



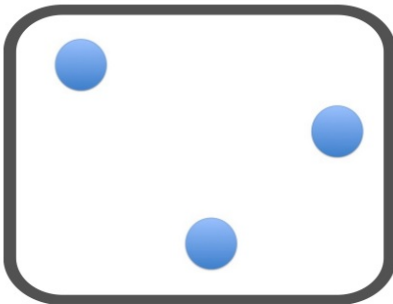
WHAT

# determines the altitude of an aurora?

The aurora we see is light emitted from excited atoms and molecules in our atmosphere.

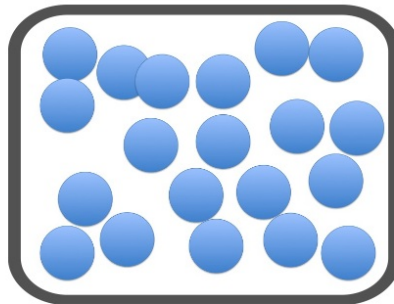
To have a bright and strong aurora requires a delicate balance between having too many and too few atoms and molecules in our atmosphere.

Not Enough



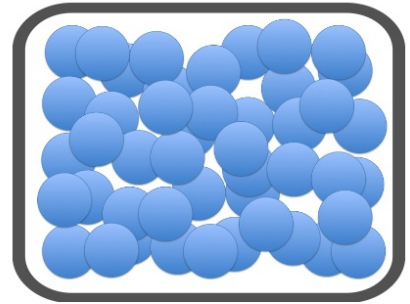
High in the atmosphere

Just Right



100 - 500 km

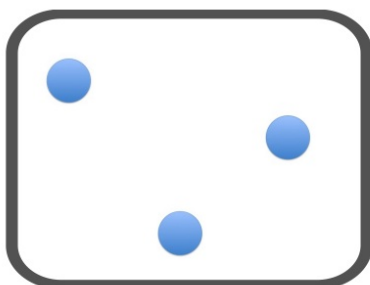
Too Many



Near Earth's surface

The density of atoms and molecules increases from outer space to the surface of Earth.

Why does the density of particles matter?



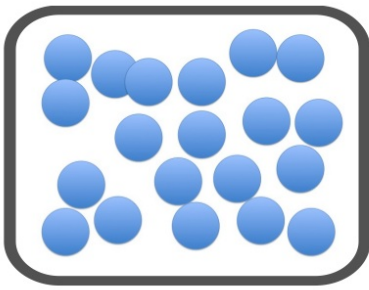
altitude

above 500 km

Energetic particles from the Sun rarely hit atoms and molecules this high in the atmosphere because they are spread so far apart. With so few collisions, there is not a noticeable auroral glow.

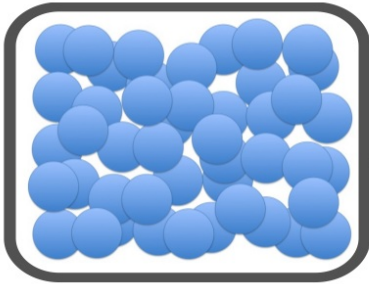


International Space Station, ~400 km



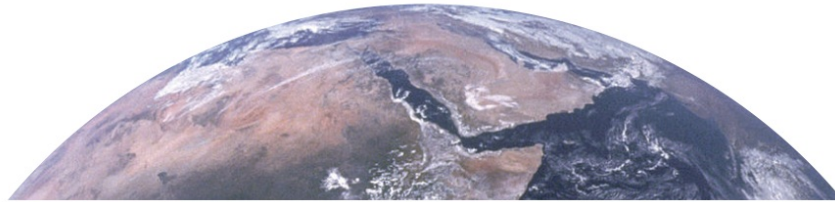
100 - 500 km

At this altitude, there are more atoms and molecules in the atmosphere to be excited by energetic particles from the Sun. Thus, aurora regularly occur.



below 100 km

With too many atoms and molecules, the energetic particles from the Sun quickly lose their energy in collisions and cannot excite the atoms and molecules enough for them to give off auroral light.



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