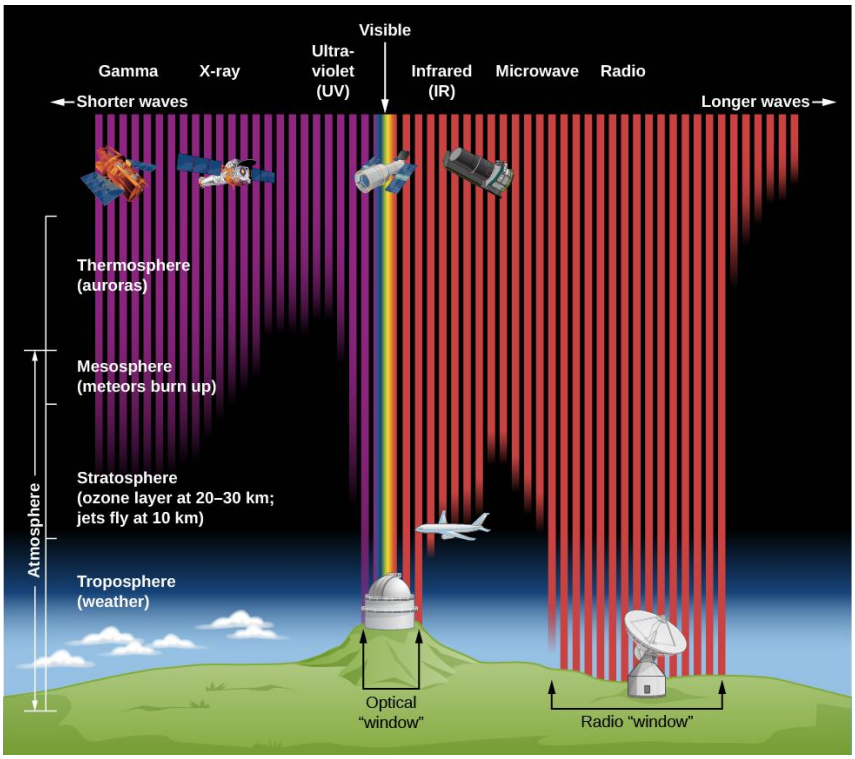
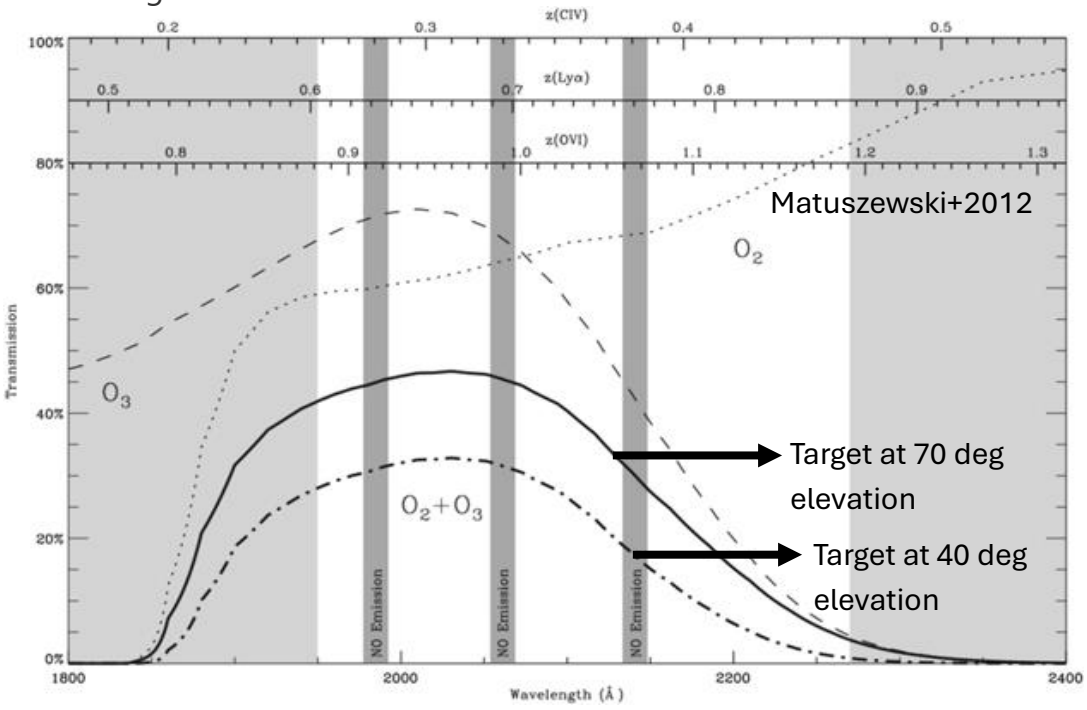
Instrumentation Example: UV transmission windows at high altitudes for stratospheric ballooning

The cartoon version:



The Real Version: computed atmospheric transmission curve for observations from an altitude of 34 km (112,000 ft). Calculation includes absorption by O_2, N_2 and N_2O, and Rayleigh scattering effects.



Important to consider atmospheric transmission when determining:

1. Minimum acceptable altitude for a balloon flight
2. Acceptable target elevation throughout the night (observational planning)

For Example, the FIREBall-2 balloon mission was designed to look at Ultraviolet emission using the transmission window between 197 – 213 nm and had a minimum science altitude of 105,000 ft. Targets were selected between 40-70 degrees elevation.

Some information about Nasa Scientific Balloons. They are cheaper than space and allows for higher-risk testing of new technologies!

Launch video for fun (if time allows)