

Homework 3

Due Date/Time: Beginning of class (7 pm), Wednesday, September 27th 2017

Observing Proposal

Instructions included with Lab 3

Pre-Lab Reading and Questions for Week 4

Reading

- (1) Please read Birney, Gonzalez & Oesper, Chapter 7: *Effects of the atmosphere*
(scanned/uploaded to Moodle; hard copy of book available in Amherst College library)
- (2) Please also read the following sections in Chromey:
 - Section 6.3: *Telescopes in space*
 - Section 6.4: *The current revolution in ground-based observing*
 - Section 6.5: *Atmospheric blur*

Questions

1. At what altitude (elevation) above the horizon is our view of a star least affected by atmospheric extinction? What is the airmass value at this altitude?
2. Why might it be important to open the telescope enclosure at the beginning of the night to let the interior structures cool down?
3. In your own words, describe the following terms:
 - a. seeing disk
 - b. airglow
 - c. coherence length
4. Write down the atmospheric effects most likely to impact our observations when we use the Smith telescope.
5. Why do stars appear to twinkle while planets do not? Relate this phenomenon to the concepts of scintillation and angular size.
6. Briefly list three advantages and three disadvantages each for space-based telescopes and ground-based telescopes.
7. Write down three important/main points from this week's reading.
8. What concepts did you find unclear in this week's reading?