



INTRODUCTION

By the mid-1980s, scientists had already discovered that there was an unusual thinning of the ozone layer over Antarctica. When ozone level is less than 220 Dobson Units that means there is a loss of ozone **layer** thickness and concentration. Ozone depletion substances (ODS) refer to chemicals that are **accused** for destroying ozone layer. **Many are good refrigerants**, such as, Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs), **commonly** used in **Heating, Ventilation and Air Conditioning (HVAC)** and refrigeration devices.

OBJECTIVES

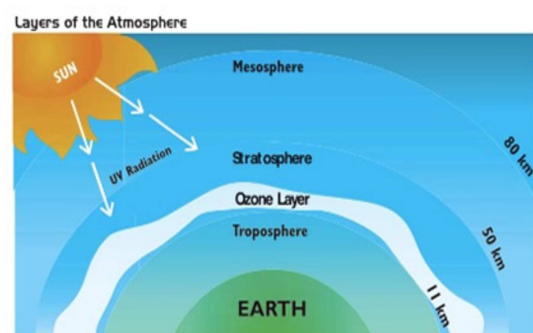
- Why **ozone holes** vary in size?
- Why it is appearing in locations where no population and refrigeration are used?
- Any bad and good impacts on the **globe?**
- What is the role of (CFCs) and other (ODS) on ozone **holes?**

METHODS

- Relation between UV distribution vs OD.
- CFCs distribution and chlorine accumulation in the stratosphere.
- How **cold temperature** and wind pattern carrying ODS to create OD over the Antarctic, North Pole, and Tibetan mountains
- Skin cancer and eyes problem distribution with **comparison to UV-OD** distribution.

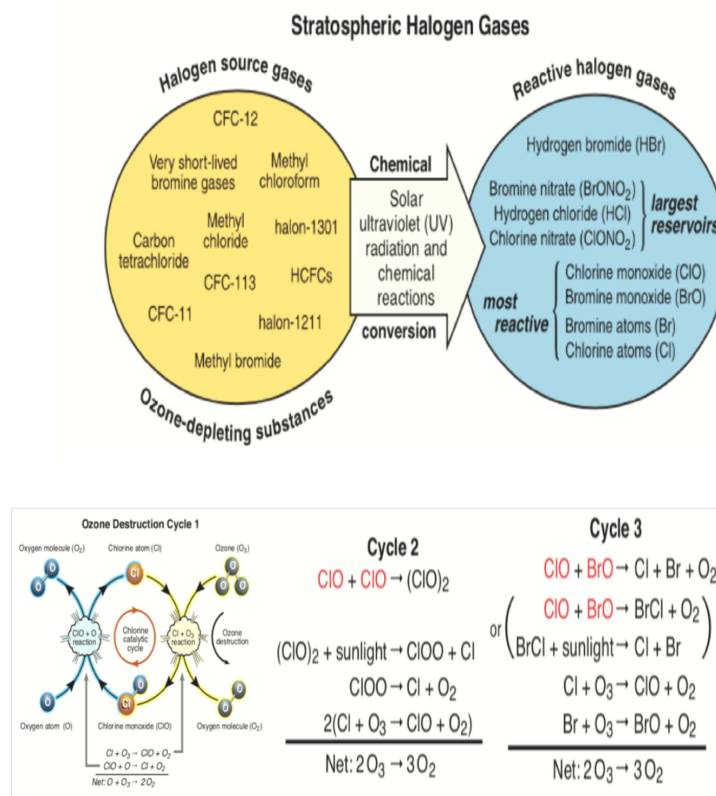
OZONE LAYER

- Stratospheric O₃, a natural sunscreen that protects life from harmful ultraviolet **(UV-C)**



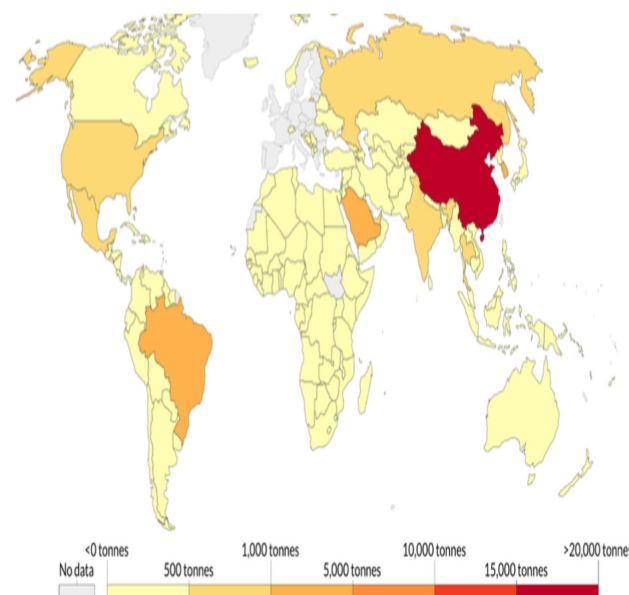
HOW ODS DESTROY OZONE LAYER?

Figure 4: Halogen Source to Reactive Halogen gases



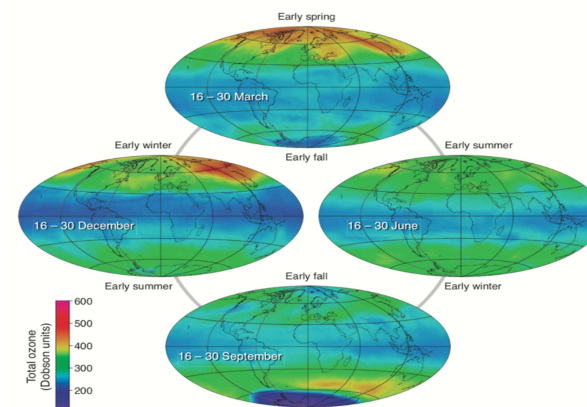
USAGE OF ODS IN DIFFERENT REGION

Figure 6: Consumption of Ozone-Depleting Substance



Q1: WHY OZONE HOLE VARIES OVER SEASON & LARGE IN SPRING?

Figure 9: Global Satellite Maps of Total Ozone



Chemical Conditions in Ozone Layer

Observation

In Fall (MAY)

High Temp

High HCL

High HNO3

Low ClO

Low HCL

Low HNO3

High ClO

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