

AST 250 – Spring 2018
Homework Due: Wednesday January 24

4. The westernmost belt star of Orion (Mintaka or δ Orionis) is extremely close to the Celestial Equator. Amateur astronomers can determine the field of view (angular width) of their telescope/eyepiece by timing how long it takes Mintaka to drift across the middle of the field of view when the telescope is held at a stationary hour angle. How long (in min and sec of clock time) does it take Mintaka to drift through a 1 degree FOV?



Figure 1: Orion – the right belt star is close to the Celestial Equator.

5. The “airmass” of an object in the sky is the ratio of the path length through the atmosphere at the object’s elevation to path length at zenith. Submillimeter radio telescope rarely observe at elevations below 2 airmasses. For the SMT on Mount Graham at $\phi = 32^{\text{d}} 42' 6''$, what is the southernmost declination of objects the SMT can observe? Assume the top of the atmosphere is “plane-parallel” to the ground (i.e. neglect curvature).