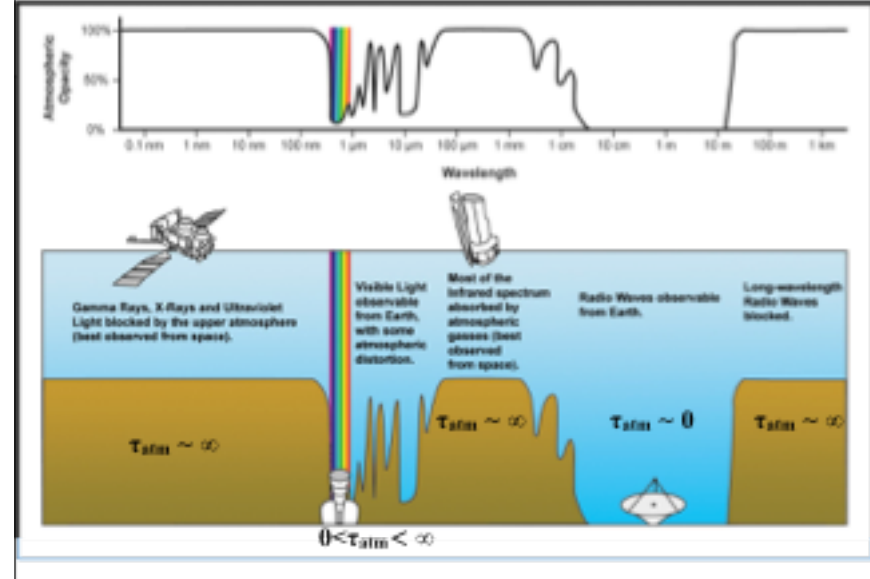


Today's Menu: Effects of the atmosphere (and dust/plasma) in general

- Absorption and Scattering ("extinction")
- Airmass"
- Refraction and effects on observed position
- "Seeing"
- Briefly: conceptual dispersion and scintillation

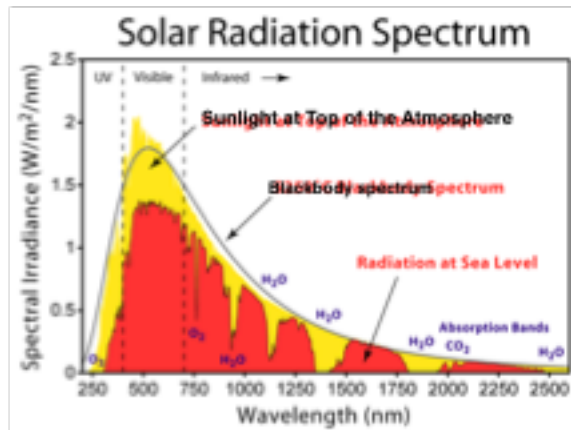
1

Absorption & Scattering



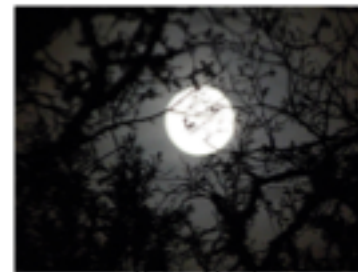
2

Atmosphere Attenuates UV-Vis-IR Light



3

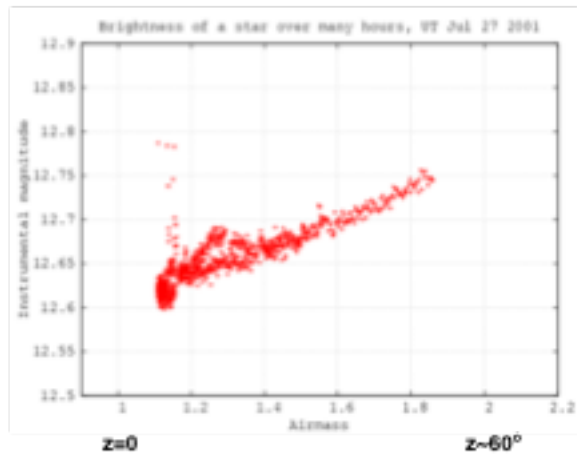
Airmass



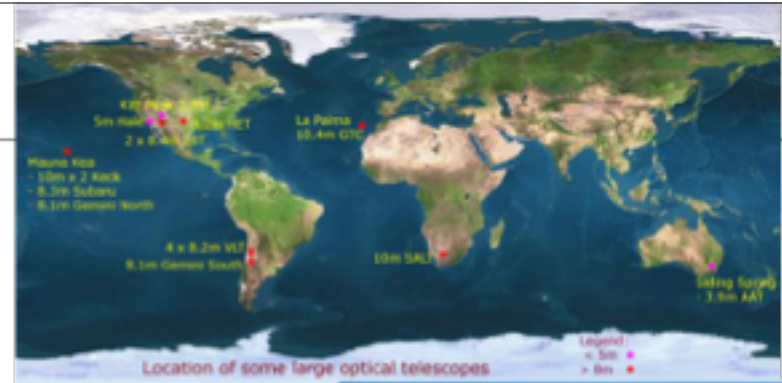
Most atmospheric effects depend on zenith angle!

4

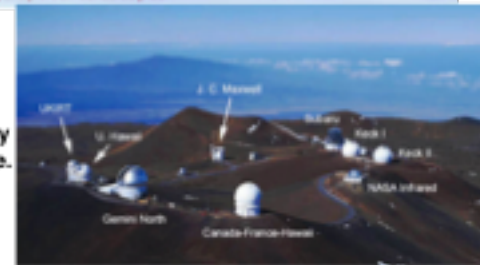
What is the true magnitude of the star?



