# Manajemen Produksi Tanaman Tropis dan Perubahan Lingkungan (2 SKS)


**Meehl et al. (2007):**

**Climate is "average weather", in terms of the mean and variability of temperature, precipitation and wind over a period of time, ranging from months to millions of years (the classical period is 30 years)**

Climate Change → the CHANGE of MEAN and VARIABILITY

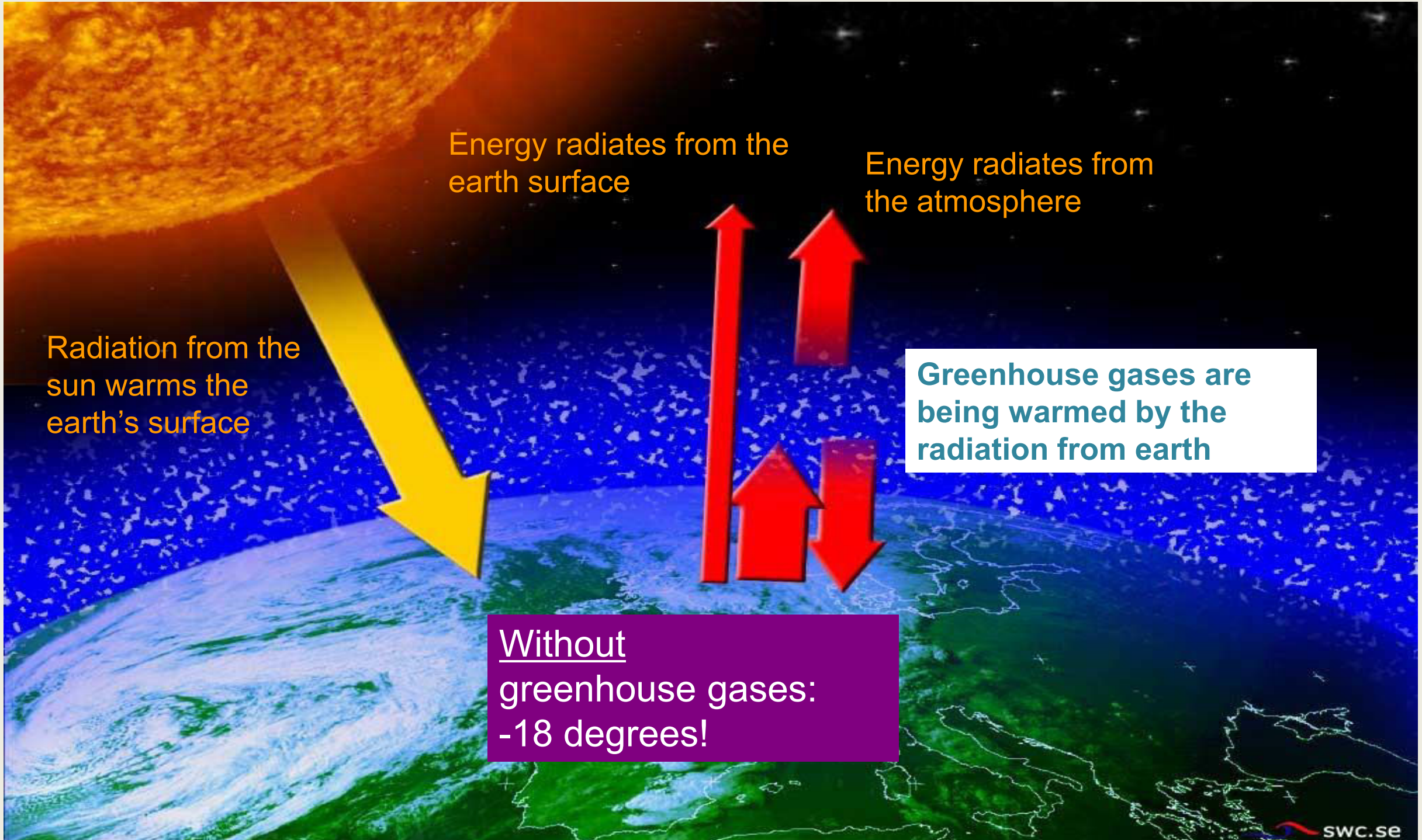
# Iklim dan Cuaca

**Iklim: Statistik cuaca, rerata pola cuaca dalam waktu yang lama (lebih kurang 100 tahun)**

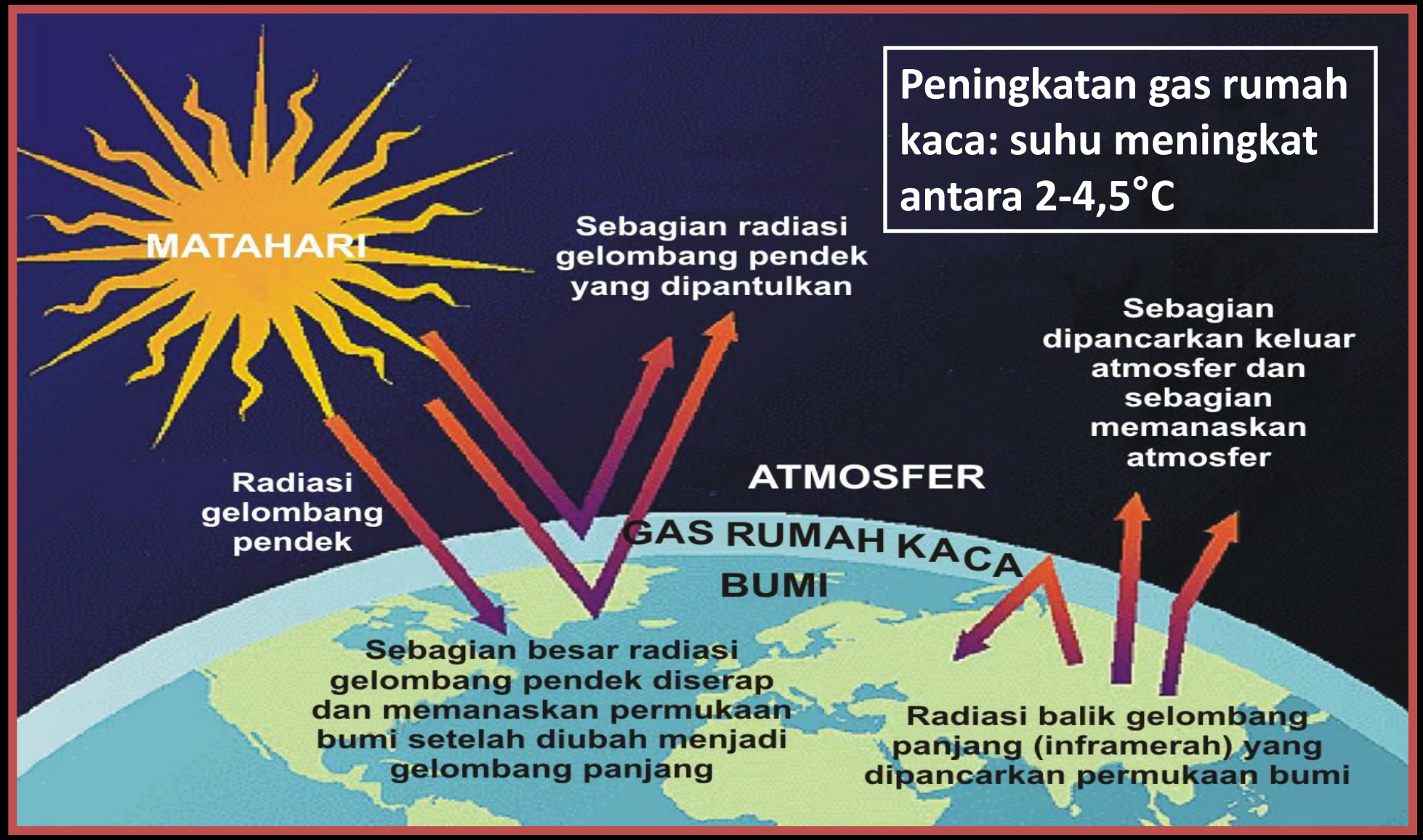
