

Lecture Questions: Air Quality

These questions are largely taken from chapters 1-2 of the EPA air quality report.

1. (a) What is the role of the NAAQS in regulating the quality of the air we breathe? Be complete; include a description of the difference between the primary and secondary NAAQS.
(b) What is the 'averaging time' in the NAAQS? Why are different averaging times used?
2. What two criteria pollutants are currently considered the biggest health risks in the US?
3. (a) What has been the national trend in ambient concentration of carbon monoxide, CO?
(b) What is (are) the top anthropogenic source(s) of CO emissions?
(c) What major step in 1990 (in the Clean Air Act Amendments) was taken to reduce CO emissions from motor vehicles?
4. What is the major source of lead (Pb) in the atmosphere?
5. (a) How are nitrogen oxides ($\text{NO}_x = \text{NO} + \text{NO}_2$) released into the air? Which is the major form—NO or NO_2 —that is emitted?
(b) List all the pollution problems that are related to NO_x emissions into the air. Be complete.
6. (a) Ground-level ozone is not emitted directly; what are its precursor pollutants?
(b) What have been the national trends in tropospheric ozone concentrations?
(c) What have been the trends in ozone concentrations the National Parks? Which park has the highest smog concentration?
(d) What are the major emission sources of VOC emissions?
7. (a) What is 'particulate matter' (PM)? Differentiate between fine and coarse PM.
(b) Differentiate between the sources, trends, and atmospheric behavior of fine and coarse PM.
8. What are the anthropogenic sources and national trends of atmospheric SO_2 concentrations?