Polar Alignment

What is Polar Alignment and why do it?

- Alignment of the RA axis of the telescope mount with the polar axis of the earth.
- Necessary on Equatorial Mounted Telescopes.
- Necessary for astro-photography.
- Required for both prime-focus and piggyback photography.
- Accuracy needed and method depends on application.
Visual Polar Alignment

• Sufficient for visual use.
• Find Polaris, line up axis.
• Polar Alignment scope can help
• Not good enough for greater than approximately 5 minute exposures at prime focus
Visual Polar Alignment

- Visually align with Polaris and adjust for True North.
- Polaris is $5/6^\circ$ towards $\varepsilon$ Cassiopeia.
- Telrad rings are $4^\circ$, $2^\circ$ and $1/2^\circ$ apparent diameter.
Drift method of Polar Alignment

- Choose a star close to where the celestial equator intersects with the meridian and try to track it for some time with a high power eyepiece.

- If it seems to drift southward, the polar axis is too far east.
- If it seems to drift northward, the polar axis is too far west.

- Choose a star about 20° above the eastern horizon and track it for some time with a high power eyepiece.
- If it drifts northward, the polar axis is aimed too high.
- If it drifts southward, the polar axis is aimed too low.

- Repeat until no drift for 5 minutes.
Drift method of Polar Alignment

• More Accurate than visual methods.
• Suitable for long exposure astro-photography.
• Mount can be scribed or locked to speed setup.