**Cuaca (Curah hujan, awan, angin, kelembapan, suhu)**

**Keseimbangan alami di atmosfer.**

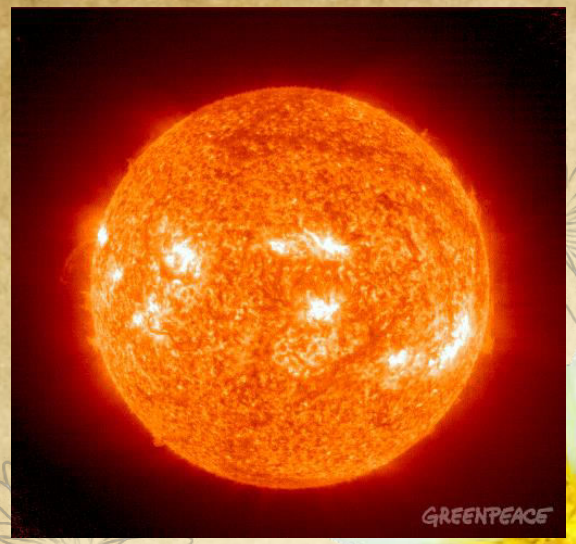
**Climate change: Perubahan signifikan pola cuaca**


Energy radiates from the earth surface
Energy radiates from the atmosphere
Radiation from the sun warms the earth's surface
Greenhouse gases are being warmed by the radiation from earth
Without greenhouse gases: -18 degrees!
swc.se