5

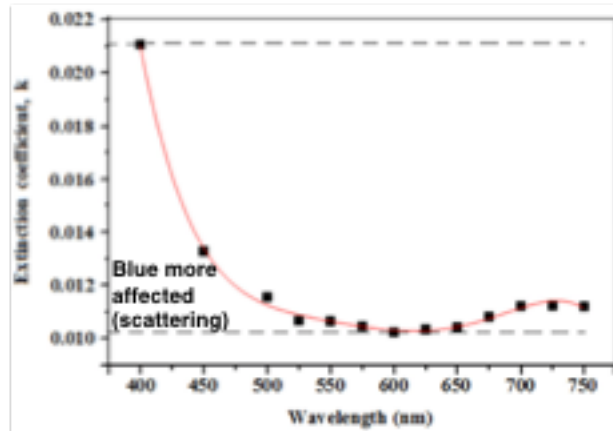


Maybe someday you will go here.



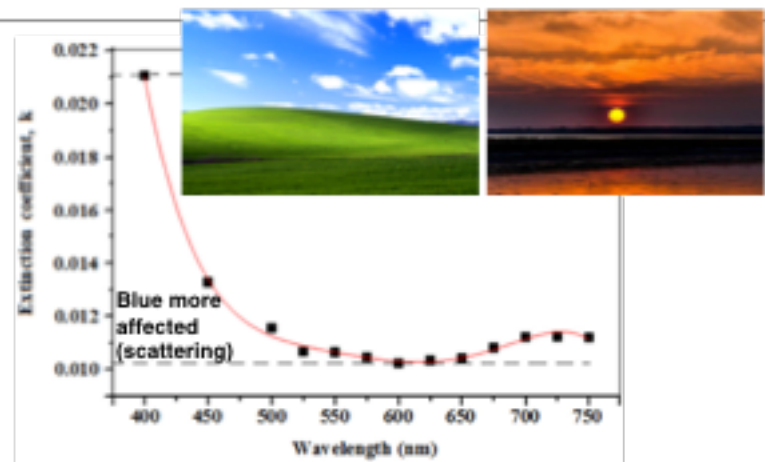
6

Extinction is wavelength-dependent



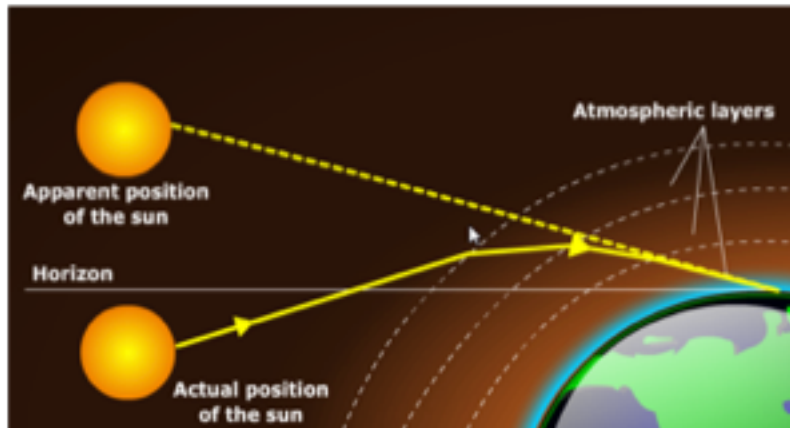
7

Extinction is wavelength-dependent



8

Refraction



9

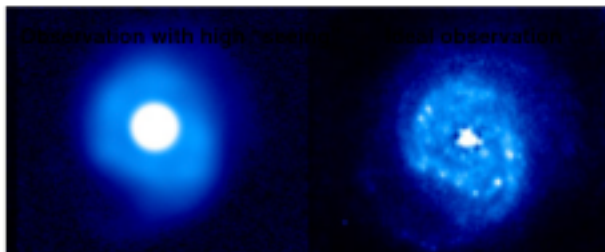
Differential Refraction



10

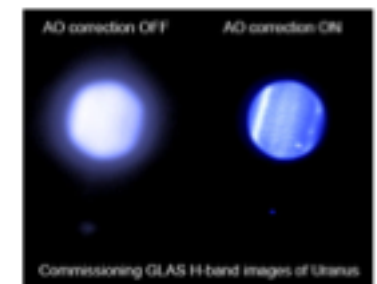
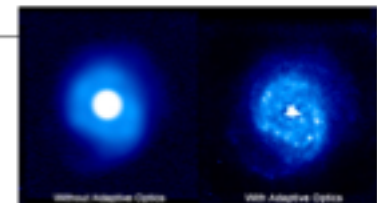
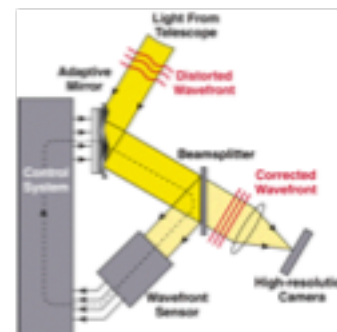
Seeing

- Telescope sites avoid:
 - Excessive air flows (e.g. cross-wind on long mountain range)
 - Jet stream
 - Weather fronts
 - Atmosphere and (even thin) clouds in general



11

Adaptive Optics



12