Welcome to ASTROTEL-Namibia.

Our observatory is equipped with the following equipment

- 16" Dream corrected astrograph F/3.75
- Astelco NTM-500 direct drive mount
- Apogee Alta U-16M camera 4096x4096 pixels
- Astrodon par focal filters:
  Luminance, Red, Green, Blue, H-a, O-III, S-II
- Control computers and controllers

All equipment is already connected and preconfigured.

It is not allowed to make any changes and modifications on the setup!

It is very important to follow this manual step by step to be able to run

the Observatory with no problem and get the best results.

Please be patient! Wait for some time after each step for the system to settle.

We propose you keep all the equipment and computers running for the whole period

during your observations. This will ensure best results and less temperature stress for the camera.

- Plan your observations in advance. Choose the objects, filters and exposures
  before you start.
- Come to the control room at least in one hour before sunset.
- Be sure the weather conditions are good and stable.
- Check the main power conditions. UPS should be on, with battery bar full green.
  If no, check the main power socket switch.
- Switch on the control computer by pressing the small black button on the PC front panel.
- Windows should start automatically.
- Open Internet Explorer. ADAM remote power controller page will start.
- Enter the ADAM controller password **00000000**. Press **Enter**.
  - Press **DO0** to power on the tower. Wait 10 sec
  - Press **DO1** to power on focuser and the filter wheel. Wait 10 sec
  - Press **DO2** to power on the main camera. Wait 10 sec
  - Press **D03** to power on the NTM mount. Wait 30 sec
  - Press **D04** to switch on the light on the tower
  - Press **D05** to switch on the weather sensor. Wait for the weather station to start.
- From the **Internet Explorer**, **Favorites** menu:
  - Check All Sky camera page for sky conditions.
  - Check the In Dome camera page to ensure the telescope is in horizontal park position.
- Go to the roof control cabinet. Switch from **Auto** to **Manual**. Press **Open** button to open the roof.
   It should take 15-20 seconds. Then the green light will go off.
- Go up to the telescope tower and open the aperture cover.
- Come back to control computer.
  - Start **MaxIm DL5**.
  - Go to **Camera control** window, **Setup** tab

- o Connect camera and turn on the cooler. The Apogee camera cooler can make up to 40 degrees temperature delta. We recommend setting a temperature level at *-10C*. Cooler power level should not exceed 70%. It will take 20 minutes for the camera to cool down.
  - o Go to **Observatory control** window, **Setup** tab.
  - o **Connect** the Telescope and Focuser.
  - o Go to **Telescope** tab. **Unpark** the Telescope.
  - o Ignore any warnings if appear.
  - o Wait for the cooler to stabilize the temperature.
- Go to **ADAM** controller WEB page. Press **DO4** to switch off the light on the tower.

You are now ready for imaging:

- Input you target coordinates from **Observatory Control** window using **Telescope**, **All Sky** or **Catalog** tabs. Press **Go To**.
- Setup your exposure parameters at **Camera Control** window using **Expose** tab.
- You can use **Autosave** sequence menu to make a series of images.
- Setup your guiding parameters at **Camera Control** window, using **Guide** tab.
- Guider calibration can be done at **Camera Control** window, using **Guide** tab.
- To auto focus the telescope:
  - o Select a star to focus on.
  - o Start **Observatory control** window, **Focus** tab.
  - o Press **Autofocus, Start** button.
- You can also adjust the focus manually at **Observatory Control** window, using **Focus** tab. We recommend to use the increment of 10 steps. The good focus usually is achieved at about **900** focuser steps reading.

Emergency situations:

- If for some reason control computer will not work properly, just restart the computer. The mount and the camera will keep working by itself.
- There is a small restricted area for the mount movement, as the scope hits the sidebars of the tower.
  In this case it will stop in emergency state. The error message will display at the driver program.
- At this situation first acknowledge the error message and try to slew to another point.
- If that does not help, go up to the top of the tower, press "release brakes" button on the mount and while keeping it depressed,
  move the telescope by hand to a safe position. After this you can clear errors at the driver and slew the telescope to another position.
- While imaging keep an eye on weather station. It is recommended to turn on sound alarm on **Rain** and **Very Cloudy** statements.
- If the weather became unsafe during the **ACP** imaging, the system will automatically abort the exposure and park the telescope to a safe position.
- The telescope Dome cover will stay open though.

Shutting down the observatory:

- Go to MaxIm DL, Observatory control window.
  - o Park the Telescope.
- Go to MaxIm DL, Camera control window.
  - o Disconnect the camera.
- We recommend NOT to switch off the power for the camera and NTM mount during all your observation period. This will eliminate the temperature stress for CCD chip.
- When you finish all your observations turn off the power as described below.

- Go to ADAM controller page at Internet Explorer
  - Press **D05** to switch off the weather sensor
  - Press **D03** to power off the NTM mount
  - Press **DO2** to power off the main camera
  - Press **DO1** to power off focuser and the filter wheel
  - Press **DO0** to power off the tower
- Close all the running programs at the control computer.
- Go up to the tower and close the telescope aperture cover.
- Check the telescope is in horizontal park position.
- Close the roof by pressing the **Close** button at the roof control cabinet.
- While depressing the button, wait until the green light go off.
- Switch the roof control cabinet back to "auto" mode.
- Copy your images to your USB steak from control computer.
- ***Do not leave any of your files on that PC!***
- Switch off the control computer.

We hope you enjoy using Astrotel Tivoli Observatory.

If you need any help or assistance you can contact me at:

E-mail: bsatovski@gmail.com

Skype: boris.satovski

Mobile: +79857860052

Best regards

Boris Satovski