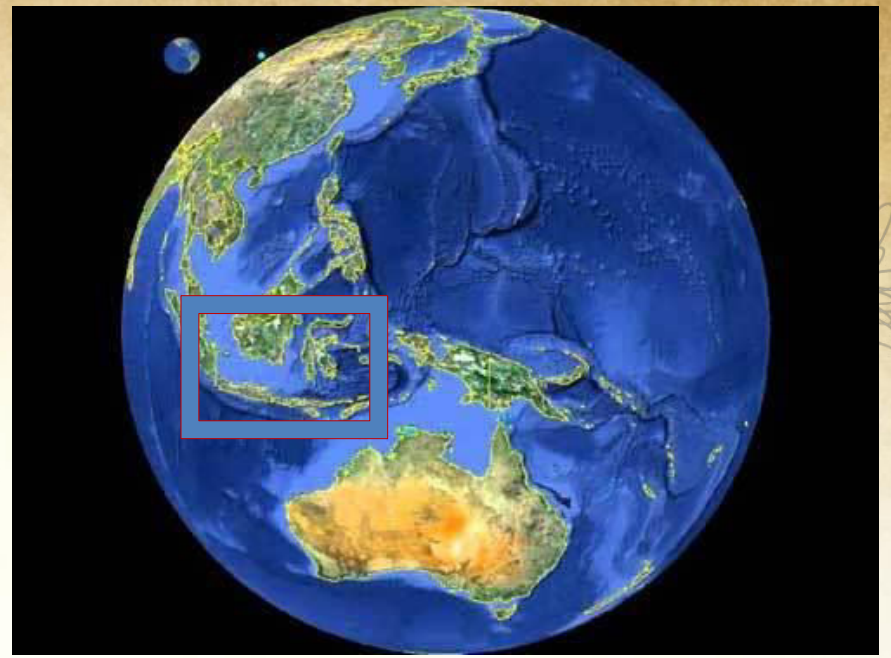
# FUNGSI ATMOSFER

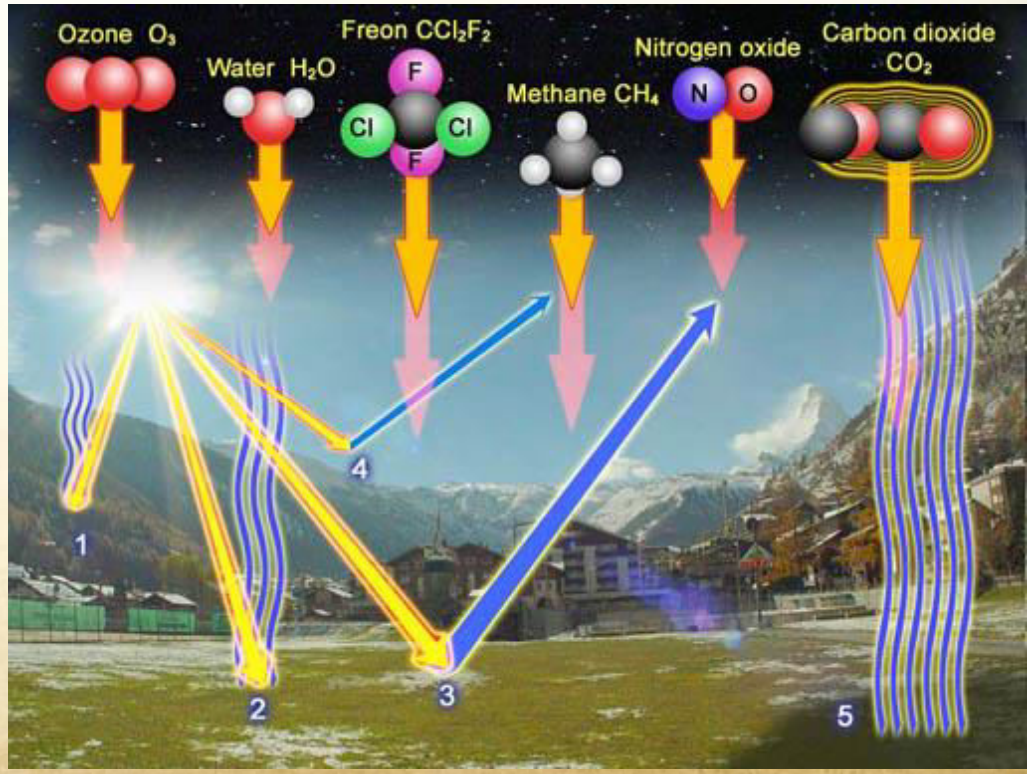


# Pemanasan Global



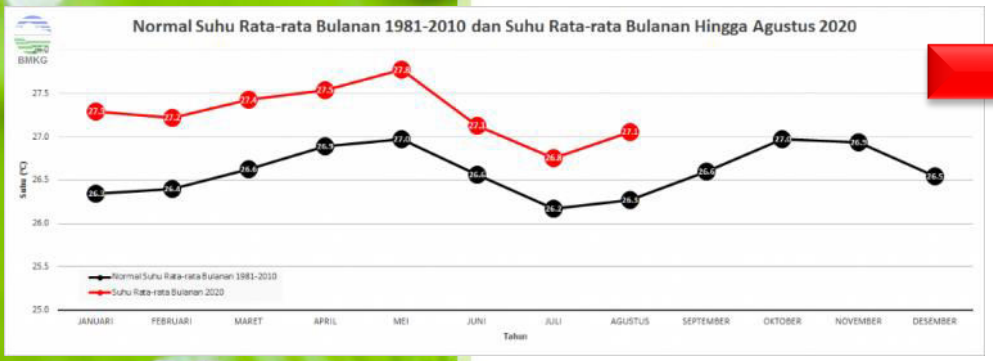

