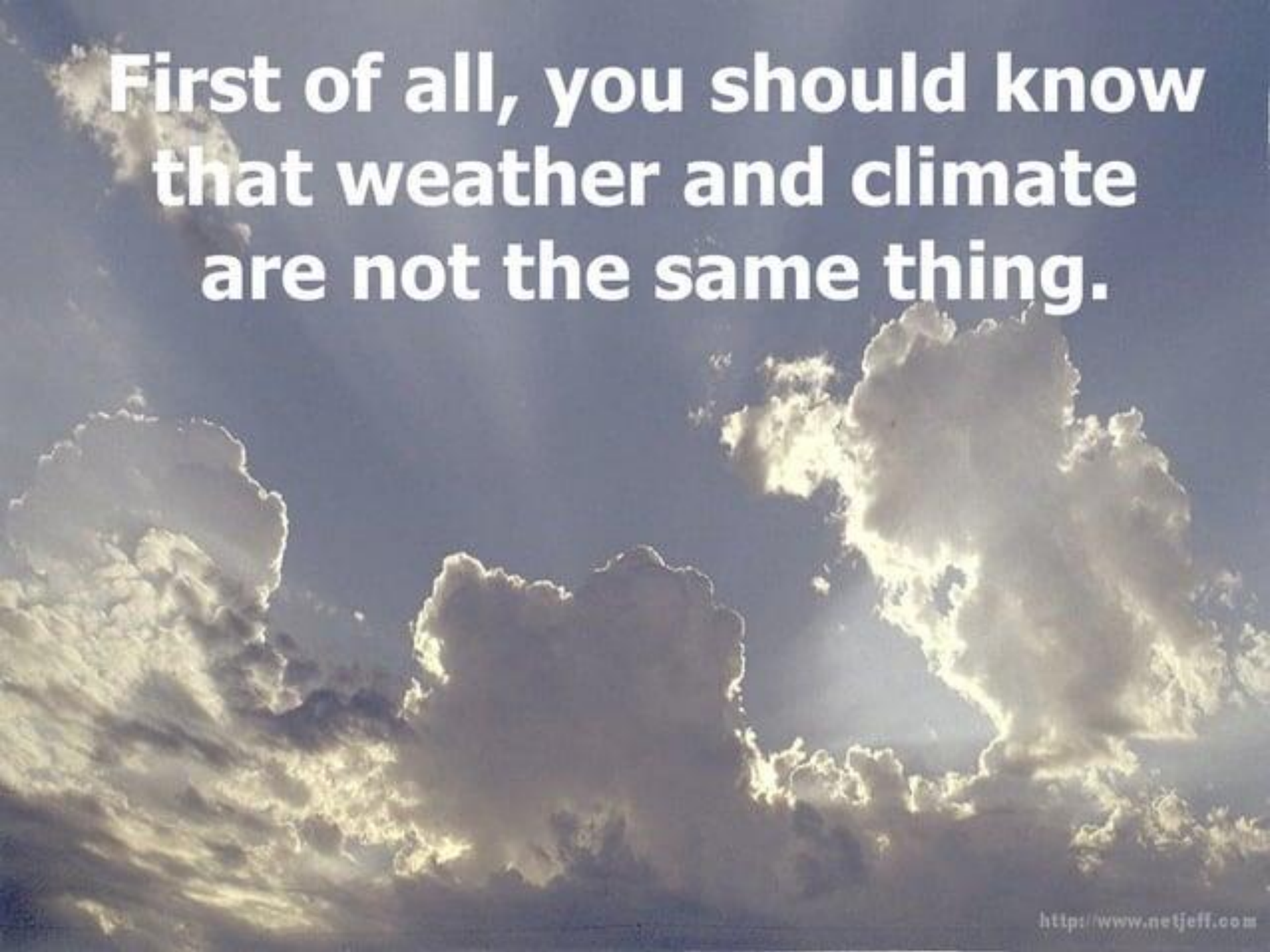
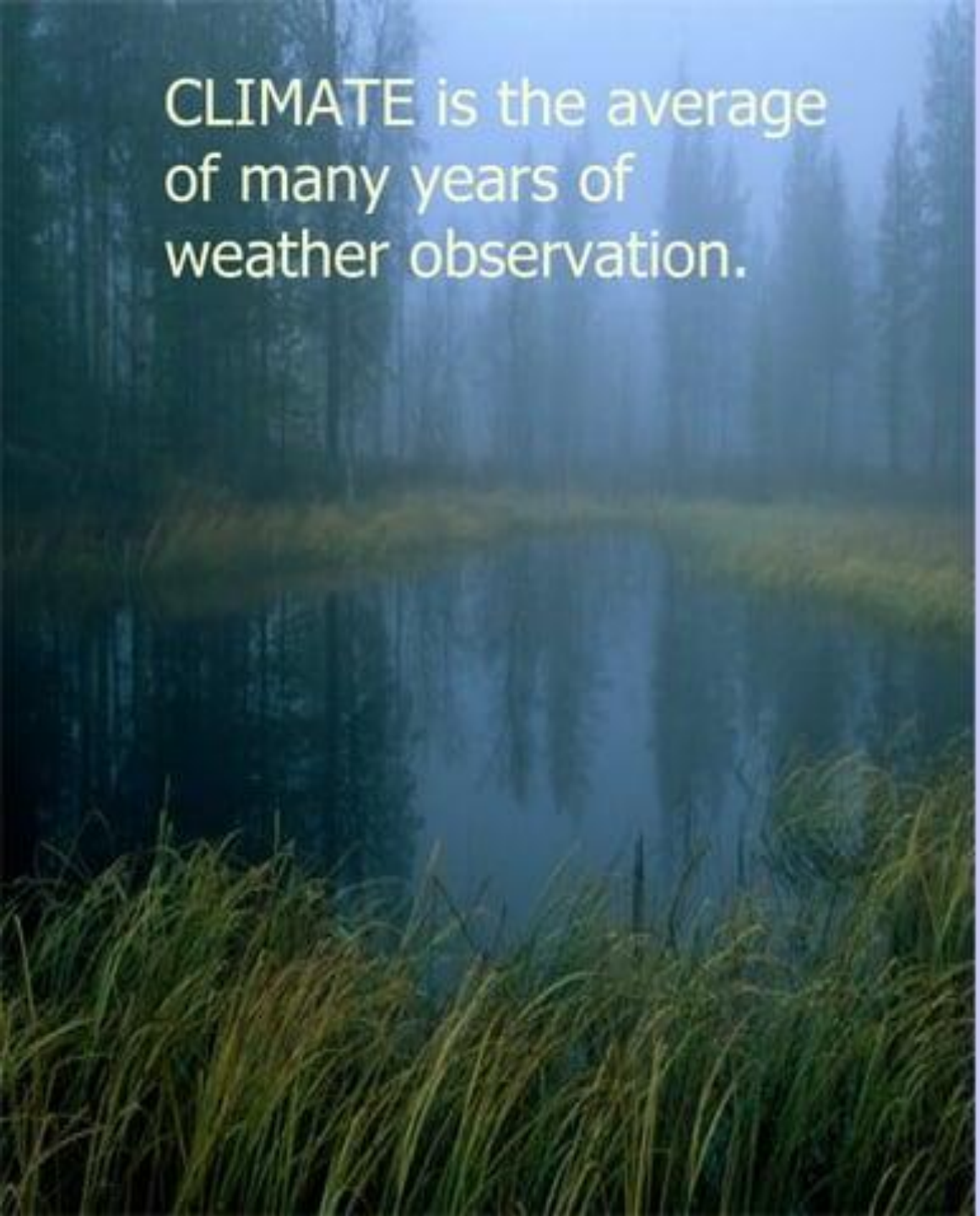

CLIMATE
CHANGE AND
YOU


First of all, you should know that weather and climate are not the same thing.
http://www.netjeff.com

WEATHER IS:

- Short term
- Limited area
- Can change rapidly
- Difficult to predict

WEATHER is what's happening outside your window right now.



