Review for Mid-term Exam 2:

Review topics for mind-term exam 1 and the following topics:

1. Principles of remote sensing using emission in the IR and microwave regions.

Lecture 9, Eqs.[9.2-9.3], [9.7], [9.10-9.11], [9.17-9.18], [9.19], [9.20-9.22]

2. Measurements of path-integrated quantities: precipitable water vapor and cloud liquid water.

Lecture 9, Eqs.[9.23-9.25]

3. Remote sensing of SST. Split-window technique. Microwave vs. IR retrievals of SST.

Lecture 9, Eqs.[9.26], [9.38], [9.40]

4. Principles of sounding by emission. Concept of the weighting function.
Principles of sounding of the temperature profile and trace gases.

Lectures 10, Eqs.[10.2-10.3], [10.9-10.10],[10.11-10.13] , Lab 8

5. Passive remote sensing of precipitation: IR and microwave techniques.

Lectures 12, Eqs.[12.4-12.5]

6. Principles of retrievals of cloud properties from passive remote sensing.

Lecture 12, ***Lab 10***

7. Principles of active remote sensing. Radar basics. Backscattering cross section. Radar equation.

Lecture 13, Eqs.[13.1],[13.2],[13.13], [13.14-13.17],[13.21-13.23], [13.26

8. Radar sensing of precipitation.

Lecture 13, Eqs.[13.27-13.31], [13.34-13.38], Lab 11

9. Lidar basics. Lidar remote sensing of gases, aerosols, and clouds.

Lectures 14, Eqs.[14.1], 14.4], [14.9], [14.13], [14.14], Lab 12