Pancaran Radiasi Surya



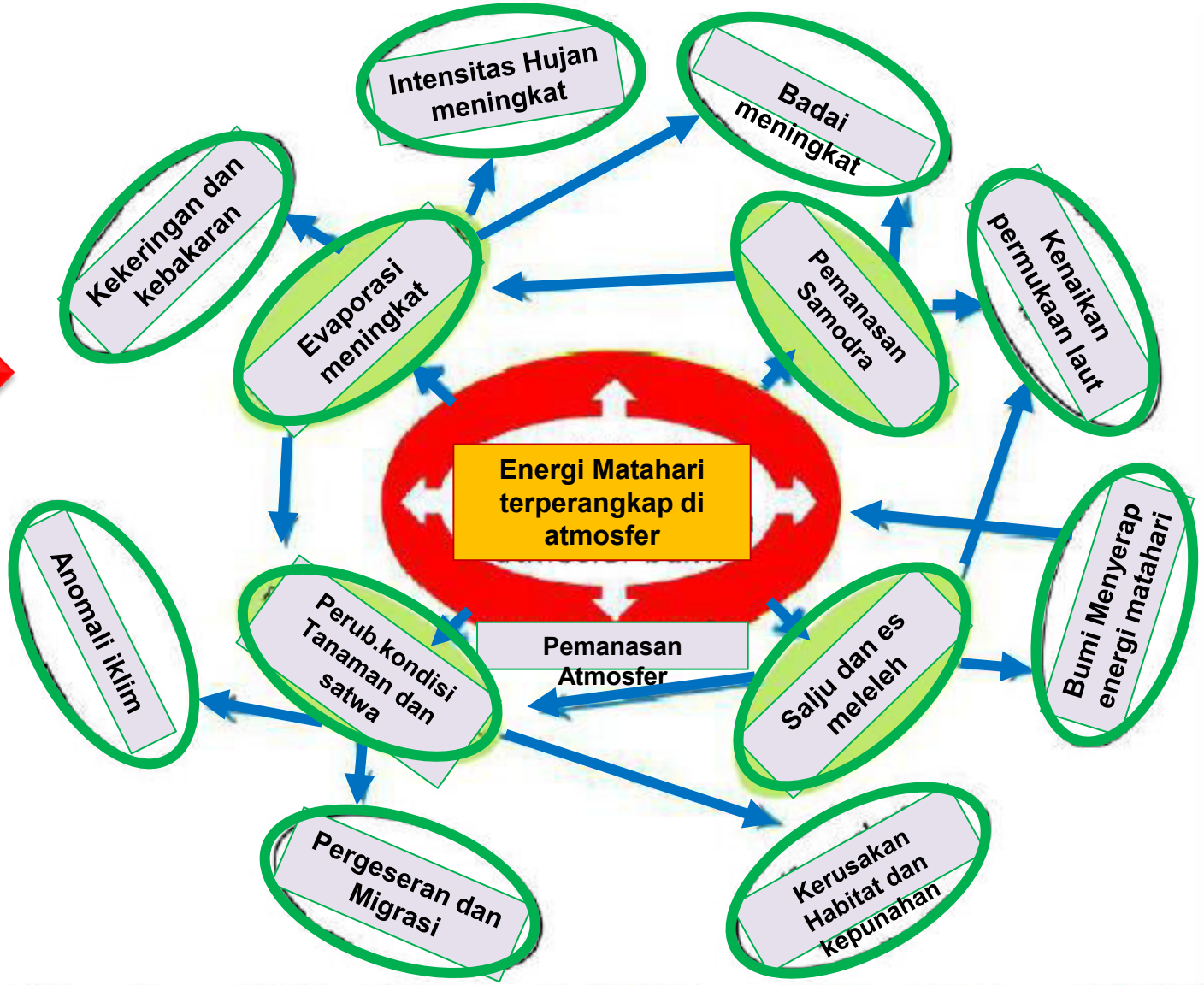




https://www.its.ac.id/tgeofisika/climate-change/ (2018)

