

Who's the Doctor of the Atmosphere?

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What is
Humanosphere?

How beautiful...

I wonder what's above those clouds?

The ozone layer!

The ozone layer absorbs harmful ultraviolet from the Sun.

But,

Over Antarctica, a significant loss of ozone has been observed, that is called "ozone hole".

The ozone layer...?

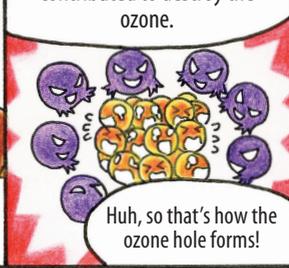
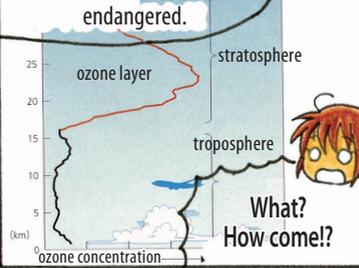
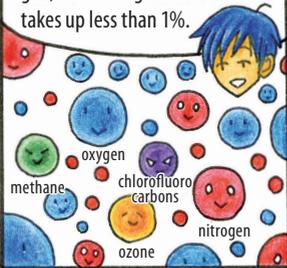
Wow, really!?

Ozone hole!?

The Earth's atmosphere mostly consists of oxygen and nitrogen, and trace gases like ozone takes up less than 1%.

But if the composition changes even slightly, the Earth's environment could be endangered.

For example, as chloro-fluorocarbons increased, they contributed to destroy the ozone.



What? How come!?

Huh, so that's how the ozone hole forms!

Furthermore, the global warming caused by greenhouse gases such as CO₂ and methane is also a serious issue.

Oh no! The Earth's going to be sick!

That's why we "diagnose" the Earth's environment using ground-based and satellite measurements!

"Diagnose"?

First, we measure the amounts of such trace gases using laser spectroscopy techniques.

Wow, so many types of apparatus!

Yep, these observations run throughout the year.

You mean all year around?

Right.

Whether it's boiling or freezing.

Summer zap!

winter.

That's tough...

Fairbanks, Alaska

Ground-based measurements using laser-based instruments

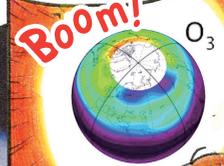


Exploring atmospheric reaction processes by laboratory experiments

And we do not only watch the Earth's health from land, but from outer-space as well!

The sensor on the satellite detects radio wave that ozone emits.

Then you get this!



Amazing! I see it so clearly!

Really!?

But how?

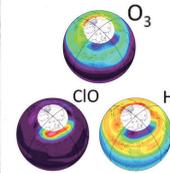
Superconducting Submillimeter-Wave Limb Emission Sounder: SMILES

This allows us to clearly observe changes not only in ozone but for other gases too!

These research allows us to diagnose the Earth's environment.

I see!

So you examine locally from land, and globally from space!



Wow, the difference is so apparent!

clap

Even if we can't cure her now, the diagnosis will help the future of the planet.

Surely. We must continue to "see her" with care.

Will do!

These observations are important for all of us!

Future