

Exposure Time Calculator Documentation

January 15th, 2020

Overview

The WMKO Exposure Time Calculator (ETC) provides a more cohesive, standardized, and centralized exposure time calculator hub for WMKO instruments. This is a web-based calculator that will be updated as new instrument calculators become available. The ETC can be downloaded and run on your personal computer, or the released version can be run in most browsers at this link: <https://www2.keck.hawaii.edu/inst/PILogin/etcgui/>

The GitHub Repository is here: <https://github.com/KeckObservatory/exposureTimeCalculator>

Requirements

We recommend that this project should be run with Anaconda Python 3.5 or above. The current Python library requirements for this project are as follows:

- astropy
- bokeh [v1.0.4]
- flask
- getpass
- importlib
- matplotlib
- numpy
- psutil
- pysynphot
- scipy

How to Download and Run the ETC

Navigate to the desired location on your computer and clone this repository by running the command:

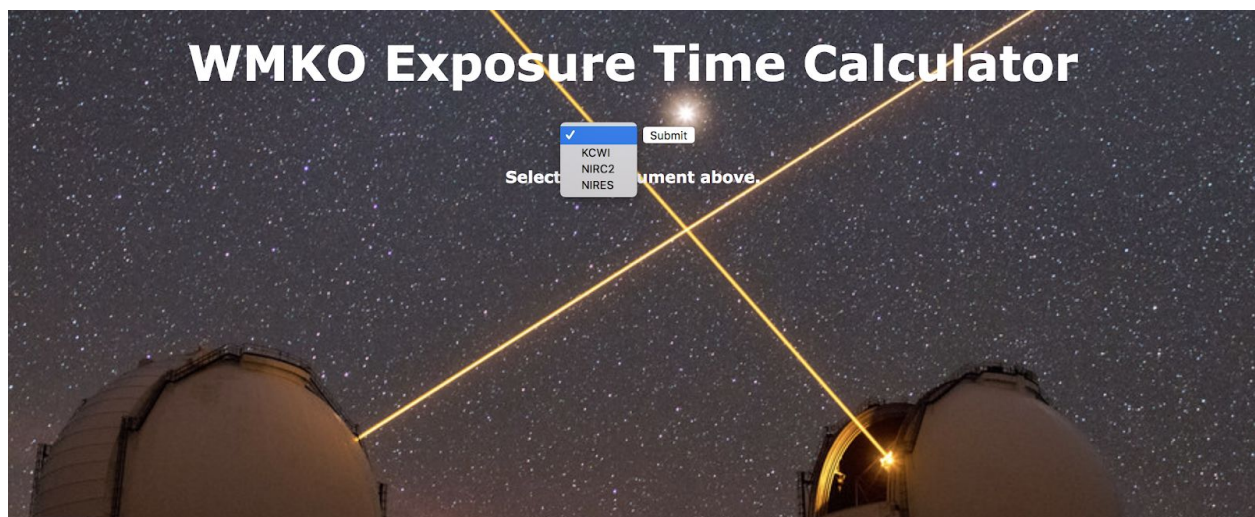
```
git clone https://github.com/KeckObservatory/exposureTimeCalculator.git
```

Edit line 27 of etc.py to change the port to an unoccupied value (if the default of 50008 is unoccupied, there's no need to change this unless you want to). Start the ETC with this command:

```
python3 etc.py
```

This will start a webpage on your localhost at the specified port number.