# Peningkatan suhu dan Pemanasan Global

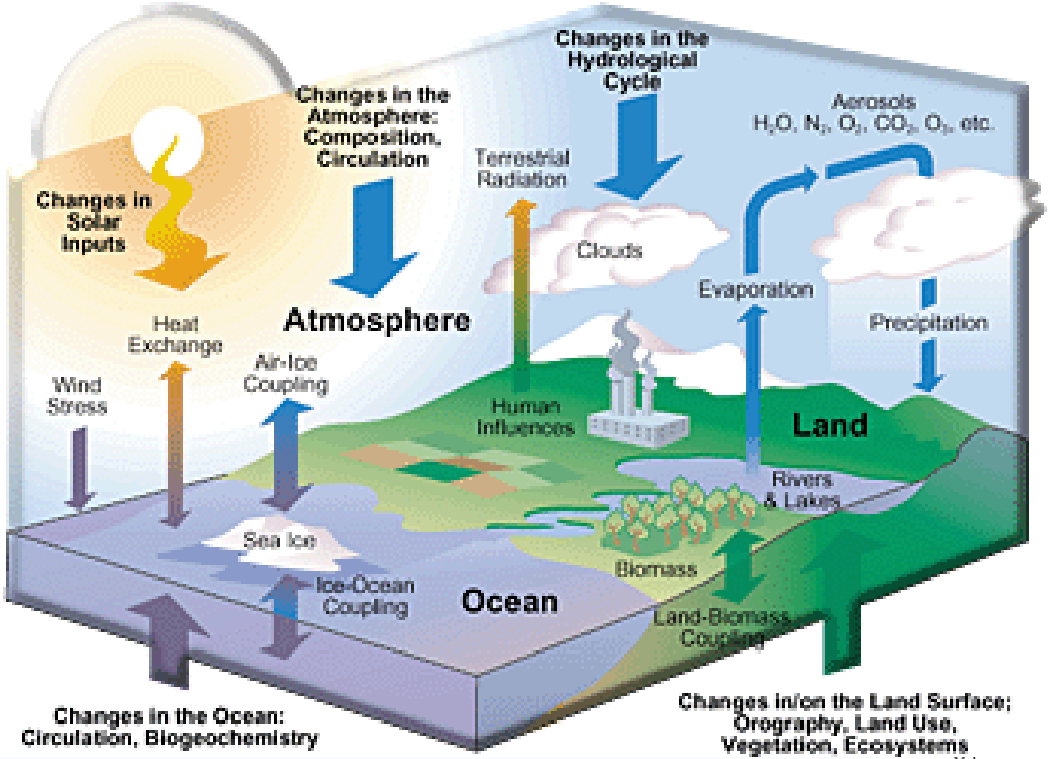



**Suhu udara bulan Agustus periode 1981-2010 di Indonesia :26,3$^{o}$C (dalam *range* normal 21,4$^{o}$C-28,8$^{o}$C). Agustus 2020: sebesar 27,1$^{o}$C. Telah terjadi anomali peningkatan suhu udara rata-rata sebesar 0,8$^{o}$C. (BMKG, 2020)**




