

**MATLAB EXERCISE 2.15** **Parallel-plate capacitor model of a thundercloud.** A typical thundercloud can be approximately represented, as far as its electrical properties are concerned, as a parallel-plate capacitor with horizontal plates of area  $S = 15 \text{ km}^2$  and vertical separation  $d = 1 \text{ km}$ . Neglecting the fringing effects, find the capacitance of this capacitor by the capacitance calculator from MATLAB Exercise 2.13.

**SOLUTION:**

The capacitance of the parallel-plate capacitor approximating a thundercloud, is computed to be  $C = 132.8 \text{ nF}$ .