

ATMO/CHEE 469b/569b

Homework 7. Spring 07

Due Date: April 9, 2007

Do the following problems from Hinds:

Q 13.3, 13.5, 13.7.

In addition, do the following:

Q 1. Calculate the backscatter ratio, $Q_{\text{backscattered}}/Q_{\text{scattered}}$, for two clouds, one composed of monodisperse $0.01 \mu\text{m}$ diameter droplets, and the second of $0.1 \mu\text{m}$ diameter droplets. The liquid water content of 18 g/m^3 is the same for both clouds (cf. Table 16.2). Assume that eq. 16.20 is valid for both clouds. Which cloud will reflect more incoming solar radiation?

Graduate students

Q 2. Using Excel or similar software, a) reproduce the curve in Figure 13.5, b) add the curve for ammonium sulfate, $(\text{NH}_4)_2\text{SO}_4$.