**Mekanisme Dampak Pemanasan Global terhadap Perubahan Iklim (modifikasi dari:www.epa.gov) (2018)**

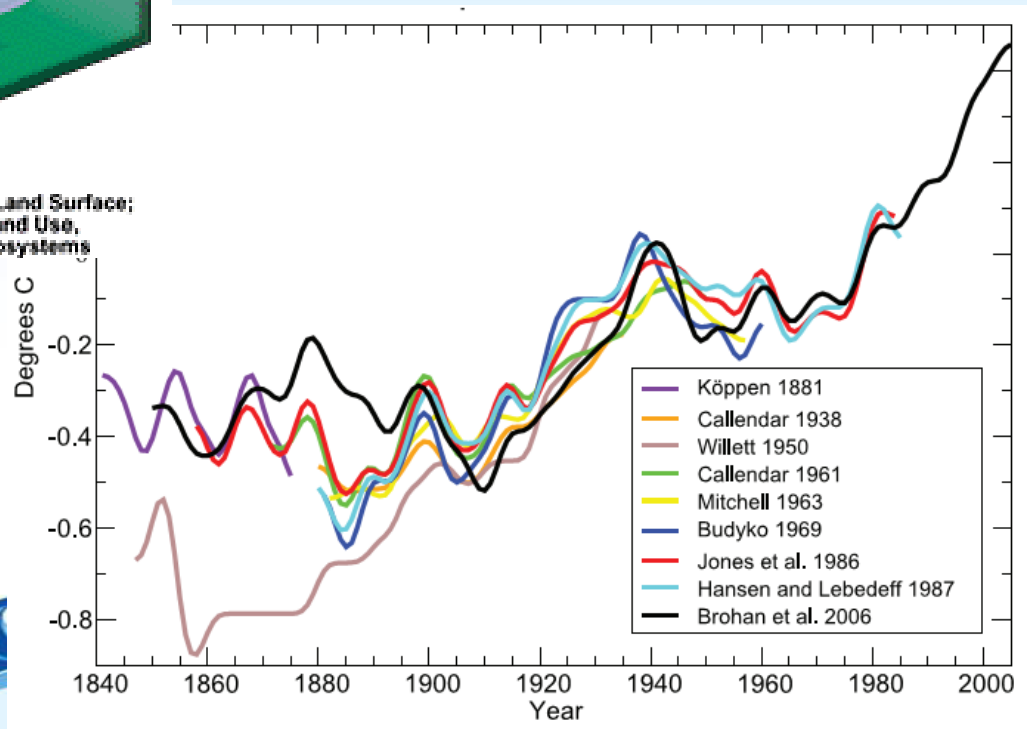
# Global Climate System Components



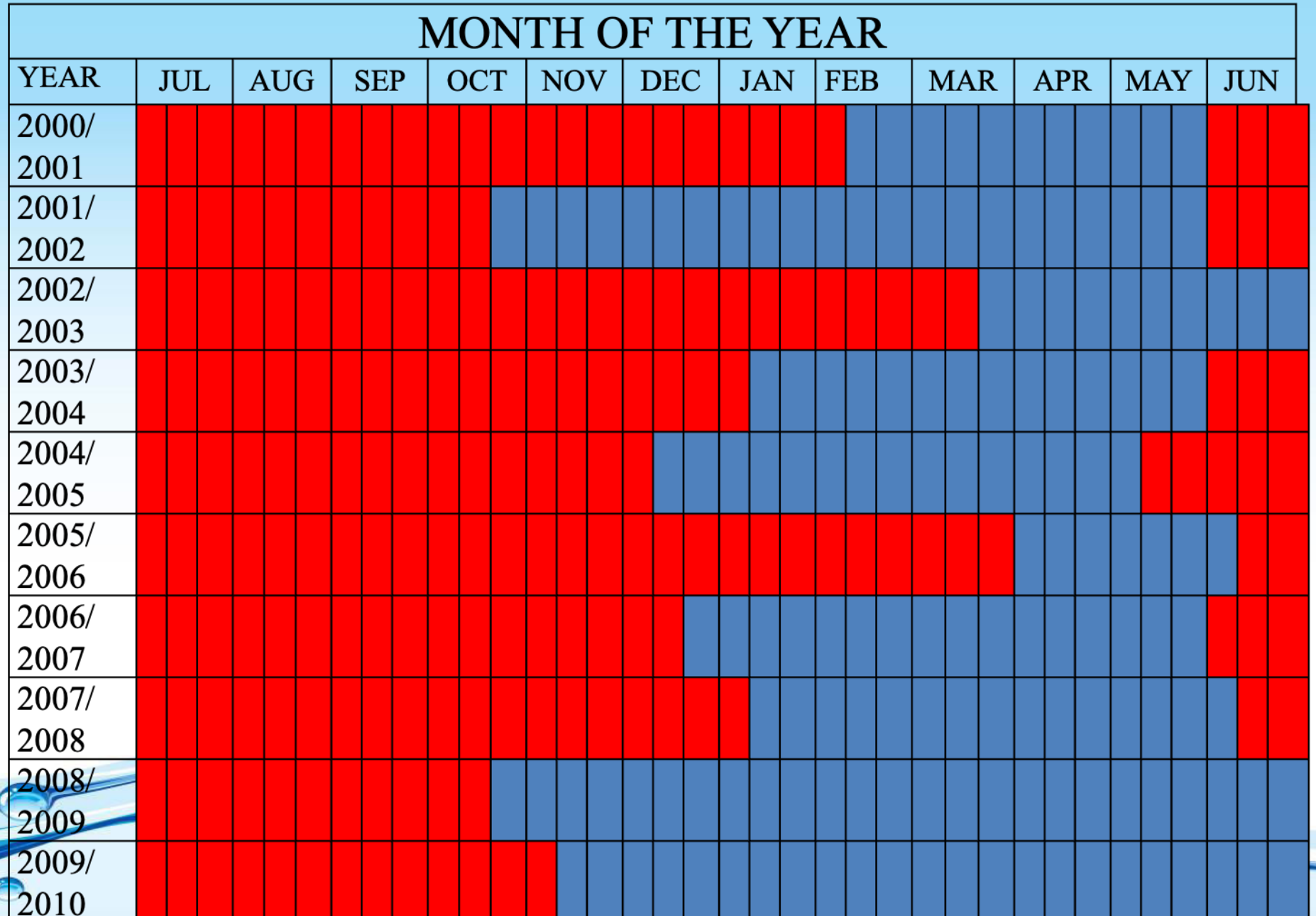

(Courtesy National Science Foundation, Climate research group, Univ. of Texas, 2012)

