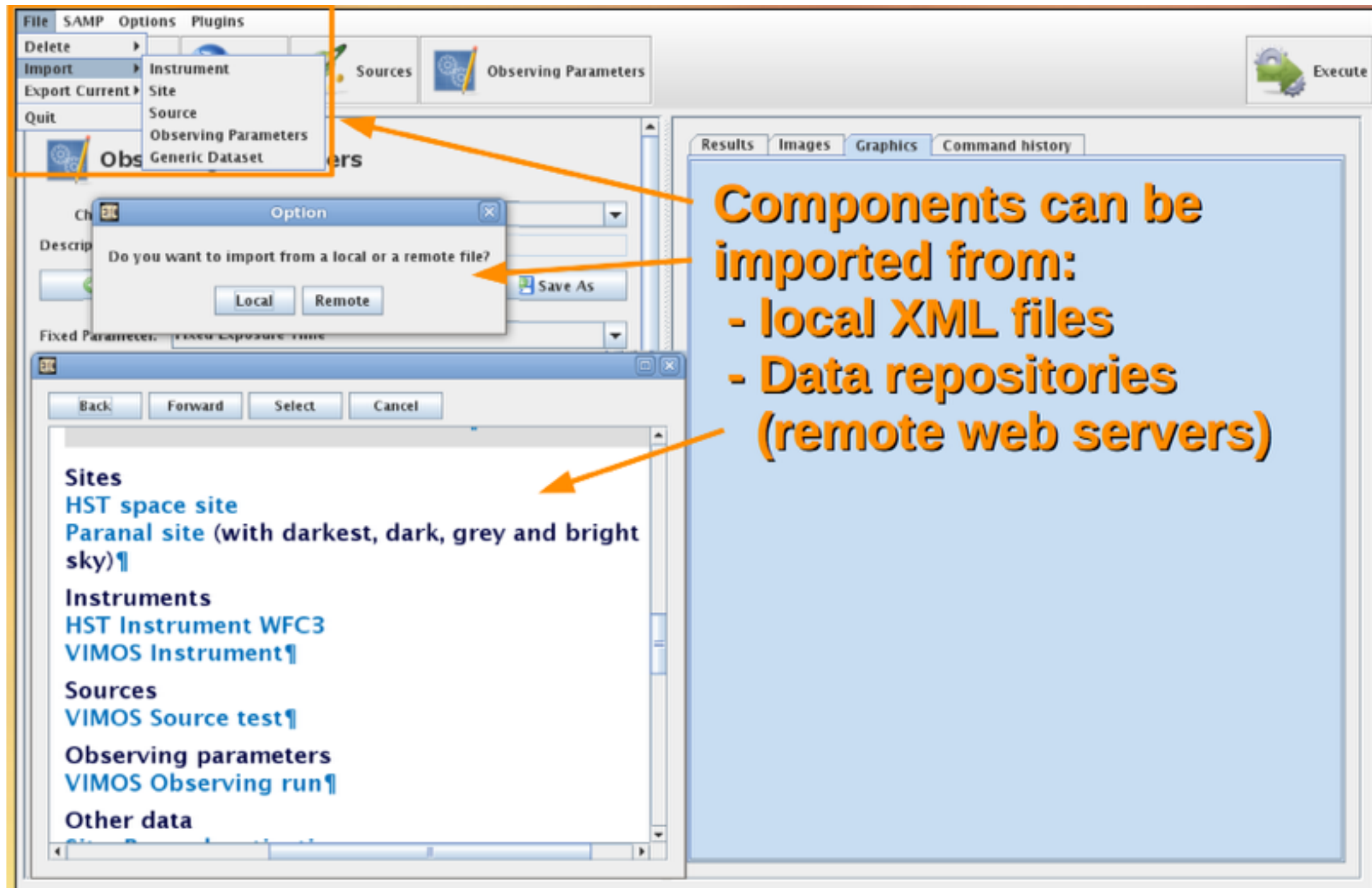
Calculation in spectroscopy mode:

