

Lab 6 -Extrasolar Planets

Transiting Exoplanets are imaged according to the predicted begin, middle, and end of transit. Transit times are often under two hours, with the entire transit typically being imaged. Pre chosen exoplanet targets and transit times, come from the Exoplanet Transit Database (ETD) main page, and times are accurate to within several minutes.

<http://var2.astro.cz/ETD/predictions.php>

With the target in the field of view, and the autoguider running, in the **Take Image** tab, confirm the correct exposure and binning of your target, determined during setup. For this example we use 1minute exposures.

Determine now, what time to start imaging

For extrasolar planets, imaging begins ~15 minutes before the predicted beginning of transit, and ends ~15 minutes after the predicted end of transit. This yields a complete set of data covering the entire event, typically 90-120 minutes.

For example: Suppose the predicted beginning, middle, and end of a transit is 7:15, 8:00, and 8:45 pm. If we determined an exposure of 60 seconds, and we want data to extend beyond the beginning and end of the event, in CCDSoft choose:

exposure	1 minute	(for each image)
delay	60 seconds	(between each image)
series of	60	(N images)

Here we begin imaging at 7:00 pm to finish 120 minutes later at 9:00 pm.

Take data using CCDSoft

With all image parameters determined and selected, under **Autosave**, create a desktop folder with an appropriate title containing the object name, your name, and date:

For a Transiting Exoplanet:

TrES-3b Peter 091713 = Extrasolar planet TrES-3b, Peter, taken 9-17-13

*Be sure **Autosave** is turned on, with your folder selected, or the images will be lost!*

With the autoguider running, hit **Take Series** to begin the two hour imaging run, and save the data to folder. Observe the first couple cycles to confirm everything is working correctly. Each image is displayed, with a running count, and autoguider corrections are shown in the autoguider tab.