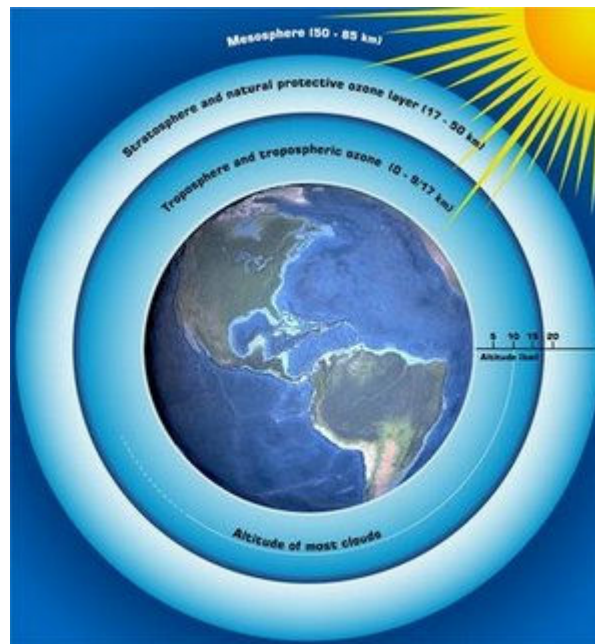


# INTERNATIONAL DAY FOR PRESERVING THE OZONE LAYER – 16<sup>TH</sup> SEPTEMBER



The Earth's atmosphere is made up of different layers. The layer closest to the surface is called the troposphere which extends from the Earth's surface up to about 10 kilometers. The ozone layer is located above the troposphere in the stratosphere (10 km to about 50 km high). Stratospheric ozone is Earth's natural protection for all life forms, shielding our planet from harmful ultraviolet-B (UV-B) radiation. UV-B radiation is harmful to humans, animals and plant life. The ozone layer is being destroyed by certain industrial chemicals including ozone depleting refrigerants, halons, and methyl bromide, a deadly pesticide used on crops.

Ozone depletion damage gets much worse when the stratosphere is very cold. This past winter, ozone depletion reached the most severe levels ever recorded over the Northern Hemisphere. Even if all of our efforts to stop harmful emissions are successful, the ozone layer is not expected to begin recovery until around 2020 at the earliest.

Under the auspices of United Nations Environment Programme (UNEP), Governments of the world, including the United States have cooperatively taken action to stop ozone depletion with the "Montreal Protocol on Substances that Deplete the Ozone Layer", signed in 1987.

The United Nations has developed a framework the "Kyoto Protocol on Climate Change", signed in 1997 convention on global warming and climate change. The adoption of the Kyoto protocol strengthens the framework with new policies and measures including quantified limitation and reduction objectives to greenhouse gas emissions not covered by the Montreal Protocol.

Scientists are concerned that continued global warming will accelerate ozone destruction and increase stratospheric ozone depletion. Because global warming traps heat in the troposphere, less heat reaches the stratosphere which will make it colder. In other words, global warming can make ozone depletion much worse right when it is supposed to begin its recovery during the next century.

Ozone depleting substances (ODSs) are used in many industries. The common classes of these gases are chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons and methyl bromide. If emitted into the atmosphere, these substances will break down the stratospheric ozone layer.

Most refrigerants used in air conditioning and refrigeration contribute to global warming in addition to ozone depletion. Even the new non-ozone depleting alternative refrigerants add to the global warming problem. Persons responsible for HVAC and/or environmental concerns in their company or organization need to take strong, immediate actions to reduce ozone depletion and global warming.

Synthetic greenhouse gases (SGGs) were largely introduced as replacements for some ozone-depleting substances. Three of the six Kyoto Protocol gases – hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>) – are SGGs. While these gases do not present a direct risk to the ozone layer, they often have very high Global Warming Potentials (GWPs) and will contribute significantly to the enhanced greenhouse effect if emitted to the atmosphere.

(UV-B) radiation causes skin cancer, cataracts and immune suppression in both animals and humans. UV-B also damages plants including hardwood forests, and phytoplankton (an alga is a type of phytoplankton which is the building block of the oceanic food chain).

**References:** “Strategy for Ozone Protection” REP 665.89 AUS, “Impacts Assessment of Climate Change” REP 551.69 AUS. Available now in Gecko library.