- Per spectral pixel
- Per spectral resolution element

Export functionalities



Import functionalities



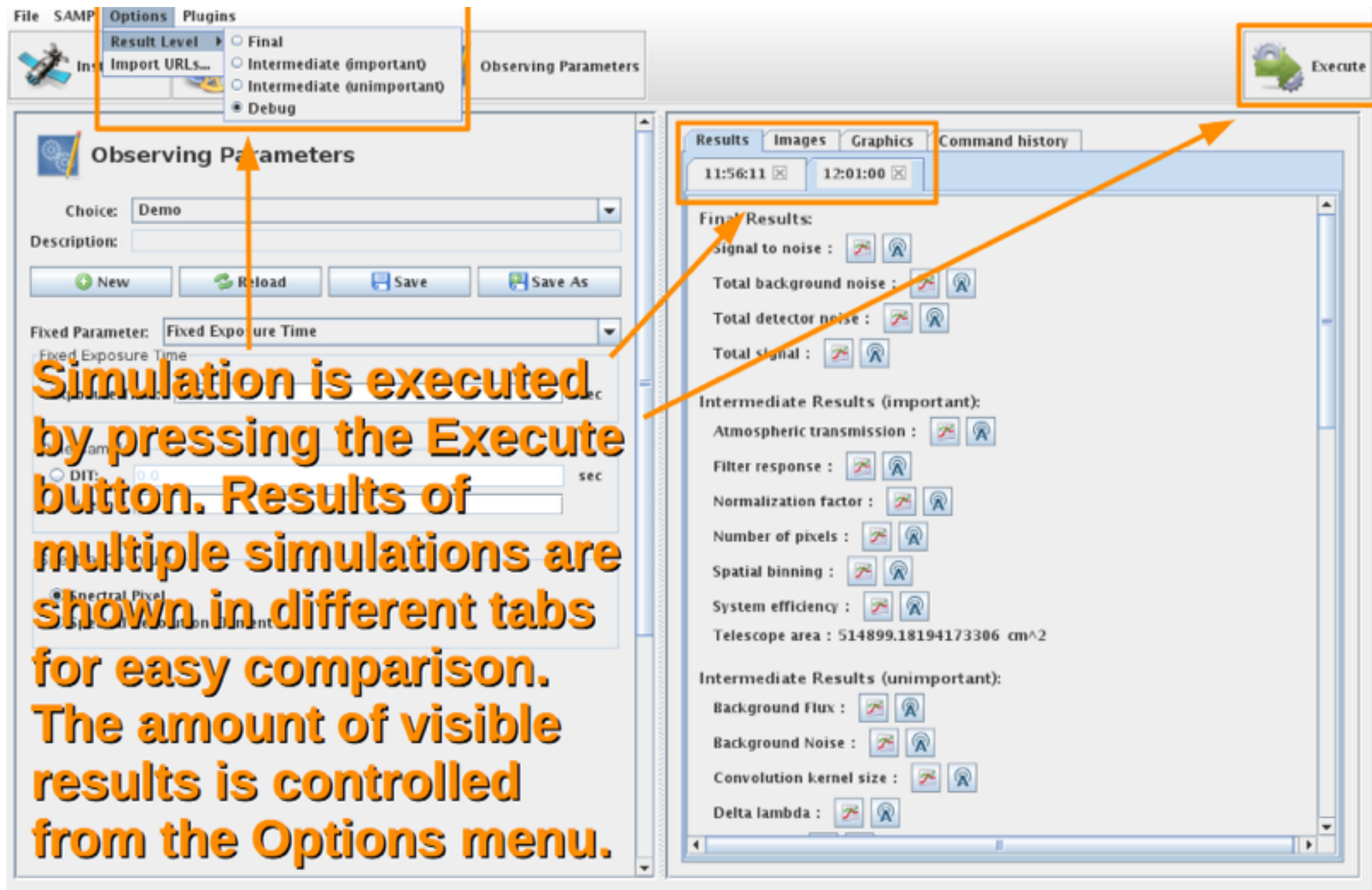
Virtual Observatory import

The screenshot shows the SAMP (Sky Access Management Platform) interface. The 'Sources' panel is active, displaying fields for 'Choice' (set to 'new'), 'Description', 'AB Magnitude' (0.0), 'Band' (U (3600)), and 'Redshift' (0.0). Below these are sections for 'Spatial Distribution' (Type: Point Source) and 'Spectral Distribution' (Type: Template). An orange arrow points from the 'SAMP' menu in the top toolbar to the 'Connect to hub' and 'Disconnect from hub' options. Another orange arrow points from the 'Template' dropdown in the 'Spectral Distribution' section to a dialog box titled 'Option'.

