



## CE Astronomy AP Workshop 2 – Through a Telescope

By Van Macatee

In this session, we will build on the techniques we covered last month by moving the camera from a tripod to a telescope/mount. We will be using a method called PRIME FOCUS where the telescope replaces the lens on your camera. The overarching goal is to learn the techniques necessary to polar align a mount, attach a camera and experiment with camera settings to capture as many photons as possible while minimizing noise/sky glow and keeping the stars round. This is a big and important step so make sure to do your homework and insure you are familiar with your gear before hand! Also make sure your camera is preset as per last month's workshop. Recommend ISO 1600 and 60 second exposures as a starting point.

We will not be using guiding this month. That will be next month's topic... Guiding is the key that unlocks really long exposure imaging but demands that we master this month's techniques.

### Upcoming Workshops

Workshop 3 – Auto Guiding

Workshop 4 – Introduction to AP image processing in PixInsight

Workshop 5 – Deep Sky Imaging 202

Workshop 6 – Advanced AP processing in PixInsight

### Workshop 2 Objectives

1. Become familiar with the process of setting up and aligning mount.
2. Attach a camera to the telescope.
3. Balance the mount.
4. Achieve focus.
5. Slew to and frame a target object.
6. Experiment with exposures duration and ISO to determine the practical limit of un-guided mount tracking.
7. Shoot a series of 10 light subs at optimal exposure duration for later stacking.
8. Shoot a series of 10 dark subs and 10 bias subs for later calibration.
9. Add stacking/calibration to your at-home workflow.

### Workshop 2 Image Targets

1. Pleiades – M45 (try to pull out the nebulosity around the star cluster)
2. Bonus Target – M1

### Workshop 2 Equipment List

1. *Everything from the 1<sup>st</sup> workshop list, <http://ceastronomy.org/blog/wp-content/uploads/2015/12/APsession1.pdf>*
2. *Telescope – something with a shorter focal length preferred but bring what you have.*
3. *Mount – preferably a German Equatorial Mount (GEM). Familiarize your self with your mount's alignment procedure before hand!*
4. *Polar Scope for your mount if you have one.*
5. *T-Mount – used to attach camera to scope. Note – set up at home BEFORE the workshop to make sure you are ready and can achieve focus on a distant terrestrial object.*
6. *Power supply for Mount*
7. *Charge those Camera Batteries!!*

### When you get home....

1. *Following the steps from workshop 1, download your light, dark and bias subs.*
2. *Stack, de-Bayer and calibrate your subs.*
3. *Process your new master light image.*
4. *Save and post to the CE Facebook page!*

*Note – We are researching a way to create a 'feedback gallery' where images can be posted for comment and collaboration. More on that later...*