

HyARC Seminar (HyARC Seminar#165)

Date: February 20 (Thursday) 10:30-

Room: The meeting space (#617) of Research Institutes Building.

Speaker: Dr. Tempei Hashino

Title: Flow fields around inclined crystals and the hydrodynamic torque

Abstract:

Understanding the flow fields and orientation of ice particles are fundamental for understanding cloud microphysical processes and optical phenomena and improving remote sensing of ice clouds. The purpose of this study is to investigate the flow fields around falling ice columns and hexagonal plates with their largest dimension inclined with respect to the horizontal direction. When the crystals are inclined from the stable angle, the hydrodynamic torque are generated on them and acts to restore the stable angle. The torque in the intermediate Reynolds number (2 to 120) has never been quantitatively known before. We tackle these hydrodynamic problems by numerically solving the Navier-Stokes equations under the assumption of air incompressibility. In this talk, a review on investigation of flow fields and riming will be given first, and then we discuss the obtained flow fields and torques and the implication to the riming and orientation processes.

(given in English)