CLIMATE IS:

- Long term
- Wide area
- Seasonal changes
- Measured over long spans of time

Climate is affected by many factors

ABIOTIC FACTORS:

Latitude

Altitude

Ocean Currents

Topography

Solar Radiation

Evaporation

Orbital Variations

Volcanic Activity

BIOTIC FACTORS:

Transpiration

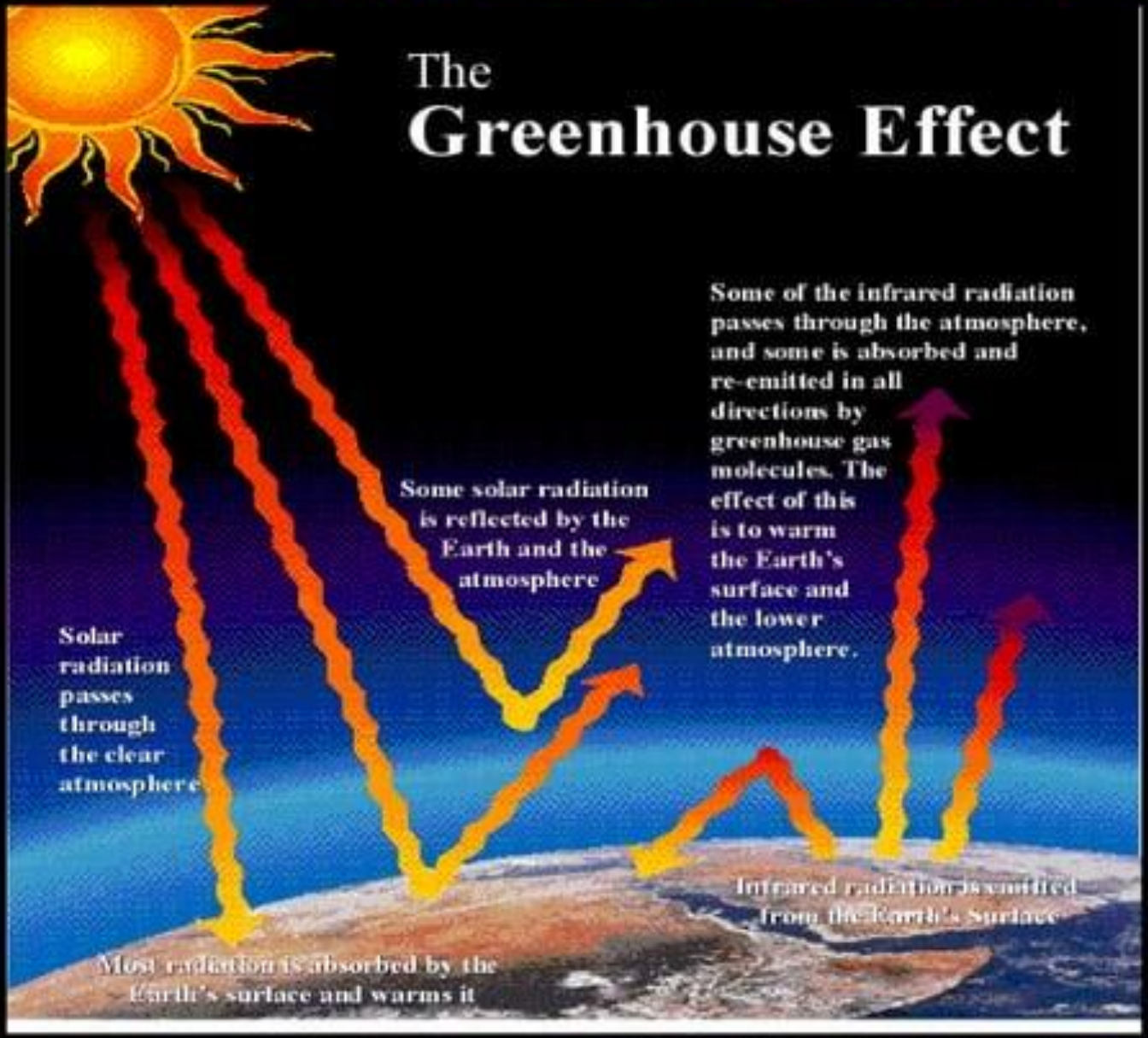
Respiration

Photosynthesis

Decomposition

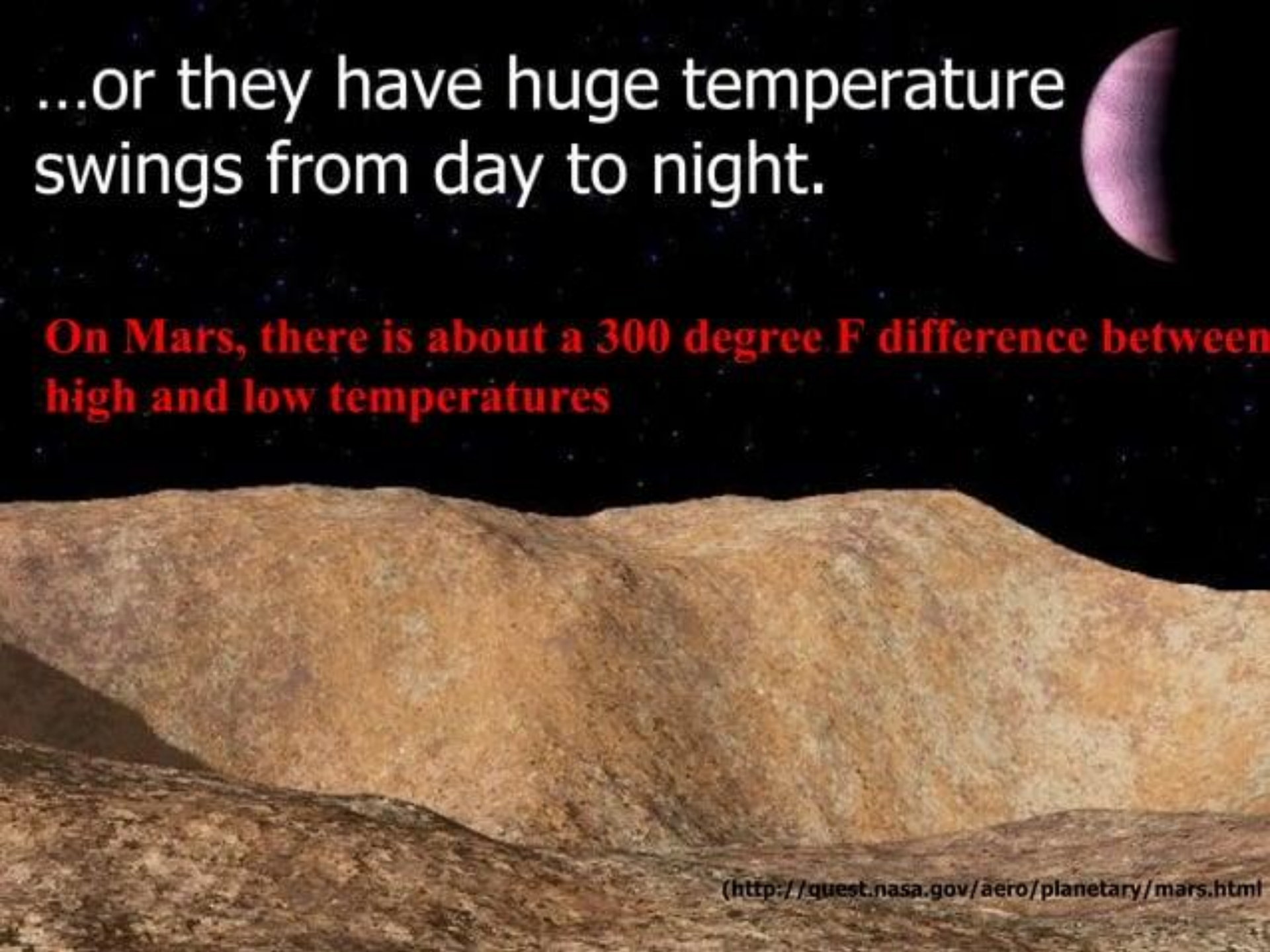
Digestion

Greenhouse Gases are essential to our climate



http://www.larryjzimmerman.com/wproblems/warming/greenhouse.gif


Planets with very little greenhouse effect are either very cold…
Pluto's average temperature is –370° F
http://www.windows.ucar.edu/tour/link=/pluto/statistics.html


...or they have huge temperature swings from day to night.
On Mars, there is about a 300 degree F difference between high and low temperatures
(http://quest.nasa.gov/aero/planetary/mars.html

Planets with abundant greenhouse gases are very hot

The average temperature on Venus is about 855° F!