Using the ETC



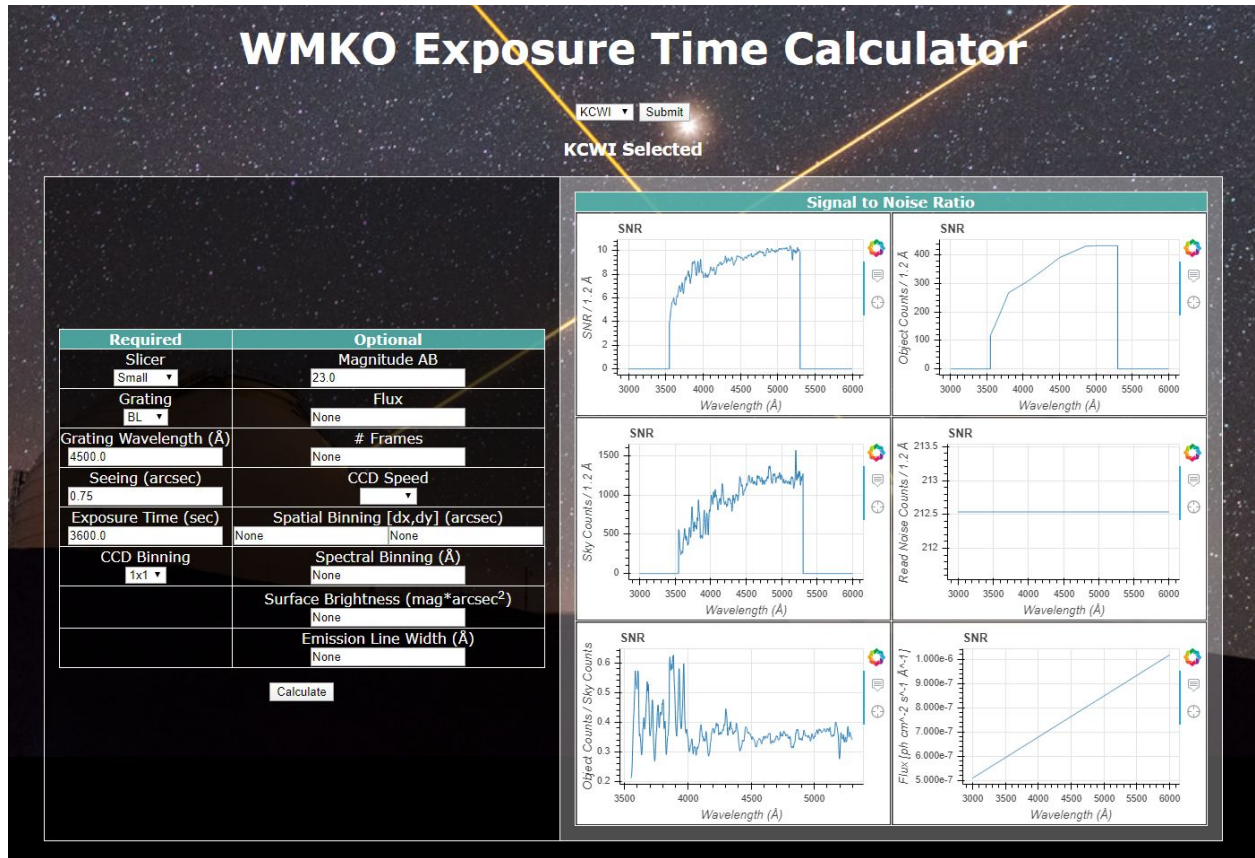
In your web browser, enter the following line in the URL to bring up the ETC (substitute new port number if you changed it earlier):

```
localhost:50008/etcgui/
```

Selecting the desired instrument will initialize the instrument-specific input window. See the WMKO instrument homepage at <https://www2.keck.hawaii.edu/inst/index.php> for details on the instruments.

For an in-depth of the Signal-to-Noise Ratio calculations, please see http://www.astrosurf.com/buil/us/spectro8/spaude02_us.htm.

KCWI



NIRC2



NIRES

WMKO Exposure Time Calculator

NIRES ▼

Submit

NIRES Selected

Exposure	Object
Exposure Time (sec)	Magnitude
3600.0	18.2
Coadds	Source
1	Point Source ▼
Dither Pattern	Redshift
AB ▼	2
Repeats per Dither	Effective Temperature (K)
1	5000
# Reads	Obs Wave (μm)
16	2.2
Seeing (arcsec)	
0.6	

Calculate

Signal to Noise Ratio

14.07