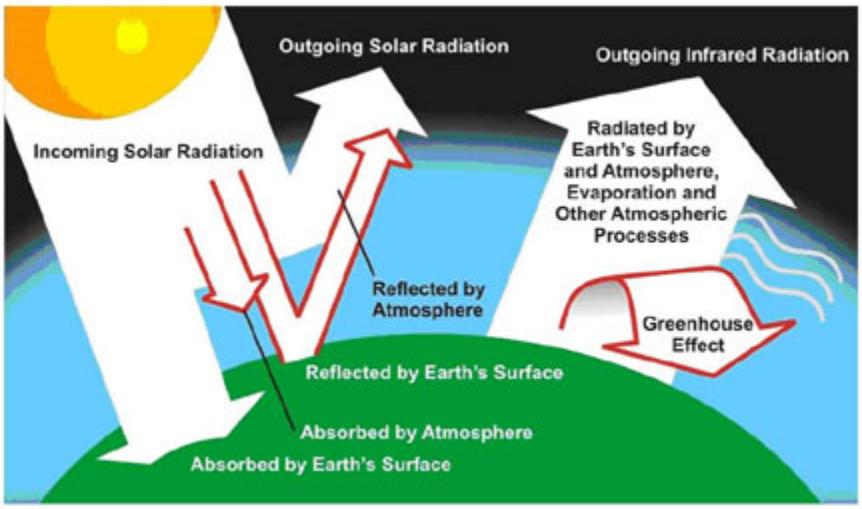
# The Greenhouse Effect (Natural and Anthropogenic)

**Terms and Concepts:** greenhouse gas (GHG), natural Greenhouse Effect, anthropogenic Greenhouse Effect, infrared radiation, photosynthesis

**Definition: "Anthropogenic" =**

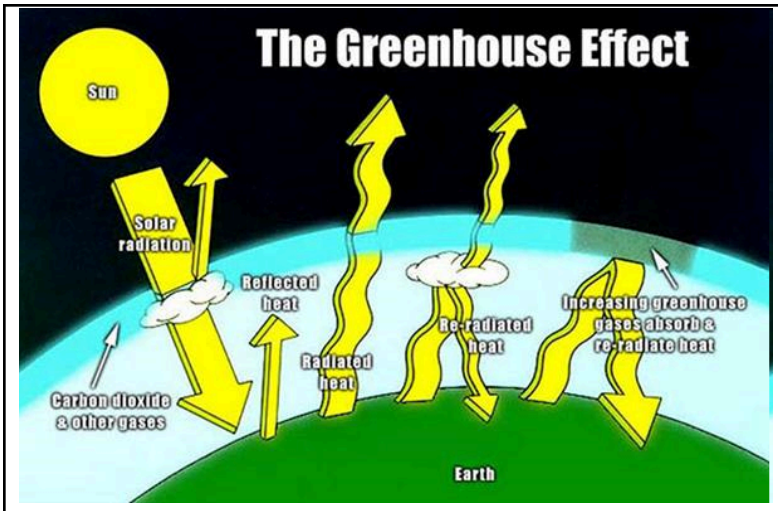
## The Natural Greenhouse Effect




**Notes:**

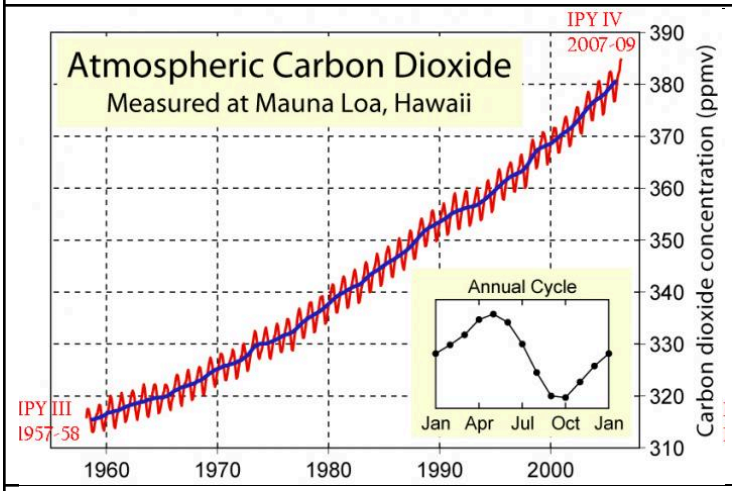
◊

## The Anthropogenic (Enhanced) Greenhouse Effect



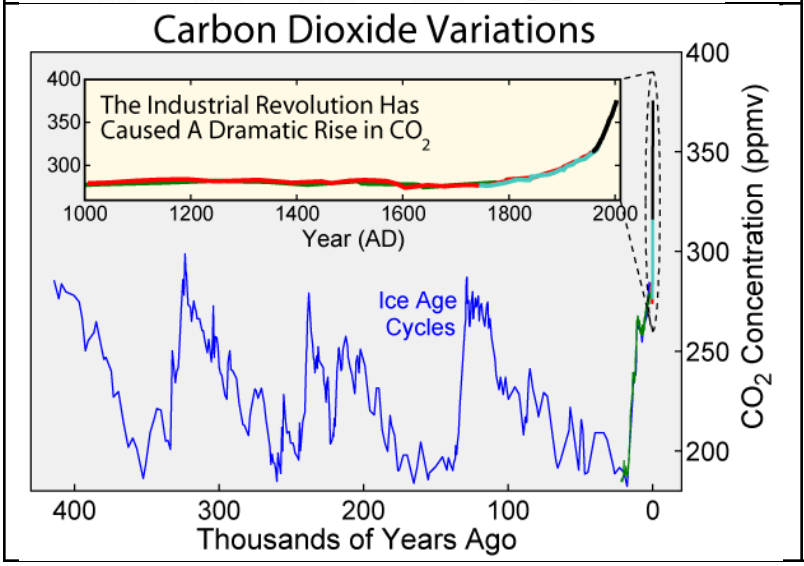

What are some ways that humans contribute GHGs into the atmosphere?