http://www.windows.ucar.edu/tour/link=/venus/statistics.html

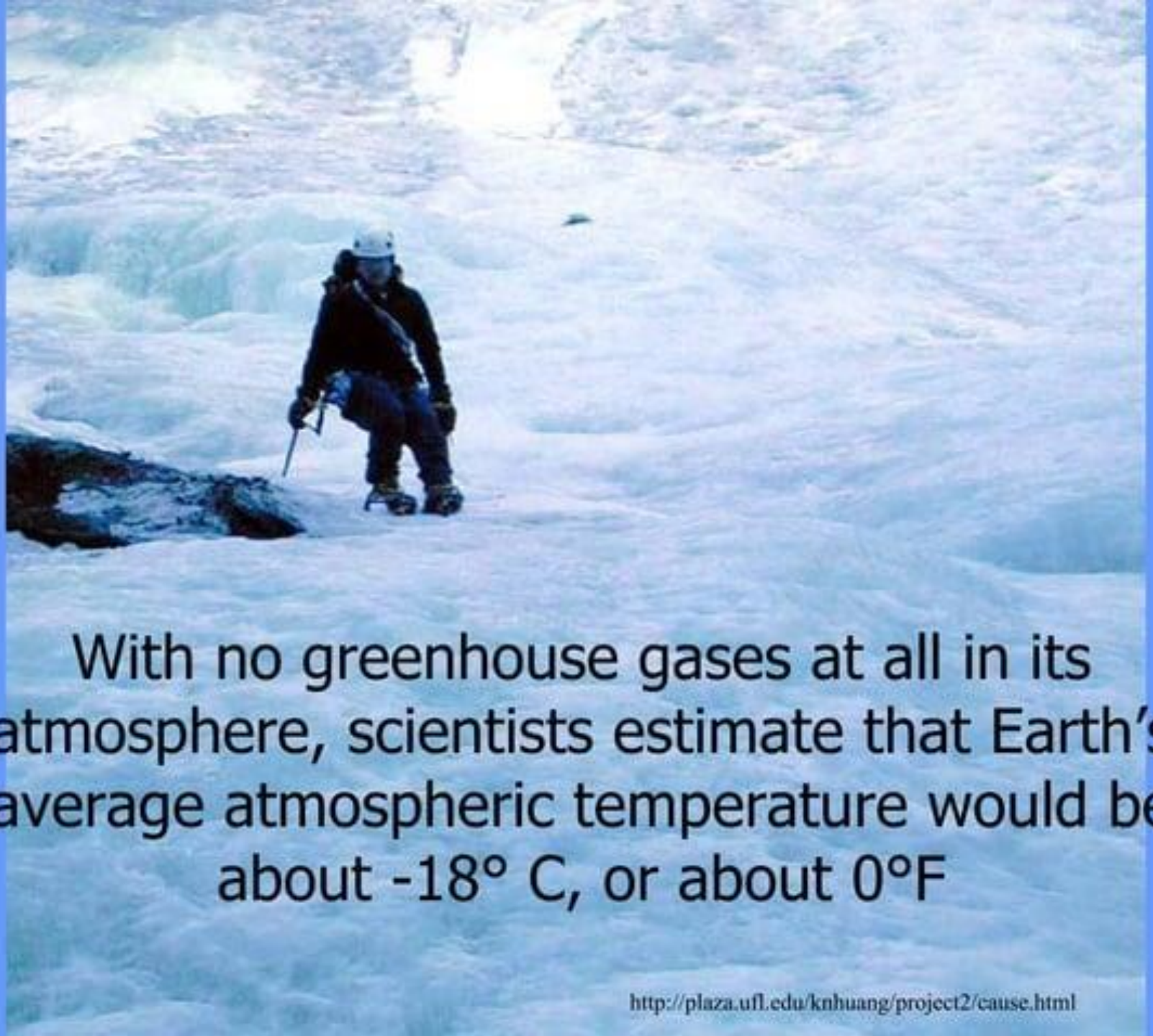
…and then there's Earth….

…which is just right…

…for the moment, anyway.

A number of greenhouse gases occur naturally in the Earth's atmosphere

- Water vapor
- Carbon dioxide
- Methane
- Nitrous oxide



With no greenhouse gases at all in its atmosphere, scientists estimate that Earth's average atmospheric temperature would be about -18° C, or about 0°F

http://plaza.ufl.edu/knhuang/project2/cause.html


The greenhouse gas content of the atmosphere is being altered by human activity. The result of this change is global warming.

Evidence of Climate Change comes from many different sources.