# CHANGES IN HYDROLOGY CYCLE

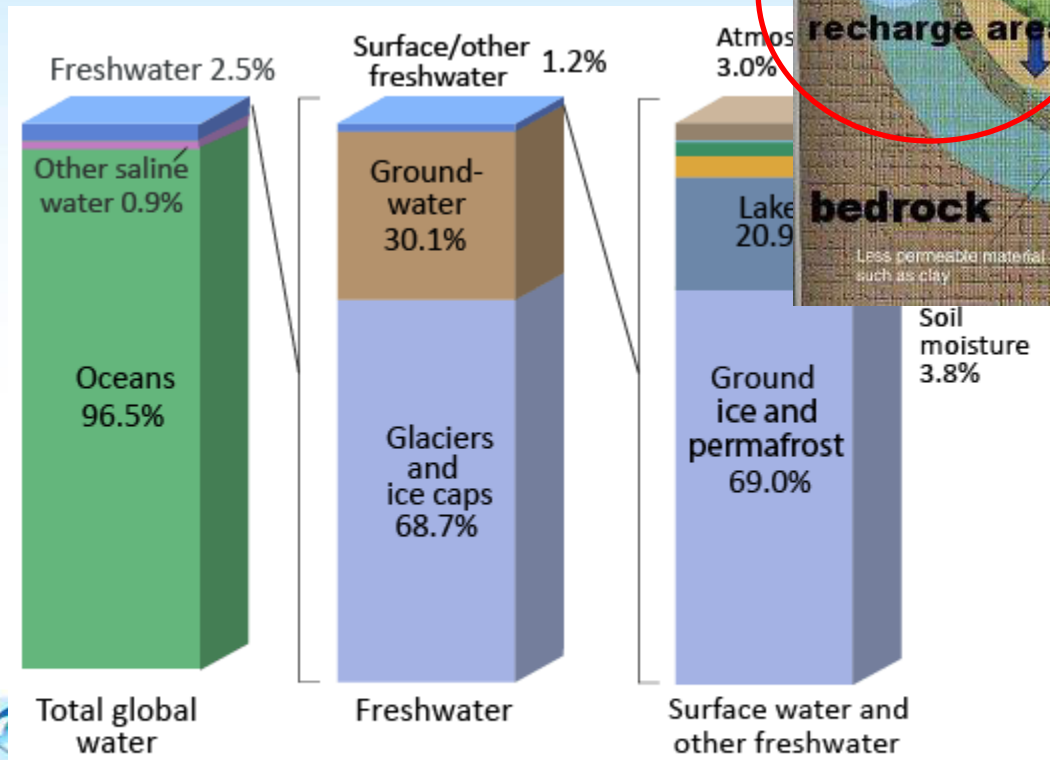
(Le Treut at al., 2007)

