

Topics in Atmospheric Sciences: Cloud Microphysics

Spring 2018

Lecturer

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Assistant (grading)

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Textbooks and References

1. An Introduction to Clouds, U. Lohmann, F. Lüönd, and F. Mahrt, 2016, Cambridge University Press, 391 pp.
2. Cloud Dynamics, 2nd edition, R. A. Houze, Jr., 2014, Academic Press, 432 pp.
3. Physics and Chemistry of Clouds, D. Lamb and J. Verlinde, 2011, Cambridge University Press, 584 pp.
4. A Short Course in Cloud Physics, 3rd edition, R. R. Rogers and M. K. Yau, 1989, Pergamon Press, 293 pp.
5. Microphysics of Clouds and Precipitation, H. R. Pruppacher and J. D. Klett, 1997, Kluwer Academic Publishers, 954 pp.
6. Papers presented at Ninth Symposium on Aerosol-Cloud-Climate Interactions, 2017, American Meteorological Society.
7. Classical and recent journal articles on cloud microphysics

Grading

homework: 35%

presentation: 35%

term paper: 30%

Lecture/Presentation Contents

Cloud types and properties

Atmospheric aerosols

Cloud droplet formation and Köhler theory

Microphysics of warm clouds

Microphysics of cold clouds

Precipitation physics

Aerosol-cloud interactions