Glaciers are melting away worldwide

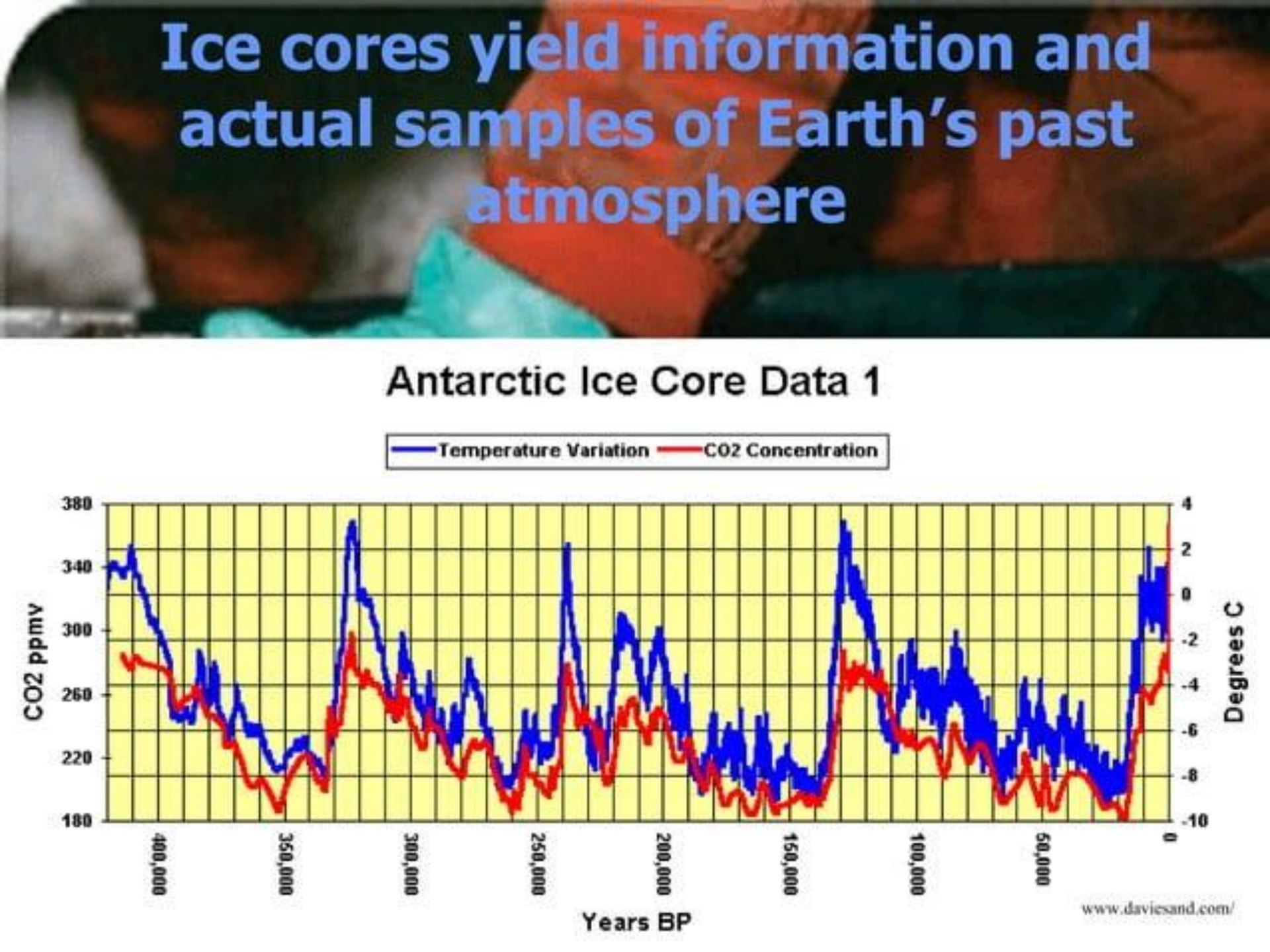
Agassiz Glacier, Montana, in 1913…

…and in 2005

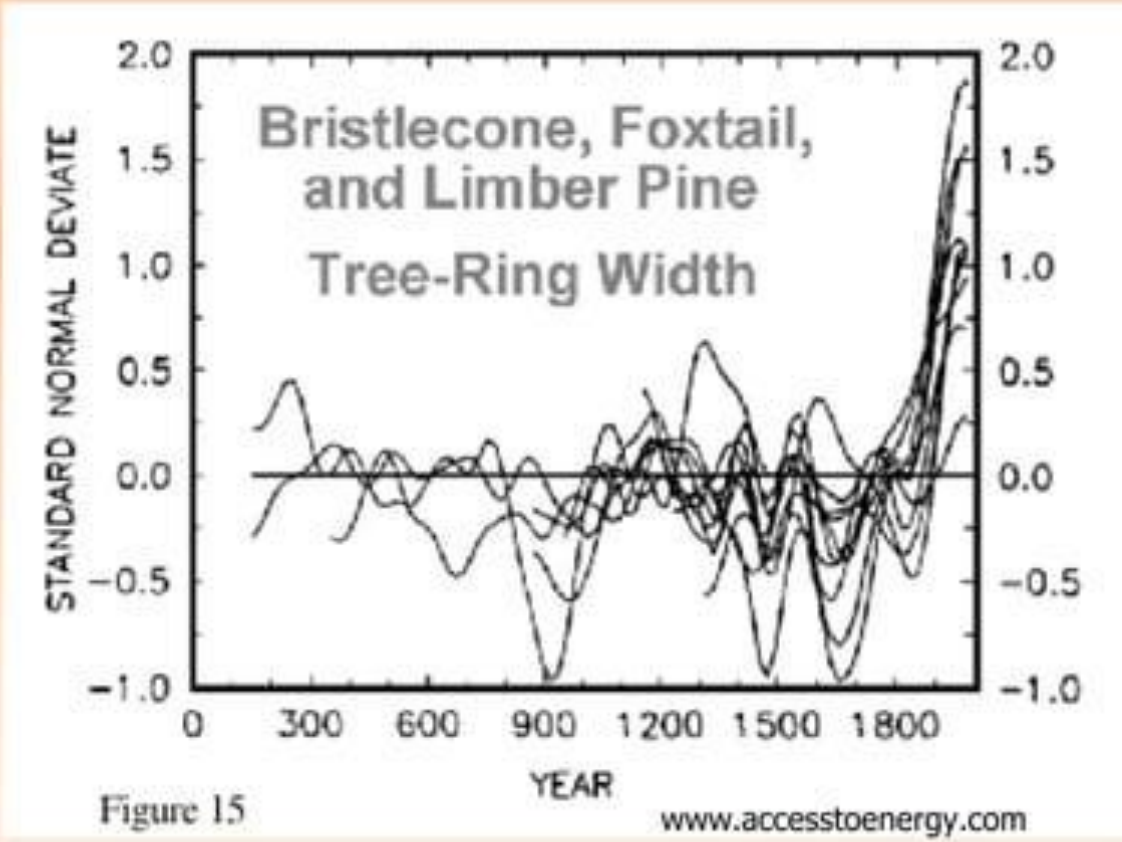
Pasterze Glacier, Austria, in 1875…

…and in 2004

Ice cores yield information and actual samples of Earth's past atmosphere



Tree ring data show a warming trend



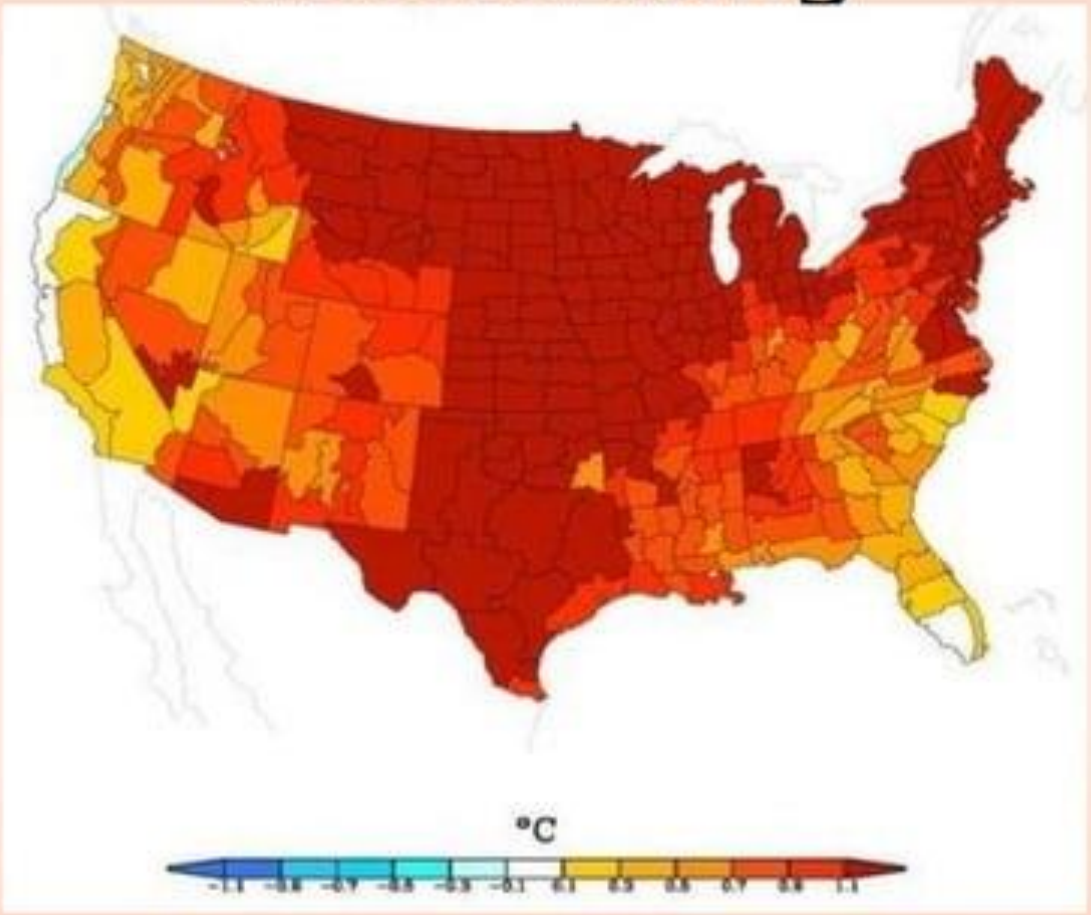
Animal and plant life is changing

2/3 of European butterfly species studied have shifted their ranges northward by as much as 150 miles. (Parmesan, 1996; Parmesan et al., 1999)

An analysis of the distributions of British birds found that many species have moved north by an average of 18.9 km. (Thomas et al, 1999)

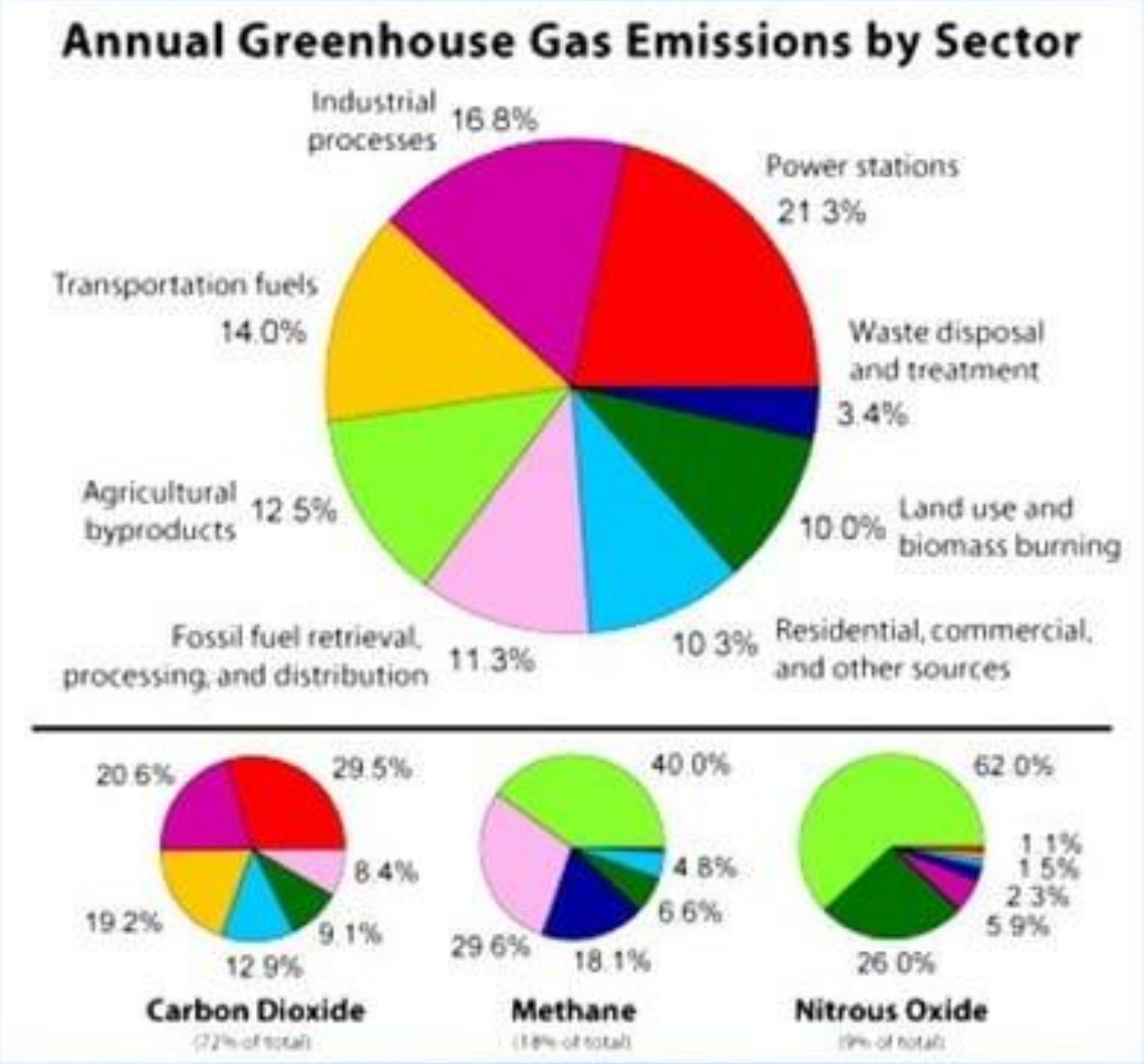
At Boston's Arnold Arboretum, plants are flowering eight days earlier on average than they did from 1900 to 1920. (Primack et al,2004)

