Study may produce better weather forecasts

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Accurately forecasting rain reportedly will become easier thanks to a study of clouds conducted by the University of Leeds and University College London.

Existing forecasting models assume rain droplets fall through still air within a cloud. However, there is turbulence within clouds that can speed up droplet settling and increase the likelihood of rain.

Researchers say they've developed a new mathematical model and demonstrated, for the first time, how pockets of whirling air encourage collisions between very small droplets and slightly larger droplets within a cloud.

The collisions lead to the rapid growth of larger drops that are necessary for rain to form, fall from the clouds and, when conditions are right, reach the ground.

The model's results were checked against earlier measurements from aircraft flying through different types of clouds. The cloud measurements showed the model was more accurate than existing ones, which often underestimate rainfall.

Further work is planed that will help improve weather forecasting, including investigating the way in which ice crystals, water droplets and particles interact.

Details of the new forecasting model are published in the current issue of the Proceedings of the Royal Society.