Topics covered.
- Residence Time
- Other green house gases (CH₄ and N₂O)
- Cooling effect of aerosols
- Kyoto and Paris Treaty

Keypoints:

Green house gases:
Their origin, sink, and their impact

Residence Time

\[ \ln(C/C_0) = -kt \]
\[ t_{1/2} = \frac{0.693}{k} \]
or \[ C_{ss} = \frac{R}{t_{1/2}} \]

\[ t_{avg} = \frac{1}{k} \]

Sulfate Aerosol
- These aerosols reflect the incident light and hence less amount of sunlight reach the earth surface
- The net effect is to cool the air near the ground surface. Thus offsets some of the effects of GHG

Kyoto Treaty and Steps to stabilize carbon emission

Solve: (Problem 4.6) If the average steady-state residence time of a trace atmosphere gas is 50 years and its input rate is \( 2 \times 10^6 \) kg/year, what is the total amount of it in the atmosphere?

Note the correction: p234(4th Ed), line 1 \[ C_{ss} = \frac{R}{k} \] or \[ C_{ss} = R \times t_{avg} \]