

Gibbs states and Brownian models for haze and cloud droplets

Computing droplet size distributions (DSDs) is a major challenge in cloud physics. The onset of rain and radiative properties of clouds depend on it. In warm clouds, droplets are formed from humidified aerosols (haze) that experience a critical supersaturation as encoded in Köhler's theory. We extend such theory to obtain analytic distributions for families of cloud droplets embedded in turbulent environments.