Climate change seems to accelerating



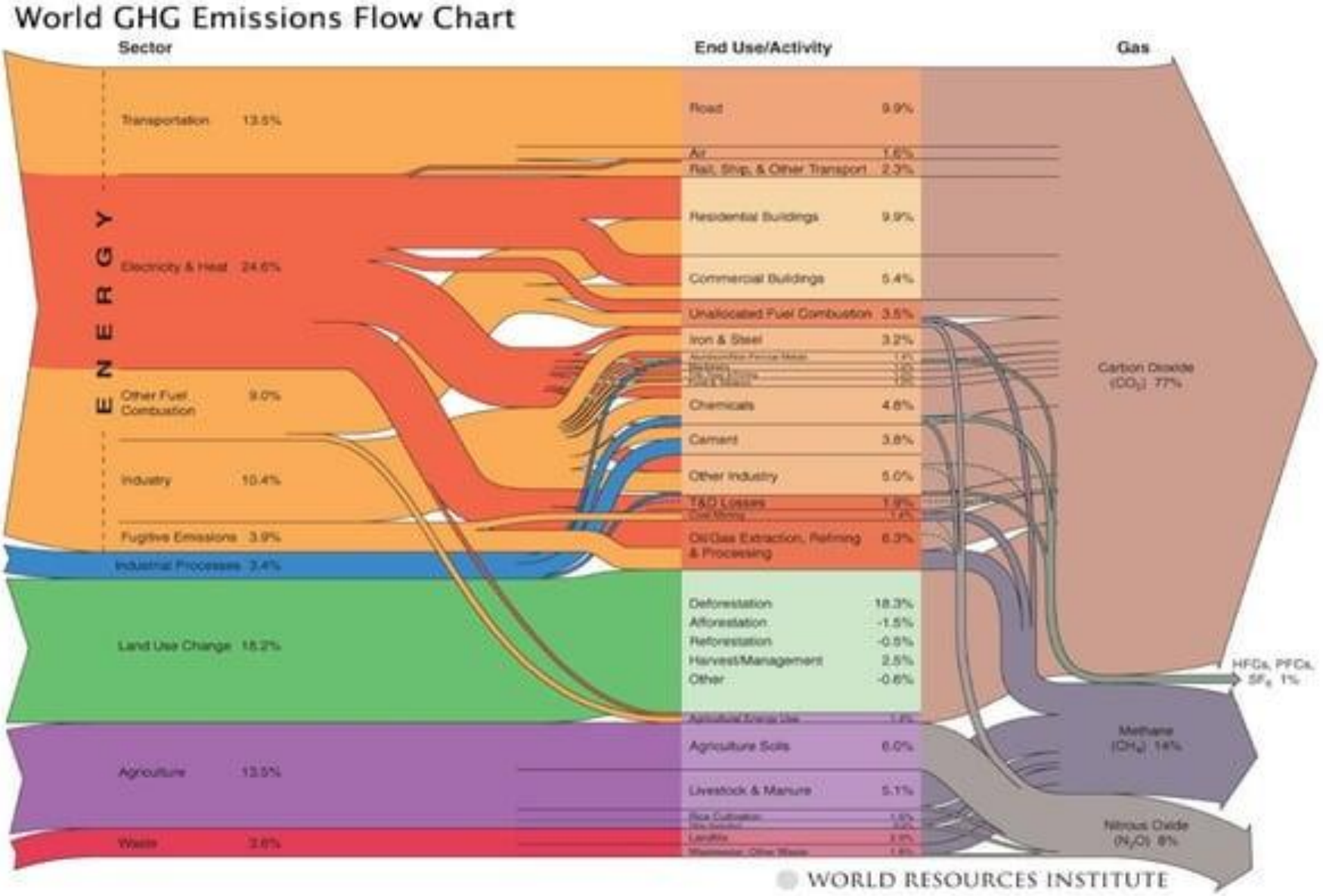
Each of the 48 continental states experienced above-normal annual temperatures in 2006. For the majority of states, 2006 ranked among the 10 hottest years since 1895. (NOAA)

More Greenhouse Gases Mean a Warmer Earth



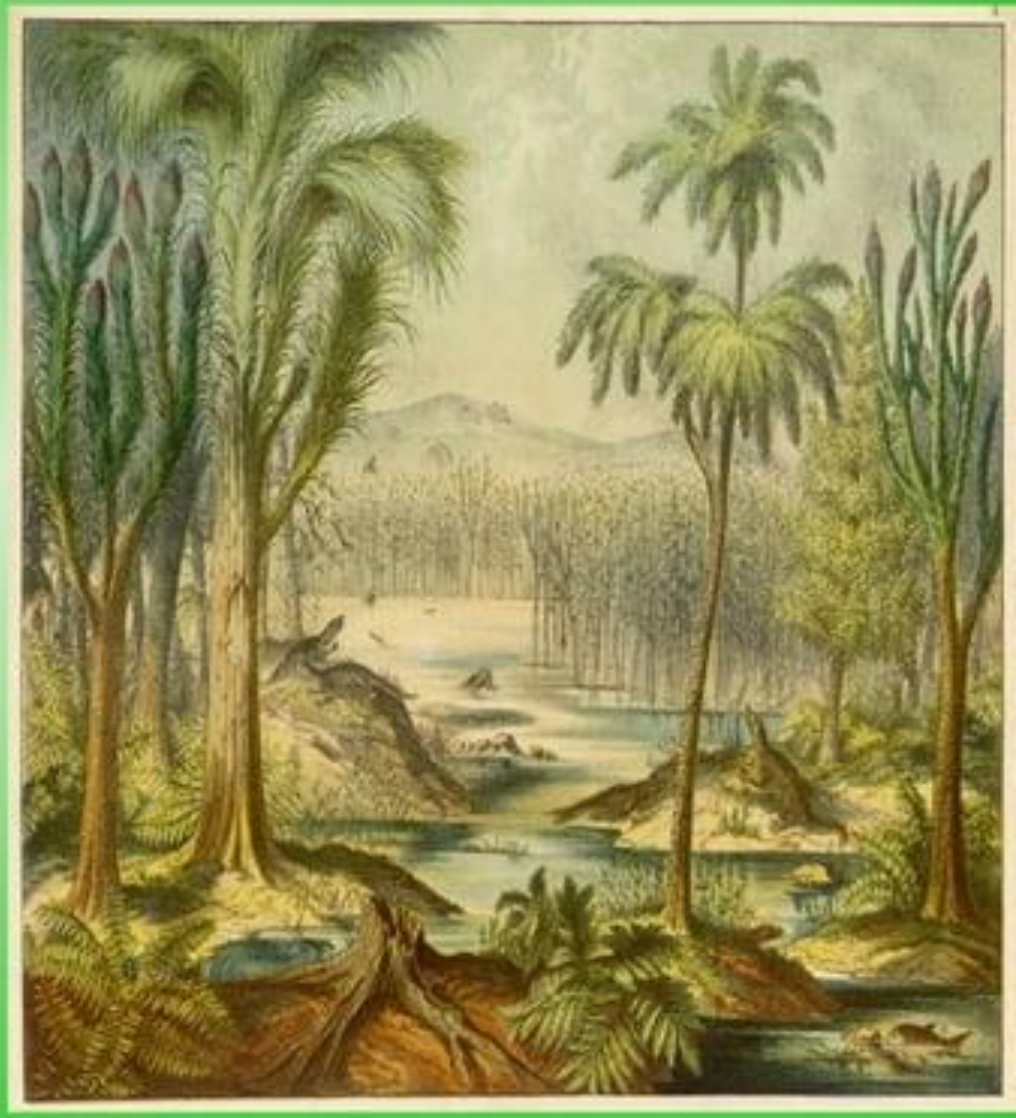
www.stuffintheair.com/global-energy-balance.html

