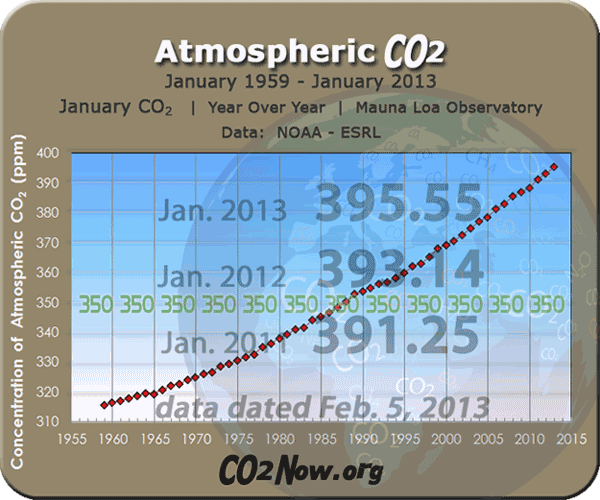
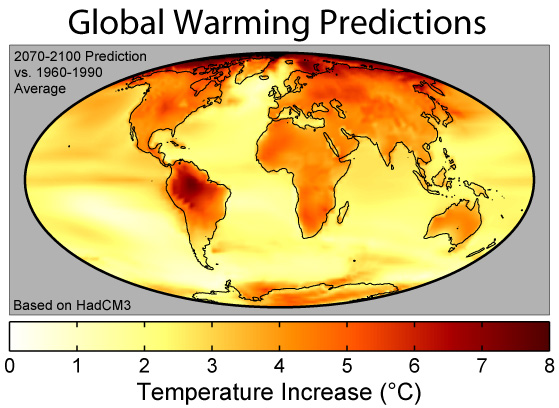
**Climate Change & Greenhouse Gases**

**Climatic Temperature trends on Earth**: know how these are related to feedback loops!

[](http://co2now.org/)

**GLOBAL WARMING**

**Greenhouse Gases**: Absorbs UV and Infared Lights from the surface… TRAPPED IN TROPOSPHERE

* H2O: in form of water vapor
* CO2: mostly from fossil fuel use in electricity and transportation, deforestation \*MOST IMPORTANT
* Methane(CH4): Landfills, cattle, rice paddies, fossil fuel use, wetlands
* N2O: Fertilizer, cars, deforestation
* CFCs: only anthropgenic GHG; depletes ozone layer; foams, aerosols, refrigerants, solvents (Montreal P)

**Other tropospheric temperature mediators**:

-Clouds; can warm (absorb in troposphere) or cool (reflect back to space)

-Particulates: ash, sand, dust

-Increase cloud coverage

-has high albedo, so can cool during the day, BUT at night it is warmer because heat can be radiated back into space

- Albedo:

-Snow/Ice: heat is reflected

-No snow/Ice: heat is absorbed

**Impacts of Global Warming**

-rises in seal level- why? What will this lead to?

-melting of permafrost – why is this bad?

-agricultural shifts/crop yields

-more diseases- increase in storms and more hot days

-Ocean acidification- leads to shells degrading, coral bleaching

**What can we do to reduce the threat of global warming?**

-Improve energy efficiency – know how!

-Store carbon dioxide –Review Carbon cycle

-Plant more trees, sequestration (capture, compress, inject), inject in deep ocean

