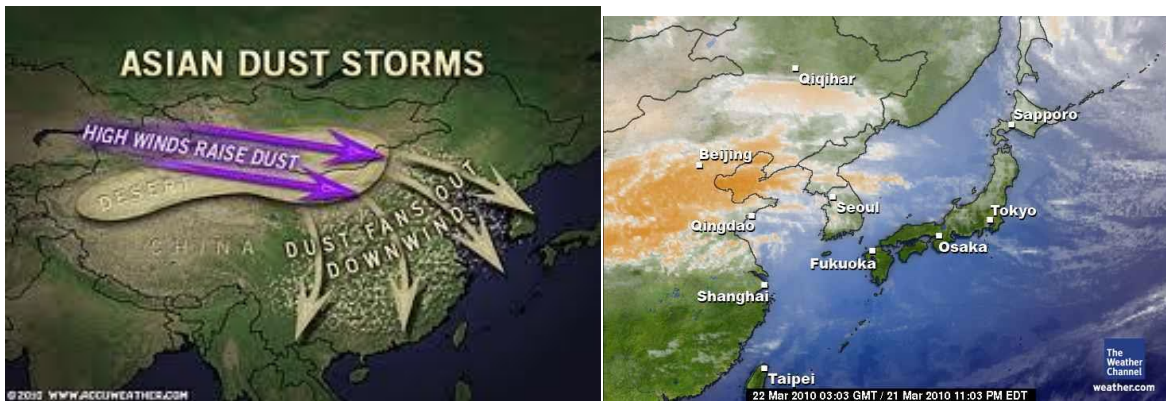
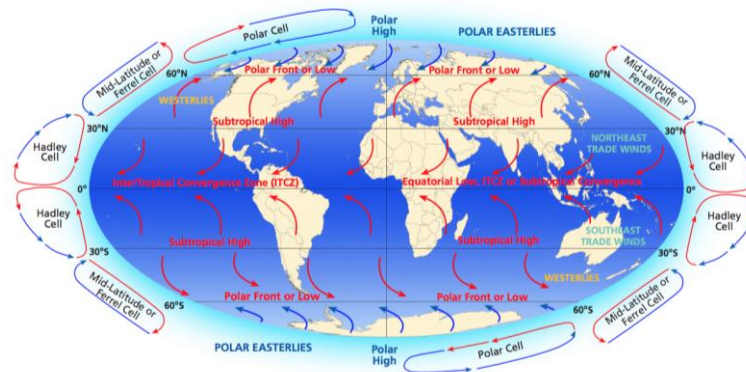


## WHAT IS ASIAN DUST?

- Asian Dust (or Yellow Dust) is pollution that originates from the deserts in Mongolia and China. It affects many countries in East Asia, particularly in the spring.
- This air pollutant strongly effects South Korea's air quality by increasing PM10 (Altindag).
- Asian Dust "picks up" industrial pollutants from China as it travels to Korea. Not all of Korea's pollution is due to China. About half of the air pollution is due to local sources (Zastrow).



## ATMOSPHERIC CIRCULATION



- Two main types of weather results in Asian Dust in Korea: (1) a low-pressure system over the Korean peninsula, (2) upper-level trough and cyclonic vortex over the north of the Korean peninsula (Yoo-Keun)

## HEALTH EFFECTS

- Koreans will actively avoid being outside when there are high levels of Asian Dust. (Altindag)
- Newborns will weigh less when exposed to Asian Dust during their pregnancy (Altindag).
- Asian Dust affects morbidity (contracting diseases) but people are not sure whether or not Asian Dust affects mortality (death rate) (Lee).
- As of 2013 one study has found significant Asian Dust storm effects on mortality (Lee), and another study found that Asian Dust only strongly affects the mortality of people with advanced cardiovascular and respiratory disease (Kwon). Meanwhile two studies supported by the Ministry of Environment from the Republic of Korea found that Asian Dust does not have adverse health effects. (Lee Jong-Tae, Hong)

## Asian Dust in South Korea ATOC 3500

→ Other adverse effects: cattle suffocation, damage to young plants, visibility reduction, damage to sensitive scientific and industrial equipment, and corrosion of buildings (Park).

### **KOREAN GOVERNMENT RESPONSE**

→ The Korea Meteorological Administration has a warning system in place for Asian Dust and other fine dust particles. An Asian Dust warning is issued when the concentration of PM<sub>10</sub> is more than 800 $\mu\text{g}/\text{m}^3$  and an advisory is issued when it is more than 400 $\mu\text{g}/\text{m}^3$ . Before 2016 it was 1000  $\mu\text{g}/\text{m}^3$  and 600  $\mu\text{g}/\text{m}^3$  (Korea Meteorological Administration).

### **DEPOSITION**



→ Dry Deposition: removal of gases and particles by a direct transfer process, in which the species are deposited or absorbed irreversibly on soil, water, or plant surfaces and without the involvement of precipitation (pg. 26 our textbook!)

→ Wet Deposition: term for all deposition processes in which the gases or particles are carried to the surface dissolved or entrapped in water (pg. 26 our textbook).

→ Asian Dust usually is deposited more frequently by dry deposition than wet

deposition, but in Korea, Asian Dust is deposited by both evenly.

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