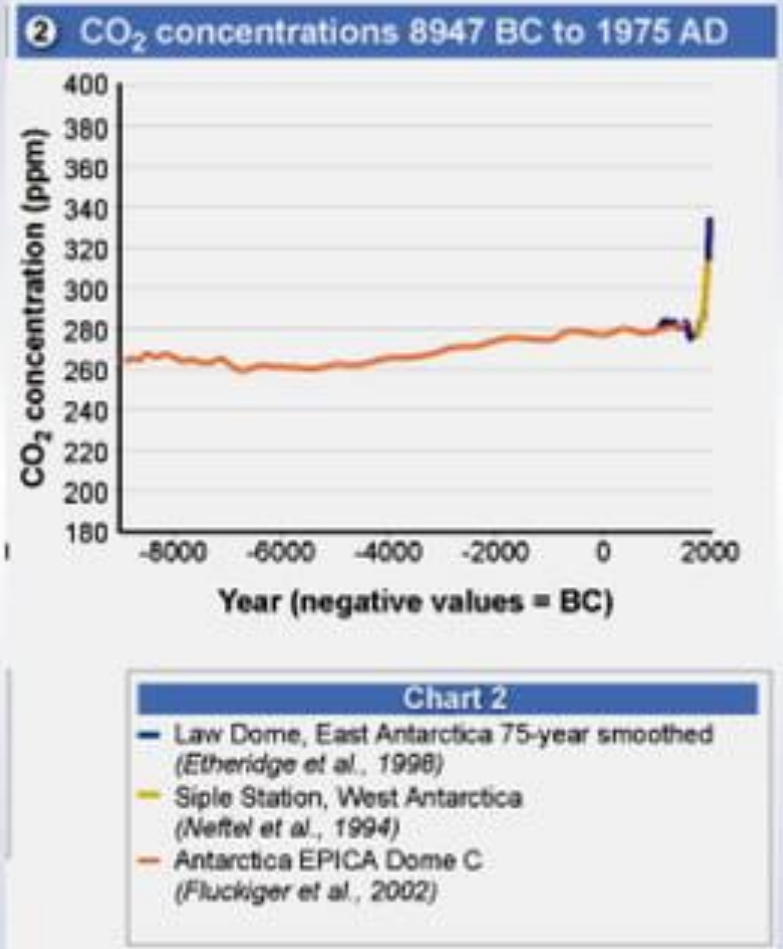
Who creates greenhouse gases?



Carbon Dioxide

In the distant past, the Earth was much warmer. High levels of Carbon Dioxide in the atmosphere fueled lush growth, some of which was stored in the form of fossil fuels.



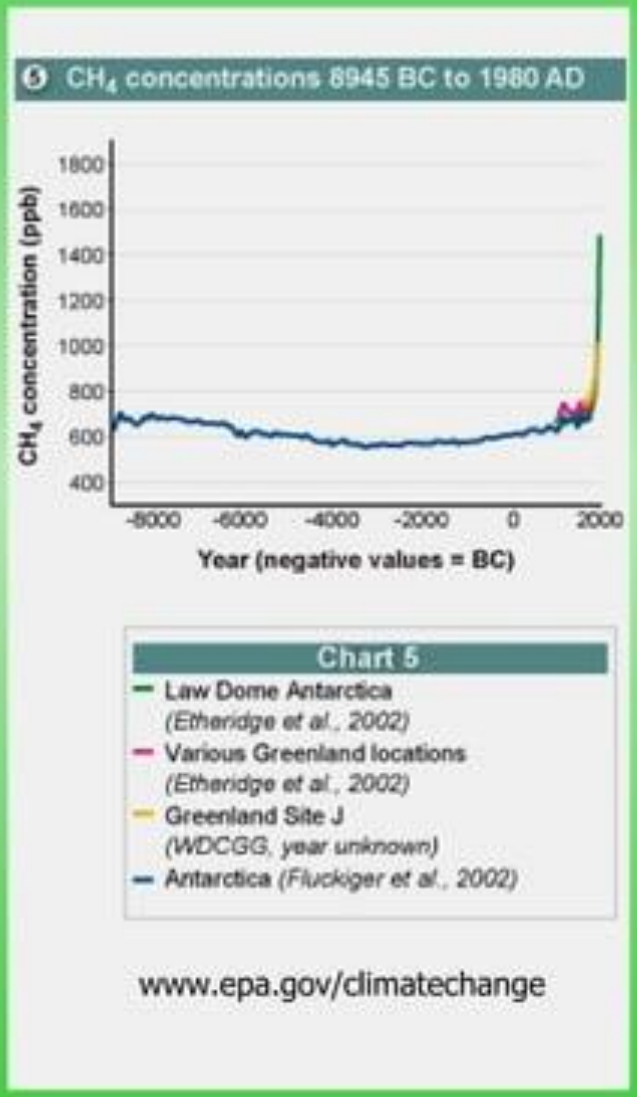


Carbon Dioxide in Earth's atmosphere has risen by about 30% since the beginning of the industrial revolution. Most of the increase is due to the combustion of fossil fuels, which releases the long-stored CO_2 back into the atmosphere.

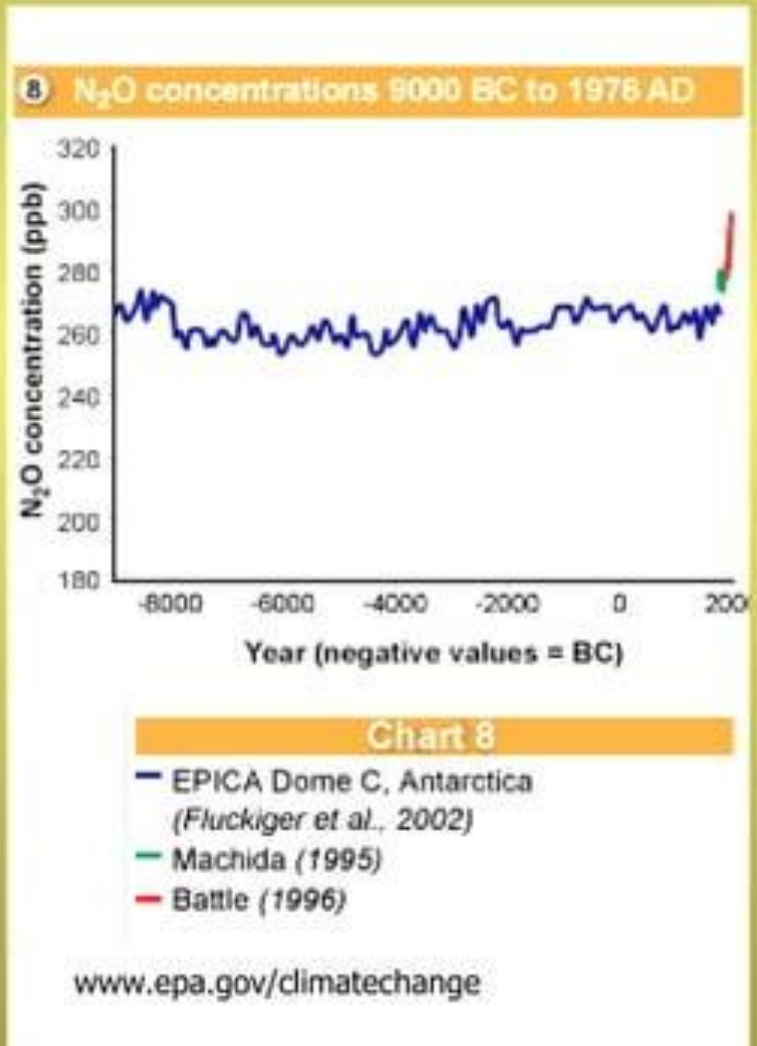
www.epa.gov/climatechange

Methane

Methane is released by coal mining, landfills, and by agriculture, particularly through the digestive processes of beef and milk cows.