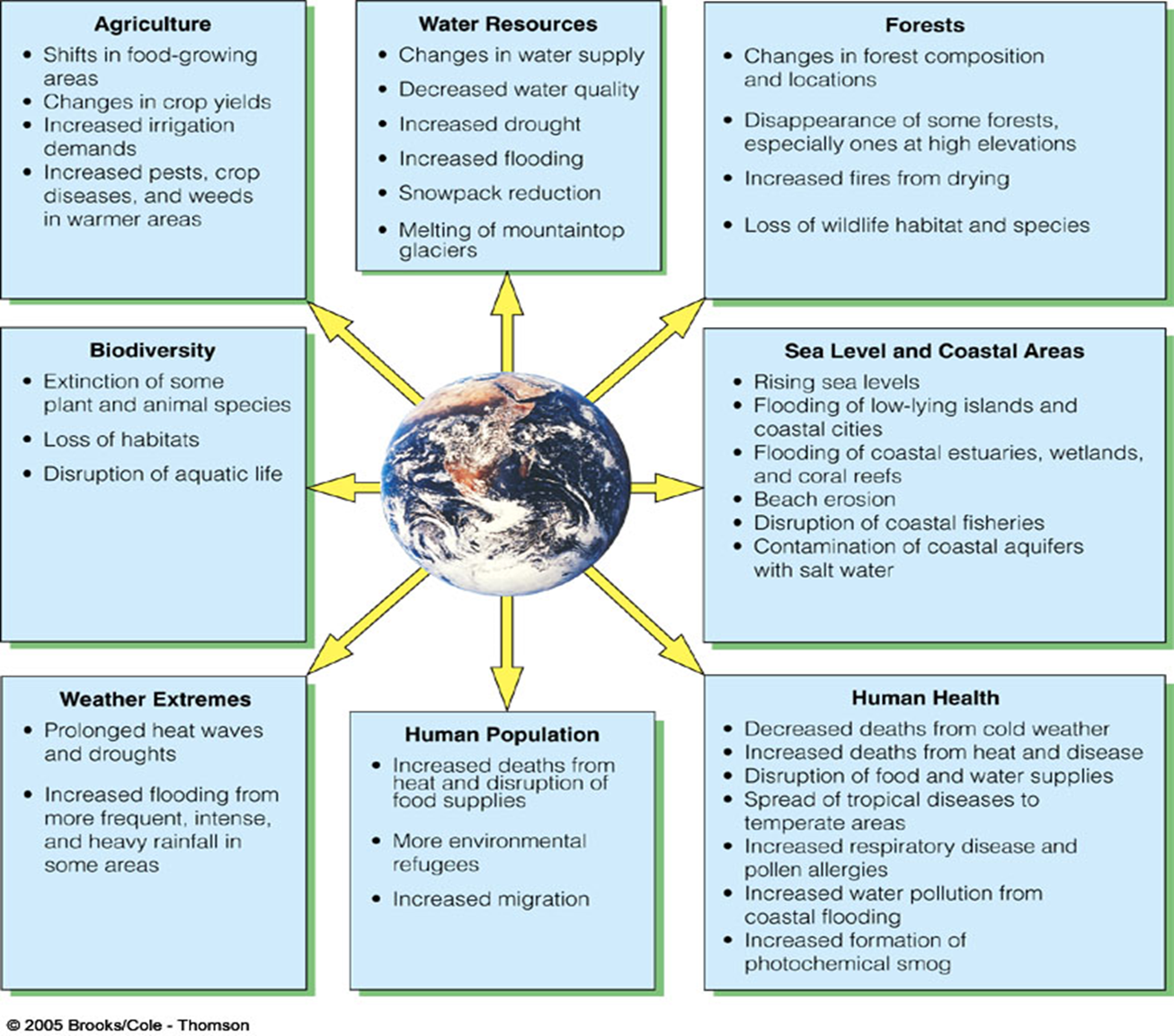
-Reduce GH gases: methane, CFCs , CO2

-GH gas emissions trading program

-Montreal Protocol- eliminate CFCs to strop ozone layer depletion

-Kyoto protocol – reduce GHG emissions (Why did we withdraw?)

-Paris Climate Change Treaty



**Ozone Layer Depletion in Stratosphere**

Ozone is found naturally in the stratosphere! GOOD in stratosphere! (BAD in troposphere!)

**Ozone Layer**: absorbs UV rays from sun… GOOD

-is destroyed by reacting with Cl-, F-, and Br- (from CFCs!)

-“hole” in Antarctica

-UV-A vs. UV-B vs UV-C

-Effects of UV radiation: skin cancer, impact crops/animals, changes in weather patterns, increased ground-level smog, increased rate of DNA mutations, inhibited photosynthesis of plants.