Source spectral distribution template can be imported via SAMP as a spectrum type

The 'Option' dialog box contains the text: 'Do you want to import a new template from VO ?' with 'Yes' and 'No' buttons.

Simulation Results



The screenshot displays the CeSAM software interface. The 'Options' menu is open, showing 'Result Level' with options: Final, Intermediate (important), Intermediate (unimportant), and Debug. The 'Execute' button is highlighted in the top right. The 'Observing Parameters' section on the left includes a 'Choice' dropdown set to 'Demo', a 'Description' field, and buttons for 'New', 'Reload', 'Save', and 'Save As'. Below this, 'Fixed Parameter' is set to 'Fixed Exposure Time'. The 'Results' tab on the right shows 'Final Results' with metrics like 'Signal to noise', 'Total background noise', 'Total detector noise', and 'Total signal'. It also lists 'Intermediate Results (important)' such as 'Atmospheric transmission', 'Filter response', 'Normalization factor', 'Number of pixels', 'Spatial binning', 'System efficiency', and 'Telescope area'. 'Intermediate Results (unimportant)' include 'Background Flux', 'Background Noise', 'Convolution kernel size', and 'Delta lambda'. Two time ranges, '11:56:11' and '12:01:00', are selected in the 'Results' tab. Orange arrows point from the text overlay to the 'Options' menu, the 'Execute' button, and the 'Results' tab.

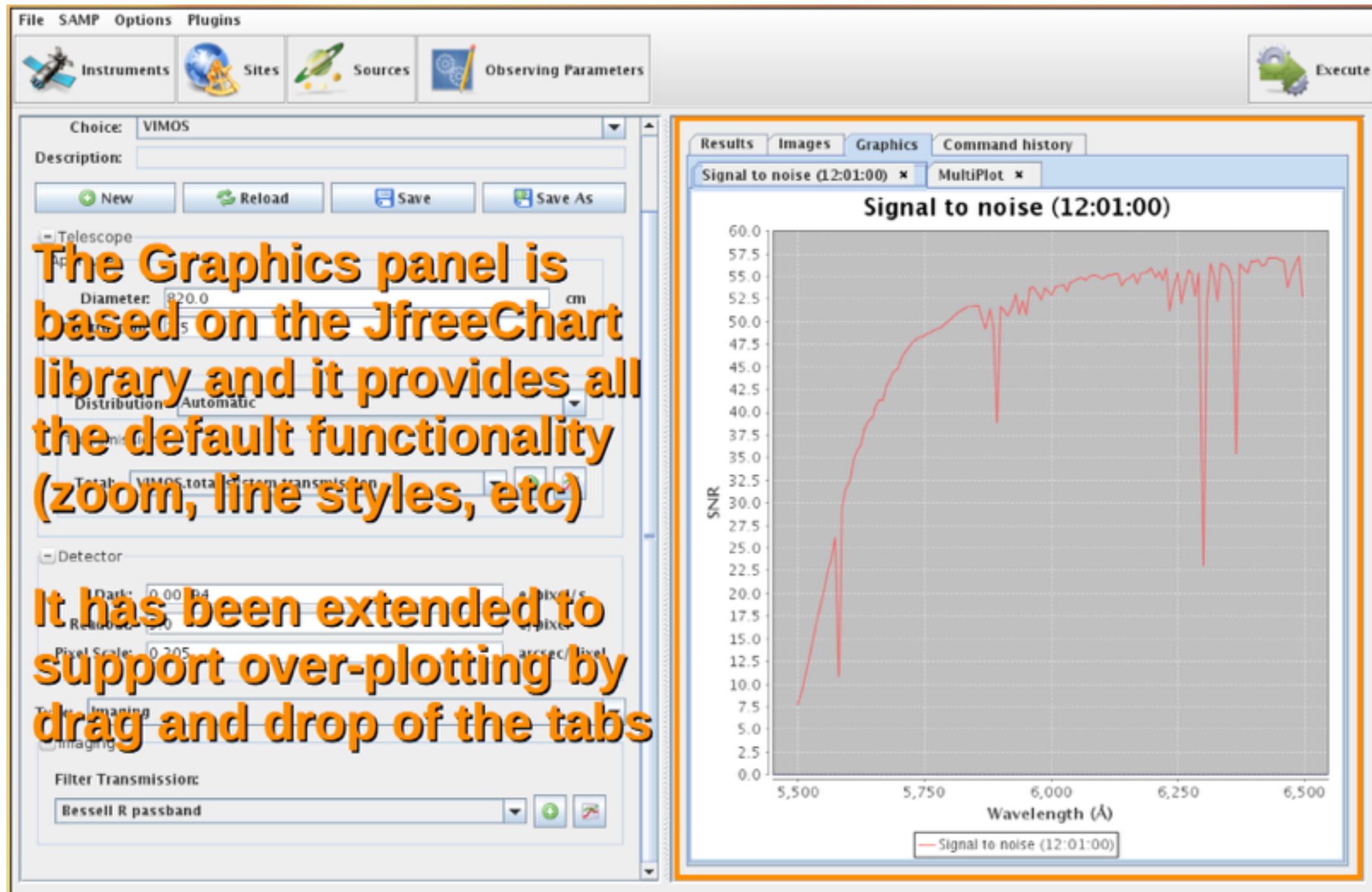
Simulation is executed by pressing the Execute button. Results of multiple simulations are shown in different tabs for easy comparison. The amount of visible results is controlled from the Options menu.