Nitrous Oxide



Nitrous Oxide is produced by cars, by fossil fuels used for heat and electricity, and by agriculture.

http://www.epa.gov/nitrousoxide/scientific.html

What can be done?

First we must admit that climate change is everyone's problem. No agency, government, or scientist can "fix it" for us. We are all in this together.

We got here because of our lifestyle. So our lifestyle has to change.

Here's what you can do...

Heating and Cooling

- Install programmable thermostats.
- Check and repair weather stripping on doors and windows.
- Adjust your clothing instead of the thermostat.
- Keep furnace and AC filters clean.
- Consider closing off unused rooms.
- Install insulated drapes.
- Plant deciduous trees on the sunny side of your home.

What other ways can you conserve heat and AC?

Conserve Hot Water

In the average home, 17% of energy is used to heat water.

http://www.eia.doe.gov/kids/energyfacts/uses/residence.html

- **Take shorter showers.**
- **Install low flow shower heads.**
- **Install a blanket on your hot water heater.**
- **Insulate hot water pipes.**
- **Wash laundry in cold water.**
- **Only run the dishwasher if it's full.**
- **Fix leaky faucets**

What other ways can you cut down on hot water use?

Conserve in the Car

- Plan ahead – do several errands in a single trip.
- Walk or bike. It's healthier anyway.
- Clean out the junk in the trunk. Lighter cars get better mileage.
- Make sure your engine is properly tuned.
- Keep your tires properly inflated.
- Carpool or ride the school bus.
- Support public transportation.
- Consider a smaller car or a hybrid for your next vehicle.

What other ways can you use less gas?

Conserve Electricity

- Unplug chargers for cell phones and other appliances when not in use.
- Get in the habit of turning lights and appliances off.
- Vacuum the coils on the back of the fridge monthly.
- Change to compact fluorescent bulbs.
- Make your next computer a laptop.
- Install timers or motion sensors on outdoor lights.

What other ways can you conserve electricity?

Reduce waste

- Recycle and buy recycled products.
- Choose products that have less packaging.
- Reuse, repair, or donate.
- Don't buy it unless you really need it.
- Carry cloth bags when shopping.
- Use a refillable travel mug or water bottle.
- Give your time instead of material gifts, or donate to a charity in the recipient's name.

What other ways can you cut down on waste?

There's no place like home...

...and there may never be again. Do your part.

Sources

www.energy.gov/applianceselectronics.htm

www.worldviewofglbalwarming.org

http://cdiac.esd.ornl.gov/

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www.climatehotmap.org/

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Primack, D.,et al 2004. Herbarium specimens demonstrate earlier flowering times in response to warming in Boston. American Journal of Botany, 91, 1260-1264.

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ENVIRONMENTAL ISSUES

WHAT ARE ENVIRONMENTAL ISSUES?

Environmental issues are any such issues created due to **human activities** and cause **harm to the environment.**

- **Environmental issues are harmful effects of human activity on the biophysical environment.**
- **They relate to the anthropogenic effects on the natural environment, which are loosely divided into causes, effects and mitigation, noting that effects are interconnected and can cause new effects.**
- **Environmental Issues are interconnected, that means one issue accelerate the other e.g. water pollution accelerate the rate of air pollution causes global warming.**

GLOBAL ENVIRONMENTAL ISSUES..

HUMAN OVERPOPULATION

- Bio capacity
- Carrying capacity
- Exploitation
- Industrialization
- Land degradation
- Land reclamation
- Urbanization
- Waste
- Water conflict
- Water scarcity
- Overdrafting

GLOBAL ENVIRONMENTAL ISSUES..

Hydrological Issues

- Environmental Impact of Reservoirs-
  - Fragmentation of river ecosystems
  - Riverline and coastal erosion
  - Change in Water temperature
  - Reservoir sedimentation
- Tile Drainage
- Flooding
- Landslide
- Water Scarcity in Agriculture

GLOBAL ENVIRONMENTAL ISSUES..

Nuclear Issues

- Nuclear fallout
- Nuclear meltdown
- Nuclear power
- Nuclear weapons
- Nuclear and radiation accidents
- Nuclear safety
- High-level radioactive waste management

GLOBAL ENVIRONMENTAL ISSUES..

Land-Use Issues

- Built environment
- Desertification
- Habitat fragmentation
- Habitat destruction
- Land degradation — Land pollution
- Lawn-environmental concerns
- Urban heat island
- Urban sprawl

GLOBAL ENVIRONMENTAL ISSUES..

Intensive Farming

- Intensive animal farming
- Intensive crop farming
- Irrigation
- Monoculture
- Nutrient pollution
- Overgrazing
- Pesticide drift
- Plasticulture
- Slash and burn
- Tile drainage

GLOBAL ENVIRONMENTAL ISSUES..

Nanotechnology

Implication of Nanotechnology.

EFFECTS of GLOBAL ENVIRONMENTAL ISSUES..

Climate Change

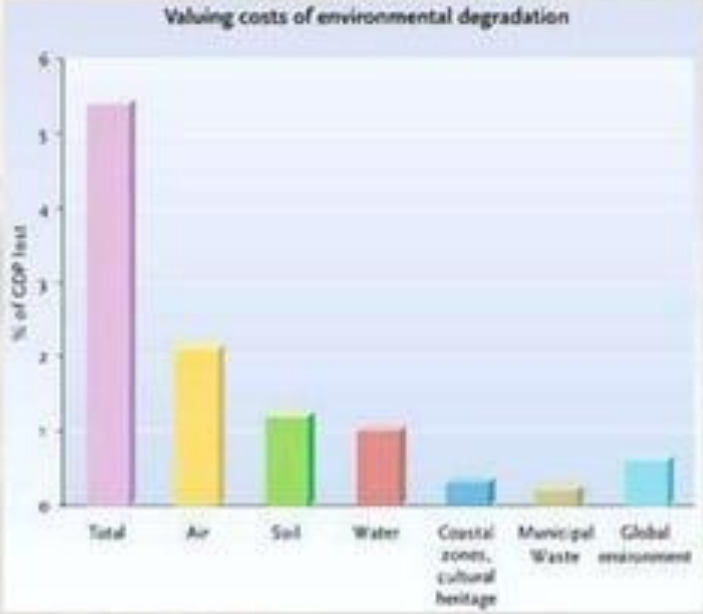
- Global warming
- Global dimming
- Fossil fuels
- Sea level rise
- Greenhouse gas
- Ocean acidification
- Shutdown of thermohaline circulation
- Environmental impact of the coal industry
- Urban Heat Islands
- Flooding

EFFECTS of GLOBAL ENVIRONMENTAL ISSUES..

Environmental Degradation

Deterioration of the environment through depletion of resources such as air, water and soil; the destruction of ecosystems and the extinction of wildlife. Environmental degradation is one of the ten threats officially cautioned by the High-level Panel on Threats, Challenges and Change of the United Nations.

- **Habitat destruction**
- **Invasive species**



EFFECTS of GLOBAL ENVIRONMENTAL ISSUES..

Environmental Health

- Air quality
- Asthma
- Birth defect
- Developmental disability
- Endocrine disruptors
- Environmental impact of the coal industry
- Environmental impact of nanotechnology
- Electromagnetic radiation and health
- Lead poisoning
- Leukemia
- Nanotoxicology
- Nature deficit disorder
- One Health
- Sick Building Syndrome
- Environmental impact of hydraulic fracturing

EFFECTS of GLOBAL ENVIRONMENTAL ISSUES..

Pollution

- **Air pollution**

*Major Pollutants: Sulfur oxides (SOx), Nitrogen oxides (NOx), Carbon monoxide (CO), Volatile organic compounds (VOC), Particulate Matter (PM), Toxic metals such as Lead/Mercury, Chlorofluorocarbons (CFCs), Ammonia (NH3), Odours — such as from garbage, sewage, and industrial processes, Radioactive pollutant, Ground level ozone (O_3) etc.

