



Observations and Simulations on Aircraft Icing Conditions for a Case in South China

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Aircraft icing observation test was conducted on 8-9 March 2016 in Anqing area of China. The icing conditions are studied using observations of satellite, radar, soundings, aircraft, NCEP reanalysis data and simulations of the CPEFS model. The multi-scale structure about icing cloud is discussed. Results of several icing indexes are compared. Results show: The large-scale weather system of the icing case is the cold wave on the surface. Strong cold air induced front inversion. On the top of stratiform cloud after the convective rainfall, icing was detected by the aircraft. The height of icing is under the layer of front inversion. The cloud top height is about 3.4km and the cloud top temperature is $-10 [U+2103]$. There is no precipitation and radar reflectivity during this time. The cloud is composed of large number of supercooled water and no ice particles. The average supercooled water during the icing time is $0.36g/m^3$. When the cloud top lifted again and ice particles increased to snow, the aircraft icing was not observed because of the poor supercooled water. The CIP initial icing potential results described this aircraft icing well. The cloud structure simulated by CPEFS model is basically consistent with observations.