

# Astronomy Observatory - 14" Telescope Operations

## *Starting Up*

If you plan to use the CCD, the computer to control it needs to be taken out of darkroom 1104. The set up and use of the computer and CCD is on a different page.

- Open roof.
- Remove dust cover from 14".
- Move stepladders away from the 14" (the telescope slews quickly and can hit and jam against a ladder if you are not careful).
- Turn on the power strip on the pier.
- Turn on the drive at the base of the pier.
- Take the hand paddle and select the "Location 1" from the options displayed.
- Press option 3 "Resume from Park". You should then be in the Main menu.
- Note the options. Option 5 should say B:64. This determines how fast the telescope will move using the buttons on the hand controller. You can either adjust this now or later. For example, to set the button speed to 12 (slower), press "5" until the display reads B:12.
- Now select "Objects" from the main menu, and then select "Stars". Scroll through the list of named stars until you find one that you can recognize in the sky that is more than 20 degrees away from Polaris and is not going to be crossing the local meridian in the next 10 or 20 minutes. You don't want a star that will cross the meridian while you are aligning the telescope as that will confuse the telescope about which side of the pier it is on.
- Once you have selected your star by pressing the number next to the name, you will be given a screen of information about the star. Press the "GO TO" button on the bottom left of the controller to slew to the star.

**NOTE: Locate the "Stop" button on the controller BEFORE you slew the telescope. It can be found between the directional control keys. The telescope slews VERY quickly, and you need to be ready to hit that button if it is going to run in to anything.**

- When the telescope stops moving, check to see that it is on the correct star and use the hand controller to center the star in the eyepiece. (If the finding speed is too fast or slow, you can hit the Menu button to get back to the Main menu and adjust the B rate.)
- Press the Menu button once to get to the Main menu. Select "9" for the RCal option to calibrate the telescope. It is now ready to use!
- If you end up transiting a couple of times during the night, the telescope may not center as well. Just send it to the nearest bright star that you can identify, center it and RCal on it, and then go back to your target.

## *Operating the 14"*

The telescope can be used with both the hand controller and the computer. The directions for using the telescope with the computer can be found on another page.

- To slew to objects using the hand controller, go to the Objects menu. Select from the cataloged deep space objects (M for Messier, NGC), solar system objects (SOL), or named stars available in the Objects menu. When you select an object, information about it will appear first. To slew to the object, press the "GO TO" button.
- You can change the finding speed (for centering in the view) by going back to the main menu and selecting option 5.
- Keep an eye on the telescope and a finger near the STOP button when slewing the telescope. The cables from the camera, dew heaters and mount are bundled and were setup to stay out of the way. They have gotten loose over time and it is possible for the cables to get caught and pinched between parts of the drive mount when the telescope transits to observe objects in the west. Keep an eye on the cables and help to flop them over, keep them from getting caught on an edge, or pinched between parts as the telescope moves around.
- There are two finder scopes; however, you only need to use the smaller one (refractor) located beneath the 14" to get your object in the field of view of the main scope. The larger one on top is an off-set guiding scope, so it is not aligned with the main scope.
- The main telescope is focused by turning the silver knob on the black cylinder which protrudes from the back of the telescope.

### ***Common Problems***

- You can't see anything through the eyepiece. There is a knob below the eyepiece that controls the diagonal mirror sending images to either the CCD or the eyepiece. Turning the knob will flip the mirror into position and you should be able to see.
- The hand controller freezes. We are not sure this is actually a common problem yet, but it has happened. If this happens to you, turn off the power to the telescope for 10 seconds. Then turn the telescope back on and use the arrow keys to move the telescope down into park position. Turn off the telescope. Put a sign on the telescope to alert the next users that the telescope was not officially "parked" and that the alignment may be further off than usual. Let Elizabeth know what happened.
  - If this happens and you still need to observe, start the setup procedure after you have manually parked the telescope as described above. However, when it starts to slew towards your calibration star, it may slew the wrong way. Just stop the scope, and then manually (using the arrow keys) move the telescope to point at the star and RCal as before. You should be good to go.
- As you run into problems with the telescope, let Elizabeth know so that they can be added to this section.

### ***Shutting Down***

- Turn off the temp control on the camera and disconnect the link if the CCD was used and shut down the computer.
- Press the MENU button until you reach the Main menu. Then select the "Set Up" option.
- Scroll through your set up options until you reach the "1, 2, 3 Park". Select "1" for parking in position 1. The telescope should slew to the park position.
- When the telescope has stopped slewing, hang the keypad back on the pier.
- Turn off the drive (base of pier) and the power strip.
- Put on the lens (dust) covers.
- Disconnect and put away the computer if it was used.