Simulation results II

The screenshot displays the SAMP (Simulation And Modeling Platform) software interface. The main window is divided into several panels. On the left, the 'Observing Parameters' panel is active, showing settings for a 'Demo' choice, including exposure time (1000.0 sec) and number of exposures (1). The right panel shows the 'Results' tab, which contains a list of simulation results such as 'Signal to noise', 'Total background noise', 'Total detector noise', and 'Total signal'. Each result has a small icon next to it. A dialog box is open in the foreground, asking the user to 'Please select the application to send the VO table to:', with 'topcat' selected in the dropdown menu. The dialog has 'OK' and 'Cancel' buttons. The background text overlay reads: 'Results can be viewed in the graphics panel or be broadcasted via SAMP as a VOTable'.

Results can be viewed in the graphics panel or be broadcasted via SAMP as a VOTable

Graphic panel



Command Line Mode

ETC42 - Command Mode

```
ETC42> help
Available commands:
ls
save
set
calculate
mkdir
list
sh
script
echo
outprefix
exit
help
pwd
current
load
outlevel
cd
ETC42>
```

The command line mode provides several commands for setting the input configuration

```
File Edit View Terminal Help
ETC42> sh cat script.etc
load instrument VIMOS
load site Paranal
load source Demo
load obsparam Demo
outprefix results/
calculate
ETC42>
```

The command **sh** can be used to execute native terminal commands

```
File Edit View Terminal Help
ETC42> ls
script.etc
ETC42> sctipt script.etc
```

command can be executed from a file as a script, using the « script » command

```
File Edit View Terminal Help
ETC42> help calculate
Description: Executes a SNR calculation with the current configuration.
Usage: calculate

ETC42> help outprefix
Description: Sets the prefix which will be used for the files where the
results will be saved.
Usage: outprefix <prefix>
where <prefix> is a string consisting of letters, numbers or the underscore (_)
ETC42>
```

The “calculate” command runs the simulation and saves the results in ASCII files. Results of multiple simulations can be distinguished by using the “outprefix” command

More information

ETC-42 web page :

<http://projects.lam.fr/projects/etc>

Please help yourself :

- Download the ETC-42
- Download documentation
- Download configuration files
- Report bugs
- Request new features
- Stay updated with latest news via Atom feed

Want to contribute

Please:

- Download and use the ETC-42
- Use ETC-42
- Contribute instrument and site configurations
- Suggest new features
- Build and contribute plugins
- Needs for wish
 - extend zodiacal light spectrum
 - characteristics of transmission curve
 - information on filters
 - information on observational modes

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Special thanks

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