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Radiative transfer in dust-dominated atmospheres

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We will present radiative transfer simulations for atmospheres of giant gas planets which are determined by the presents of dust in their atmospheres. Our simulations combine an extensive gas-phase radiative transfer calculation with a non-equilibrium model for dust cloud formation that included nucleation, growth/evaporation and drift. Our results show for example how the dust formation process depletes the gas phase in a non-deterministic way, how grain sizes and material composition change with atmospheric height . A large grid of model atmospheres has been calculated which allows us to provide spectral fits as well as systematic studies of e.g. cloud heights or dust content in an atmospheres.