Why is this also called the Enhanced Greenhouse Effect?




What accounts for the seasonal rise and fall in $CO_2$ in the Keeling Curve?

What planet is cold due to a lack of $CO_2$ in its atmosphere? What planet demonstrates the results of an abundance of atmospheric $CO_2$?

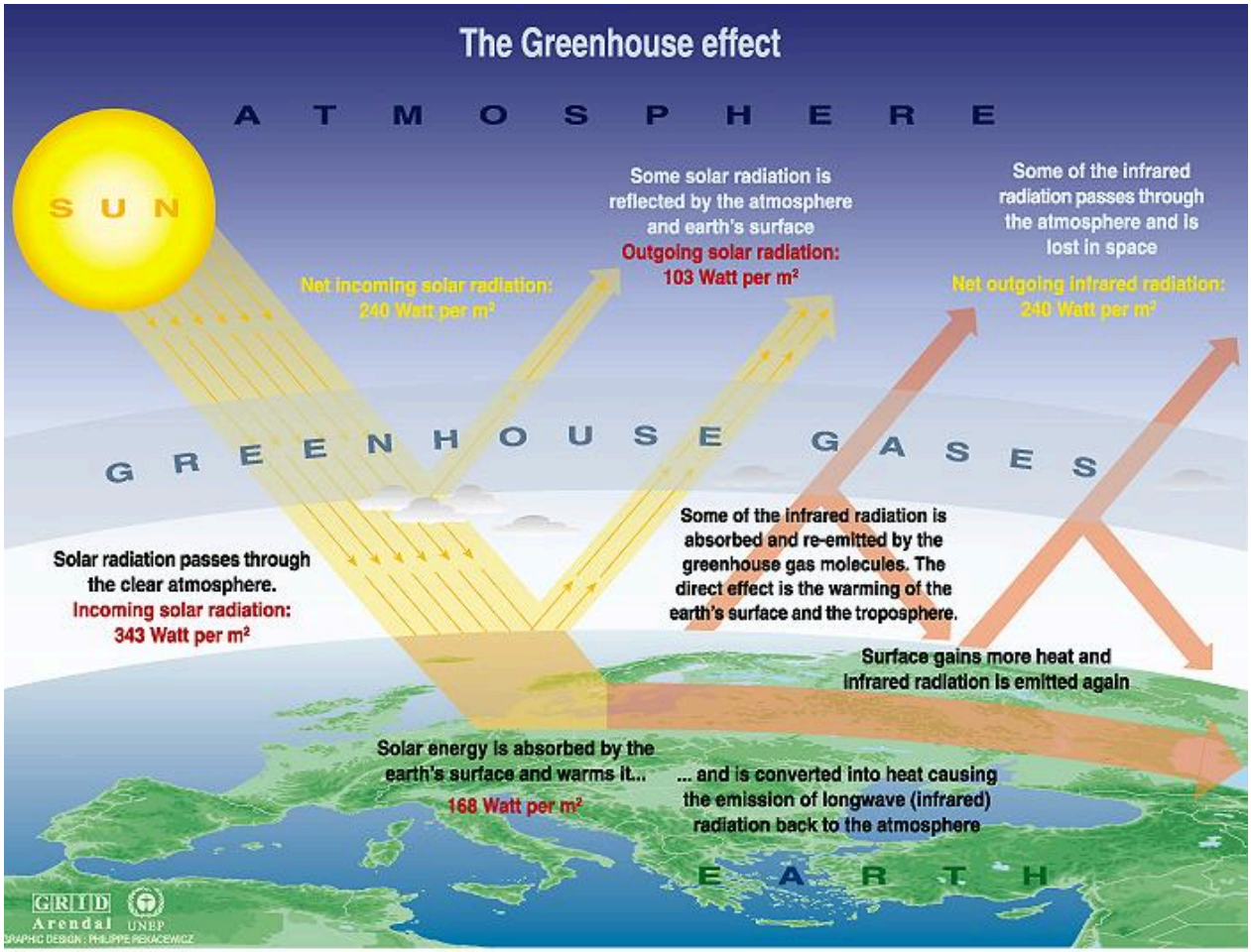



Why is $CO_2$ of concern compared to water vapour (another GHG)?

What source of evidence do we have for $CO_2$ levels prior to the Industrial Revolution?

**Anthropogenic Sources of Greenhouse Gases (pp. 384-386)**

| Greenhouse Gas | Sources | Atmospheric Lifetime (years) |
|---|---|---|
| Carbon dioxide ($CO_2$) | | |
| Methane ($CH_4$) | | |
| Nitrous oxide ($N_2O$) | | |
| Chlorofluorocarbons (CFCs) | | |




Sources: Okanagan university college in Canada, Department of geography, University of Oxford, school of geography; United States Environmental Protection Agency (EPA), Washington; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge university press, 1996.