

BSyE 452/552

Problem set 5

1. (BAE 452/552) Estimate the maximum daily dry loading of pyrene to a watershed having an area of 10^6 m^2 overlain by an air mass having a mean daily particulate concentration of $50 \text{ } \mu\text{g m}^{-3}$. The average pyrene content of the particulates is $1.0 \times 10^{-4} \text{ } \mu\text{g-pyrene } \mu\text{g}^{-1}$. Assume a deposition velocity of 0.1 cm sec^{-1} .
2. (BAE 452/552)
 - a. Estimate the rate (per square meter of area) of wet deposition of sulfur from airborne SO_2 to a watershed, assuming that SO_2 concentration is $20 \text{ } \mu\text{g m}^{-3}$ (as sulfur) and the watershed receives 1 m of precipitation per year, in 50 equal storms of 10 hr duration each, from clouds 2000 ft above the ground.
 - b. Estimate the concentration of SO_2 in rain water during one single storm.