POLAR ALIGNMENT STAR DRIFT METHOD

17 September 2005 – 22:00 local time
Vixen 4" refractor
GP mount
Skysensor 2000 PC
Barlow 3x
Vixen 12mm illuminated reticle eyepiece.
Diagonal

First make a rough polar alignment using the mount's polar axis scope.

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1. Adjust mount in azimuth
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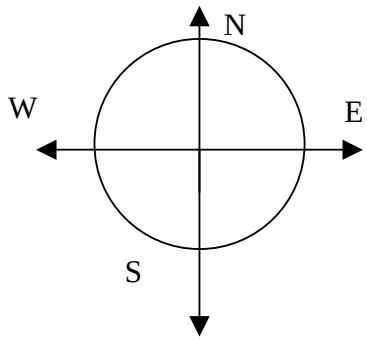
- pick a star where the Meridian and the Celestial Equator meet (**due south**, about 0 degrees in declination and 60 degrees altitude). The star should not be too bright (about magnitude 5-6)

I selected *η aquila*: RA: 19h 52m 28.368s Dec: +01°00'20.378"

- Use an illuminated reticle eyepiece and center the star. Align the eyepiece's crosshairs with the north-south and east-west directions. When the motors are stopped the star drifts to the west...

- Once the crosshairs are oriented place the star on the horizontal line again.

- Let the telescope track for a minute or so. You will see the star begin to drift off the line. It will drift either above the horizontal line (north) or below the horizontal line (south). Ignore any east-west (right-left) drift.



*** If the star drifts up (north) use the mount's azimuth adjustment knobs to move the mount so that the star appears to move right (east) in the field of view.**

*** If the star drifts down (south) use the mount's azimuth adjustment knobs to move the mount so that the star appears to move left (west) in the field of view.**

- Use the hand controller to move the star back onto the horizontal line. Let the star drift again. Adjust the mount in azimuth until the star does not drift up or down the horizontal line. Again, ignore any left-right motion. **Once the star stays for 5 minutes on the horizontal line without any up or down drift, the mount is accurately aligned in azimuth**.

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2. Adjust mount in altitude

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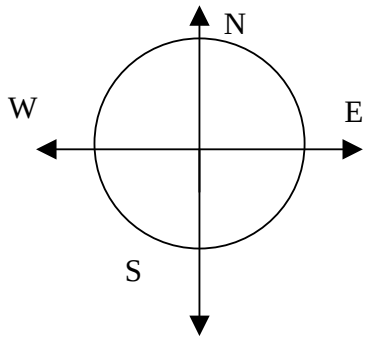
- pick a star in the Eastern horizon near the celestial equator (about 0 degrees declination) The star should not be too bright (about magnitude 5-6)

I selected *SAO 129009*: RA: 00h 53m 00.494s Dec: -01°08'39.337"

- Use an illuminated reticle eyepiece and center the star. Align the eyepiece's crosshairs with the north-south and east-west directions. When the motors are stopped the star drifts to the west...

- Once the crosshairs are oriented place the star on the horizontal line.

- Let the telescope track for a minute or so. You will see the star begin to drift off the line. It will drift either above the horizontal line (north) or below the horizontal line (south). Ignore any east-west (right-left) drift.



*** If the star drifts up (north) use the mount's altitude adjustment knobs to move the mount so that the star appears to move down (south) in the field of view.**

*** If the star drifts down (south) use the mount's altitude adjustment knobs to move the mount so that the star appears to move up (north) in the field of view.**

- Use the hand controller to move the star back onto the horizontal line. Let the star drift again. Adjust the mount in altitude until the star does not drift up or down the

horizontal line. Again, ignore any left-right motion. **Once the star stays for 5 minutes on the horizontal line without any up or down drift, the mount is accurately aligned in altitude**.

The latter adjustments interact with the prior adjustments. So repeat the process again to improve the accuracy checking both axes for minimal drift.

You are ready to begin imaging the heavens!

COMMENTS

(a) If no diagonal is used then in both cases this is valid about the N-S-E-W directions: