Atmospheric Brown Clouds

Middle School Level: 7-9
What are ABCs?

- Come from industry and burning biomass.
- Made of ash and aerosols.
- Particles will "hang" in the atmosphere.
ABCs and Climate

- 2 parts to ABCs:
  - Black Carbon
  - Aerosols

- We need to study both parts!
Black Carbon

- Black carbon warms the climate
- Possibly stronger than $\text{CO}_2$!
Aerosols

- Sulfur, salt, dust, other tiny particles
- Cools the climate

Courtesy of the Center for Global and Regional Environmental Research
So, how do ABCs affect climate?

- Black carbon warms climate
- Aerosols cool climate

Do ABCs Warm or Cool the Climate?
How ABCs affect climate

- Reduce the amount of snow and rainfall every year
ABCs affect health

Diseases for which we have chronic obstructive lung disease.

- Pneumonia
- Asthma
- Low birth weight
- Early infant death
- Lung cancer
- Blindness
- Tuberculosis
- Heart disease?
ABCs travel around the world
ABCs should be controlled

- We need to be careful how much soot, ash, and carbon we release when burning biomass.
For further information...

- Asian vehicle emission reduction effort
- Scripps press release
- Scientific article: Published in Nature
- ABCs and human health