

Southern Hemisphere rules #1 & #2

If a star near the meridian drifts **SOUTH** in the eyepiece of the telescope, the

- **NORTHERN** direction on our telescope axis is too far **EAST** of the **NORTH** Celestial Pole, and
- **SOUTHERN** direction on our telescope axis is too far **WEST** of the **SOUTHERN** Celestial Pole!

If a star near the meridian drifts **NORTH** in the eyepiece of the telescope, the

- **NORTHERN** direction on our telescope axis is too far **WEST** of the **NORTH** Celestial Pole, and
- **SOUTHERN** direction on our telescope axis is too far **EAST** of the **SOUTH** Celestial Pole!

The second two rules for drift alignment in the Southern Hemisphere.

If a star near the **EAST** horizon drifts **NORTH** in the eyepiece of the telescope, the

- **NORTHERN** direction on our telescope axis is too far **ABOVE** the **NORTH** Celestial Pole, and
- **SOUTHERN** direction on our telescope axis is too far **BELOW** the **SOUTHERN** Celestial Pole!

If a star near the **EAST** horizon drifts **SOUTH** in the eyepiece of the telescope, the

- **NORTHERN** direction on our telescope axis is too far **BELOW** of the **NORTHERN** Celestial Pole, and
- **SOUTHERN** direction on our telescope axis is too far **ABOVE** the **SOUTHERN** Celestial Pole!

Important rules to make drift alignment easy:

- Time your “drift times” and make sure they are consistent, or at least proportional.
- To determine star direction, move the telescope to “catch up” the star. Move the telescope sufficiently that you can easily tell what way you are moving the telescope, visually. IE, Slew it much further than needed to “catch up” the star such that you see the scope tube moving North or South, then go back to the star.
- Watch how far you move the star when adjusting the Alt and Az.
- Measure how far you move the star when adjusting the Alt and Az.

A routine process:

1. Centre on star
2. Drift for exactly 5 minutes[#]
3. Note the amount of drift in Dec.
4. “catch up” in DEC excessively to determine direction of drift
5. Re-centre on star
6. Adjust Alt or Az such that the star moves a specific amount in the eyepiece. Suggest starting at 2/3 the FOV.
7. Re-centre on star
8. Drift for exactly 5 minutes
9. Note the amount of drift in Dec. Compare this to the amount noted in point 3. If the star (for example) has moved half as far this time, you know that to get perfect alignment* you need to make exactly half the adjustment you made before.
10. Adjust Alt or Az such that the star moves the exact amount you know it needs to move, in the eyepiece.
11. Move to other axis (Alt/Az) and repeat.

[#] The amount of time you drift depends on your telescope’s FOV. Try 5 minutes and make it shorter or longer depending on your equipment. 5 minutes works well for my portable setup: FL=480mm with 9mm reticule eyepiece.

* You won’t actually get a perfect alignment because of the effects of polar-misalignment in the other direction (Alt/Az, whichever you are not adjusting now), but it’ll be as good as you can get it in that “iteration”.