METEO 437
ATMOSPHERIC PHYSICS II: Physics and Chemistry of Clouds

- Course Outline and Suggested Readings -

I. INTRODUCTION
   A. Atmospheric Structure and Phenomena [Jacob Ch 2; Hobbs(II) 3.3; Turco 2.3, 3.2, 3.3, 6.1]
   B. General Characteristics of Clouds [RY Ch 5; PK Ch 1, 2; WH Ch 5]
   C. Applications of Thermodynamics [RY Ch 1, 2, 3; BA Ch 6; PK Ch 6]

II. ATMOSPHERIC COMPOSITION
   A. Atmospheric Compounds [Jacob Ch 1; Turco 3.3]
   B. Principles of Interaction [Jacob Ch 9; Turco 3.3; Hobbs(I) Ch. 3]
   C. Budgets and Behavior of Trace Chemicals [Jacob Ch 3, 8, 10, 11, 12; Turco Ch. 6, 13]

III. AQUEOUS SYSTEMS
   A. Phase Relationships [RY Ch 2; PK Ch 4]
   B. Multicomponent Systems [Hobbs(II) 7.3, 7.4]

IV. CLOUD AND PRECIPITATION FORMATION
   A. Supersaturation Development [RY Ch 6, 7; PK 13.2.2]
   B. Phase Nucleation [RY Ch 6, 9; WH 4.2; PK Ch 7, 9]
   C. Growth of Cloud Particles [RY Ch 7, 8, 9, 10; WH 4.4, 4.5; PK Ch 13]
   D. Cloud-scale Phenomena [RY Ch 12, 13]

V. CLOUD AND PRECIPITATION CHEMISTRY
   A. In-cloud Processes [Hobbs(II) 7.4; PK Ch 17]
   B. Acidic Rain [Jacob Ch 13; Turco Ch 9]
   C. Biogeochemical Cycles [Jacob Ch 6; Hobbs(II) Ch 8; Turco Ch 10]

(RY = Rogers and Yau; PK = Pruppacher and Klett; BA = Bohren and Albrecht; WH = Wallace and Hobbs)