- **Water Pollution**

-Point Sources: Contaminants that enter a waterway from a single, identifiable source, such as a pipe or ditch. Examples of sources in this category include discharges from a sewage treatment plant, a factory, or a city storm drain.

-Non Point Sources: Refers to diffuse contamination that does not originate from a single discrete source. A common example is the leaching out of nitrogen compounds from fertilized agricultural lands. Nutrient runoff in storm water from "sheet flow" over an agricultural field or a forest are also cited as examples of NPS pollution.

EFFECTS of GLOBAL ENVIRONMENTAL ISSUES..

Pollution

- **Soil pollution**

  Soil pollution can be caused by the following

  *Accidental Spills *Acid rain (Which is caused by air pollution) *Intensive farming *Deforestation*Genetically modified plants *Nuclear wastes *Industrial Accidents *Landfill and illegal dumping *Land Erosion *Agricultural practices, such as application of pesticides, herbicides and fertilizers *Mining and other industries *Oil and fuel dumping *Buried wastes *Disposal of coal ash *Disposal of ammunitions and agents of war *Drainage of contaminated surface water into the soil *Electronic waste

- **Noise pollution-** Disturbing or excessive noise that may harm the activity or balance of human or animal life.

- **Light Pollution-** Also known as photopollution or luminous pollution, is excessive, misdirected, or obtrusive artificial light.

EFFECTS of GLOBAL ENVIRONMENTAL ISSUES..

Resource Depletion

Exploitation of natural resources, Overdrafting (groundwater), Overexploitation

- **Consumerism** — Consumer capitalism • Planned obsolescence • Over-consumption
- **Fishing** — Blast fishing • Bottom trawling • Cyanide fishing • Ghost nets • Illegal, unreported and unregulated fishing • Overfishing • Shark finning • Whaling
- **Logging** — Clearcutting • Deforestation • Illegal logging
- **Mining** — Acid mine drainage • Environmental impact of hydraulic fracturing • Mountaintop removal mining • Slurry impoundments
- **Water (depletion)** — Anoxic waters • Aral Sea • California Water Wars • Dead Sea • Lake Chad • Water scarcity

EFFECTS of GLOBAL ENVIRONMENTAL ISSUES..

Waste

- Electronic waste
- Great Pacific Garbage Patch
- Illegal dumping
- Incineration
- Litter
- Waste disposal incidents
- Marine debris
- Medical waste
- Landfill
- Leachate
- Toxic waste
- Environmental impact of the coal industry
- Exporting of hazardous waste

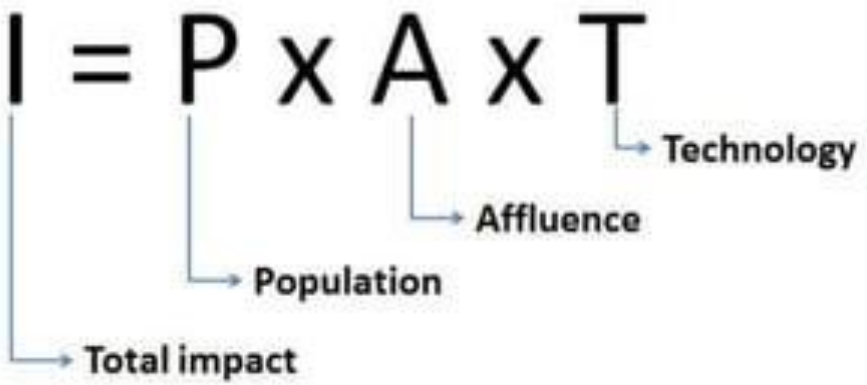
Measurement of Human impact on Environment

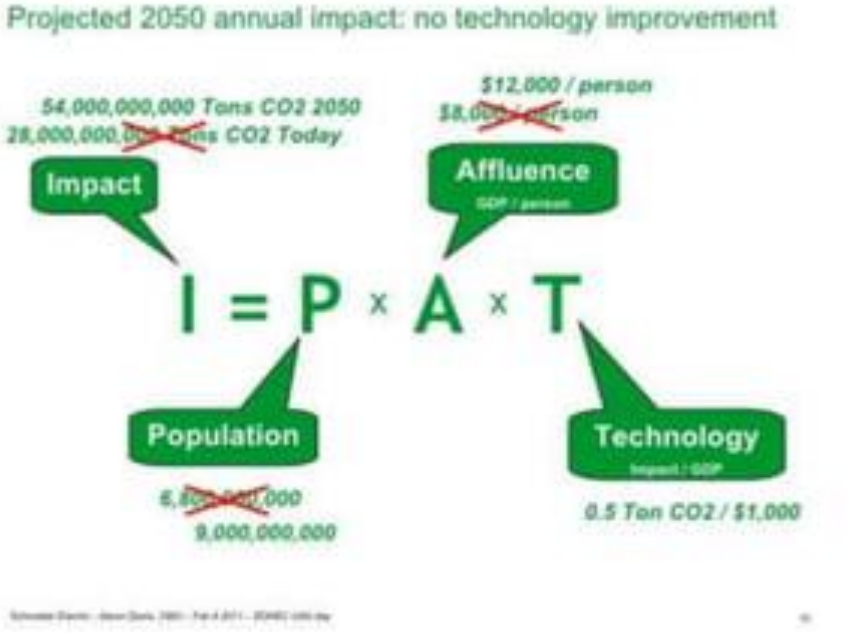
I= PAT

-In the **I=PAT** equation, the variable **P** represents the population of an area, such as the world. Since the rise of industrial societies, human population has been increasing exponentially.

-The variable **A**, in the **I=PAT** equation stands for affluence. It represents the average consumption of each person in the population. As the consumption of each person increases, the total environmental impact increases as well.

-The **T** variable in the **I=PAT** equation represents how resource intensive the production of affluence is; how much environmental impact is involved in creating, transporting and disposing of the goods, services and amenities used. the unit for **T** is often tailored for the situation **I=PAT** is being applied to. For example, for a situation where the human impact on climate change is being measured, an appropriate unit for **T** might be greenhouse gas emissions per unit of GDP.





GLOBAL ENVIRONMENTAL ISSUES

Mitigation

Priority Issues/ Solutions:

- ✓ Curbing Global Warming-
- ✓ Afforestation-
- ✓ Creating the Clean Energy Future-
- ✓ Reviving the World's Oceans-
- ✓ Defending Endangered Wildlife and Wild Places-
- ✓ Protecting Our Health By Preventing Pollution
- ✓ Ensuring Safe and Sufficient Water-
- ✓ Fostering Sustainable Communities-
- ✓ Practicing Organic Farming
- ✓ Implement and practicing three R's (Reuse, Reduce, Recycle)

GLOBAL ENVIRONMENTAL ISSUES

Mitigation

WHO SHOULD COME FORWARD ?

Each and Everyone must come forward to mitigate with this burning issues because our existence is now in our hand.

GLOBAL ENVIRONMENTAL ISSUES

Mitigation Strategy

The implementation of the solutions in this document as well as those in the NEAP Volume 1 is categorized by principal players thus:

a. Actions to be taken by people on their own;

b. Action to be taken by people with assistance from the Government or non governmental agencies; and

c. Actions to taken by the Government alone.

GLOBAL ENVIRONMENTAL ISSUES

Mitigation

Involvement of Media:

There are an increasing number of films being produced on environmental issues, especially on climate change and global warming. Al Gore's 2006 film An Inconvenient Truth gained commercial success and a high media profile.

Within the last twenty years, commercially successful films with an environmentalism theme have been released theatrically and made by the major Hollywood studios.

The truth about Wildlife, Years of Living Dangerously are some of the popular TV shows based on Environmental Conservation.

GLOBAL ENVIRONMENTAL ISSUES

Mitigation

There are literally dozens of environmental organizations in the world, with most countries having at least one government ministry or agency with a dedicated role to monitor and protect the environment.

In addition there are a large number of Private Organizations, sometimes known as Non-Government Organizations (NGOs). A significant number of these have a worldwide coverage and although some of them are relatively unknown outside a fairly specialized circle, several, such as Friends of the Earth and Greenpeace have an international profile and reputation.

List of International Organization Working on Environmental Issues:

- Earth System Governance Project (ESGP).
- Global Environment Facility (GEF).
- Intergovernmental Panel on Climate Change (IPCC).
- International Union for Conservation of Nature (IUCN).
- United Nations Environment Programme (UNEP).
- World Nature Organization (WNO).
- Centre for Science and Environment (CSE).

etc.

THANK YOU