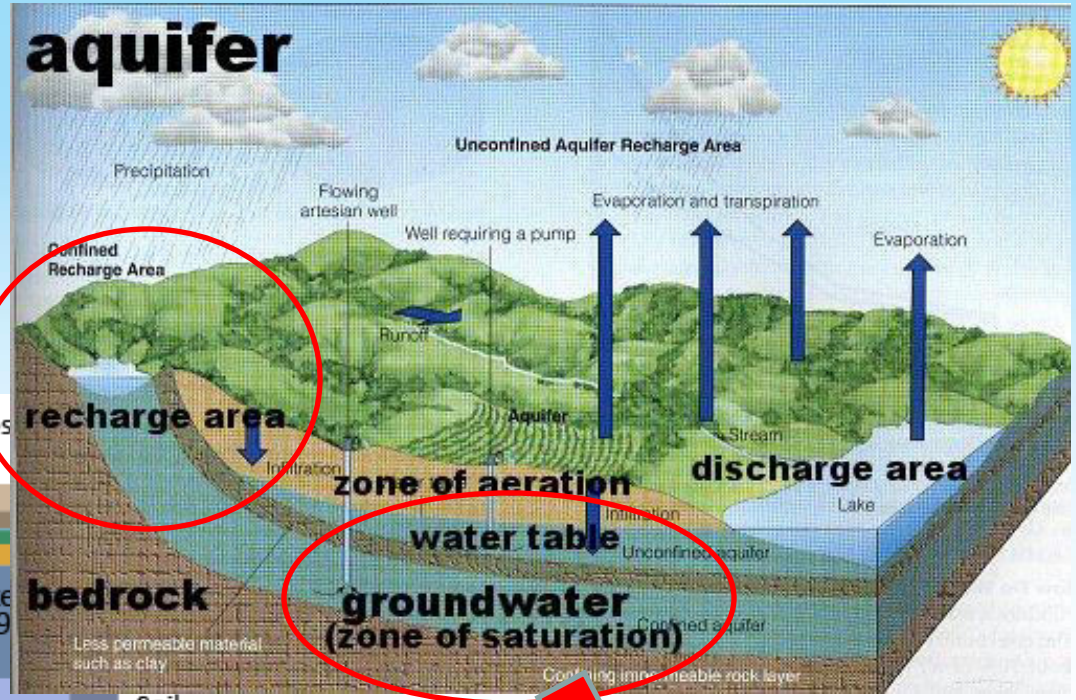


# DISTRIBUTION OF DRY ( ) AND WET ( ) SEASON



# …More Over, Crisis of Water…



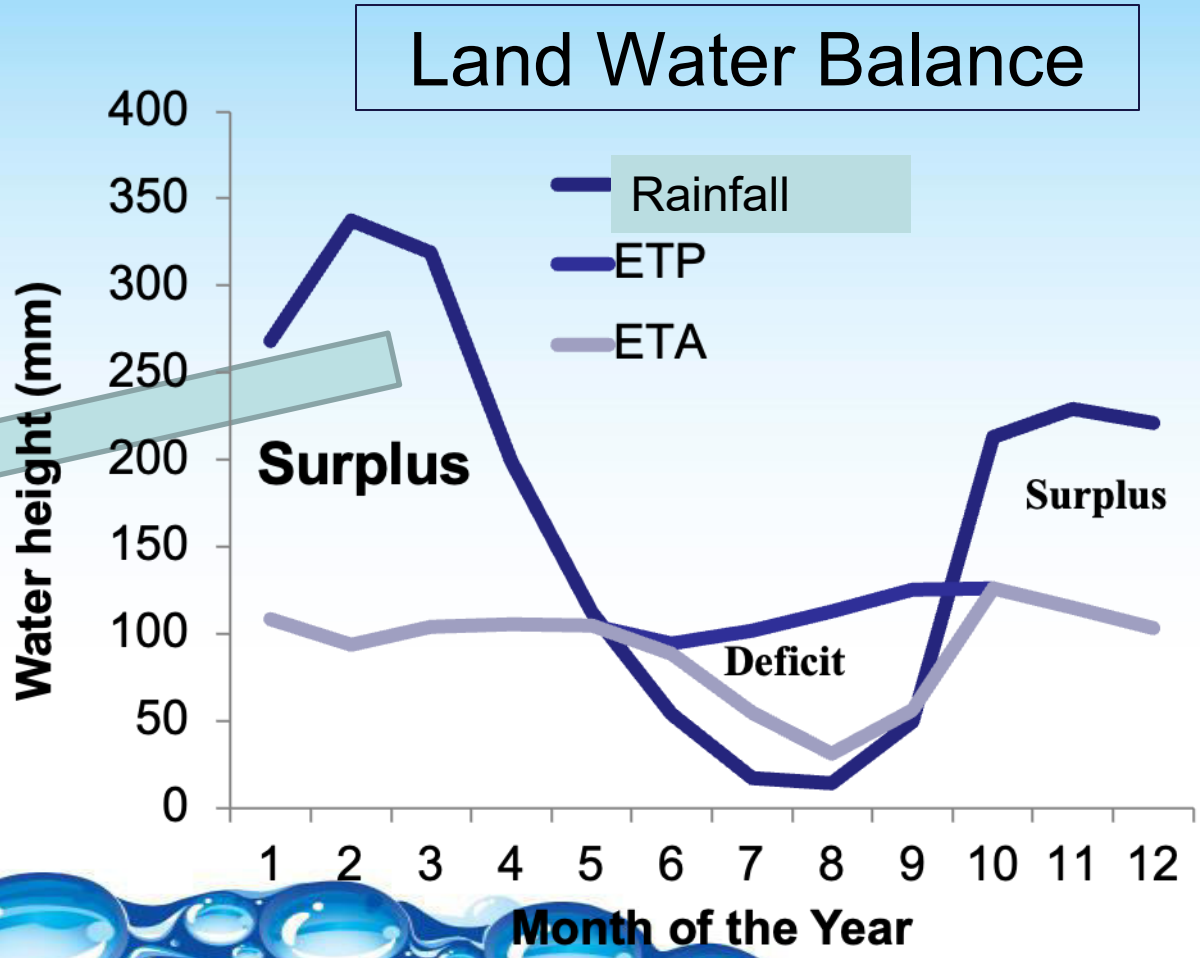




**ALSO EXPLOIT FOR IRRIGATION**

Source: Igor Shiklomanov's chapter "World fresh water resources" in Peter H. Gleick (editor), 1993, Water in Crisis: A Guide to the World's Fresh Water Resources.
NOTE: Numbers are rounded, so percent summations may not add to 100.

# So, what we can do?

**Harvest the Rain and Runoff**



# Small On-Farm Reservoir (SFR); Pond

- Constructed by Private or Group
- Farmer Empowerment of Conserving Water